

Puget Sound Clean Cars Stormwater Partnership Working Group Meeting

Ken Zarker, Washington State Department of Ecology
Tom Lewandowski, Gradient
Keith Wilson, SAE International

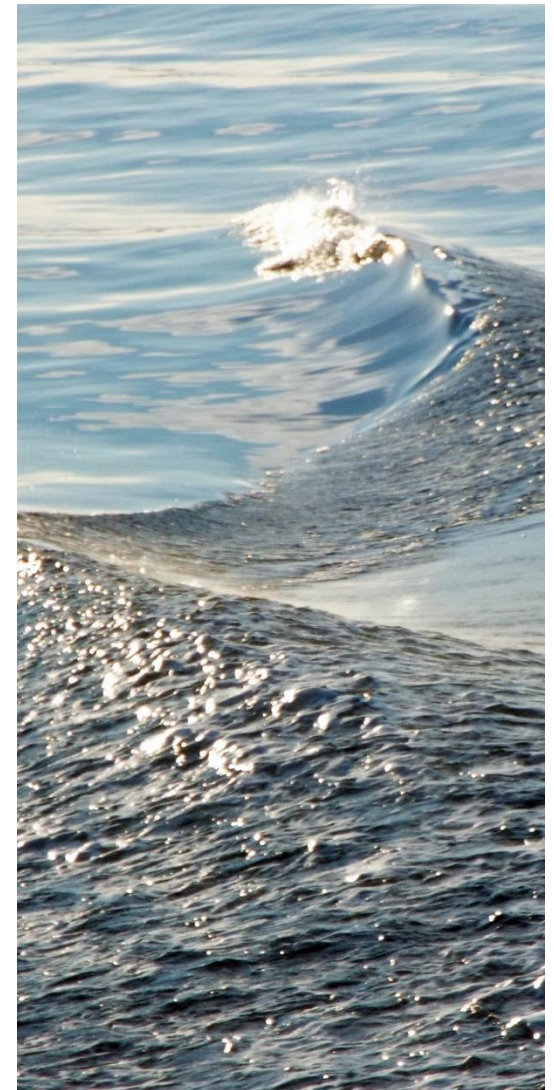
Wednesday December 13, 2017

Working Group Organization Chart

Area of Expertise	Contact Name	Affiliation
Academic/Research	Ed Kolodziej	University of Washington - Tacoma
	Michael Smith	Clover Park Technical College
	Sagi Hemi	Advanced Test Concepts
	Jen McIntyre	Washington State University
Automotive design, manufacturing, maintenance and repair	Sheila Andrews/Tom Tucker	Auto Care Association
	Marcel Halberstadt	Independent consultant; SAE
	Laurie Holmes	Motor & Equipment Manufacturers Association (MEMA)
	Dan Selke	Mercedes-Benz USA, LLC
Government	Ken Zarker	Dept. of Ecology
	Bill Malatinsky	Seattle Public Utilities
	Elsa Pond	WS DOT
NGO	Andy Gregory	Puget Soundkeeper
	Tere Carral	Bridge Latino
Operations Team	Tom Lewandowski	Gradient
	Keith Wilson	SAE

Web Meeting Agenda

- Chemical Review Sub-group Activities
- Draft Report Outline
- Puget Sound Partnership Action Agenda
- Progress Update – web site, project materials



Chemical Review Sub-group Activities (1/3)

- Two-pronged approach to identify chemicals of concern related to vehicle leaks
 1. Review safety data sheets (SDSs) for vehicle fluids commercially available within the past 3-5 yrs
 - D. Selke and L. Homes requested SDS from auto companies and suppliers
 - Company and product names removed and shared with Gradient as a set
 - Gradient tabulated chemicals listed on SDSs, identified chemicals most commonly used across vehicle fluids, and chemicals used at highest percentage (%w/v)
 2. Review research articles identifying chemicals of concern from collected stormwater runoff samples
 - Gradient reviewed recent publications from the Kolodziej group, and other relevant articles (citation searches)
 - Tabulated chemicals identified in stormwater runoff samples

Chemical Review Sub-group Activities (2/3)

- Two chemicals identified in both searches:
 1. naphthalene (CAS 91-20-3) – listed on fuel fluid SDS and detected in Puget Sound sediment samples collected from Port Madison Bay¹
 2. poloxalene (polyethylene-polypropylene glycol, CAS 9003-11-6) – listed on radiator conditioner/cleaner SDS and detected in samples from an elevated urban highway in Seattle²
- Challenges to comparing the two lists:
 - discrepancies between how chemicals are reported (e.g., mixtures of related components or as specific chemicals)
 - analysis methods used (e.g., methanol , reported in SDS, may be too polar to be detected by standard gas chromatography used in research studies).
- Glycol compounds make up a significant % (>30%) of many vehicle fluid SDSs evaluated

1. McCarthy et al., 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

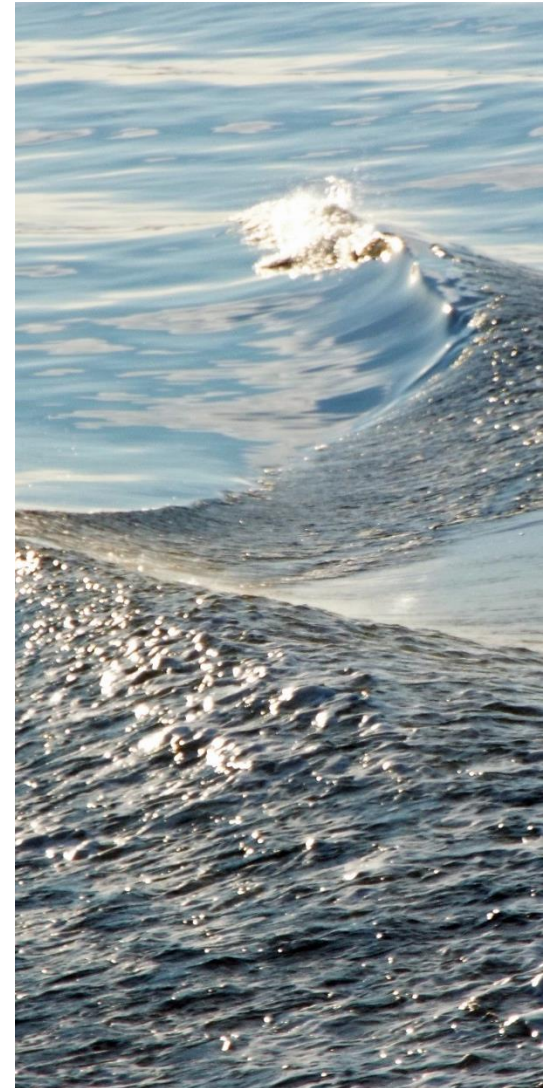
Chemical Review Sub-group Activities (3/3): Chemicals Appearing Most Often Across SDSs

Chemical Name	CAS	Product SDS's that Include This Chemical
Severely hydrotreated heavy paraffinic distillate	CAS 64742-54-7	<ol style="list-style-type: none"> 1. Transmission Fluid 2. Lucas Automatic Transmission Fluid-Semi-Synthetic / Lucas Sure-shift 3. Engine Oil 1 0W-20 4. 2017-08-09 Engine oil 1 5W-30 5. ATF +4 (automatic transmission fluid) 6. Power Steering Fluid +4 7. Engine Oil Fluid
Petroleum naphtha,	CAS 64742-47-8	<ol style="list-style-type: none"> 1. Automatic Transmission Fluid 2. Gas treatment (fuel injector cleaner 3. Power Steering Fluid Sealer & Conditioner 4. Fuel Injector Cleaner
Methanol	CAS 67-56-1	<ol style="list-style-type: none"> 1. Rain Repellant Windshield Washer Fluid 2. Windshield Wiper Fluid 3. Windshield Washer Concentration
Paraffinic distillate, light, hydrotreated (severe)	CAS 64742-55-8	<ol style="list-style-type: none"> 1. Transmission Fluid 2. ATF +4 (automatic transmission fluid) 3. Power Steering Fluid +4
Distillates (petroleum), hydrotreated heavy naphthenic	CAS 64742-52-5	<ol style="list-style-type: none"> 1. Automatic Transmission Fluid 2. Engine Oil Stop Leak 3. Power Steering Fluid Sealer & Conditioner
Triethylene glycol monobutyl ether	CAS 143-22-6	<ol style="list-style-type: none"> 1. DOT 4 Brake Fluid 2. Brake Fluid DOT 3 3. Brake Fluid Truck / Car
Diethylene glycol monobutyl ether	CAS 112-34-5	<ol style="list-style-type: none"> 1. Brake Fluid DOT 4 2. Power Steering Fluid Sealer & Conditioner 3. Brake Fluid DOT 3
Toluene	CAS 108-88-3	<ol style="list-style-type: none"> 1. Automatic Transmission Fluid 2. Power Steering Fluid Sealer & Conditioner 3. Fuel Fluid
Sodium hydroxide	CAS 1310-73-2	<ol style="list-style-type: none"> 1. DOT 4 Brake Fluid 2. Radiator Flush (radiator conditioner and cleaner) 3. Brake Fluid DOT 3

Chemical Review Sub-group: Next Steps

1. Continued gathering of additional SDSs
2. Investigating additional research articles
3. Evaluate potential human health and ecotoxicity of chemical appearing on both lists
4. Investigate possible safer chemical alternatives

Questions or Comments?



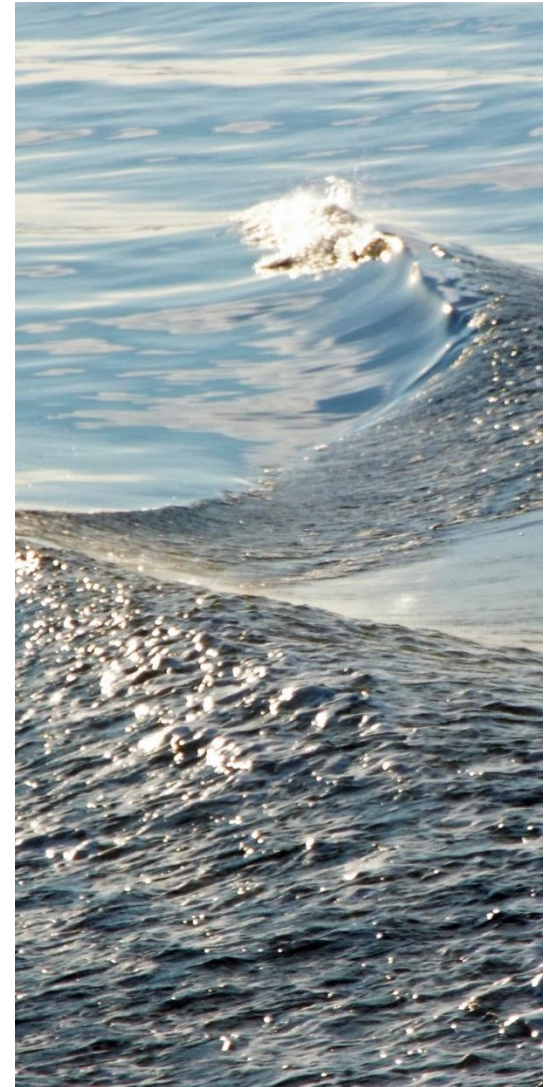
Draft Report: Updates

1. Draft report outline distributed to Working Group members for review November 2017
2. WG members encouraged to contribute to specific sections related to their areas of expertise
3. Gradient still gathering feedback/input for WG members on initial draft

Draft Report: Next Steps

1. WG members commit to reviewing their assigned sections, Gradient reviews WG feedback, sketches out text for each report section
2. Report sections distributed to WG members for review
3. WG members review their assigned sections
 - check text for accuracy and comprehensiveness
 - consider additional resources/references worth seeking out
 - evaluate report section and conclusions
4. Timeline:
 - 1st Quarter 2018 – draft report sections to WG (January - March), WG reviews returned to Gradient (January - April), 5th web meeting for report discussion (April), data gaps, etc.
 - 2nd Quarter 2018 – full draft revision completed submitted to Ecology for preliminary review (May), circulated to WG for review (mid-May), WG reviews returned (mid-June), 6th web meeting for report discussion, address any outstanding issues
 - 3rd Quarter 2018 – WG completed (July), finalize report with Ecology and make available (September)

Questions or Comments?



Puget Sound Partnership Opportunities

- Seeking near term action (NTA) proposals for inclusion in 2018-2022 Action Agenda
- Approved NTA's will be eligible for funding from the EPA Puget Sound Geographic Funds
- Pre-registration for all NTAs due December 22, 2017
- More information available here:
http://www.psp.wa.gov/2018_AA_announcements.php



Progress Update: Project Materials

- Project materials available for download from Ecology's website: <https://fixcarleaks.org/clean-cars-partnership/>
 - Working group meeting minutes, slides, and video
 - Newsletters #1, #2 and #3
 - Project organization chart
- Newsletter #4 issued December 2017
 - Will be posted to Ecology's website
- Poll for next web meeting (~March 2018) coming soon

