PUGET SOUND CLEAN CARS STORMWATER PARTNERSHIP

ISSUE
04
DECEMBER 2017 NEWSLETTER
WORKING GROUP MEETING

The Puget Sound Clean Cars Stormwater Partnership is a collaborative effort to reduce stormwater impacts associated with automotive vehicle fluid leaks in the State of Washington. In this fourth edition of our quarterly Newsletter, we present a brief overview and update of the project organization, expectations, and activities to date.

Third Working Group Meeting

On September 6, 2017, the Puget Sound Clean Cars Stormwater Partnership Working Group held its third web meeting. Tom Lewandowski from Gradient kicked things off summarizing some project updates, including a review of the working group organization, and a brief summary of the second web meeting held June 20, 2017. Dr. Lewandowski then discussed the draft report outline, previously distributed to working group members for review. He requested members take an active participation role, reviewing the outline and editing sections related to their respective areas of expertise, as well as reviewing references included in the bibliography. Each section of the draft report outline was presented, along with suggested working group member contributions based on Gradient's understanding of each member's technical expertise. Dr. Lewandowski stressed members should review and provide feedback regarding their availability and comfort level contributing to their respective report sections.

Following this review of the draft report outline, the floor was opened to working group members for questions. Dan Selke (Mercedes-Benz-USA, LLC) recommended establishing a sub-group to investigate chemical components present in various vehicle fluids as listed on product-specific safety data sheets, and then identifying research studies looking into those specific chemicals. Ken Zarker (Ecology) acknowledged there may be overlap across various topics in the report, and requested the working group review the outline and assess their availability to contribute.

Working group members were then tasked to review the technical data gathering assignments listed within the draft report outline, and to send any additional references or expert contacts for key sources of information related to the report. Gradient was tasked to develop draft text for each report section, and provide a proposed timeline for working group review and comments on the draft report.

Detailed meeting minutes are now available on Ecology's website:

https://fixcarleaks.org/wp-content/uploads/2017/09/WG-Meeting-Minutes-090617.pdf

Presentation slides and other materials including a recording of the entire meeting will soon be made available by Ecology here:

https://fixcarleaks.org/clean-cars-partnership/

Puget Sound Partnership Seeking Proposals for 2018-2022 Action Agenda

The Puget Sound Partnership is now accepting near term actions (NTA) proposals for inclusion on the 2018-2022 Action Agenda. While the Action Agenda does not represent a grant program or funding competition, the US Environmental Protection Agency (EPA) dedicates its Puget Sound Geographic Fund (commonly referred to as NEP funds) to implementing the Action Agenda. Therefore, approved projects on the Action Agenda are eligible for the NEP funding stream. Pre-registration for all NTAs are due on December 22, 2017. NTA's will then be reviewed between April and July 2018. The final 2018-2022 Action Agenda is anticipated to be published December 2018.

More information is available here:

http://www.psp.wa.gov/2018_AA_announcements.php

Upcoming Events

The Fourth quarterly web meeting is scheduled for December 13, 2017, 4p.m. – 5p.m. eastern standard time (1p.m. – 2p.m. pacific standard time). Web meetings are 30 minutes to 1 hour in length, and are hosted by Ecology's consultant, Gradient, with assistance from SAE International. The Working Group will discuss project related tasks, information needs and progress updates. Findings and information collected during these web-meetings will be summarized in a final report delivered to Ecology in June 2018 and presented at a future SAE conference.

Collaboration between:

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Chemical Review Sub-group Activities Update

Following a suggestion proposed by Dan Selke at the 3rd Working Group web meeting, a sub-group was established to research chemicals present in commercially available vehicle fluids. Working Group members Dan Selke, Laurie Holmes (MEMA), Gary Pollak (SAE) and Keith Wilson (SAE) joined Gradient over the course of several meetings between September and December 2017 to lead this effort.

A two-pronged approach was developed to investigate this question. First, trade group representatives were asked to collect and de-identify a set of safety data sheets (SDSs) for vehicle fluids sold commercially within the past 3 to 5 years (product name and supplier information were removed). Gradient then tabulated chemicals listed as present in the various products, and identified those most commonly used across vehicle fluids as well as those chemicals used at the highest percentage in their respective formulations.

Second, Gradient reviewed several recently published research articles investigating chemicals present in samples collected from urban stormwater runoff, Puget Sound and associated waterways. The publications included those from Working Group member Dr. Ed Kolodziej's research group, as well as other relevant articles. Stormwater related chemicals were then tabulated and compared to the list generated based on SDS information. Results from this analysis will be discussed in the Fourth Working Group Meeting.

Two chemicals appeared in both lists (detected both in storm water runoff samples and present on automotive fluid SDSs):

- naphthalene (CAS 91-20-3) – listed on fuel fluid SDS and detected in Puget Sound sediment samples collected from Port Madison Bay[1]
- polyethylene-polypropylene glycol (CAS 9003-11-6) – listed on radiator conditioner/cleaner SDS and detected in samples from an elevated urban highway in Seattle[2]

It is not clear whether other non-automotive sources of these chemicals could be associated with their presence in urban storm water (e.g., naphthalene is a basic chemical building block). While only two chemicals appeared on both lists, it is important to note that there may be some discrepancies between how chemicals are reported and also the limited scope of chemical analysis conducted in the academic studies. Other findings from the analysis will be shared during the quarterly webinar.

Next steps for this sub-group include collecting and reviewing additional SDSs, investigating additional research articles, investigating potential human health and ecotoxicity of chemicals appearing on both lists, as well as investigating possible safer chemical alternatives.

Working Group Member Spotlight: Dr. Ed Kolodziej

Working Group member Dr. Ed Kolodziej began his academic studies with a B.S. in Chemical Engineering from the Johns Hopkins University (1998), after which he focused on environmental issues and went to the University of California at Berkeley where he received his M.S. (1999) and Ph.D (2004) in Environmental Engineering. He came to the University of Washington (UW) in 2014 as part of the UW Freshwater Science Initiative. He holds a joint appointment with Interdisciplinary Arts and Sciences at UW Tacoma and the Department of Civil and Environmental Engineering at UW Seattle and is affiliated with local and regional water quality efforts through The Center for Urban Waters (http://www.urbanwaters.org/). Ed's interests include water quality and contaminant fate in natural and engineered systems, especially focusing on interdisciplinary approaches to complex environmental issues affecting water and ecosystem health. His research group works to characterize and control non-point source pollution, understand attenuation mechanisms in natural systems, and optimize engineered systems for trace contaminant removal.

Ed's research group focuses on understanding the occurrence, fate, and transport of novel and emerging contaminants in urban and agricultural environments, especially those contaminants that are adversely affecting ecosystem health. For example, in the Seattle metro region, adult Coho salmon returning to urban creeks to spawn in the fall actually die from polluted waters following heavy rains. This phenomena, called pre-spawn mortality, happens when storms mobilize pollutants in urban regions and wash them into surface waters, resulting in high concentrations of toxicants in urban stormwaters and receiving waters. This example tells us we need to better understand the chemical composition of urban stormwater and improve our stormwater treatment capabilities. The Kolodziej research group uses high resolution mass spectrometry to analyze stormwater, tissue samples from affected fish, and related vehicle and roadway sources to identify the toxicants or their chemical characteristics and understand where they are coming from.

[1] McCarthy, SG; Incardona, JP; Scholz, NL. 2008. "Coastal storms, toxic runoff, and the sustainable conservation of fish and fisheries." American Fisheries Society Symposium 64. In Mitigating Impacts of Natural Hazards on Fishery Ecosystems. (Ed.: McLaughlin, KD), American Fisheries Society, Bethesda, MD. p7-27.

[2] Du et al., 2017 "Development of suspect and non-target screening methods for detection of organic contaminants in highway runoff and fish tissue with high-resolution time-of-flight mass spectrometry" Environ. Sci.: Processes Impacts, 19:1185-1196

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