

## Biographical Sketch

### Robert W. Nairn

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### (A) PROFESSIONAL PREPARATION

Junita College	Huntingdon, PA	Environmental Science	B.S., 1989
The Ohio State University	Columbus, OH	Environmental Science	Ph.D., 1996

### (B) APPOINTMENTS

2012-present Professor of Civil Engineering and Environmental Science, Viersen Family Foundation Presidential Professor (2014), David L. Boren Professor (2017), University of Oklahoma, Norman, OK

2011-present Adjunct Associate and Full (2012) Professor, Department of Biology

2007-present Associate Director, Water Technologies for Emerging Regions (WaTER) Center

2004-present Director, Center for Restoration of Ecosystems and Watersheds (CREW)

2004-present Associate, Aquatic Research Facility and Ecology and Evolutionary Biology Programs

2002-2012 Associate Professor of Civil Engineering and Environmental Science, University of Oklahoma

1999-present Summer Teaching Faculty, University of Oklahoma Biological Station

1997-2002 Assistant Professor of Civil Engineering and Environmental Science, University of Oklahoma

1995-1996 Presidential Fellow, The Ohio State University, Columbus, OH

1992-1995 Graduate Research and Teaching Associate, The Ohio State University

1989-1992 Research Biologist, U.S. Department of Interior, Bureau of Mines, Pittsburgh, PA

### (C) PRODUCTS

#### (i) Most Closely Related to the Proposed Project

1. Cremeans, M.M., J.F. Devlin, T.C. Osorno and **R.W. Nairn**. 2019. Assessment of Bed Hydraulics and Metal Loadings in a Passive Vertical Flow Bioreactor in Commerce, Oklahoma. *Groundwater Monitoring and Remediation*. DOI: 10.1111/gwmmr.12337
2. Brumley, J.D. and **R.W. Nairn**. 2018. Litter Decomposition Rates in Six Mine Water Wetlands and Ponds in Oklahoma. *Wetlands*. 38(5): 965-974.
3. LaBar, J.A. and **R.W. Nairn**. 2018. Characterization of trace metal removal products in vertical flow bioreactor substrates at the Mayer Ranch Passive Treatment System in the Tar Creek Superfund Site. *Chemosphere*. 199(2018): 107-113
4. Garrido, A.E., W.H. Strosnider, R. Taylor Wilson, J. Condori and **R.W. Nairn**. 2017. Metal-Contaminated Potato Crops and Potential Human Health Risk in Bolivian Mining Highlands. *Environmental Geochemistry and Health*. 39(3): 681-700.
5. Strosnider, W.H., S.E. Schultz, K.A. Johnson-Strosnider and **R.W. Nairn**. 2017. Effects on the Underlying Water Column by Extensive Floating Treatment Wetlands. *Journal of Environmental Quality*. 46(1):201-209.

#### (ii) Other Significant Products

1. Skousen, J., C.E. Zipper, A. Rose, P. Ziemkiewicz, **R. Nairn** and L.M. McDonald. 2017. Review of Passive Systems for Acid Mine Drainage Treatment. *Mine Water and the Environment*. 36:133-153.

2. LaBar, J.A. and **R.W. Nairn**. 2016. Evaluating the impacts of Na-SO<sub>4</sub> dominated ionic strength on trace metal removal products in vertical flow bioreactors. *Applied Geochemistry*. 73(2016):24-34.
3. Penn, C., J. Bowen, J. McGrath, **R. Nairn**, G. Fox, G. Brown, S. Wilson and C. Gill. 2016. Evaluation of a universal flow-through model for predicting and designing phosphorus removal structures. *Chemosphere*. 15: 345-355.
4. Peer, R.A., J.A. LaBar, B.K. Winfrey, **R.W. Nairn**, F.S. Llanos Lopez and W.H. Strosnider. 2015. Removal of Less Commonly Addressed Metals via Passive Co-Treatment. *Journal of Environmental Quality*. 44(2): 704-710.
5. Strosnider, W.H.J., B.K. Winfrey, R.A.M. Peer and **R.W. Nairn**. 2013. Passive Co-Treatment of Acid Mine Drainage and Sewage: Anaerobic Incubation Reveals a Regeneration Technique and Further Treatment Possibilities. *Ecological Engineering*. 61: 268-273.

#### **(D) SYNERGISTIC ACTIVITIES**

- *Research leadership*: Director, Center for Restoration of Ecosystems and Watersheds, emphasizing watershed biogeochemistry and ecological engineering, passive treatment of metals-contaminated mine waters, urban storm water low impact development, municipal wastewater indirect potable reuse, watershed management and restoration, highlighting remediation and restoration of the Tar Creek Superfund Site, Tri-State Lead-Zinc Mining District and Grand Lake o' the Cherokees watershed; Associate Director, Water Technologies for Emerging Regions Center, research and service learning to bring water and sanitation to developing world; chair of biennial OU International WaTER Conference; assist with other activities, including educational programs, Water Symposium and research and development work, especially in South America and in rural North America (2004-present)
- *Technology innovation*: Design, construction and holistic evaluation of ecologically engineered, full-scale metals-contaminated mine drainage passive treatment systems, including first two mine water treatment systems of any kind in the historic derelict Tri-State Lead-Zinc Mining District, in which impacts to surface and ground waters were deemed to be due to “irreversible man-made damages”; multidisciplinary research includes geochemical, hydrologic, microbiological and ecological assessments of system performance with emphasis on recovery of receiving water bodies; also similar technology development on six abandoned coal mine sites in the Arkoma Basin and at mixed precious/base mining sites in the southern Bolivian Altiplano (1997-present)
- *International collaboration*: Established international partnership with La Universidad Autónoma Tomás Frías (UATF) and El Centro de Investigacion Minero Ambiental (CIMA) in Potosi, Bolivia; two formal agreements to bring sustainable treatment technologies to water pollution problems in one of the poorest nations in the Western Hemisphere (2011-present)
- *Promotion of underrepresented groups in STEM*: Of 137 research mentees (including six post-doctoral researchers, staff research scientists and visiting scholars, 53 graduate students and 78 undergraduate researchers, 58% are/were female and 30% are/were members of underrepresented groups in STEM fields; of 10 PhD students, four are/were female and four are/were members of underrepresented groups in STEM fields.
- *Professional and community service*: President, American Society of Mining and Reclamation, 2012-15: President-Elect, President and Past-President for 400+ member professional society focused on reclamation of disturbed lands and waters; local host of 2014 National Conference; Community service: Norman Storm Water Master Plan Task Force (2011-present); Cr(VI) in Drinking Water Technical Advisory Committee (2011-present); Kessler Atmospheric and Ecological Field Station Steering Committee (2012-present); Engineers-in-Action Executive Board (2008-present) and President (2017); Watershed Restoration Inc., President (2004-present).