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Assessing Water Quality Impacts of Stormwater Runoff

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Abstract

Current "water quality" monitoring of non-point source runoff typically involves periodically measuring a laundry list of chemicals in the runoff waters. This approach, while satisfying regulatory requirements, provides little to no useful information on the impact of the chemicals in the runoff on the real water quality - designated beneficial uses of the receiving waters for the runoff. There is need to focus water quality monitoring on investigating the receiving waters in order to assess whether the chemicals in the runoff are adversely affecting beneficial uses. This paper presents an evaluation monitoring approach for monitoring receiving waters that determines whether the runoff is a significant cause of water quality - use impairments. For each type of use impairment, such as aquatic life toxicity, excessive bioaccumulation of hazardous chemicals, excessive fertilization, etc., highly focused site-specific studies are conducted to determine the use impairment that is likely occurring due to a stormwater runoff event(s) and the specific cause of this impairment.

Introduction

There is growing recognition that domestic and industrial wastewater and stormwater runoff "water quality" monitoring involving the measurement of a suite of chemical "pollutant" parameters in discharge/runoff waters is largely a waste of money. For stormwater runoff, such programs generate more data of the type that have been available since the 1960's on the chemical characteristics of urban area, highway and street runoff. It has been known since that time that runoff from these areas contains a variety of regulated chemical constituents and

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For Further Information on Problems with Current Stormwater Monitoring Approach and BMP Development as Well as the Development of Environmental Monitoring Programs Consult the Following:

Lee, G. F. and Jones, R. A., "Suggested Approach for Assessing Water Quality Impacts of Urban Stormwater Drainage," In: *Symposium Proceedings on Urban Hydrology*, American Water Resources Association Symposium, November 1990, AWRA Technical Publication Series TPS-91-4, AWRA, Bethesda, MD, 139-151 (1991).

Lee, G. F., and Jones-Lee, A., "Stormwater Runoff Management: Are Real Water Quality Problems Being Addressed by Current Structural Best Management Practices? Part 1," *Public Works*, 125:53-57,70-72 (1994). Part Two, 126:54-56 (1995).

Lee, G. F., and Jones-Lee, A., "Deficiencies in Stormwater Quality Monitoring," IN: Proc. of an Engineering Foundation Conference, American Society of Civil Engineers, New York, NY pp. 651-662 (1994).

Jones-Lee, A., and Lee, G. F., "Achieving Adequate BMP's for Stormwater Quality Management," *Proceedings of the 1994 National Conference on Environmental Engineering, "Critical Issues in Water and Wastewater Treatment,"* American Society of Civil Engineers, New York, NY, pp. 524-531, July (1994).

Lee, G. F. and Jones-Lee, A., "Stormwater Runoff Management: The Need for a Different Approach," *Water/Engineering & Management*, 142:36-39 (1995). "Implementing Urban Stormwater Runoff Quality Management Regulations," *Water/Engineering & Management*, 142:38-41 (1995). "Issues in Managing Urban Stormwater Runoff Quality," *Water/Engineering & Management*, 142:51-53 (1995).

Lee, G.F. and Jones-Lee, A., "Evaluation Monitoring of Stormwater Runoff Water Quality Impacts: Initial Screening of Receiving Waters," Report of G. Fred Lee & Associates, El Macero, CA, 24pp, June (1995).

Lee, G. F. and Jones-Lee, A., "Approach for Developing BMP's to Control Pollution from Highway, Street and Urban Stormwater Runoff," Report of G. Fred Lee & Associates, El Macero, CA, 23pp, June (1995).