

Personal Communication Reference 1

-----Original Message-----

From: SHIRLEY, ROBERT M GS-14 USAF AMC AFCEC/CZPW <robert.shirley.2@us.af.mil>
Sent: Wednesday, June 20, 2018 10:28 AM
To: Zarker, Ken (ECY) <kzar461@ECY.WA.GOV>; Mach, Richard CIV OASN (EI&E), ODASN (Environment) <richard.mach@navy.mil>
Cc: Knapp, Anne (ECY) <akna461@ECY.WA.GOV>; Steward, Kara (ECY) <kste461@ECY.WA.GOV>; Morefield, Deborah A CIV OSD OUSD ATL (US) (deborah.a.morefield.civ@mail.mil) <deborah.a.morefield.civ@mail.mil>; Alex Long (alexandria.d.long.civ@mail.mil) <alexandria.d.long.civ@mail.mil>; Tesner, John E CIV USARMY HQDA ASA IEE (US) <john.e.tesner.civ@mail.mil>; HICKS, OTIS L JR GS-15 USAF HAF U S AIR FORCE HQ/IEE <otis.hicks.1@us.af.mil>; Kivimaki, Kevin W CIV DLA INSTALLATION SUPPORT (US) <kevin.kivimaki@dla.mil>; Terry Bowers (tbowersva@gmail.com) <tbowersva@gmail.com>
Subject: RE: WA AFFF legislation - DoD coordination

Richard,

Thank you for forwarding.

Our office has been tracking closely the legislation and implementation of the WA SB6413. Our understanding is the DoD no longer uses AFFF containing PFAS in training operations. We will be participating in the webinar on the 28th.

Mr. Zarker, please add my contact information to your distribution lists.

v/r

BobShirley

//SIGNED//

Robert M. Shirley, GS-14, DAF
DoD Regional Environmental Coordinator, Region 10 Comm (707) 424-8290 DSN 837-8290
robert.shirley.2@us.af.mil

-----Original Message-----

From: Zarker, Ken (ECY) [<mailto:kzar461@ECY.WA.GOV>]
Sent: Wednesday, June 20, 2018 9:58 AM
To: Mach, Richard CIV OASN (EI&E), ODASN (Environment) <richard.mach@navy.mil>
Cc: SHIRLEY, ROBERT M GS-14 USAF AMC AFCEC/CZPW <robert.shirley.2@us.af.mil>; Knapp, Anne (ECY) <akna461@ECY.WA.GOV>; Steward, Kara (ECY) <kste461@ECY.WA.GOV>; Morefield, Deborah A CIV OSD OUSD ATL (US) (deborah.a.morefield.civ@mail.mil) <deborah.a.morefield.civ@mail.mil>; Alex Long (alexandria.d.long.civ@mail.mil) <alexandria.d.long.civ@mail.mil>; Tesner, John E CIV USARMY HQDA ASA IEE (US) <john.e.tesner.civ@mail.mil>; HICKS, OTIS L JR GS-15 USAF HAF U S AIR FORCE HQ/IEE <otis.hicks.1@us.af.mil>; Kivimaki, Kevin W CIV DLA INSTALLATION SUPPORT (US) <kevin.kivimaki@dla.mil>; Terry Bowers (tbowersva@gmail.com) <tbowersva@gmail.com>
Subject: [Non-DoD Source] Re: WA AFFF legislation - DoD coordination

Thanks.

We have a webinar coming up on the 28th for those interested.

<https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Addressing-priority-toxic-chemicals/PFAS/Toxics-in-firefighting>

Ken

Sent from my iPhone

On Jun 20, 2018, at 9:26 AM, Mach, Richard CIV OASN (EI&E), ODASN (Environment) <richard.mach@navy.mil <<mailto:richard.mach@navy.mil>>> > wrote:

Ken,

Robert Shirley is the DoD Regional Environmental Coordinator for Region 10. I have copied him and a few other DoD leaders FSA.

VR,
Richard

-----Original Message-----

From: Zarker, Ken(ECY)[<mailto:kzar461@ECY.WA.GOV>]

Sent: Wednesday, June 06, 2018 4:40 PM

To: Mach, Richard CIV OASN (EI&E), ODASN (Environment) <richard.mach@navy.mil

<<mailto:richard.mach@navy.mil>>>

Cc: Knapp, Anne(ECY) <akna461@ECY.WA.GOV <<mailto:akna461@ECY.WA.GOV>>>>; Steward, Kara(ECY) <kste461@ECY.WA.GOV <<mailto:kste461@ECY.WA.GOV>>>>

Subject: [Non-DoD Source] WA AFFF legislation - DoD coordination

Hi Richard - we are pulling together our communications plan for the upcoming July 1, 2108, ban on the use AFFF containing PFAS in training operations in WA State.

Is there a DoD lead contact for WA State? We want to connect prior to the compliance deadline.

Anne Knapp is out lead for the legislative implementation and I've include her on the cc:

Thanks,

Ken

Personal Communication Reference 2

Attachments: [AIRPORT PFAS AFFF
2019_01_02.docx](#)

From: Wright, Patrick <WrightP@wsdot.wa.gov>
Sent: Friday, January 4, 2019 1:43 PM
To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>
Subject: RE: Review of AFFF text - reminder

Happy New Year to you too.

I did not forget until today. I made a few suggested tweaks to the text in track changes. Let me know if it is ok.

Patrick

Patrick Wright
WSDOT Aviation Division
(Work) 360-709-8019
(Cell) 360-742-4850

From: Steward, Kara (ECY)
Sent: Friday, January 4, 2019 1:24 PM
To: Steward, Kara (ECY)
Cc: Robbins, Don ; Hayes, Laura (ECY) ; jspiegel@WSPA.ORG; SPELL, JAMES T JR GS-14 USAF AFCEC AFCEC/CZPW ; DeMay, James (ECY) ; Kendra.Liebman@NAVY.MIL; Wright, Patrick
Subject: Review of AFFF text - reminder

Happy new year to everyone!

Last month I shared subsections from the PFAS Chemical Action Plan document – asking for a review from several topic experts, focused on the estimates of AFFF stored in Washington state. I emailed everyone individually – but am sending out this reminder to the group. In case anyone lost track of my request over the busy holidays, this is a reminder.

We plan to post the ‘updated’ Chemical Action Plan chapters in February for external review and discuss the updates at the March PFAS CAP webinar (date for the webinar is not yet selected). The text I sent to you for review will be part of the chapter on PFAS use in Washington – related to estimates of AFFF storage at airports, petroleum refineries, military installations, etc. I already have an update from the Washington Fire Chiefs Association for the fire department piece.

Feedback, edits, comments, questions, rewrites, corrections and references will help make the

chapter more accurate and complete.

Let me know if you can get something back to me by Mid-January.

I'd be happy to discuss individual subsections with anyone – or resend the draft I emailed last month.

Thank you all for your time and support,
kara

[Kara J. Steward](#) | Washington State Department of Ecology

Hazardous Waste & Toxics Reduction Program - Reducing Toxic Threats Section

PO Box 47600, Olympia, WA 98504-7600 | 300 Desmond Drive SE Lacey, WA 9850

360-407-6250 direct | 360-407-6715 fax | Reply to kara.steward@ecy.wa.gov

Reference 2—Attachment

Civilian Airports

U.S. airports have been required to procure and use AFFF that meets the standards set by the Federal Aviation Administration (FAA) which currently requires the use of AFFF that meets military specifications (required to be fluorinated). In October 2018, the US Congress passed legislation directing the FAA to allow airports to use non-fluorinated firefighting foam. The change is required to be implemented within three years using the latest version of the National Fire Protection Association 403 – Standard for aircraft rescue and firefighting services at airports. NFPA 403 includes a fluorine-free synthetic foam option.

The FAA issues operating certificates to airports that comply with certain operational and safety standards. Current regulatory requirements related to firefighting at airports are found in 14 CFR Aeronautics and Space, Part 139: Certification of Airports, specifically 139.317: Aircraft rescue and firefighting: Equipment and agents. FAA provides guidance in Advisory Circulars – the most recent on Aircraft Fire Extinguishing Agents (AC 150/5210-6D) states that foam concentrates must meet the performance test requirements of US Military Specification (MIL-SPEC) MIL-F-24385F, which includes the requirement that the foam be fluorinated (FAA 2004).

Eleven airports in Washington are certified by the FAA to handle aircraft rescue and firefighting are listed below (FAA 2018). In addition to airports listed below, there are 12450 general aviation, reliever, and private airports and airstrips around the state (WSDOT 2017). [WSDOT Aviation has reached out to several larger general aviation airports that do not have a requirement for AFFF under the FAA Part 139 requirement and have found that they do not possess any firefighting foam or personal protective equipment \(PPE\) that contained PFAS. A more detailed survey of all civilian airports would determine where PFAS-containing firefighting foam or PPE has been stored or and used.](#)

The amount of AFFF at airports is based on the amount carried on aircraft rescue and firefighting vehicles as well as the reserve available at the airport. Aircraft rescue and firefighting indexes indicate ascending order of aircraft length: A for aircraft less than 18 meters in length and up to E for aircraft longer than in 60 meters in length. Estimated quantities of AFFF stored at civilian airports based on each aircraft rescue and firefighting index: Index A: 2,101 liters, Index B: 4,088 liters, Index C: 11,564 liters, and Index E: 25,434 liters (Darwin 2004).

- Bellingham International, Bellingham, Index B.
- Boeing Field/King County International, Seattle, Index A.
- Grant County International, Moses Lake, Index A.
- Pangborn Memorial, Wenatchee, Index A.
- Pullman/Moscow Regional, Pullman, Index B.
- Seattle-Tacoma International, Seattle, Index E.
- Snohomish County (Paine Field), Everett, Index A.
- Spokane International, Spokane, Index C.
- Tri-Cities, Pasco, Index B.
- Walla Walla Regional, Walla Walla, Index A.
- Yakima Air Terminal (McAllister Field), Yakima, Index A.

AFFF is also used in airplane hangars – according to NFPA standard 409 “Standard on Aircraft Hangars.” Aircraft hangars require overhead foam sprinkling for the entire hangar if the floor

area exceeds 1,858 square meters: 11,356 liters of AFFF concentrate. Foam capacity increases for a hangar floor greater than 3716 square meters: 22,712 liters of AFFF concentrate. Darwin estimated hangar AFFF storage for airport index categories C at 44,971 liters per airport and E at 289,205 liters (Darwin 2004). These totals assumed AFFF storage in hangars were proportional to the FAA index estimates.

FAA regulations (14 CFR Part 139) establishes the minimum aircraft firefighting capability for each index. AFFF quantities stored at FAA certified airports are estimated from Darwin (2004) using the estimates for A, B, C, and E aircraft rescue and firefighting indexes and for associated storage for hangars. There are additional users that maintain supplies of AFFF not associated with airports, examples would include airplane manufacturing and overnight shipping operations. Darwin (2004) provided quantities of AFFF stored by Boeing at 217,472 liters and FedEx at 378,541 liters at all U.S. locations.

Table A – Estimated AFFF storage at certified airports and hangars (combined totals)

Airports in each FAA Index code	AFFF storage (liters)	AFFF hangar storage (liters)
A = 6 airports	12,606	-
B= 3 airports	12,264	-
C = 1 airport	11,564	44,971
E = 1 airport	25,434	289,205
TOTAL	61,868	332,476

Seattle-Tacoma International Airport (Sea-Tac) has instituted a number of best management practices associated with the training and testing of aircraft rescue and firefighting equipment and personnel involving the use of AFFF. Sea-Tac is subject to the Federal airport certification regulation (14 CFR Part 139). Chapter 6 of that regulation, Performance Requirements, states: “AFFF agents must meet the requirements of MIL-F-24385.” AFFF stocks at Sea-Tac were purchased after 2006, comply with this MIL-SPEC, and are expected to contain only short-chain PFAS molecules (Robbins 2017).

Darwin, RL. 2004. Estimated Quantities of Aqueous Film Forming Foam (AFFF) in the United States. Prepared for the Fire Fighting Coalition. August 2004. UNEP-POPS-POPRC13FU-SUBM-PFOA-FFC-2-20180112.En.pdf

FAA. 2004. Advisory Circular 50/5210-6D. Aircraft Fire Extinguishing Agents. July 8, 2004. [https://www.faa.gov/documentLibrary/media/Advisory Circular/AC 150 5210-6D.pdf](https://www.faa.gov/documentLibrary/media/Advisory%20Circular/AC%20150%205210-6D.pdf)

Robbins, D. 2017. Personal communication: email to Kara Steward, Washington State Department of Ecology, from Don Robbins, Port of Seattle. November 17, 2017.

Personal Communication Reference 3

Attachments: [AFFF.docx](#)

From: Wayne Senter <wayne@washingtonfirechiefs.org>
Sent: Thursday, January 3, 2019 2:49 PM
To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>
Cc: Cross, Chad <chad.cross@wsp.wa.gov>
Subject: Re: PFAS CAP help

Kara,

It was great talking with you today, thanks for making time. Attached is my first cut at the one pager using the focus and methodology we discussed. I hope this helps you on your project and if we can be of further assistance please let us know, regards, Wayne

From: Steward, Kara (ECY)
Sent: Monday, December 31, 2018 3:42 PM
To: Wayne Senter
Subject: RE: PFAS CAP help

Wayne,

I'm in the Weds thru Friday (jan 2-4). Meetings on Weds, but around.

I'm in all next week.

Best,

Kara

[Kara J. Steward](#) | Washington State Department of Ecology
Hazardous Waste & Toxics Reduction Program - Reducing Toxic Threats Section
PO Box 47600, Olympia, WA 98504-7600 | 300 Desmond Drive SE Lacey, WA 9850
360-407-6250 direct | 360-407-6715 fax | Reply to kara.steward@ecy.wa.gov

From: Wayne Senter [<mailto:wayne@washingtonfirechiefs.org>]
Sent: Thursday, December 27, 2018 12:18 PM
To: Steward, Kara (ECY)
Subject: Re: PFAS CAP help
you in today?

From: Steward, Kara (ECY) <kste461@ECY.WA.GOV>
Sent: Tuesday, December 18, 2018 8:28 AM
To: Wayne Senter
Subject: RE: PFAS CAP help

Perfect – I'm in no huge rush...whenever it's convenient for you.
Your time and assistance is very appreciated,
kara

From: Wayne Senter [<mailto:wayne@washingtonfirechiefs.org>]

Sent: Monday, December 17, 2018 7:59 PM

To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>

Subject: Re: PFAS CAP help

Got your VM, in a staff retreat until Wednesday, call you then

Sent from my iPhone

On Dec 14, 2018, at 4:11 PM, Steward, Kara (ECY) <kste461@ECY.WA.GOV> wrote:

This is perfect – I'll give you a call on Monday and we can talk.

Thank you for your time and suggestions!

kara

From: Wayne Senter [<mailto:wayne@washingtonfirechiefs.org>]

Sent: Friday, December 14, 2018 3:18 PM

To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>

Cc: Cross, Chad (WSP) <Chad.Cross@wsp.wa.gov>

Subject: Re: PFAS CAP help

Kara,

I reviewed the report and the one pager, I don't have much confidence in the methodology used to estimate foam in Washington used by public fire agencies. I have some ideas how that can be shored up and how we can use the proper semantics for fire agencies. Call me on my cell for discussion, 360-509-6003, regards, Wayne

From: Cross, Chad (WSP) <Chad.Cross@wsp.wa.gov>

Sent: Friday, December 14, 2018 8:49 AM

To: kste461@ECY.WA.GOV; Wayne Senter

Subject: FW: PFAS CAP help

Kara,

I am forwarding this request to Wayne Senter as well. Wayne is the Executive Director of the Washington Fire Chiefs and a good resource to contact when needing to communicate with or about the Washington State Fire service.

Thank you

Chad Cross

Assistant State Fire Marshal

Commander - Fire Training Division

Desk: 425-453-3000

chad.cross@wsp.wa.gov

From: Steward, Kara (ECY) < >

Sent: Thursday, December 13, 2018 5:29 PM

To: Scartozzi, Howard (WSP) <Howard.Scartozzi@wsp.wa.gov>; TODD_STARKEY66@YAHOO.COM; Cross, Chad (WSP) <Chad.Cross@wsp.wa.gov>

Subject: PFAS CAP help

Good evening:

I'm emailing in hopes that you can help me improve a summary of AFFF at fire departments in WA. Attached is the current text for the PFAS CAP Chapter on Uses. Much of the 'data' is based on the estimates from the 2004 report, prepared by Darwin for the Fire Fighting Foam Coalition. You can find that reference at:

<https://www.informea.org/sites/default/files/imported-documents/UNEP-POPS-POPRC13FU-SUBM-PFOA-FFFC-2-20180112.En.pdf>

Any feedback you can offer on the content of this draft is greatly appreciated – questions, edits, references – by early January (or sooner).

Information specific to training activities would help immensely.

We are planning to post updated PFAS Chemical Action Plan (CAP) Chapters in January and February for the PFAS interested parties. This is just one piece of the Uses 'chapter.'

Happy season to you,
kara

[Kara J. Steward](#) | Washington State Department of Ecology

Hazardous Waste & Toxics Reduction Program - Reducing Toxic Threats Section
PO Box 47600, Olympia, WA 98504-7600 | 300 Desmond Drive SE Lacey, WA 9850
360-407-6250 direct | 360-407-6715 fax | Reply to kara.steward@ecy.wa.gov

Reference 3—Attachment

Show your work.....

1,360,000 gals in the usa per hughes rpt

Usa population 325,700,000 per 2017 census

WA population 7,406,000 per 2017 census

Gals in usa / usa pop = .00417562 per population factor

.00417562 x 7,406,000 = 30,925 gal in wa state

884,000 – 1,836,000 gal likely range in usa from Hughes rpt chart (+/- 35%)

20,101 – 41,749 gal likely range in WA state

Fire departments and firefighting training

According to the Washington Fire Chiefs Association (WFC) there are approximately 350 public fire agencies within the state. Fire agencies are better known as fire departments, fire districts, regional fire authorities and port fire departments. In addition to these public agencies, there also exists Department of Defense (DOD) and private/industrial firefighting forces. Each fire agency has one or more fire stations to serve their community. Typically fire agencies have training facilities located at a one of their facilities for in-service training and frequently fire agencies create regionalized training centers where resources are pooled for multi-agency out of service training. A current list of regionalized fire training centers does not exist but could be created through survey. The Hughes report estimated that the fire service possessed 1,360,000 gallons of AFFF in the USA. Further, they estimated that the likely range was 884,000 – 1,836,000 gallons of foam. Using their methodology, the Washington State fire service is estimated to possess 30,925 gallons or a range of 20,101 – 41,749 gallons of fluorinated and non-fluorinated firefighting foam. Detailed information about firefighting foam within the fire service could be collected through survey.

Use of AFFF for fire training has occurred both locally and at regional fire training sites across the state. The following list is not a comprehensive list of all regional fire training locations across the state but does represent some of the larger and frequently used regional training facilities:

- Big Bend Community College Air Rescue Firefighting Training, Moses Lake.
- City of Seattle Joint Training Facility, Seattle.
- Kitsap County Regional Training Center, Bremerton.
- Mark Noble Regional Fire Training Center, Olympia.
- North Bend Fire Training Academy, North Bend.
- Puget Sound Regional Fire Authority Fire Training Center.
- Spokane Regional Training Center, Spokane.
- Tacoma Fire Department Training Center, Tacoma.

- Yakima Fire Department Training Center, Yakima.

Other uses of AFFF include portable and wheeled fire extinguishers available for DOD, residential, commercial and industrial users. Estimates of fire extinguisher use is currently not available.

The WFC polled its membership to begin to quantify impacts of the proposed legislation that would eliminate AFFF from training exercises and curtail sales a year later. Most of the feedback, while limited, indicated that most larger fire agencies had moved away from using AFFF. Further the focus was what reasonable alternatives existed and how safe disposal of AFFF would occur. In response the WFC has held presentations on the subject at their annual conference and raised awareness through its newsletter and other various mediums. Safe disposal at no cost to the public fire agency should be considered to facilitate compliance during this transition.

Hughes Report, Darwin, RL. 2004. Estimated Quantities of Aqueous Film Forming Foam (AFFF) in the United States. Prepared for the Fire Fighting Coalition. August 2004. UNEP-POPS-POPRC13FU-SUBM-PFOA-FFC-2-20180112.En.pdf

Personal Communication Reference 4

From: [Cox, Matthew](#)
To: [Steward, Kara \(ECY\)](#)
Subject: RE: Suggested AFFF Replacement Products
Date: Tuesday, January 15, 2019 2:40:22 PM
Attachments: [image001.png](#)

Kara,

The Alaska Way Tunnel SR99 does not have AFFF but a water deluge system so that can be removed for the table.

Here are the approximate quantities (in gallons) we currently have on hand:

Baker: Mt Baker Ridge (approx. total 7,485 gallons)

3-2000 gal tanks (6,000 gallons)

27-55gal barrels of old foam (1,485 gallons)

MIL: First Hill Mercer Island (approx. total 12,815 gallons)

3-4000gal tanks (12,000 gallons)

8-55gal full (440 gallons)

4-55gal partial (110 gallons)

1-265gal mini-tank full (265 gallons)

CONCTR: Seattle Tunnel (approx. total 3,100 gallons)

2-1000gal tanks (2,000 gallons)

20-55barrels of old foam. (1,100gallons)

Approximate Total of 23,400 gallons

Hope this helps.

Matthew R. Cox

Hazardous Materials Specialist

Maintenance Operations

Washington State Department of Transportation

PO Box 47358 | 310 Maple Park Ave SE | Olympia, WA 98504

Phone: (360)705-7858 | Shift: Tues.-Fri. 630-1700 | Email: cox matt@wsdot.wa.gov

From: Steward, Kara (ECY)

Sent: Thursday, January 10, 2019 8:41 AM

To: Cox, Matthew

Subject: RE: Suggested AFFF Replacement Products

On a similar, but separate note – I'm working on a summary of AFFF use in Washington State. I have written a piece on AFFF use/storage at highway tunnels – could you review this for accuracy. Anything you can improve regarding content or estimates is greatly appreciated.

The piece copied below is one part of an AFFF summary that includes estimates of foam at fire departments, airports, military, refineries, and tunnels. If you think I'm missing something, please let me know.

Kara

Tunnels

National Fire Protection Association standard 502 provides fire protection and fire life safety requirements for road tunnels, bridges, and other limited access highways (NFPA 2011). In Seattle,

tunnels using a deluge foam fire suppression system are the I-90 First Hill Mercer Island; I-90 Mt. Baker Ridge, I-5 Tunnel and the SR99 Alaska Way Viaduct replacement (CDOT 2015). Other Seattle tunnels use a fixed water firefighting system: Battery Street, downtown Seattle transit for bus and train.

Table T – Road tunnels with fixed foam firefighting systems in Seattle

Tunnel	Route	Length	Lanes	Estimate of AFFF storage
First Hill Mercer Island	I-90	914 meters	8	2,000 liters
Mt Baker Ridge	I-90	1067 meters	8	2,500 liters
Seattle Tunnel	I-5	167 meters	12	500 liters
Alaskan Way Tunnel	SR99	2700 meters	4	3,000 liters
TOTAL				6,000 liters

The references:

Colorado Department of Transportation (CDOT). 2015. Eisenhower/Johnson Tunnels Fixed Fire Suppression System. Other documents. <https://www.codot.gov/projects/Eisenhowerfiresystem/other-documents/draft-request-for-proposals-rfp/book-3/standard-nfpa-502-2011-edition.pdf>

National Fire Protection Association. 2011. NFPA 502 Standard for Road Tunnels, Bridges, and Other Limited Access Highways, 2011 Edition. Accessed on December 12, 2018 at: <https://www.codot.gov/projects/Eisenhowerfiresystem/other-documents/draft-request-for-proposals-rfp/book-3/standard-nfpa-502-2011-edition.pdf>

From: Cox, Matthew [<mailto:CoxMatt@wsdot.wa.gov>]

Sent: Thursday, January 10, 2019 8:24 AM

To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>; Knapp, Anne (ECY) <akna461@ECY.WA.GOV>

Subject: RE: Suggested AFFF Replacement Products

Thanks Kara! Will you be heading the AFFF project or will there be a new contact?

Congratulations Anne!

Matthew R. Cox

Hazardous Materials Specialist

Maintenance Operations

Washington State Department of Transportation

PO Box 47358 | 310 Maple Park Ave SE | Olympia, WA 98504

Phone: (360)705-7858 | Shift: Tues.-Fri. 630-1700 | Email: cox matt@wsdot.wa.gov

From: Steward, Kara (ECY) <kste461@ECY.WA.GOV>

Sent: Thursday, January 10, 2019 8:18 AM

To: Cox, Matthew <CoxMatt@wsdot.wa.gov>; Knapp, Anne (ECY) <akna461@ECY.WA.GOV>

Subject: RE: Suggested AFFF Replacement Products

Matthew,

Those are great questions, I'll do some asking around and get back to you.

FYI – Anne just started her new job in eastern WA this week. She left the AFFF project behind – I can help you out.

Happy Thursday!

Kara

From: Cox, Matthew [<mailto:CoxMatt@wsdot.wa.gov>]

Sent: Thursday, January 10, 2019 8:15 AM

To: Steward, Kara (ECY) <kste461@ECY.WA.GOV>; Knapp, Anne (ECY) <akna461@ECY.WA.GOV>

Subject: Suggested AFFF Replacement Products

Anne; Kara,

Hope you are both doing well. Just checking in to see if there was any guidance or a directive on what replacement products are out there to replace AFFF chemicals in fire suppression systems.

WSDOT is looking at identifying a group of products and discussing these products with our engineers on their ability to work within our existing fire suppression system.

If you have any thoughts or opinions on replacement products it would be greatly valued.

Sincerely,

Matthew R. Cox

Hazardous Materials Specialist

Maintenance Operations

Washington State Department of Transportation

PO Box 47358 | 310 Maple Park Ave SE | Olympia, WA 98504

Phone: (360)705-7858 | Shift: Tues.-Fri. 630-1700 | Email: cox matt@wsdot.wa.gov

Personal Communication Reference 5



4649 Sunnyside Avenue N
Suite 540
Seattle, Washington 98103

7/21/2020

Darin Rice
Program Manager
Hazardous Waste and Toxics Reduction
300 Desmond Drive SE,
Lacey, WA 98503

Dear Darin:

We are writing regarding enforcement of the [2018 Washington state PFAS firefighting foam law, which](#) bans the manufacture, sale, or distribution for use of Class B firefighting foam containing chemicals called PFAS (per- and poly-fluorinated alkyl substances) by July 1, 2020.

TFF conducted a limited on-line evaluation of the websites of several retailers and found possible violations of this law. We wanted to bring your attention to this matter to ensure no Class B Foam containing any form of PFAS is for sale to Washington consumers.

It is critical that any firefighting foam products with PFAS be taken off store shelves so that the health of Washington’s drinking water and communities are protected.

The following chart identifies the products we found that may be in violation:

<u>Product Name</u>	<u>Manufacturer/Supplier Web Site</u>	<u>Sold at Retail</u>	<u>Label Statement/SDS</u>
Fire Gone AFFF	AVW dba Max Pro	Amazon , Walmart , Staples	Made with fluorosurfactants (trade secret) SDS
Amerex 250 (fire extinguisher ships empty, with liquid foam separate, SDS is for the foam, Alcolac 3/6% AR-FFFP)	Amerex	Amazon , Ebay	Made with fluorosurfactants (proprietary) 3 - 7% SDS :
Chemguard 3%-5 gal. AR-AFFF	Chemguard	Amazon	Made with fluorosurfactant (proprietary) SDS
First Strike 3%-6% ATC/AFFF	US Foam	Amazon	Made with fluorosurfactant (trade secret) SDS

<u>Product Name</u>	<u>Manufacturer/Supplier Web Site</u>	<u>Sold at Retail</u>	<u>Label Statement/SDS</u>
First Strike 6% AFFF	US Foam	Amazon	Made with fluorosurfactant (trade secret) SDS
Fire Command Fire Extinguishing Aerosol Foam Spray Fire Suppressant, 16 oz - Pack of 12, AR - AFFF	Kittrich Corporation	Amazon, Home Depot	Made with polyfluoroalkyl betaine SDS : Says PINBAR3X3 Is an ingredient and is trade secret. Here is SDS for PINB-AR3X3 Made by Pinnacle
Buckeye AFFF 3% Mil Spec, 5 gal. pail, AFFF	Buckeye Fire Equipment	Amazon	Made with fluorosurfactants (proprietary) SDS
Buckeye AFFF 1% AFFF, 5 gal. pail, AFFF	Buckeye Fire Equipment	Amazon	Made with fluorosurfactants (proprietary) SDS

We believe these products may be in violation of Washington's law based on information on product labels and/or Safety Data Sheets. Indications that the products contain PFAS, include but are not limited to, the following terms:

- C6 or C8;
- Proprietary fluorosurfactant;
- Proprietary foamer blend (water, amphoteric copolymer, C6); or,
- Aqueous Film Forming Foam (AFFF) contains PFAS. All forms of AFFF contain PFAS.

We request the Department of Ecology:

- Investigate whether these products are in compliance with Washington law;
- If DOE determines that these products contain PFAS, investigate whether manufacturers of these products notified sellers of their products by July 1, 2019 about the restriction on sale, and whether the manufacturers recalled those products and reimbursed retailers as required by the law;
- If manufacturers of PFAS containing firefighting foam violated the notice, recall and reimbursement requirement, impose penalties up to \$5,000 per violation as authorized by law;
- Inform online sellers of these products about the prohibition on sales to Washington purchasers and request that they explain the law's requirements on their websites; and,
- Inform retailers that are selling the products in physical stores about the prohibition on sales, and inquire whether manufacturers notified them of the ban and recalled or reimbursed them for the products to support imposition of penalties on manufacturers that have not complied with the law.

Thank you for your attention to this matter. If you have any questions, please contact me at 206-200-2824.

Sincerely,

Laurie Valeriano
Executive Director

Personal Communication Reference 6

From: Makarow, Irina (ECY)
Sent: Monday, November 16, 2020 2:28 PM
To: O'Rourke, Rory
Cc: Tan, Shirlee; Lauren.tamboer@ecy.wa.gov
Subject: RE: PFAS CAP Comment Period Extension Request for King County Comments

Hello Rory –

Thank you for your email expressing King County's interest in the Departments of Ecology and Health's Draft PFAS Chemical Action Plan (CAP). We appreciate the time and effort you and others at King County have already committed to developing this plan, and now to reviewing the Draft CAP we issued for public comment.

The CAP project team from Ecology and Health recognizes the immense challenges that Washington state residents and businesses have faced since spring 2020. We are also mindful of the PFAS CAP project timeline, which for various reasons, has extended for multiple years.

In the interest of accommodating your request while keeping the project on track for completion, we are extending the comment period through Monday, January 4, 2021. This will allow the public an additional month to consider the Draft CAP and provide feedback, without significantly extending the Final CAP timeline.

We will officially announce this extension in the Washington State Register, send an update to our email list, and add this information to the project website.

We look forward to your continued participation in this project.

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

From: O'Rourke, Rory
Sent: Monday, November 9, 2020 1:02 PM
To: Makarow, Irina (ECY)
Cc: Tan, Shirlee
Subject: PFAS CAP Comment Period Extension Request for King County Comments

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Hi Irina,

We appreciate your consideration for extending the PFAS Chemical Action Plan comment period. I would like to kindly request a comment period extension for all King County PFAS Chemical Action Plan comments until January 30, 2021.

1

Public Health Seattle & King County has been heavily affected by the COVID-19 pandemic, and staff resources have been reallocated to address COVID-19 emergency response. Many staff normally focused on PFAS are now dedicated to time sensitive projects resourced with coronavirus relief funds (CARES Act funding) that expire by December 31, 2020. In addition, the holidays in late November, late December, and early January accompanied by staff that are utilizing leave that cannot be carried over into next year, mean that some staff that normally could assist will not be available. Therefore, it would greatly appreciated if we could extend the comment period until January 30 so that our staff and leadership can focus on the PFAS CAP comments without the mentioned competing priorities. This is an important topic for King County and we would like to be able to devote the amount of time needed to properly comment on this comprehensive document.

Please let us know if you have any questions or concerns.

Rory O'Rourke, MHS, REHS/RS, DABT
Health and Environmental Investigator III
Public Health – Seattle & King County
Environmental Health Services Division
Solid Waste, Rodent, and Zoonotic Disease Program
<https://www.kingcounty.gov/depts/health/environmental-health.aspx>
Office: 206-477-7769
Mobile: 206-487-0530

Personal Communication Reference 7

From: Makarow, Irina (ECY)
Sent: Monday, December 28, 2020 4:28 PM
To: Tan, Shirlee; Zarker, Ken (ECY)
Cc: O'Rourke, Rory; Kellogg, Ryan; Tamboer, Lauren (ECY)

Hello Shirlee!

Another head's up – you'll have until January 22nd to submit, as we had to aim for the 1/20/21 state register publication for the “official” extension notice.

Rory will be receiving an email updating the advisory committee on the extension in the next few days and we'll be updating our websites and listserv etc...

Have a restful New Year!

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-
3456 Office:
360-407-6250
irina.makarow@ecy.wa.gov

From: Tan, Shirlee
Sent: Wednesday, December 23, 2020 12:17 PM
To: Makarow, Irina (ECY) ; Zarker, Ken (ECY)
Cc: O'Rourke, Rory ; Kellogg, Ryan ; Tamboer, Lauren (ECY)
Subject: RE: PFAS CAP

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THANK YOU!!!!

From: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Sent: Wednesday, December 23, 2020 7:43 AM
To: Tan, Shirlee <Shirlee.Tan@kingcounty.gov>; Zarker, Ken (ECY) <kzar461@ECY.WA.GOV>
Cc: O'Rourke, Rory ; Kellogg, Ryan <Ryan.Kellogg@kingcounty.gov>; Tamboer, Lauren (ECY) <Ltam461@ECY.WA.GOV>
Subject: RE: PFAS CAP

[EXTERNAL Email Notice!] External communication is important to us. Be cautious of phishing attempts. Do not click or open suspicious links or attachments.

Hello Shirlee.

We're extending the comment period until January 15, 2021 to accommodate your situation. Official notices will be circulated within the next week or so.

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456
Office: 360-407-6250
irina.makarow@ecy.wa.gov

From: Tan, Shirlee <Shirlee.Tan@kingcounty.gov>
Sent: Monday, December 21, 2020 11:13 AM
To: Zarker, Ken (ECY) <kzar461@ECY.WA.GOV>
Cc: O'Rourke, Rory ; Kellogg, Ryan <Ryan.Kellogg@kingcounty.gov>; Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Subject: PFAS CAP

THIS EMAIL ORIGINATED FROM OUTSIDE THE WASHINGTON STATE EMAIL SYSTEM - Take caution not to open attachments or links unless you know the sender AND were expecting the attachment or the link

Hi Ken and Irina,

We are writing to request at least an extra week of time to get our PFAS CAP comments to you from PHSCK (January 11th). We've been completely swamped with COVID-response activities and I am just now getting to the document. We recognize that Ecology is under legislative deadlines for the CAP, but the comment period that was chosen has been EXTREMELY difficult for those of us working in public health during this unusual year. This Chemical Action Plan sets the course for actions on PFAS for King County and the State of Washington for many years to come, and we are requesting additional time so that we can be thoughtful and thorough in our comments.

Please let us know if this request can be accommodated.

Respectfully,

Shirlee Tan, PhD
Toxicologist
Environmental Health Services
Public Health – Seattle & King County
Shirlee.tan@kingcounty.gov
206-477-7978



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000

711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 25, 2021

Darrel K. Smith, PhD
President & CEO
National Waste & Recycling Association
1550 Crystal Drive, Suite 804
Arlington, VA 22202
Via e-mail: agermain@wasterecycling.org

Dear Darrel K. Smith:

Thank you for your comment submission on behalf of the National Waste & Recycling Association (Nwra) regarding the Washington Departments' of Ecology and Health Draft Per- and Polyfluoroalkyl Substance (PFAS) Chemical Action Plan (CAP). We appreciate Nwra's insightful comments on the CAP.

As part of your submission, you recommend an extension of the comment period on the CAP (ending on January 22, 2021). You indicated an extension would allow stakeholders the opportunity to review the U.S. Environmental Protection Agency's recently-issued interim guidance for managing PFAS destruction and disposal to further inform additional comments on the Draft PFAS CAP.

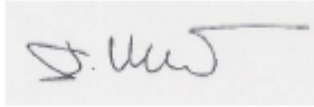
We have considered your recommendation and have decided not to further extend the comment period. We have already provided two extensions from the original 60-day comment period totaling an additional seven weeks. Our agencies are focused on completing the CAP so we can move to the important stage of implementing recommendations.

The CAP will not be the final word on PFAS action in the state. Its recommendations will be implemented for a coordinated and equitable response to the most pressing PFAS problems identified in Washington. There are many federal efforts underway that will also affect regulation of PFAS and best practices, and we will take new state and federal guidance and laws into consideration as we implement the CAP.

We acknowledge the importance of PFAS concerns to the industries your organization represents. Public agencies and organizations who deal with solid waste streams also submitted comments. We will consider all of these submittals as we complete the CAP and we will identify opportunities to involve your industry in future meetings of the Advisory Committee.

Please don't hesitate to contact me should you have any questions on our work to complete the PFAS CAP. You can contact me at 360-584-3456 (cell) or irina.makarow@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'I. Makarow', is displayed on a light gray rectangular background.

Irina Makarow
Chemical Action Planner
Hazardous Waste & Toxics Reduction Program

cc: Ken Zarker, Ecology

Personal Communication Reference 9



STATE OF WASHINGTON

February 22, 2021

Via *Regulations.gov*

Peter Wright, Assistant Administrator
Office of Land and Emergency Management
U.S. Environmental Protection Agency
EPA Docket Center
OLEM Docket
Mail Code 28221T
1200 Pennsylvania Avenue Northwest
Washington, DC 20460

RE: Docket ID No EPA-HQ-OLEM-2020-052 - Comments on *Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances*, 85 Fed. Reg. 83554 (December 22, 2020) Dear Peter Wright:

The Washington State Departments of Ecology and Health appreciate the opportunity to offer comments on the Environmental Protection Agency's (EPA) *Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances* (Interim Guidance), 85 Fed. Reg. 83554 (December 22, 2020). The Interim Guidance presents currently available information on Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) destruction and disposal, science and the associated uncertainties for current commercially available disposal or destruction technologies, options to manage PFAS waste that may destroy or control its migration into the environment should destruction or disposal be required at this time, and important data gaps.

Our comments are organized according to the headings of the Interim Guidance.

Solid, liquid, or gas waste streams containing PFAS from facilities manufacturing or using PFAS

Solid phase wastes

In several instances, the Interim Guidance refers to biosolids as a *waste*, even incorrectly identifying biosolids as a product of *primary chemical manufacturing* (emphasis added).

EPA removed the beneficial use of sewage sludge from regulation under 40 CFR Part 257, in 1993, with the adoption of 40 CFR Part 503. After nationwide input, stakeholders selected the term "biosolids" to replace "sewage sludge," in large part to avoid association with chemical sludges and other forms of sludge. EPA eventually acceded to the use of the term in guidance and agency communications, although we understand for the purposes of strict interpretation under federal regulations, the proper term is still "sewage sludge." Sewage sludge is a solid waste when managed in a way other than approved in 40 CFR Part 503. Biosolids is sewage sludge that meets criteria for regulation under Part 503, and biosolids is *never* a solid waste (emphasis added). The Interim Guidance takes a step backwards by improperly characterizing biosolids and even sewage sludge as waste, and actually identifying biosolids as a waste from chemical manufacturing.

Specific excerpts where the term biosolids is used incorrectly (emphasis added):

- 1.c. First paragraph refers to the *land application of biosolids and other wastes*
- 2.a.i. Second paragraph says *other important solid-phase wastes include sludge and biosolids*
- Table 2-1 Identifies sludges/biosolids as waste streams from primary chemical manufacturing
- 2.c. First full paragraph following Table 2-3, *In addition to land application of PFAS-containing wastes (e.g., biosolids) ...*
- 2.g. *Other common PFAS-containing waste streams include AFFF, biosolids ...*

Ecology continues to believe that the beneficial use of biosolids is a key to sustainable resource management. We should be focusing on the sources of PFAS – the front end of the problem, thus resolving concerns about PFAS in biosolids, *by reducing their presence in sewage*. The national pretreatment program resulted in very large decreases in pollutants like lead, in biosolids. We can have the same success with PFAS or any other substance of concern, but we have to focus on the source, not the endpoint. We understand providing guidance for the disposal of PFAS, but EPA should be putting real effort into pretreatment solutions.

Ecology supports the EPA's efforts to provide states and municipalities with guidance on how to safely and effectively destroy the PFAS molecule in consumer products like Aqueous Film-Forming Foam (AFFF). We appreciate the EPA's goal to describe technologies that may be feasible and effective to varying degrees for the destruction or disposal of PFAS and PFAS-containing materials. The Interim Guidance does a good job explaining the currently available destruction and disposal technologies such as landfill, deep well injection, and incineration. We particularly appreciate the Interim Guidance's prioritization of destruction technologies based on the current level of uncertainty. Those are as follows:

1. Interim storage if immediate destruction or disposal is not required
2. Permitted deep well injection (Class I)
3. Permitted hazardous waste landfills (RCRA Subtitle C)
4. Solid waste landfills (RCRA Subtitle D) that have composite liners and leachate collection and treatment systems
5. Hazardous waste combustors
6. Other thermal treatment devices

Ecology understands that this hierarchy is due in large part to the high level of uncertainty surrounding the effectiveness of each of these options, in particular thermal treatment. To address these uncertainties, Ecology recommends that EPA, as quickly as possible, set PFAS air emission standards, water discharge limits, and clean up levels. These regulatory changes would significantly help states and municipalities make better informed decisions about the available disposal options.

Ecology also recognizes that it may be some time before these regulatory changes are in place, and that the Interim Guidance recommends storing products containing PFAS like AFFF until such time as more information is made available. Ecology has looked into the costs of indefinite storage and such costs are prohibitively high. We suspect other states and municipalities will find these costs too high as well. We recommend that in the interim EPA explore grant mechanisms to facilitate establishing state AFFF repositories, or encourage Congress to establish a national repository where the foam can be safely held and managed, until more information on destruction technologies is available.

Considerations for Potentially Vulnerable Populations Living Near Likely Destruction or Disposal

Sites

In the chapter on Considerations for Potentially Vulnerable Populations Living Near Likely Destruction or Disposal Sites, the releases, pathways and receptors for destruction and disposal of PFAS are well described in Figure 4-1. While the description of health effects is specific to PFAS, the remainder of the chapter includes generic descriptions of how EPA considers vulnerable populations and engages communities with links to EPA tools. It would be more useful if the considerations were specific to potential exposure from PFAS destruction and disposal.

We have one comment on EPA's definitions in section 4.b. EPA includes gender and race/ethnicity as intrinsic factors and states these "biological factors cannot be changed." Gender and race/ethnicity are not biological constructs, but are social constructs that do change. We recommend that EPA include biological sex under intrinsic factors and move gender and race/ethnicity to extrinsic factors.

Please also note that the detailed citation information for reference U.S.EPA, 2019c, relative to increased consumption of fish and shellfish by indigenous communities, is missing.

Washington State appreciates the opportunity to comment on EPA's Interim Guidance. We agree that consideration of long-term management of waste and products containing PFAS is of the utmost importance in minimizing harmful PFAS emissions into the environment. Please don't hesitate to contact Sean D. Smith, Product Replacement Manager, at 425-649-4495 or sean.smith@ecy.wa.gov, should you have any questions regarding this submittal.

Sincerely,



Darin Rice, Program Manager
Hazardous Waste and Toxics Reduction Program
Washington Department of Ecology



Laura Johnson, Director
Office of Environmental Public Health Sciences
Washington Department of Health

cc: Michael Ellsworth, Office of the Secretary of Health
Ken Zarker, Hazardous Waste and Toxics Reduction Program

Personal Communication Reference 10

From: Simcich, Tina (ECY)
Sent: Thursday, April 1, 2021 3:31 PM
To: Makarow, Irina (ECY)
Cc: VanBergen, Saskia (ECY)
Subject: RE: DES Carpet contract question

Thanks for the nudge! See below and let me know if there's anything I missed or you have more questions.

Tina

From: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Sent: Friday, March 19, 2021 8:08 AM
To: Simcich, Tina (ECY) <tisi461@ECY.WA.GOV>
Cc: VanBergen, Saskia (ECY) <sava461@ECY.WA.GOV>
Subject: RE: DES Carpet contract question

Hi Tina –

Congrats on being so close to retirement! You made it! I'm sure you have some great plans to relax and re-orient your time to the things you want to do.

The information below is great – I have some questions, as indicated below...

Or if you know of someone in DES who has the information could you point me to them?

I'm also copying Saskia.

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

From: Simcich, Tina (ECY) <tisi461@ECY.WA.GOV>
Sent: Wednesday, March 17, 2021 5:10 PM
To: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Subject: RE: DES Carpet contract question

Hi Irina,

Yes the state definitely includes **durability specifications** in their bid language.

Can you point me to an example of contract with durability specs I could cite?

There is no existing flooring contract. The bid for the new flooring contract hasn't been finalized yet but here is the language that was in the most recent version that I have:

- Cut pile carpets must have a minimum face weight of 26 ounces and minimum density of 5,000 ounces/yard³

- Cut and Loop carpets must have a minimum face weight of 40 ounces
- Loop pile carpets must have a minimum face weight of 20 ounces and minimum density of 4,500 ounces/yard³
- All “Moderate Use” items must meet have a minimum TARR rating of 2.5 and a maximum modification ratio of 4.7
- Polyester “Moderate Use” carpet must contain at least 25% post-consumer recycled content, which is consistent with the US Environmental Protection Agency’s Comprehensive Procurement Guidelines
- All “Heavy Use” items must consist of nylon fiber with a stain treatment system, and meet have a minimum TARR rating of 3.0 and a maximum modification ratio of 2.8
- All “Severe Use” items must consist of nylon 6 or 6.6 fiber with a permanent stain treatment system applied or inherent and meet have a minimum TARR rating of 3.5 and a maximum modification ratio of 2.2

Since governments are **much more prone to installing carpet tile** instead of broadloom carpet, the increased durability argument of PFAS treated carpet is less convincing in my opinion because agency janitorial services can just lift any stained tiles for cleaning and then return them. Such as is the practice at our Lacey HQ!

Is this in any specifications, or is it described in some document I could quote?

It is not in any WA state specification. Alameda County has procurement specifications that specify carpet tile only,

except in certain circumstances: <http://www.acgov.org/sustain/what/purchasing/success/carpet.htm>

The City of San Francisco’s criteria for carpet restricts purchases of broadloom carpet to narrow applications. <https://www.sfapproved.org/flooring-carpets-adhesives#info> .

The state is currently **finalizing specifications for a new flooring contract** and one of the restrictions we have recommended to DES (which I believe they fully agreed to) is a requirement that all carpet and resilient flooring be PFAS-free. We will have to see what the vendor community response is but I’m fairly sure that there is enough PFAS-free product on the market to allow DES to go ahead with that restriction.

Is this new specification published anywhere, even if in draft form? I still have a few months for the CAP to be finished, so even if it is coming up later this spring it would still help. I agree about the availability of PFAS free flooring materials.

It is not finalized yet. If it is published before May, I will send it to you. Otherwise Saskia could ask Alex Kenesson at DES for a copy of the bid document in May. The contract may well not be awarded until early summer but I know they are in gap so hoping to award as soon as possible and then you could look at the final contract.

<https://apps.des.wa.gov/DESContracts/>

I am not sure that a PFAS purchasing preference is the way to go. Washington currently has a patchwork of purchasing preference policies that sometimes are in conflict with each other and can interfere with best practices for writing environmentally preferable specifications in solicitation language.

I can reword our recommendation to capture some of the broader issues you note below, but the focus would still have to be somewhat on finding ways to reduce pfas in carpets purchased by governments.

The SEEP EPP Workgroup is considering helping to develop model specifications for the state on priority product areas and eventually they may take on flooring.

Purchasing preference laws generally focus on a single attribute – such as recycled content or PCBs – which is a method of approaching sustainable procurement left over from the past and does not account for the complexities of writing EPP specifications. I certainly would rather see an umbrella EPP policy or legislation that accounts for the nuances of sustainable procurement and have communicated that to DES.

Happy to answer any other questions! But a note – I am retiring at the end of April and Saskia will likely become the goto person for toxics questions from DES. My program probably won’t be able to refill my position for a year or so, so DES is looking into hiring an EPP specialist for their procurement group.

Best regards,

Tina

From: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Sent: Wednesday, March 17, 2021 4:30 PM
To: Simcich, Tina (ECY) <tisi461@ECY.WA.GOV>
Subject: DES Carpet contract question

Hello Tina!

It has been a while since we chatted and the PFAS CAP project is finally at the comment response stage.

We received a comment that indicated that a state PFAS free carpet purchasing preference policy should consider the durability of carpet – i.e. treated carpets can last longer and be replaced less frequently, and therefore also result in less waste. I excerpted the comment below.

Do you know whether state carpeting contracts have any durability specifications?

I do recall that we discussed that the state doesn't really buy its carpeting but specifies it via the contractors it engages to install/replace.

[Alliance for telomer chemistry stewardship](#)

Page 453 When assessing the economic impact of replacing PFAS-containing carpeting with non-PFAS carpeting, Ecology should consider the increased durability provided by PFAS treatments. Because of their superior stain resistance and soil release properties, PFAS treatments prolong the useful life of carpeting – and other, similar, articles -- thereby allowing for less frequent replacement (and the generation of less waste) and concomitant cost savings.

Feel free to reach out to me if you need more background.

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

Personal Communication Reference 11

From: Sharp, Marietta (ECY)
Sent: Friday, April 2, 2021 10:59 AM
To: Makarow, Irina (ECY)
Subject: Letters you requested
Attachments: Letter from Toxic Free Future.pdf; Follow Up Letter-Amerex Corporation_CEO with enclosures.pdf; Letter of Inquiry_Amerex_President.pdf

Hi Irina,

Here are the letters that you requested. In the original letter, we also included a copy of the regulations, proof that we found their product being sold online or in their stores.

Please feel free to contact me at any time for additional information or if you have questions.

Have a great weekend!

Marietta Sharp, M.S.
Pollution Prevention Specialist
Hazardous Waste and Toxics Reduction Program
Department of Ecology - Northwest Regional Office
3190 160th Ave. S.E. Bellevue, WA
98008 Office: (425) 649-7271 Cell:
(425) 417-5039
marietta.sharp@ecy.wa.gov

Personal Communication Reference 12

From: Fanning, Lee <FanninL@wsdot.wa.gov>
Sent: Tuesday, April 27, 2021 8:23 AM
To: Makarow, Irina (ECY)
Cc: Payton, Norm; Vanantwerp, J Scott
Subject: RE: WSDOT use of AFFF foam/substitute for training/testing in tunnels

Irina,

I have made some changes below. Feel free to reach out if you have any further questions.

Thank you

Lee Fanning
NWR WSDOT
Maintenance & Operations
South Maintenance Manager
206-440-4662

From: Makarow, Irina (ECY)
Sent: Thursday, April 15, 2021 11:35 AM
To: Fanning, Lee
Subject: RE: WSDOT use of AFFF foam/substitute for training/testing in tunnels

Hi Lee –

Thanks for getting back to me and giving me the update re WSDOT's Class-B firefighting foam (AFFF) use in tunnels.

You indicated that:

- AFFF is the active ingredient used in fire suppression in 2 I-90 tunnels – Mercer Island, Mt. Baker and the I-5 Washington State Convention Center
- WSDOT regularly samples and tests the foam in these systems to ensure it meets fire suppression performance standards. The foam is not replaced on any schedule. The foam was last replaced under a construction project 2016-2018 time frame as part of the retrofit of the I-90 tunnels to accommodate light rail.
- WSDOT does not use the foam for either training or overall system operation testing at these locations.
- WSDOT continues to seek AFFFF alternatives to replace the foam in these existing systems, provided the alternatives must meet DOT regulatory requirements.
- WSDOT is considering fire suppression systems that don't use AFFF for new projects, e.g. SR 5-20.

Appreciate your time!

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

From: Makarow, Irina (ECY)
Sent: Thursday, April 15, 2021 9:42 AM
To: 'Fanning, Lee' <FanninL@wsdot.wa.gov>
Subject: WSDOT use of AFFF foam/substitute for training/testing in tunnels

Hello Lee –

It has been a few months since we were first put into contact via Sean Smith.

I'm in the process of answering comments Ecology received on the Draft PFAS CAP, and I could use some assistance with the following:

Is WSDOT using AFFF foam for testing or training in tunnels? Or are you using a substitute?

You can give me a call at my cell 360-584-3456 to discuss.

Thanks in advance!

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

Personal Communication Reference 13

From: Cory, Devon <coryd@wsdot.wa.gov>
Sent: Monday, May 17, 2021 10:17 AM
To: Makarow, Irina (ECY)
Subject: RE: Class-B firefighting foam?

Hi Irina,

We have 8-10 5-gallon containers of the product onboard depending on vessel size.

Thanks,
Devon

Devon Cory, MPA
Fleet Safety Coordinator
WSDOT Ferries Division
Coryd@wsdot.wa.gov
Office: 206-515-3976
Cell: 206-348-5340

-----Original Message-----

From: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Sent: Tuesday, May 11, 2021 4:17 PM
To: Cory, Devon
<coryd@wsdot.wa.gov> Subject: RE:
Class-B firefighting foam?

Thank you so much Devon - it is exactly what I needed.

Can you tell me how much is typically carried on board?

Irina

Irina Makarow (she/her)
WA State Department of Ecology
HWTR Chemical Action Planner
Cell: 360-584-3456 Office: 360-407-6250
irina.makarow@ecy.wa.gov

-----Original Message-----

From: Cory, Devon <coryd@wsdot.wa.gov>
Sent: Tuesday, May 11, 2021 3:47 PM
To: Makarow, Irina (ECY) <Imak461@ECY.WA.GOV>
Subject: RE: Class-B firefighting foam?

Good Afternoon,

Yes we do carry it and it is only used for emergency purposes, we do not train with it. All training is done with a dish soap & water mix at the fire training center in North Bend. There is no training conducted which uses this material onboard our vessels.

The foam application devices are tested during drills using a bucket of water to verify the applicator has adequate vacuum draw from the "source" but we don't use any foam during this evolution either.

If foam is discharged during an emergency, the vessel Captain provides a Lat / Long of the event and approximately how much foam was used and may have been discharged overboard.

I hope that answers your question.

Best,
Devon

Devon Cory, MPA
Fleet Safety Coordinator
WSDOT Ferries Division
Coryd@wsdot.wa.gov
Office: 206-515-3976
Cell: 206-348-5340

-----Original Message-----

From: no-reply@watech.wa.gov <no-reply@watech.wa.gov>
Sent: Monday, May 10, 2021 12:51 PM To: Cory, Devon
<coryd@wsdot.wa.gov> Subject: Class-B firefighting foam?

Hello Devon! I'm from Haz Waste and Toxics Reduction at Ecology and I'm coordinating ECY's PFAS Chemical Action Plan. I need to answer a question from the public: Does WSDOT carry any class B firefighting foam on ferries? (AFFF/with PFAS in it).

If yes, how do you go about testing the system or training exercises? i.e. is any released into the environment or do you test/train to avoid release.

You can give me a call at 360-584-3456 (cell).

Irina