March 28, 2021

Senator Joshua Revak
Chair
Senate Resources Committee
120 4th Street
Juneau, AK 99801

Re: Senate Bill No. 121, PFAS Use & Remediation, Fire/Water Safety

Chairman Revak:

The American Chemistry Council (ACC) appreciates the opportunity to comment on Senate Bill 121 relating to per- and polyfluoroalkyl substances (PFAS). Although there are some provisions in the bill that we do support, ACC is concerned about the provisions in Section 1 of the proposal that would –

- amend AS 46.03.340 to establish drinking water limits for several PFAS without appropriate opportunity for stakeholder involvement, and
- amend AS 46.03.345 to require the Department of Environmental Conservation (DEC) to identify the responsible party or parties when those limits are exceeded.

In addition, the proposed amendments to Section 46.03.350 would unnecessarily restrict the use of firefighting foams for high hazard (Class B) fires outside of the oil and gas industry and require the state to get ahead of federal efforts to identify effective fluorine-free foams that are currently underway.

As the Committee is likely aware, the US Environmental Protection Agency (USEPA) established Health Advisories of 70 parts per trillion (ppt) for two of the substances listed in SB 121 – perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) – in 2016. EPA recently announced that it would establish national drinking water standards for these two substances by late 2023. In the meantime, the 2016 Health Advisories provide useful guidance in assessing drinking water exposures to state residents. In a survey of public drinking water systems in the state conducted between 2013 and 2015, EPA reported no detections of PFOA, PFOS, or four other PFAS – all of which are listed in SB 121. While EPA has since refined its analytical techniques to detect lower levels of these substances, the limits of the 2015 analysis were below the Health Advisory levels of 70 ppt for PFOA and PFOS.

In seeking to assign responsibility for releases of PFAS near a water supply, SB 121 would result in significant unintended consequences. Although the proposed amendment to AS 46.03.345 would exempt releases of aqueous film forming foam (AFFF) to extinguish fires, it does not exempt the previous use of AFFF for testing or training by local fire departments. Nor does the proposal exempt publicly owned landfills that may have released PFAS or wastewater treatment plants that have provided biosolids containing PFAS for agriculture. Farmers who have applied those biosolids on their land also are potentially liable under the bill. These activities have been identified as contributing to PFAS levels in groundwater elsewhere in the country. This is particularly relevant given the extremely low levels that have been proposed for some of the substances. It also is unclear how DEC would enforce the requirement in subparagraph (b) of the bill to hold other government agencies liable for requiring releases of AFFF containing PFAS that resulted in drinking water contamination.

While we strongly support efforts to ensure Alaskan residents have access to clean drinking water, we believe that such efforts should have their foundation in strong, science-based regulatory processes that provide for public input. We also suggest that assigning responsibility for sources of PFAS can be very complicated – particularly if the definition for "clean" is set at such low levels.

While the proposal would permit the use of AFFF containing PFAS in the oil and gas sector, it would unnecessarily restrict emergency use of these foams in other applications. As you may be aware, considerable efforts are being made by multiple federal agencies to explore effective fluorine-free alternatives. Thus far, these efforts have identified several significant challenges – both in the effectiveness of the alternatives and the incompatibility of the equipment required for their deployment. In this regard, the proposal runs counter to, and fail to account for, the learnings of these federal efforts.

Given these concerns, ACC cannot support the current version of SB 121 but looks forward to working with the Committee and the bill sponsors to develop legislation that can make meaningful progress in addressing the PFAS issue. We have supported legislation in other states to restrict the use of AFFF for testing and training which has historically represented most of the environmental release of PFAS from foam use. Such training and equipment testing can be managed appropriately without the use of fluorinated foam while still enabling its use where needed to address crucial, high-hazard fires

ACC also supports the management of unutilized PFAS-containing AFFF as proposed in the amendments to AS 46.03.350. This collected material can be safely and effectively destroyed through thermal treatment under appropriate conditions, as acknowledged in the proposed amendment to AS 46.03.355. EPA released interim guidance on the destruction of PFAS materials in 2020 that provides information on the safe operation of thermal treatment facilities and has indicated that it will provide an update next year. In a recent analysis at a

permitted cement kiln in Cohoes, New York that had treated PFAS-containing foam, moreover, the state Department of Environmental Conservation found no evidence of PFAS contamination of soil or surface water resulting from the destruction of AFFF at the facility.

Please feel free to contact me at srisotto@americanchemistry.com or at (202) 249-6727 if you have questions on the information provided above or would like to explore amendments to the current proposal.

Sincerely,

Steve Risotto

Stephen P. Risotto
Senior Director

cc: Senator Peter Micciche
Senator Click Bishop
Senator Gary Stevens
Senator Natasha von Imhof
Senator Jesse Kiehl
Senator Scott Kawasaki

https://www.soldemedianochenews.org/the-chemical-that-threatens-drinking-water.html

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THE CHEMICAL THAT THREATENS DRINKING WATER

BY SAMARYS SEGUINOT-MEDINA

The chemical industry has spent $61 million fighting efforts to regulate PFAS (Rebecca Trager 2021). Evidence indicates that in recent years the industry has focused on using its resources to defeat proposals that could have made companies pay for the costs of cleaning up the massive contamination left behind by PFAS. More than 60 years ago, DuPont created and began using PFAS to make products in high demand including Teflon, which has once generated $1 billion a year.

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a class of fluorinated chemicals that contains more than 5,000 configurations. PFAS is widely used for its non-stick and water-repellency properties on a range of materials. The problem is that it does not degrade easily, which is why it is also known as the forever chemical. Their persistence and more than several decades of studies present a wave of scientific evidence demonstrating the serious risks to health, drinking water, and the environment of these chemicals. Some of the effects associated with PFAS exposure are weakening of the immune system, cancer, damage to the cardiovascular system, serious effects on the reproductive system, thyroid, and liver.

Large PFAS lawsuits filed in recent years by consumers have been settled before reaching trial. DuPont has paid at least $400 million in chemical-related settlements so far (Morgenson 2020). Erik Olson of the Natural Resources Defense Council shared with The Guardian that the main strategy used by chemical industry lobbyists is like that of tobacco and oil, creating a cloud of doubt over the science that clearly demonstrates the threat to health caused by exposure to PFAS (Rebecca Trager 2021).

In Alaska we are not exempt from being affected by PFAS contamination which affects the United States (US) and the world. The investigative report, Threats to drinking water and public health, the magnitude of the PFAS problem, its consequences of regulatory inaction and recommendations* published by Alaska Community Action on Toxics (ACAT) in 2019 presented serious findings of contamination by PFAS in several areas of Alaska. PFAS has been discovered at more than 100 individual sites in nearly 30 locations since the US Department of Defense and the State of Alaska began investigating PFAS contamination.

Ten communities in Alaska have PFAS in their drinking water at levels considered unsafe by the US Environmental Protection Agency (EPA), and the number of communities with contaminated water is likely to increase as more sampling is done. According to Safer States, in 2021 in the US more than 161 legislation pieces were presented to regulate PFAS. For that same year, 33 states introduced legislation to regulate them, and a total of 33 pieces of legislation were adopted in 15 states. Nearly 100 bills to regulate PFAS that began in 2021 continue in 2022. And 22 states that introduced bills in 2021 continue their progress in 2022. It is important to note that in 2018 there were 38 related bills to PFAS, in 2021 there were 123.

In Alaska, we are taking action and asking for support from constituents, leaders, health and environmental allies to reach out to their legislators and demand support for the pieces of legislation in the Senate, SB 121, and in the House of Representatives, HB 171. These bills are a first step to do justice and provide environmental health to thousands of Alaskans whose health is threatened by PFAS contamination.

As decreed by the United Nations, drinking water is a fundamental human right. Thus, it is taught by the ancestral, planetary wisdom of the Alaskan Natives and other Indigenous Peoples of America, water is life. It is the responsibility of the government and all citizens to protect and conserve this precious element for the well-being of all, especially the most vulnerable and future generations.

Dr. Samarys Seguinot-Medina is Boricua,
Director of Environmental Health at ACAT and resident in Anchorage, Alaska.

* https://www.akaction.org/wp-content/uploads/Report-Threats-to-Drinking-Water-and-Public-Health-in-Alaska-FINAL-web-version-9-24-19.pdf

March 24, 2022

Chair Josh Revak
Senate Resources Committee
Alaska State Capitol
Juneau, AK 99801

Sent via email

Dear Senator Revak,

I am writing to express Native Peoples Action's support for Senate Bill 121: PFAS Use & Remediation; Fire/Water Safety.

Native Peoples Action is a statewide non-profit organization that strives to provide Alaska Native communities and our traditional values with a voice at all levels of policy making. The foundation of our work focuses on advocacy, education and information sharing, supporting local decision-making, and building stronger unity among Indigenous communities to collectively address issues impacting our ways of life.

Over 30 communities and 135 individual sites have tested positive for PFAS contamination according to the Alaska Department of Environmental Conservation, Division of Spill Prevention and Response. PFAS, when it gets into drinking water, puts Alaskans at greater health risks - thyroid disease, decreased fertility, decreased birth weight, immune suppression, liver disease, and certain cancers - studies have shown that Alaska Natives suffer at a greater risk for certain cancers.

SB 121 would:

- Set health-protective limits on the amount of PFAS in drinking water.
- Provide Alaskans with clean drinking water if their water is contaminated.
- Allow for voluntary blood testing of affected community members and first responders.
- Prevent future pollution by replacing the use of PFAS-based firefighting foams in favor of safer alternatives.

We believe the above measures are reasonable, proactive, and will ultimately protect Alaskans from the detrimental effects of PFAS exposure.

Native Peoples Action, Inc. • PO Box 210914 • Anchorage, AK 99521 • (907) 917-0854
info@nativepeoplesaction.org • www.nativepeoplesaction.org

Gunalchéesh/Háw'aa/Quyana/Mahsi'/Baasee'/Maasee'/Dogedinh/Thank you,

Kendra Kloster

Kendra Kloster
Executive Director
Native Peoples Action

Cc: Senator Jesse Kiehl, Senator Peter Micciche, Senator Click Bishop, Senator Gary Stevens, Senator Natasha Von Imhof, Senator Scott Kawasaki

City of Gustavus, Alaska
PO Box 1
Gustavus, Alaska 99826
Phone: 907.697.2451
Fax: 907.697.2136

April 13, 2021

The Honorable Jesse Kiehl
Alaska State Senator for District Q
Sent via e-mail: Senator.Jesse.Kiehl@akleg.gov

Dear Senator Kiehl:

The City Council strongly supports SB121A. This Bill addresses many important issues the City of Gustavus is battling with. Gustavus is particularly impacted by the use of Aqueous Film Forming Foam (AFFF) containing polyfluoroalkyl and perfluoroalkyl (PFAS) substances. The contamination to our drinking water has significantly changed the lives of many residents and businesses in town.

Amending AS46.03 to address PFAS is an important step in addressing the devastation these substances have had on our town. All of the sections of this Bill are worth mentioning however, I would like to focus on two: 1) Section 46.04.340 Testing; drinking water; 2) Section 46.03.350 Use of firefighting substances.

Section 46.04.340 establishes cutoff concentration for seven substances. These limits clearly identify cutoff levels are lower than previous limits and will further the protection and recourse of our citizens.
Section 46.03.350 addresses the authority for the use of firefighting substances that contain PFAS, such as AFFF. This section, particularly subsection (b), protects local fire departments and municipalities by establishing a mechanism that recognizes no fault in the execution of their duties.

Please continue supporting our community and those that protect it.

Sincerely,

B.C

Brittney Cannamore, Mayor

Cc: Senate Resource Committee Senate.Resources@akleg.gov

April 21, 2021

Senator Joshua Revak
Chair Senate Resources Committee
Alaska Legislature
State Capitol, Room 125
Juneau, AK 99801

Dear Senator Revak:

Research has confirmed that per- and polyfluoroalkyl substances (PFAS) are persistent, bioaccumulate, and are a health concern. There are now calls for more regulatory guidance and stringent requirements have increased. Due to their unique properties, PFAS are widely used in industry and the production of everyday products like nonstick coatings for cookware, stain-repellent coatings for clothes and carpeting, detergents, cleaning products, and firefighting foams. After decades of widespread use, PFAS are ubiquitous and persistent in the environment and have been found in tissue samples in all parts of the world. Though PFAS were developed to simplify our lives, they have become a serious problem requiring increased monitoring and control. Alaskan communities are not immune to these impacts and many now have contaminated sites and drinking water sources. This health crisis has been decades in the making, more than 4,800 known PFAS have been created for commercial use. Regulatory guidance and restrictions vary across regions globally. As new PFAS are identified in the environment, and more toxicological information becomes available, further regulations are certain.

PFAS exposure has been linked to various adverse health outcomes such as thyroid disease, testicular cancer, kidney cancer, and pregnancy-induced hypertension. Thus, with each potential environmental spill or release, public health concerns rise further about PFAS, particularly with regard to drinking water safety. PFAS are of concern because many are persistent, bioaccumulate, and are toxic. PFAS readily bind to proteins in blood and are transported throughout the body. As a result, they are potentially associated with a wide range of adverse health outcomes, including decreased immune function, cancer, elevated cholesterol, and ulcerative colitis, among others. Also, the human body is not effective at eliminating PFAS, and half-lives of some PFAS in humans, such as perfluorohexane sulfonic acid, can exceed five years. Therefore, PFAS can accumulate in the body even when levels in drinking water are low. As a result, drinking water standards and health advisory levels are being set at low ng/L levels. Another reason for concern is the fear of the unknown. The PFAS class contains thousands of compounds, but we currently lack fully appropriate analytical methods and information about the toxicity for most. As a result, people may wonder which PFAS compounds they might have been exposed to and what the potential health effects could be.The unique chemical properties that make PFAS so valuable for modern applications are often the very same that make PFAS incredibly problematic in the environment. First-generation persistent organic pollutants (POPs) were pretty bad, but we could largely predict how they would behave in the environment. PFAS are a new style of pollutant that don't follow the 'rules' of traditional organic pollutants. This is why regulators and scientists unfortunately failed to predict how these chemicals would move through the environment, and why we now have a serious problem of such widespread PFAS contamination of drinking water, agricultural land, and the domestic environment. Furthermore, we are only really just beginning to characterize the health impacts of a chemical that is ubiquitously present throughout the built and natural environment.

Senator Jesse Kiehl introduced Senate Bill 121 on April 7 to protect Alaskans' drinking water by setting health-protective limits on per- and polyfluoroalkyl substances (PFAS) and to take measures that prevent the future contamination of our lands and waters. I hope that you will support Senate Bill 121. This bill will

- Set health-protective limits on the amount of PFAS in drinking water.
- Provide Alaskans with clean drinking water if theirs is contaminated.
- Allow for voluntary blood testing of affected community members and first responders.
- Prevent future pollution by replacing the use of PFAS-based firefighting foams in favor of safer alternatives.

It is imperative that this action take place soon so that the Alaskan public can be protected from these compounds while a more substantial understanding of the nature and extent of the impact is completed.

You are my representative to the Alaskan senate, but you probably do not know my professional background. I have a PhD in Analytical Chemistry from Portland State University and spent two hears as a postdoctoral researcher at the Oregon Health Science Center studying the metabolism of flame retardants that were used in the 70's on children's pajamas. In 1979, I joined the faculty at UAA where I taught Analytical, Inorganic, Environmental chemistry and Toxicology courses. I retired in 2015 after 36 years at UAA with 45 publications mainly with undergraduate students. Ironically, I actually worked at DuPont for five years before returning for advanced study. During those five years I came to understand the failure of industry to recognize the impact of its products on people resulting from a lack of full understanding of their toxicology in particular. The failure is slowly being recognized and a better approach is being applied to chemical uses now. Presently I am a member of the PWSRCAC science advisory committee to offer support on research projects of their concern. I would be pleased to provide similar scientific advise to any chemistry related questions of concern that you might have.

Sincerely,

John M. Kennish, PhD
Retired Professor of Chemistry

April 21, 2021

Senator Joshua Revak, Chairman
Senate Resources Committee
State Capitol, Room 125
Juneau AK 99801

To: Members of the Senate Resources Committee
Re: SB 121 Regulating PFAS Use; Fire/Water Safety

We would like to express our support for Senate Bill 121, a bill to regulate PFAS and help mitigate the consequences of its use. We feel the Legislature must act due to the inertia on this issue by the Administration and federal government.

My husband and I have lived in Gustavus for over 40 years. We along with dozens of other family members were devastated to learn that our home and property are in the plume of PFAS contaminates and our well is one of many that has been contaminated by these chemicals.

This contamination was caused by the entirely avoidable and unnecessary use of AFFF foam at our airport. This foam was mandated to be used here by the FAA and the State of Alaska DOT/PF despite our airport being one that is exempt from having to use these products. Both the FAA and the State have been aware for many years of the toxic nature of these chemicals but have required our local firefighters to use and train with them anyway. Even worse, despite federal and state regulating agencies' longtime awareness of PFAS issues, these same responders were never made aware of the toxic nature of the foam.

It is our hope that your passage of SB 121 will help other communities in the state avoid the consequences we now have to deal with: fear of long-term health issues, inability to drink our water, no communication from the State if or when we will get any filtration systems for our homes, and the reduction in our property values due to a toxic water table.

Again, we urge your support towards the passage of SB 121 as a rational step forward in protecting the health of Alaska's residents, and the health and economic viability of our communities into the future.

Sincerely,

Melanie and Jim Lesh
P.O. Box 6
Gustavus, AK 99826

Cc: Senator Jessie Kiehl

From: Sally McLaughlin <[redacted]>
Sent: Wednesday, April 14, 2021 9:11 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB121

Dear Senator Kiehl,
I am writing to express my strong support of SB121. I have been directly affected by PFAS contamination in our water and soil and it has taken a lot of hard work and much of our time to fight for our rights to clean water. It is absolutely imperative that Alaska sets standards for health protective limits of PFAS and to allow affected citizens to obtain blood tests to determine their body burden of PFAS chemicals. In addition, we need to replace fire fighting foams that contain PFAS chemicals with safer alternatives that we know exist. This will prevent future pollution - a step that will save millions of dollars and may save thousands of lives.
As you are well aware, our lives in Gustavus were severely disrupted when PFAS were discovered in our water. Life in this once pristine community will not be the same until we can rest assured that this will never happen again, here or anywhere else in Alaska.
Your continued support to our community, and to this issue in particular, has been very much appreciated.

Thank you for all of your work on this very important issue! And thank you for the letter of sympathy when my dad passed away - that was very thoughtful of you.

Sally McLaughlin

From: JoAnn Lesh <[redacted]>
Date: April 21, 2021 at 09:20:33 AKDT
To: "Sen. Jesse Kiehl" <Sen.Jesse.Kiehl@akleg.gov>
Subject: Take Action to Protect Our Drinking Water and Health
Reply-To: <[redacted]>

Dear Senator Jesse Kiehl,

Please support SB 121 which will protect the drinking water and health of Alaskans. We request a public hearing in the Senate Resources Committee and swift passage of this legislation.

Sincerely,
M JoAnn Lesh
1268 Gustavus Rd Gustavus, AK 99826
<[redacted]>

From: Greg Streveler <[redacted]>
Date: April 25, 2021 at 10:14:31 AKDT
To: Senate Resources <SenateResources@akleg.gov>
Cc: "Sen. Jesse Kiehl" <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB121

To Resources Committee,
I wholeheartedly support this legislation and urge its passage out of your committee. Recent PFAS-related events at the Gustavus Airport's upgrade project serve to underscore its urgency.
Thank you,
Greg Streveler
Box94
Gustavus

Sent from my iPad

From: janet neilson <[redacted]>
Date: April 25, 2021 at 20:56:03 AKDT
To: Senate Resources <SenateResources@akleg.gov>
Cc: "Sen. Jesse Kiehl" <Sen.Jesse.Kiehl@akleg.gov>
Subject: support for Senate Bill 121 (PFAS Use & Remediation; Fire/Water Safety)

Dear Members of the Senate Resources Committee,

I am writing in support of Senate Bill 121 (PFAS Use & Remediation; Fire/Water Safety). I live in Gustavus, where in 2018 we were devastated to learn that aqueous film-forming foam (AFFF) had contaminated numerous private wells in our community.

As you know, currently the Alaska Department of Conservation uses the Environmental Protection Agency's lifetime health advisory level of 70 ppt for the sum of only two PFAS compounds (PFOA and PFOS). However, many peer-reviewed studies have found these chemicals to be dangerous at much lower levels. In addition, growing evidence shows the dangers of additional PFAS compounds, including PFHxS, PFNA, PFBS, PFHpA, and Gen-X.

Until now, I have felt despair that our state government is profoundly failing us and our environment by following the EPA's woefully inadequate guidance.

Senate Bill 121 gives me hope.

Among other things, this bill proposes to set lower limits for PFOA (8 ppt) and PFOS (16 ppt) and in so doing, demonstrates that Alaska can be a leader in our nation in protecting its residents and visitors from unsafe water.

I am also pleased to see the bill direct the Alaska Department of Environmental Conservation to offer voluntary blood tests to people with PFAS-contaminated drinking water, as well as to responders (such as firefighters) who are exposed to PFAS. Blood testing for PFAS is something that I have been advocating for the state to support since November 2018.

I strongly urge you to support SB 121. It is time for Alaska to step up and do more to protect its residents, visitors, and environment from these dangerous contaminants.

Sincerely,

Janet Neilson
PO Box 268
Gustavus, AK 99826

From: [redacted] <[redacted]>
Sent: Monday, April 26, 2021 12:00 PM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Rep. Sara Hannan <Rep.Sara.Hannan@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>; Courtney <[redacted]>
Subject: SB121

Hello,

I understand there is a hearing this week on SB121. The safety of our drinking water, our most precious resource, is of utmost importance to me, and I hope for the governing body of this state as well.

Please get this bill out for a vote this session!! The health of our population, and future populations, (and all living beings) should be prioritized!

I grew up near a former navy base, and when I was in high school, it was discovered that the well water in the nearby neighborhood was contaminated. Everyone had to haul in water for basic needs every day. People died of cancer at crazy rates. We know that PFAS are very dangerous, and it is incumbent upon our elected officials to do the right thing. Do not put it off again for a future session, please!

Thank you,
Peggy Finnegan
2400 W Marston Dr
Anchorage, AK 99517

From: Eycewolf <[redacted]>
Sent: Monday, April 26, 2021 2:00 PM
To: House Resources <House.Resources@akleg.gov>; Senate Resources <SenateResources@akleg.gov>
Cc: Rep. Sara Hannan <Rep.Sara.Hannan@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>; <[redacted]>
Subject: HB 171 & SB 121

In 2010 the U.N. agreed to a resolution declaring the human right to “safe and clean drinking water and sanitation.”

Safe and clean water is very important to me. Especially as my spouse and I have been trying to conceive our first child, I am extremely alarmed that such dangerously persistent carcinogens and endocrine disruptors are allowed to pollute our drinking water.
As for fire safety, safer alternatives exist that don't cause long-term harm to our water, land, wildlife and people.

Please protect our drinking water by vigorously supporting passage of SB 121 and HB 171.

Fenra Bondarenko
827 Merlin Loop, Anchorage, AK 99518

Alaska Nurses Association

3701 East Tudor Road, Suite 208
Anchorage, Alaska 99507
907.274.0827
www.aknurse.org

April 26, 2021

Senator Jesse Kiehl
Alaska State Legislature
State Capitol Room 419
Juneau, AK 99801

Dear Senator Kiehl,

We are writing on behalf of the Alaska Nurses Association in strong support of SB 121 to protect Alaskans from the dangerous health effects of PFAS chemicals.

The scientific literature provides extensive evidence that PFAS are linked to serious diseases and adverse health outcomes. Epidemiological studies demonstrate that PFAS exposures are associated with kidney and testicular cancer, decreased birth weight, thyroid disease, decreased sperm quality, high cholesterol, pregnancy-induced hypertension, asthma, ulcerative colitis, and decreased response to vaccination.

PFAS chemicals are contaminating the drinking water of communities across Alaska. This is a significant public health threat. We must prevent further harm and ensure that communities with contaminated water are provided with safe sources of drinking water. We support provisions in this bill that ensure that individuals who have been exposed to PFAS are provided with the opportunity for voluntary blood testing to monitor their exposures for up to three years.

We recommend that the legislation include a ban on the use of PFAS in firefighting foam such as those that have been supported by firefighters and enacted in states such as Washington, New Hampshire, California, and Colorado. To fully protect the health of Alaskans, we also support a class-based and health-protective approach to regulating PFAS that places a maximum enforceable contaminant level goal (MCLG) of zero for the PFAS class or a combined MCL below 20 ppt at the lowest, most health-protective level technically

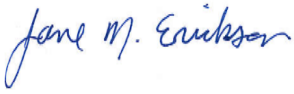
achievable for the maximum number of quantifiable PFAS. Last session, the proposed PFAS legislation (SB 176) placed unnecessarily high limits for just a few PFAS substances.

We thank you for your leadership in advancing this legislation and urge the passage of SB 121 in order to address PFAS contamination and protect the health and safety of Alaskans. For more information, please reach out to us directly via email or contact the AaNA office at 907-274-0827.

Sincerely,

Shannon Davenport, MSN, RN
Legislative Co-Chair
Alaska Nurses Association
shannon@aknurse.org

Sara Massmann, RN, PCCN
Legislative Co-Chair
Alaska Nurses Association
sara@aknurse.org



Jane Erickson, RN, CCRN
President, Board of Directors
Alaska Nurses Association
jane@aknurse.org

Donna Phillips, BSN, RN
Chair, Labor Council
Alaska Nurses Association
donna@aknurse.org

April 27, 2021
Re: SB121-
Dear Senate Resource Committee Members,

Good morning,

I stand in firm support of HB171. PFAS, PFOS and other perfluorinated compounds should have been banned decades ago, as suitable firefighting alternatives have been available. The pervasive, accumulative damage done to people, the environment, and animals is unconscionable. The Fairbanks North Star Borough has been hard hit with perfluorinated compound contamination from use and illegal dumping.

The dangers of PFAS, PFOS and other perfluorinated compounds (PFCs) are well known and have been for decades. When news articles state that the health effects are only recently known, that is not true. HB171 should not be a political decision. It is a health and safety decision. It's simple. Neurotoxic, cancer-causing, developmental delay causing, etc., substances should be banned. Here is a link to basic information regarding this class of chemicals.

https://www.epa.gov/pfas/basic-information-pfas

Recently, I learned that my favorite place to fish in the FNSB, Piledriver Slough, has been declared contaminated with Fire-Fighting foam chemicals. I have wonderful memories of fishing there with my family. We will not ever fish there again. It's not safe. It's very disturbing to know that the ADEC knew of the contamination and started testing in 2017. We stood in that water, had our hands in that water, and fell into that water. The ruination of this beautiful part of Alaska was not necessary.

Moose Creek, several lakes on Eielson AFB, the area around the Fairbanks Airport, 30th Ave area in Fairbanks, Chena Pump Rd, etc. are all highly contaminated. These chemicals are in our drinking water, are being incinerated in soils using equipment that is highly questionable, and now they are in our soils, gardens, lakes and streams, rendering them unsafe, even unusable. The chemicals don't degrade and the toxic contamination will be with us for generations (thousands of years). Why? Our children

and grandchildren shouldn't have to add the health burden of toxic contamination.

The prudent, conservative course of action, albeit too little, too late is to support HB171 as if your life and our lives depended on it. I believe they do. All Alaskans need protection from PFCs. My home, Fairbanks, has to contend with high levels of air pollution, coal ash pollution, firefighting chemicals in our soils and drinking water, benzenes, and on and on. Is it any wonder that we have high rates of cancer, heart disease, chronic illnesses and premature mortality (dying before we normally would)?

Please, I hope this bill gains more sponsorship, moves through committee immediately, and is voted into law. It is critical, and more important than most anything other than the budget, or Covid. We need protection from the danger these chemicals present. You can be the champions to stop further contamination. Don your superhero capes and do what only you can do at this time. We're counting on you to protect us.

Sincerely,
Patrice Lee and family

PS.
PS. 55,000 gallons of firefighting foam were dumped illegally from Eielson into two gravel pits, one near the Salcha River. The dump-site is a stones throw from Harding Lake. Contact ADEC for a full report on this egregious, unnecessary, toxic dump of chemicals. Please move HB171 now.

From: Lin Davis <[redacted]>
Sent: Monday, April 26, 2021 4:27 PM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Rep. Sara Hannan <Rep.Sara.Hannan@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB 121 Regulating PFAS Use; Fire/Water Safety

Dear Senate Resource Senators:

Please schedule a hearing on SB 121. Too many Alaskans are impacted by PFAS.

Please pass SB 121, an important health proposal. Many AK communities have contaminated drinking water, and immediate action must be taken.

This is your chance to protect the health of many Alaskans. Let's end the use of PFAS. SB 121 allows voluntary blood testing for those exposed, an important steps.

Counting on you for this important health action. Thank you.

Lin Davis
3099 Nowell Ave
Juneau 99801

From: Thomas McLaughlin <[redacted]>
Sent: Monday, April 26, 2021 10:18 AM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB 121 PFAS Use & Remediation; Fire/Water Safety

To: Members of the Senate Resources Committee

Re: SB 121 PFAS Use & Remediation; Fire/Water Safety

I would like to urge your support of this legislation. I have been a resident of Gustavus off and on since the 1970's. I personally have been exposed to PFAS as well as my children and grandchildren. These are "forever chemicals" and once introduced into the environment do not go away.

Please support this legislation.

Sincerely,

Thomas S. McLaughlin

538 6th St.

Juneau, Alaska 99801

From: Connie Markis <[redacted]>
Sent: Wednesday, April 28, 2021 8:26 PM
To: Senate Resources <SenateResources@akleg.gov>; House Resources <House.Resources@akleg.gov>
Cc: Rep. Sara Hannan <Rep.Sara.Hannan@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>; [redacted]
Subject: SB 121 & HB 171 Regulating PFAS Use; Fire/Water Safety

Dear Senators and Representatives,

Please help pass these identical bills (SB 121 and HB 171) that are titled "PFAS Use & Remediation; Fire/Water Safety."

PFAS are known as “forever chemicals” because they are highly persistent in the environment and are passed down through generations from mother to child. They are used for stain, grease, and water resistance in products such as food packaging, carpets, upholstery, outdoor apparel, and to make non-stick pots and pans. They are also used in firefighting foams for fuel and chemical fires on military bases and airports. PFAS are linked with increased risk of thyroid disease, decreased fertility, decreased birth weight, immune suppression, liver disease, and certain cancers. People who are exposed to PFAS may be more vulnerable to COVID-19 and its complications.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

SB 121 and HB 171 would:

- Set health-protective limits on the amount of PFAS in drinking water.
- Provide Alaskans with clean drinking water if their water is contaminated.
- Allow for voluntary blood testing of affected community members and first responders.
- Prevent future pollution by replacing the use of PFAS-based firefighting foams in favor of safer alternatives.

Unfortunately, I think if every Alaskan were tested for these “forever chemicals” in our blood, we would be shocked at the presence they have in our biology. Clean water is important to me as I feel it is to every Alaskan. Please protect our drinking water and health by supporting passage of SB 121 and HB 171.

Thank You!

Sincerely,

Connie Markis

7661 E 17th Ave

Anchorage, AK 99504

[redacted]

From: Birgit Lenger <[redacted]>
Sent: Monday, May 3, 2021 11:21 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB 121

Dear Senator Kiehl:

I am writing to express my support for SB 121 and the passage of strong and comprehensive legislation to protect the public from the hazards of PFAS (per- and polyfluoroalkyl substances).

It is appalling to me that PFAS has contaminated the drinking water of communities from the North Slope to southeast Alaska. We need to adopt health-protective drinking water standards for the entire class of PFAS chemicals.

It is critical that we ban the use of all PFAS chemicals in firefighting foam, food packaging, textiles, and other non-essential products. Manufacturers need to be held financially responsible for cleaning up PFAS pollution and the harm it causes communities. We need to prevent incineration of PFAS-contaminated soils and firefighting foams that would cause further harm.

For the unfortunate communities affected by PFAS contamination, we need to provide safe drinking water and ensure access to testing of local foods, blood serum testing and health care and medical monitoring for early signs of PFAS-related diseases. We also need to establish health-protective remediation standards for soil and water at contaminated sites.

I would like to express my deep appreciation to you for introducing SB 121. As a health care provider, parent and Alaska resident, I strongly urge you to continue your efforts to move this important bill forward to protect the health of our citizens. Thank you for your ongoing dedication.

Sincerely,

Birgit Lenger, ND

Natural Health Center

3330 Eagle St, Anchorage, AK 99503

From: Katherine du Plessis <[redacted]>
Date: May 7, 2021 at 05:58:01 AKDT
To: Senate Resources <SenateResources@akleg.gov>
Cc: "Rep. Sara Hannan" <Rep.Sara.Hannan@akleg.gov>, "Sen. Jesse Kiehl" <Sen.Jesse.Kiehl@akleg.gov>, [redacted]
Subject: Letter in support of SB 121

Dear Representative

Alaska is truly the final frontier. Our beautiful home still has salmon and enough food resources to feed our people. Please do not let PFAS and other chemicals make Alaska just like the fast majority of contaminated places on our Earth. Please act to protect the health of ecosystems and the health of my three year old and all of us in this state.

Clean water is important for our continued health and wellbeing. Please protect our drinking water and health by supporting passage of SB 121 and HB 171.

Thanks to everyone for all your hard work keeping us safe and keeping our salmon and our berries safe.

As a place with most of our natural resources in tact, we have a great opportunity and obligation to be leaders in creating change.

All the best,

Katherine du Plessis, MS

Senator Joshua Revak, Chairman
Senate Resources Committee
State Capitol, Room 125
Juneau, Ak 99801

To: Members of the Senate Resources Committee

Re: SB 121 Regulating PFAS Use; Fire/Water Safety

We are writing in support for Senate Bill 121, to regulate PFAS and help mitigate the consequences of it's use. We feel the Legislature must act due to lack of action by the federal government, lack of leadership taken by FAA, and lack of responsibility taken by PFAS producers whose products have polluted the environment of Alaska.

My wife and I own property in Gustavus with the intention to retire to that community. We have invested over 12 years of our time, have dreamt for many years of owning the organic market gardens which we have developed on the property, and have spent hundreds of thousands of dollars improving our property. We, along with many other families have just learned that the groundwater under our property is contaminated with PFAS which has impacted our well that we use for farming and domestic use.

This contamination was caused by entirely avoidable and an irresponsible use of AFFF foam, for firefighting practice, at the Gustavus airport. This foam was mandated to be used by the FAA and the SOA DOT despite our airport being exempt from having to use these products. Both FAA and ADOT have been aware for many years of the toxic nature of these chemicals, but persisted in using and requiring their use.

It is our hope that the passage of SB 121 will help other communities in the state avoid the consequences we, in Gustavus, now have to deal with: fear of potential long-term health issues, inability to drink our water, loss of revenue and fresh produce from our farm, reduction in our property values due to a toxic water table, and lack of clear communication as to whether these issues will be remediated.

Again, we urge your support towards passage of SB 121 as a needed step forward in protecting the health of Alaskans and the health and economic viability of our communities in the future.

David and Nikki Love
Owners, RootSeller Farm, Gustavus
6740 Marguerite St
Juneau, Ak 99801

CC: Senator Jesse Kiehl

From: Joe Orsi <orsiorganicproduce@gmail.com>
Sent: Friday, May 14, 2021 11:38 AM
To: House Resources <House.Resources@akleg.gov>; Senate Resources <SenateResources@akleg.gov>
Cc: Rep. Sara Hannan <Rep.Sara.Hannan@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Letter of support for HB 121 & 171 PFAS Water & Improvement

To: Members of the House/Senate Resources Committees

Re: SB 121 & HB 171 PFAS Use & Remediation; Fire/Water Safety

Hello, my name is Joe Orsi and I support the SB 121 & HB 171 legislations because I know people that are currently directly affected by the presence of PFAS in their water systems. I am a commercial produce grower in Juneau and know another commercial grower out in Gustavus that just found out their well water is contaminated with PFAS. In the 2021 growing season they are faced with not being able to sell their crop! Growing food for our communities is a challenging endeavor, so it is vital that businesses have access to clean water sources.

Please help monitor and hopefully alleviate the PFAS problem in our region so we can raise healthy families and produce in Southeast Alaska.

Thank you,

Joe Orsi,
Owner - Orsi Organic Produce

PLEASE SEE ATTACHED SIGNED LETTER OF SUPPORT - THANKS

--

Orsi Organic Produce

https://orsiorganicproduce.com/

Alaska Grown, Locally Produced

& Certified Naturally Grown

https://certified.naturallygrown.org/producers/5995

https://www.panhandleproduce.com/#the-farm

http://saltandsoil.localfoodmarketplace.com/Products

24 July 2019 Ag-Matters interview Orsi Garlic:

http://www.radiofreepalmer.org/2019/07/24/agmatters-orsi-garlic-2019-7-24/

From: Lori Klein <[redacted]>
Sent: Thursday, May 20, 2021 8:48 PM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: In Support of SB121

Dear Members of the Senate Resources Committee,

I am writing in support of SB 121. Members of my extended family have property in Gustavus. Water contamination is a real and devastating issue for them.

Clean water - anywhere...everywhere...is important to me, and I urge you to signal your priority by voting in support of SB 121.

Thank you,

Lori Klein

12410 Glacier Hwy

Juneau, AK 99821

From: Lisa Sadleir-Hart <gardenstandoncharlesstreet@gmail.com>
Sent: Thursday, May 27, 2021 1:40 PM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB 121 PFAS Use & Remediation; Fire/Water Safety

A community's access to clean potable water is a vital aspect of public health. It's especially important to those committed to growing food for communities. As a fellow grower and someone who's a public health professional, I want to urge you to do the best for communities like Gustavus.

As Alaskans, we all have a right to clean air, water and food.

Lisa Sadleir-Hart, MPH, RDN, CHES

--

Anam Cara
FAMILY GARDEN & KITCHEN
Tom Hart & Lisa Sadleir-Hart, Co-owners

815 Charles Street, Sitka, AK 99835
907-738-5034
https://www.facebook.com/GardenStandonCharlesStreet

From: bo <[redacted]>
Sent: Saturday, May 15, 2021 9:41 PM
To: Senate Resources <SenateResources@akleg.gov>; Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: SB 121

To: Members of the Senate Resources Committee

Re: SB 121 PFAS Use & Remediation; Fire/Water Safety

We own and operate an organic vegetable farm north of Petersburg Alaska and are fortunate enough to be at zero risk of PFAS contamination. Unfortunately some of our friends and fellow farmers in Gustavus are not so lucky. Ground water and soil contaminated with PFAS chemicals makes producing healthy locally grown food impossible. Finding out that your soil and water is contaminated by these chemicals is a virtual death sentence to an organic farm. I can not imagine how hard it must be for our Gustavus friends to find out years of hard work, hopes and dreams are at risk because their water is contaminated with PFAS. Something needs to be done not only to stop this from happening ever again but also to remediate the terrible situation anyone exposed to PFAS finds themselves in. Please pass SB 121 asap.

Bo Varsano
Marja Smets
Farragut Farm LLC
Farragut Bay, Alaska
box 1714
Petersburg AK
99833

From: Hansens <[redacted]>
Sent: Monday, May 17, 2021 8:05 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: PFAS contamination in Gustavus' Root Seller Farm

Dear Senator -

An issue has been brought forward regarding PFAS firefighting foam groundwater contamination affecting landowners around the Gustavus airport, particularly small farmers David and Nikki Love. If this is indeed the case, hardworking food growers are negatively affected, compromising their ability to produce local food as a livelihood. Responsible parties would have an obligation to remediate as is possible. Please consider their situation and encourage a just handling of this matter. Thank you for your consideration.

Scott Hansen

Sunnyside Farms of Haines

[redacted]

From: Samarys Seguinot-Medina <[redacted]>
Sent: Friday, April 30, 2021 11:01 AM
To: Senate Resources <SenateResources@akleg.gov>
Cc: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Support of SB 121 / SB 121 PFAS Use & Remediation; Fire/Water Safety

Dear Chair and Members of the Senate Resources Committee,

Good morning and thank you for the opportunity to provide testimony in support of SB 121. My name is Dr. Samarys Seguinot-Medina and I am a public health scientist and the Environmental Health Director of Alaska Community Action on Toxics in the traditional territories of the Dena'Ina lands (Anchorage). I would like to submit as my testimony an Opinion Editorial of mine published in the Frontiersman newspaper (attached as a pdf document) on April 22, 2021 in support of legislation HB 171 and SB 121.

Actions to address PFAS contamination in Alaska are long overdue. HB 121 is a significant step in the right direction. We are calling on state legislators to support and pass HB 171 and SB 121 this session as an urgent matter to protect the water and health of Alaskans.

Thank you for your consideration.

[redacted]

Samarys

https://www.frontiersman.com/opinions/safe-drinking-water-is-a-fundamental-human-right/article_2a9a8502-a3cd-11eb-a7ba-a3b493eb1aab.html

Mat Su Valley FRONTIERSMAN

By Dr. Samarys Seguinot-Medina | April 22, 2021

Environmental Health Program Director for Alaska Community Action on Toxics

Safe drinking water is a fundamental human right

Safe drinking water is a fundamental human right, it is a principle that acknowledges that it is essential to every person's life. It was recognized as a human right by the United Nations General Assembly on 28 July 2010. Lack of access to safe, sufficient, and affordable water, sanitation and hygiene facilities has a devastating effect on the health, dignity, and prosperity of billions of people, and has significant consequences for the realization of other human rights (United Nations, 2021). Opening the faucet at home to have a glass of water should not be a matter of concern to anyone. But sadly, for millions of US citizens and thousands of Alaskans it is. It is very disappointment that our legislation is taking so long to provide serious measures to protect Alaska's drinking water and therefore Alaskans public health and well-being from the dangers posed by PFAS. Right now, in the United States there are 94 current policies in 31 states and 39 adopted policies in 15 states to reduce or eliminate PFAS. There is an overwhelming amount of scientific evidence that PFAS is linked to serious health problems such as cancer, hormone disruption, immune suppression, cardiovascular disease, and reproductive problems. Scientists are concerned about how exposure to PFAS and other toxic chemicals can worsen the impacts of Covid-19. PFAS are also known as "forever chemicals" because they do not break down easily in the environment. Nearly every American has PFAS in their body. They are found in blood, breast milk and even umbilical cord blood of newborn babies. A recent study found 60 tons of PFAS in the Arctic Ocean. As a public health professional, I urge the Alaska legislature to adopt health-protective drinking water standards for the entire class of PFAS chemicals by supporting SB 121. It would be just to provide safe drinking water for contaminated communities. It would be wise to ban the use of all PFAS chemicals in firefighting foam, food packaging, textiles, and other non-essential products and to hold manufacturers financially responsible for cleaning up PFAS pollution and the harm it caused communities. Also, it should ensure that contaminated communities have access to testing of local foods, blood serum testing; health care and medical monitoring for early signs of PFAS-related diseases. Also, to ensure that disposal of PFAS does not further contaminate communities that are already harmed and to prevent incineration of PFAS-contaminated soils and firefighting foams. Finally, legislation should include to establish health-protective remediation standards for soil and water at contaminated sites and to require remediation technologies that remove and destroy PFAS contamination. Please, support SB 121 to ensure the protection of Alaskans now and the future generations to come. Remember, water is life.

Dr. Samarys Seguinot-Medina resides in Anchorage and is an environmental and public health scientist.

From: [redacted] <[redacted]>
Sent: Tuesday, February 8, 2022 5:52 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms Chiara DAngelo
9642 N Douglas Hwy Juneau, AK 99801-7657 [redacted]

From: [redacted] <[redacted]>
Sent: Tuesday, February 8, 2022 6:00 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Mr. Nick Treinen
16807 E Helmaur Pl Palmer, AK 99645
[redacted]

From: [redacted] <[redacted]>
Sent: Tuesday, February 8, 2022 12:14 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Kristin Backlund
2568 Mukluk Loop Eielson Afb, AK 99702-3147 [redacted]

From: [redacted] <[redacted]
Sent: Friday, February 4, 2022 8:22 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

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I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Ceridwyn Creswell
928 E 10th Ave Apt 4 Anchorage, AK 99501-3800 [redacted]

From: [redacted] <[redacted]>
Sent: Friday, February 4, 2022 1:23 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

My name is Glo Chitwood, and I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Glo Chitwood
328 Third Ave Seward, AK 99664-9900
[redacted]

From: [redacted] <[redacted]>
Sent: Friday, February 4, 2022 9:46 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Mr Craig Kimball
21314 Chugiak, AK 99567
[redacted]

From: [redacted] <[redacted]>
Sent: Saturday, February 5, 2022 12:47 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Mr. Aaron Ford
34733 Bluegrass St Anchor Point, AK 99603 [redacted]

From: [redacted] <[redacted]>
Sent: Sunday, February 6, 2022 11:14 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Mx. Jordan Ebert
1001 Boniface Pkwy Spc 17N Anchorage, AK 99504-1649 [redacted]

From: [redacted] <[redacted]>
Sent: Wednesday, February 2, 2022 9:17 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Dr. Nicholas Riordan
3740 Williams St Anchorage, AK 99508-4538 [redacted]

From: [redacted] <[redacted]>
Sent: Thursday, February 3, 2022 11:17 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms Leah Moss
1629 Lake Otis Pkwy Anchorage, AK 99508-3233 [redacted]

From: [redacted] <[redacted]>
Sent: Thursday, January 27, 2022 6:14 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

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I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Mrs Lesh Joann
1557 Gustavus Rd Gustavus, AK 99826
[redacted]

From: [redacted] <[redacted]>
Sent: Monday, January 24, 2022 7:08 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Thanks for SB 121

Dear Senator Jesse Kiehl,

THANK YOU for sponsoring Senate Bill 121 to addresses PFAS contamination and establishes health-protective measures. I hope you will be able to schedule a hearing for the bill soon.

Sincerely,
Mr. Nathan Borson
PO Box 211 Gustavus, AK 99826-0211
[redacted]

From: [redacted] <[redacted]>
Sent: Saturday, January 29, 2022 10:26 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Dr. Samarys Seguinot-Medina
7962 Resurrection Dr Anchorage, AK 99504-4729 [redacted]

From: [redacted] <[redacted]>
Sent: Saturday, January 29, 2022 10:29 AM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: Please schedule a hearing for SB 121

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I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Margaret Tarrant
3240 Penland Pkwy Spc 343 Anchorage, AK 99508-1917 [redacted]

From: [redacted] <[redacted]>
Sent: Saturday, January 29, 2022 12:35 PM
To: Sen. Jesse Kiehl <Sen.Jesse.Kiehl@akleg.gov>
Subject: *****SPAM****** Please schedule a hearing for SB 121

Dear Senator Jesse Kiehl,

I am writing today to urge you to please have a hearing on Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, schedule a hearing for SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Patti Saunders
3733 Henderson Loop Anchorage, AK 99507-2627 [redacted]

Dear Chair Revak and Members of the Senate Resources Committee:
We urge you to pass SB 121 out of committee today. I've attached a short 2-page briefing paper, *The Cost of Inaction and the Benefits of Acting Now on PFAS* (attached and text pasted below). It includes information about how taking action now on PFAS is necessary to prevent further harm to our communities, health, and economy.

Thank you for your consideration and we wish you the best in your important deliberations today.

Sincerely,
Pamela Miller, Senior Scientist and Executive Director of Alaska Community Action on Toxics

The Cost of Inaction and the Benefits of Acting Now on PFAS

In Alaska, the dispersive use of PFAS-based firefighting foams on military bases and airports has contaminated the drinking water of thousands of Alaskans. PFAS are contaminating groundwater and surface waters, fish, wild game, garden produce and backyard chickens in Alaska. Several Alaska lakes are now closed to fishing because of PFAS contamination. Legislators have the opportunity to take the lead in protecting the health of Alaskans by passing SB 121, a bill that would require greater protections for communities by addressing PFAS contamination and preventing further harm. It would also facilitate the transition to safe alternatives that are effective, economical, and in use throughout the world on major airports, military bases, and oil and gas facilities. States are taking the lead to address PFAS and protect the health of their residents—21 states have adopted 72 policies on PFAS and at least 30 states are considering policies on PFAS in 2022, with at least 202 policies under consideration.[1]

- Passing SB 121 to address PFAS in Alaska is the right thing to do and the time to do it is now. The longer Alaska waits to address this issue, the more expensive it will be. We need to prevent increasing costs of liability and shift the burden from individuals, utilities, local communities, and state government to the responsible parties.

- Some legislators have expressed concern that the cost of cleaning up and managing PFAS contamination in Alaska is cost prohibitive, however there is $10 billion in the federal infrastructure bill to pay for it.[2] Having legislation in place will demonstrate that our state is prepared to address this issue and help ensure that Alaska receives its fair share of this funding.

- The health, societal, and economic impacts from PFAS contamination are immense and externalized onto individuals, communities, local and state governments. Health-related costs in the U.S. due to PFAS exposure are estimated to be $37-59 billion annually—costs that are borne by individuals, health care providers, and tax payers. Societal costs also include lost wages; lost years of life; reduced quality of life; increased stress, anxiety,

[1] https://www.saferstates.org/news/new-analysis-2022/
[2] https://www.jdsupra.com/legalnews/infrastructure-act-provides-funding-for-4351723/

and depression; and subsequent impacts on families and communities.[3] PFAS contamination can also reduce property values of homes and businesses. Households and businesses can incur costs of purchasing bottled water or to install and maintain water filtration systems.

- The state of Alaska filed a lawsuit last year against 3M Company, E.I. DePont de Nemours and Company and dozens of other firms for their part in releasing PFAS into the environment. However, lawsuit like this can drag on for years - while Alaskans pay the price.

- SB 121 prevents further harm and provides protections for the health of Alaskans and our communities. On February 16, 2022, members of the AK legislature held a Senate Resources hearing on SB 121 where Chris Hladick, former EPA Region 10 Administrator, former Commerce Commissioner, former city manager of Unalaska, Galena, and Dillingham said it best during his public testimony when he stated *"…It's gonna cost money…the mitigation piece is going to be difficult…but you've got to just chip away at it (PFAS contamination) …and keep moving."*

Effects of per- and polyfluoroalkyl substances (PFAS) on Human Health

PFAS is an acronym for a class of more than 9,000 chemicals called per- and polyfluoroalkyl substances. These chemicals share the common trait of having multiple carbon-fluorine bonds, one of the strongest covalent bonds in organic chemistry, making them incredibly persistent. In fact, PFAS chemicals can persist in the environment for such a long time that they are known as "forever chemicals." Low-level exposures to PFAS are associated with serious health effects. Exposure to PFAS in drinking water is linked with kidney and testicular cancer, ulcerative colitis, adverse reproductive health outcomes, liver diseases, thyroid disease, high cholesterol, and immunotoxic effects.[4] The diagram below summarizes the scientific evidence concerning the effects of per- and polyfluoroalkyl substances on human health.[5] [diagram of health effects included in attachment]

Pamela Miller, she/her/hers
IPEN Co-Chair (www.ipen.org) and
Executive Director
Alaska Community Action on Toxics
1225 East International Airport Rd. Suite 220, Anchorage, Alaska 99518
Phone (907) 222-7714; Fax (907) 222-7715
Website | Twitter @ak_action | Facebook
www.akaction.org

[3] Cordner et al. 2021. The True Costs of PFAS and the Benefits of Acting Now. Environmental Science and Technology 55:9630-9633.
[4] Cordner et al. 2021. The True Cost of PFAS and the Benefits of Acting Now. Environ. Sci. and Technology 55:9630-9633.
[5] Fenton SE et al. 2021. PFAS Toxicity and Human Health Review. Environ. Toxicol. Chem. 40(3):606-630.

Dear Senate Resources,

I am writing today to urge you to pass Senate Bill 121 - which addresses PFAS contamination and establishes health-protective measures - within the next 30 days.

PFAS are a class of over 5000 manmade chemicals that are highly toxic and persistent, which means they never break down in the environment. They are linked to a litany of serious health problems like increased risk of thyroid disease, decreased fertility, liver disease, certain cancers like testicular and kidney, and more.

In Alaska, the dispersive use of PFAS-containing firefighting foams on military bases and airports has contaminated the drinking water of communities from the North Slope to southeast Alaska. PFAS have been discovered at over 100 individual sites in nearly 30 locations, and many more need to be investigated. There are safe alternatives that provide for fire safety without causing long-term harm to our waters, wildlife, and people.

I am concerned for my health and safety, the health and safety of my family, and that of all Alaskans. Please, pass SB 121, and let's work together to get this important legislation passed.

Thank you

Sincerely,
Ms. Margaret Tarrant
3240 Penland Pkwy Spc 343 Anchorage, AK 99508-1917 hidatsachick@gmail.com

Chair Revak and Members of Senate Resources Committee,

House Bill (HB) 171 and Senate Bill (SB) 121 that would require greater protections for communities by preventing and addressing PFAS contamination, including setting enforceable drinking water standards for a number of PFAS's as well as requirements for polluters to pay for safe drinking water and blood tests for people affected by PFAS contamination are urgently needed.

Alaska needs enforceable drinking water or food safety standards that current studies indicate should be significantly lower than the guidance level of 70 ppt set by the Environmental Protection Agency.

Wildland firefighters for the State of Alaska used AAAF to help suppress wildland fires in the Fairbanks area. The Division of Forestry had a Compressed Air Foam System (CAFS) installed on a fire truck and I (Jeff) was a crew member on that truck. We practiced spraying foam all around our compound on Airport Rd and used it on numerous fires throughout the community in the 1980's and 90's. At the time we were not told nor did we know the problems associated with the use of this foam.

According to Golden Heart Utilities website:

"Analytical tests have indicated the presence of PFAS in last season’s compost stock. GHU has been proactive screening and testing the compost for PFAS materials. Based on information available to us at this time, it is our understanding that the risk of PFAS in biosolids (compost) has not been determined and more studies need to be conducted to properly determine the risk. Given the uncertainty and general concerns regarding PFAS, GHU is erring on the side of caution and decided to cease the distribution of compost. Alaska Department Environmental Conservation (ADEC) agreed with the decision."

Does this mean that PFAS chemicals are in Golden Heart's discharge water and if so what is it doing to the life processes associated with these water bodies that it is discharged into?

All PFAS "forever chemicals" need to be eliminated in all firefighting foams and the wide and varied products that they are used in. As more studies are conducted to determine the level of contamination throughout our community and as the science learns more about the pernicious impacts, legislative action and regulation is needed to prevent any more contamination and start addressing the path forward to limit and deal with the impacts. Based on the science that we have read, we need to strive for a maximum contaminant level of zero for all PFAS chemicals.

Thank You,

Jeff Yarman
Beth Cender

Dear Chair Revak and Members of the Senate Resources Committee:

Thank you for giving SB 121 a public hearing yesterday. I wish I'd know about it beforehand since this is something I'm very interested in. I VTCed in on a session about it with the legislature a few years ago, and I'm surprised that the info presented didn't cause it to be taken care of.

I encourage you to add more protections to SB 121 and to move it along with a recommendation to PASS after another public hearing. The science is clear that PFAS chemicals are hazardous to health. In fact, because PFAS can't be removed from the body, I try to avoid it to the extent of making things lotion and deodorant or using products it's in -non-stick pans or stain resistant materials. Worse, they are pretty much impossible to escape under current regulations. They are found in drinking water and in many products and packaging, but the public is unaware of what drinking water, which products or packaging. There are also many contaminated sites in Alaska, and I am very worried about my grandkids living near the Fairbanks airport.

I don't see a downside to getting rid of PFAS. It doesn't seem to have hurt the half dozen states that have banned this 'forever chemical,' and shepherding this bill through will be a benefit to all Alaskans.

Sincerely,
Felicia Riedel

PATTI SAUNDERS
3733 HENDERSON LOOP
ANCHORAGE, AK 99507
(907) 278-2802
SAUNDERS.PATTI@GMAIL.COM

Re: SB 121 (PFAS)

To the Senator Revak, Chair of Senate Resources Committee and committee members:

The family of chemicals called PFAS present an existential threat to humans and the environment on which we depend because of the unfortunate combination of:

- PFAS' extreme mobility in the environment, especially water
- Indestructibility of the fluorine-carbon bond in nature
- Toxicity involving significant health harms (including neurotoxicity, decreased fertility, cancer, and compromised immune systems), often occurring at extremely low exposure levels (less than 1 ppt)
- PFAS chemicals are present in thousands of products and manufactured in enormous quantities

Alaskans' drinking water and the oceans that sustain our subsistence and commercial fisheries are at stake. We must act quickly to prevent further harm and begin to address existing harm.

The **first priority** must be to stop the continued use of commercial firefighting foam that contains PFAS chemicals (AFFF) at Alaska's many airports, military bases, and oil & gas facilities. There are safe, effective, economical alternatives already in use at comparable sites around the world. Alaskans deserve the same protection.

The oil & gas industry does not deserve either an exemption or a delay for two reasons:

1. The oil & gas industry has an undisclosed and unacknowledged conflict of interest: petroleum provides the feedstock that chemical corporations use to manufacture PFAS. Their financial interest in continued sales of AFFF is disqualifying and calls their testimony into question. In addition, the same companies that are asking for an exemption in Alaska are subject to existing

laws in Colorado, California, and Washington outlawing AFFF. Why should Alaskans settle for less protection than the citizens of those three states?

2. Norway's North Sea offshore oil and gas operations, successfully switched to fluorine-free foam in 2016. These facilities produce 50% of total production in the North Sea (2.5 million gallons of oil and gas per day).[1] Surely it is not unreasonable to suppose that the United States' oil industry can meet the standards Norway's industry has successfully implemented at "relatively modest" costs. There are in fact no technical or legal impediments to Alaska's oil industry's immediate conversion to fluorine-free firefighting foam.

The **next priority** is the establishment of enforceable, health-protective standards for drinking water. Currently, there are no federal or Alaskan maximum contaminant levels for PFAS. While Congress and EPA are wrestling with this issue, it behooves Alaska's legislature, which can move more quickly than lawmakers in Washington, DC, to join the dozens of other states that have acted or are about to take action to protect their residents. Preventing additional harm from the dispersive use of AFFF will help Alaskans, but it will also help limit the state's liability related to its operation of more than 200 airports around the state for every day since the dangers of PFAS could or should have been known.

It is important to understand the EPA's guideline of 70 ppt is:

1) Not based on the current state of the science (much has been learned since 2016)
2) Not enforceable
3) Not a drinking water standard
4) Is a "lifetime health advisory" (i.e., the amount deemed safe for a person's body to accumulate over a lifetime)

It is highly likely that most, if not all, members of the PFAS family of chemicals will exhibit similar persistence, bio-accumulativeness, and toxicity. Therefore, legislation that addresses the entire class of PFAS is a logical approach to protect Alaskans' health and that portion of the economy that is dependent on pristine waters (both fresh and ocean). Legislation should establish enforceable drinking

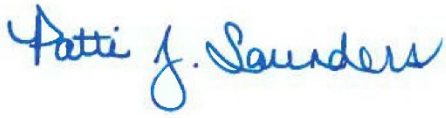
[1] The Global PFAS Problem: Fluorine-Free Alternatives As Solutions, p. 60, IPEN Expert Panel, presented to the U.N.'s Stockholm Convention 9th Conference of the Parties (April-May 2019). A copy of Appendix III is attached to this written testimony. https://ipen.org/sites/default/files/documents/the_global_pfas_problem_v1_6.pdf

water standards with a maximum contaminant level goal of zero for the PFAS class and a combined standard below 20 ppt at the lowest, most health-protective level technically achievable for the maximum number of quantifiable PFAS. Maine and Massachusetts have set good precedents for health-protective drinking water standards.

The class approach addresses chemical manufacturers' rigid refusal to test their own products for toxicity before releasing them into the environment, their attacks independent scientists and the results of their research into those untested chemicals to delay or prevent new regulations, and their propensity for "regrettable substitutions" of new untested (by them) chemicals in the same class whenever one chemical is finally banned (i.e., when PFOA and PFOS became too dangerous to manufacture, they turned to other "newer" generation PFAS chemicals, such as "short-chain" substitutes that can be as or even more persistent and toxic.

I urge you to act with the urgency the public health and economic threat posed by PFAS contamination requires and that Alaskans deserve. With the changes recommended to strengthen it by scientists and public health experts, SB 121 will be a worthy step in the right direction.

Thank you.



THE GLOBAL PFAS PROBLEM: FLUORINE-FREE ALTERNATIVES AS SOLUTIONS

FIREFIGHTING FOAMS AND OTHER SOURCES – GOING FLUORINE-FREE

IPEN Expert Panel
Stockholm Convention 9th Conference of the Parties (COP9)
Geneva

April-May 2019

IPEN
for a toxics-free future

THE GLOBAL PFAS PROBLEM: FLUORINE-FREE ALTERNATIVES AS SOLUTIONS - HAS TIME RUN OUT FOR SHORT-CHAIN REPLACEMENTS FOR C8 PFAS?

FIREFIGHTING FOAMS, TEXTILES, FABRICS AND OTHER SOURCES OF PFAS DISPERSAL AND CONTAMINATION

Bluteau, T. [a], **Cornelsen**, M. [b], **Day**, G. [c], **Holmes**, N.J.C. [d], **Klein**, R.A. [e], **Olsen**, K.T. [f], **McDowall**, J.G.[g], **Stewart**, R. [h], **Tisbury**, M. [i], **Webb**, S. [j], **Whitehead**, K. [k], **Ystanes**, L. [l].

[a] Leia Laboratories, France
[b] Cornelsen Umwelttechnologie GmbH, Essen, Germany
[c] Fire Service Compliance Manager, London Heathrow Airport, United Kingdom
[d] Department of of Science and Environment, Queensland Government, Australia
[e] Cambridge, United Kingdom, and Christian Regenhard Center for Emergency Response Studies, John Jay College of Criminal Justice, City University New York (CUNY), New York USA
[f] Fire Training Academy, Copenhagen Airports, Denmark
[g] 3F Ltd, Corby, United Kingdom
[h] Ziltek, Adelaide, Australia
[i] United Firefighters Union and Melbourne Metropolitan Fire Brigade (MFB), Australia
[j] Formerly Head of Operational Practice HM Fire Services Inspectorate and UK Civil Aviation Authority (CAA), UK
[k] Unity Fire & Safety, Oman
[l] Equinor (formerly Statoil), Bergen, Norway

representing the IPEN Panel of Independent Experts

White Paper prepared for IPEN by members of the IPEN Expert Panel and associates for the meeting of the Stockholm Convention Conference of the Parties (COP9), 29 April – 10 May 2019, Geneva, Switzerland.

Cite this publication as:

IPEN 2019/Stockholm Convention COP-9 White Paper, *The Global PFAS Problem: Fluorine-Free Alternatives As Solutions*.

Corresponding authors: R. A. Klein <rogeraklein@yahoo.co.uk>, Nigel Holmes <Nigel.Holmes@des.qld.gov.au>

IPEN is a network of non-governmental organizations working in more than 100 countries to reduce and eliminate the harm to human health and the environment from toxic chemicals.

www.ipen.org

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APPENDIX III

GOING FLUORINE-FREE IN THE PETROCHEMICAL INDUSTRY – ONSHORE AND OFFSHORE IN THE NORWEGIAN NORTH SEA SECTOR

Statement from Lars Ystanes, environmental specialist, Equinor (formerly Statoil), Bergen, Norway

1. BACKGROUND

Fluorine based firefighting foams have been identified for many years as chemicals of environmental concern. Until 2014, AFFF (Aqueous Film Forming Foam) was used onshore/offshore in Equinor (aka Statoil) operations world-wide and contain organo-halogens known as PFAS (perfluoroalkyl substances). At an early stage, Equinor pinpointed AFFF as one of our company's undesirable chemical footprints affecting the environment, with a long history of requiring chemical substitution. The process of replacing AFFF was internally driven and coordinated based on the general concerns expressed by our stakeholders such as NGOs or the regulatory authorities. Equinor aims lead in Health and Safety. Combined with significant efforts and collective internal engagement together with an inventive supplier, this resulted in replacement of a substance known to be of high long-term concern. The organo-halogens present in AFFF had been identified as priority pollutants by the Norwegian Environment Agency and other authorities since the chemicals are considered environmentally persistent, bio-accumulative and toxic.

Equinor operates 42 fields on the Norwegian Continental Shelf (NCS) representing 80% of all production on the NCS, producing 2.5 million barrels per day oil and gas, equivalent to 50% of total production for the North Sea including the Norwegian sector.

The first generation of F3 foam was a result of the R&D work performed by the supplier Solberg Scandinavian and ready for first offshore user in 2013. In parallel with this work, in 2014 the authorities required standard environmental documentation (HOCNF – The Harmonised Offshore Chemical Notification Format under the OSPAR (Oslo-Paris) Convention 1992) for all firefighting foam used in high volumes. The fact that Equinor had had success in developing a suitableF3 foam and that foam was required to be reported under HOCNF, led to general pressure driving the Norwegian market. Even if AFFF were to be still allowed, F3 is the preferred product for operators on Norwegian Continental Shelf (NCS).

Development and testing of a new, more environmentally friendly 1% fluorine free firefighting foam was carried out as a collaborative project between Solberg Scandinavian and Equinor (then Statoil) in close cooperation 2010-2012. The project was funded by Equinor enabling the supplier to complete remaining R&D activities. This was first used successfully on the offshore installation Kvitebjørn in December 2012 and the new 1% foam "Re-healing RF1, 1% foam" hereafter called RF1, was approved for use by Statoil, TRL7 (technology readiness level) in November 2013; Technical Decision Gate (TDG)4 – Approve for starting multi-use, December 2014.

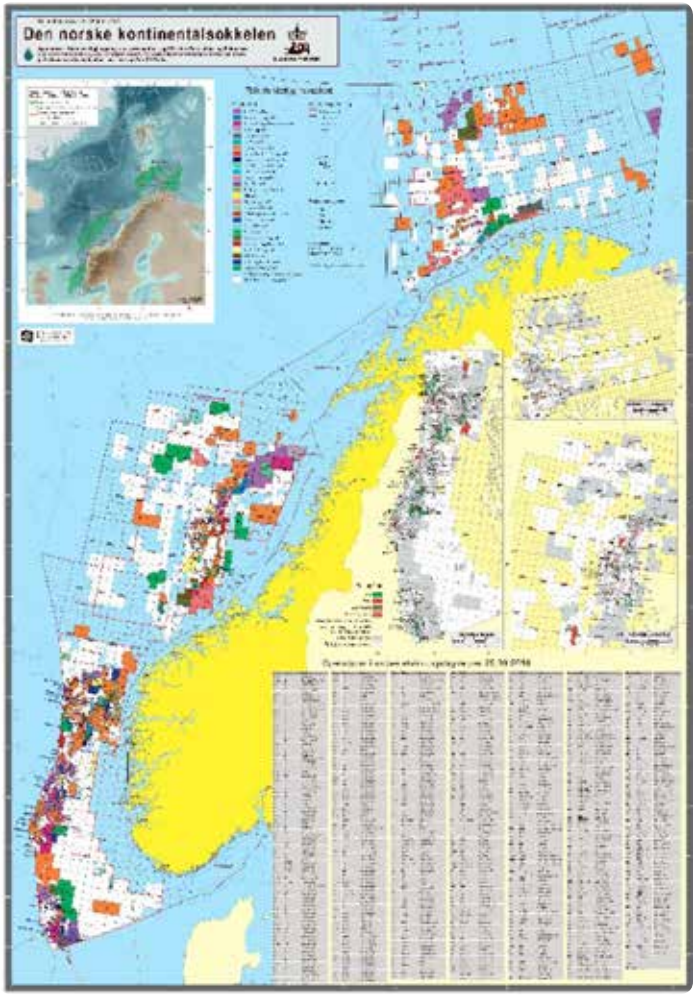


Diagram © Norwegian Petroleum Directorate.

Requirements under the HOCNF rules were an important in identifying the presence of AFFF, with its unacceptable environmental properties driving the substitution.

Today (2019) we can look back on a success story in which we removed a polluting chemical from use without compromising safety and at reasonable cost.

2. SUMMARY OF MULTI-USE ACTIVITIES

A project group was established to plan and promote implementation of the new fluorine-free foam. The group included personnel from Safety Technology, Environmental Technology, Procurement, Technology Development and Implementation. The multi-use project has been limited to Norwegian operated installations with 1% foam systems.

The following activities have been performed by the multi-use group:

- Planning of implementation together with the supplier, Solberg Scandinavian AS, of transitioning from the old to the new foam
- An information letter was distributed in 2013 to contact persons for each asset including:
  - Background for substitution
  - Information on cleaning of tanks
  - Name and contact person at supplier
  - Contact details for support team
- The support team was available upon request.
- Follow up during the substitution phase
- Follow up on technical issues including corrosion suspicions, PFOS contamination issues, etc.
- A new information letter was sent in August 2015 including information on the destruction of previously used AFFF and results of corrosion tests
- Collection and distribution of feedback from each asset at the end of the implementation phase

3. MEASUREMENTS OF SUCCESS - PLANNED AND ACTUAL RESULTS

3.1 Planned results

According to the multi-use plan, the overall success criterion was to have replaced AFFF with RF1 on all Equinor operated installations on the Norwegian Continental Shelf with 1% system by the end of 2015. The following criteria were agreed up front:

a. Proper information addressed in due time for all relevant installations

b. Implementation without accidental spills or discharges

c. Full re-cycling of AFFF during the substitution period, no new 1% AFFF to be procured by Equinor

d. Correct waste handling

e. No productions losses or unplanned cost excesses associated with the implementation

3.2 Actual results

At 31.12.2015, 29 of 32 installations had implemented RF1 substitution and since then the onshore liquified natural gas (LNG) process plant "Melkøya" has also carried out the transition. For full overview see section 5. The project concluded that the all criteria above have been fulfilled except for bullet point (c). The recycling of AFFF was stopped after discovering of traces of PFOS in some AFFF samples. For more details, see later sections. The project experienced different challenges during the execution phase, as described subsequently.

3.2.1 Equipment Breakdown

Early on in 2015 we received a general warning from one of our equipment suppliers of foam proportioning equipment, in connection with ConocoPhillips' exchange to RF1 on several installations in the Ekofisk area.

ConocoPhillips use several foam proportioners of the in-line turbine type made of bronze manufactured by this supplier. They had reported breakdown of some the proportioner bearings on the water side while using AFFF. These had subsequently been modified and strengthened.

During full-scale testing with RF1 they experienced breakdown of the foam turbine. The first conclusion was corrosion. ConocoPhillips then had a test program with Fire Protection Engineering (FPE). Further bench tests showed similar damages. Equinor was invited to these tests and our internal corrosion department was engaged. The machine supplier together with Solberg carried out additional investigations and the final conclusion was that the breakdown was caused by cavitation in the start-up of deluge caused by high water velocities and speed of turbine. RF1 had no influence on the foam proportioners.

During this period, different kinds of problems were blamed on RF1 with very little substance. It became a time-consuming exercise to investigate and deal with these criticisms which were shown to groundless. During the months of corrosion testing of RF1 in 2015, all foam substitution was halted, with some installation change-overs delayed compared to the original plan.

3.2.2 Density and viscosity

It became apparent from the project that RF1 had higher density and viscosity compared to AFFF. However, all tests performed during qualification, tests at SINTEF (includ-

ing cold environment below freezing temperatures) and first use tests showed no issues with regard to density nor viscosity.

During multi-use and for some projects in engineering/ construction phase it was reported that the higher density could be a problem for some installations with substandard foam pumps.

Due to environmental issues, it was decided early on to avoid full scale tests with AFFF before substitution to RF1. Such tests could have provided valuable technical knowledge on different parameters. Lack of testing with AFFF before substitution made it difficult to decide if some technical issues were already present or had been introduced/ reinforced by RF1.

Most installations were able to handle the increased viscosity and density with only minor system adjustments. However, at one installation, Veslefrikk B, the pumps were not able to handle the RF1. The solution is under evaluation, and substitution until F3 is planned during 2019.

3.2.3 Contamination of AFFF with PFOS

Early in 2015, traces of PFOS (perfluorooctanesulfonic acid) were discovered in waste fractions from the Visund installation. An investigation into root causes revealed that the PFOS traces originated from AFFF in storage tanks offshore. Part of this AFFF was traced back to the reuse pool established in the RF1 implementation project and further tests revealed traces of PFOS in the reuse pool as well. The origin of the trace amounts could not be linked to original product storage samples at the vendor's site though, which in turn sparked a wider screening across all installations still holding AFFF. The AFFF re-use pool was immediately terminated and stored volumes were treated as hazardous waste.

Internal screening in Equinor revealed further challenges with concentrations of trace PFOS that were too high at several installations as shown in the adjacent figure. Exchanged AFFF volumes were treated as hazardous waste after PFOS contamination had been confirmed. The guidelines for substitution was slightly changed after PFOS became an issue, and tanks would be dry-drained rather than washed with water before refilling with RF1. Ultimately, a final verification for PFOS traces in major storage tanks was recommended and carried out, including for those tanks filled with RF1 after the exchange procedures. Verification has been based on tank screening.

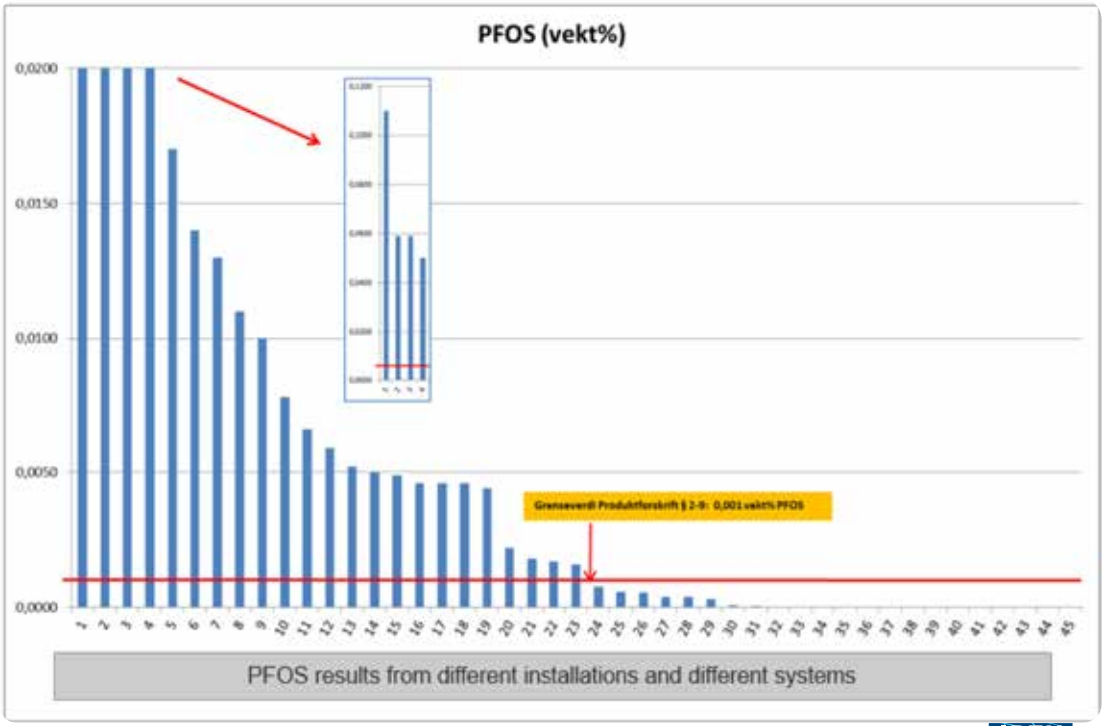
Verification results show that traces of PFCs (perfluorochemicals including PFOS) from AFFF can still be found in RF1 filled tanks. PFC concentrations are generally lower or below the detection limit for tanks that were exchanged after the latest guidelines were put in place, higher concentrations were found for RF1 at some installations where the changeover had been implemented before PFOS became a known issue. Trace levels of PFCs are expected to be present in many systems for years to come, even if RF type foam is used. Levels are below current regulatory trigger levels but will have to be checked again in line with any future changes in legislation. Selected PFCs are being considered for tighter regulation by 2020 but it is unclear whether this will affect foam stocks held in storage. When RF1 had been used from the very beginning in a new installation (Gudrun) there was no evidence of PFC contamination.

4. MULTI-USE ASSETS – STATUS

Table 1 gives the implementation status on 1 September 2016:

Installation	Substituted to RF1 yes/no	Year of substitution
Grane	Yes	2015
Gudrun	Yes	2014
Heidrun	Yes	2015

FPOS results form different installations and different systems.



Installation	Substituted to RF1 yes/no	Year of substitution
Heidrun B (FSU)	No	IMO-requirements
Heimdal	Yes	2014/2015
Huldra	No	Field closed 2014
Kristin	Yes	2014
Kvitebjørn	Yes	2013
Njord A	Yes	2013
Norne	Yes	2014
Oseberg A,B;D	Yes	2015
Oseberg C	Yes	2015
Oseberg Sør	Yes	2014
Oseberg Øst	Yes	2014
Sleipner A	Yes	2014/2015
Sleipner B	Yes	2014
Snorre A	Yes	2015
Snorre B	Yes	2015
Hammerfest LNG	Yes	2016
Statfjord B	Yes	2014
Statfjord C	Yes	2014
Troll A	Yes	2014
Troll B	Yes	2014
Troll C	Yes	2014
Valemon	Yes	2014
Veslefrikk A	Yes	2014
Veslefrikk B	Planned	2019
Visund	Yes	2015
Volve - Maersk Inspirer	Yes	2015
Volve - Navion Saga	Yes	2014
Åsgard B	Yes	2014
Åsgard C	Yes	2015

In order to consider perspectives and comments from the different business areas and business clusters involved in the Multi-use project, the project group sent out a short survey to those responsible for implementation responsible in the different units.

The original message that was sent out was as follows:

Has full substitution been performed?

1. *Have there been any challenges in connection with the substitution?*
2. *Have you been running full scale testing of the new foam?*
   a. *If yes: Have the tests given appropriate results?*
   b. *If yes above: Can you please send us the corresponding reports?*
3. *Have you received the necessary support from the project group during the substitution?*
4. *Any other comments?*

The project received feedback from all Equinor-operating installations. This feedback was put together in a document in which any challenges which has occurred during the project were commented upon and any questions arising answers. The document was then distributed to those who had replied to the questionnaire.

The overall impression from the feedback received was that the substitution has been successful. 18 of 27 installations had no problems connected with the substitution; 4 of these had at that time not been testing the new foam. Some technical challenges were also reported:

- 8 out of 27 installations experienced a low mix ratio for some skids.
- One installation, Veslefrikk B, was not able to use the new foam due to the foam pumps having too low a capacity.

5. FINAL RISK EVALUATION FOR MULTI-USE PHASE

Risk assessment for the multi-use phase was part of the decision documentation. The only risk identified was a short term one, the monopoly situation whereby only one supplier was providing fluorine-free foam. This could result in price increases. In connection with renewal of foam-contract, a tender for a halogen-free foam was sent to several suppliers in 2014. Only Solberg was able to deliver on this. Even so, although the price of the foam has not increased and Equinor will keep searching for additional suppliers.

5.1 Actual schedule for Multi-use phase

By end of 2015, 29 out of 31 facilities had successfully transitioned to RF1. By September 2016, 30 of 31 assets have successfully implemented RF1.

5.2 Final cost for support in Multi-use phase

The cost for support in the Multi-use phase has been estimated to 2500 working hours in the period from August 2013 to September 2016, corresponding to a total cost of 3,5 MNOK (approx. $400,000, not including foam cost.

6. RECOMMENDATIONS FOR FURTHER BROAD IMPLEMENTATION

The 1% halogen-free firefighting foam re-healing RF1, as a substitution for Arctic Foam AFFF 1%, was tested and accepted by Equinor before implementation. RF1 holds all

the necessary certificates required by Equinor for offshore installations.

6.1 Other RF-products available

Other RF products are available on the market for exchanging both 3% AFFF and ATC foams suitable for polar solvents (alcohol) for a fluorine-free alternative. RF products do not necessarily hold all certificates for just one product compared to a comparable AFFF. Certificates should be checked before implementation. Specific weight of gravity and viscosity curves should also be taken into consideration before replacement.

During the project phase for RF1 implementation, many of the Equinor operated installations with 3% system have also replaced AFFF with fluorine-free foam. This did not, however, fall within the scope for this TDI (Technology Development Innovation) and therefore is not part of this report.

6.2 Further development of RF-1

Solberg has recently modified 1% RF1 giving a version with lower viscosity at low temperatures and with a yellow environmental classification (compared to red classification[1] for RF1) called RF1-AG. This product went into operational use in 2018 for all new fields. For existing fields, aadditional tests were needed to assure that mixing of different generations of the same foam could be performed without adding any risks or unknowns. These tests have shown that the two products can be mixed in any ratio without compromising their technical properties. RF1-AG has better (lower) viscosity, excellent freeze protection and is regarded as environmental acceptable according to the OSPAR (The Convention for the Protection of the Marine Environment of the North-East Atlantic) classification system.

For older facilities, 3% foam are still used. In these cases, re-healing foam RF3, a 3% fluorine-free foam, is used.

6.3 Other potential implementation areas for the halogen free foam

Onshore facilities: Both Hammerfest liquified natural gas (LNG) terminal, Sture oil terminal, and Kårstø terminal, as well as the Mongstad refinery, have all more or less substituted AFFF for PFC-free products. Last year saw decline in PFC concentrations during receiving environment monitoring at some locations.

7. FINALISED BUSINESS CASE

With Equinor's contribution in developing, testing and implementation of fluorine-free firefighting foam, we have already contributed to a large reduction of the environmental foot print caused by the oil industry on the Norwegian continental shelf (NCS).

The Norwegian Environmental Agency has reported a 17% reduction of discharge of fluorine-containing foam from 2014 to 2015. This reduction is expected to continue over the coming years.

All the components of the second-generation fluorine-free foam (F3) have acceptable environmental classifications as far as the marine environment is concerned. This makes Equinor well prepared for any potential future requirements.

This project is, as far as we are aware of, one of its kind. With further implementation and experience transfer in the offshore industry, this can lead to a drastic reduction and potentially cessation of discharges of fluorine-containing firefighting foams from the oil industry worldwide.

We at Equinor have seen that the costs related to substitution are relatively modest, with the potential costs of continuing to use a potentially banned chemical far exceeding the relatively modest costs related to substitution and destruction of AFFF.

We have investigated and verified all aspects of the fluorine-free foam (F3) used, RF1-AG, with respect to operational firefighting efficiency, health and safety, freeze protection, aging, etc. We regard the new fluorine-free foam as a fully acceptable and even better replacement for AFFF. Since PFCs will most likely be regulated more strictly in the future, Equinor aims to remove AFFF wherever possible. We in Equinor will do this on our own but as always we see that national and international restrictions and bans helps to speed up the willingness and motivation for substitution in the industry as a whole.

It is notable that other suppliers have discovered the end-user driven market demand for replacing fluorosurfactants. On a regular basis we see concerns related to contamination and the undesirable side-effects of fluorosurfactants. We hope that the firefighting foam industry will take a lead in substituting AFFF worldwide.

FOOTNOTES

(1) Denmark and Norway have introduced an environmental colour marking system indicating for substances that should be considered candidates for substitution, BLACK > RED > YELLOW > GREEN, controlling substances for discharge. The UK publishes a list of all offshore chemicals currently register for use on the UK Continental Shelf (UKCS)that confirms whether products are, or contain a candidate for substitution.