COMMENTS RECEIVED
ON THE CLEANUP LEVEL
AMENDMENTS
TO
18 AAC 75

Schlichting, Sally G (DEC)

From: Torrance, Keith <keith.torrance@uicumiaq.com>
Sent: Wednesday, October 21, 2015 1:15 PM
To: Schlichting, Sally G (DEC)
Subject: Comments on proposed modifications to the Cleanup Levels

Ms. Schlichting,

My comments on the proposed modifications to the Cleanup Levels in AAC 18 75 3 are as follows

Arsenic
The 2015 proposed groundwater cleanup value is 0.52 ug/L which has been lowered from the existing level of 10 ug/L. The new cleanup level is significantly less than the EPA drinking water MCL of 10 ug/L which was adopted in 2006. On October 31, 2001, the EPA Administrator announced that the 10 ppb (0.010 mg/L) standard for arsenic would remain stating that, "the 10 ppb protects public health based on the best available science and ensures that the cost of the standard is achievable."

Arsenic is naturally elevated in many parts of the state and most aquifers are likely to exceed the cleanup value.

The MDL for arsenic using ICP-MS by Method 200.8 by a laboratory is typically going to be around 0.5 - 1.0 ug/L. Consequently a standard metal suite analysis of groundwater that does not detect As will report As at the MQL of ~ 1 ug/L which is above the proposed groundwater standard.
Using a different analytical method to achieve the increased sensitivity and lower detection levels would be significantly more expensive than Method 200.8.

Total Chromium
The 2015 proposed groundwater cleanup value is 0.35 ug/L. which has been lowered from the existing level of 100 ug/L. The new cleanup level is significantly less than the EPA drinking water MCL of 100 ug/L for total chromium.
It is accepted that Cr(VI) is a carcinogen and is more toxic than the Cr(III) form, which is essential for human health. California is the only state that has set a drinking water MCL for Cr(VI) which is 10 ug/L (Effective 7/1/14). This MCL is still higher than the proposed groundwater level cleanup of 0.35 ug/L.

Drinking Water MCL comparisons
I can't think of any situations where the groundwater cleanup levels for metals should be more stringent than state drinking water standards as drinking water represents a more direct pathway to a receptor.

Sincerely

KEITH W. TORRANCE PhD CPG CGeol
ASSOCIATE ENVIRONMENTAL GEOLOGIST | UMIAQ
6700 Arctic Spur Road
Anchorage, Alaska 99518
direct: 907-677-8257 | mobile: 907-952-1288
fax: 907-677-8286 | www.uicumiaq.com

A Member of the Ukpeaġvik Iñupiat Corporation Family of Companies

Schlichting, Sally G (DEC)

From: Melissa Shippey <mshippey@nortechengr.com>
Sent: Wednesday, October 28, 2015 1:57 PM
To: Schlichting, Sally G (DEC)
Subject: RE: 18 AAC 75 Cleanup Level Amendments - Workshops and Materials
Attachments: table.pdf

Good afternoon Sally,

Here is the table I was referring to yesterday when I asked about the newer cleanup levels possibly affecting the PQLs set by the state of Alaska and whether or not this could cause an issue for laboratories when reporting results.

In my mind I could foresee a lab not being able to report accurately down to a lower PQL therefore resulting in J qualified data.

Food for thought anyway.

Thanks,

Melissa Shippey – Environmental Project Manager
Nortech Engineering, Inc.
2400 College Road
Fairbanks, Alaska 99709
907-452-5688

From: Schlichting, Sally G (DEC) [mailto:sally.schlichting@alaska.gov]
Sent: Wednesday, October 28, 2015 1:39 PM
Subject: 18 AAC 75 Cleanup Level Amendments - Workshops and Materials

Dear Interested Persons and Workshop Attendees,

For those of you who have attended the recent workshops in Anchorage and Fairbanks, I want to thank you for your attendance as well as your thoughtful comments, questions and input on the proposed changes. On behalf of the Contaminated Sites Program, I look forward to receiving your written comments on the issues you raised. **Please be advised of the extension of the public comment period to **5:00pm December 11, 2015** to provide more time for you to review the proposed changes.

Those of you who indicated "yes" on the sign-in sheet have been added to our Interested Persons List. A PDF of the PowerPoint regulations presentation I have given at the workshops is now posted at our regulations page http://dec.alaska.gov/spar/csp/reg_rev.htm under Support Documents and Tools. It is also attached here, so that for those planning to participate in the **November 5, 2015 Teleconference from 2-4pm**, you may follow along during the teleconference. Also posted are an updated version of the Sectional Explanation of Changes.

As a reminder, all questions concerning the proposed amendments that are received in writing at least 10 days prior (December 1) to the close of the public comment period will be answered and posted on our Frequently Answered Questions page.

Sincerely,

Sally

Sally Schlichting
Unit Manager for Technical Services, Policy & Regulations
ADEC Contaminated Sites Program – Juneau, Alaska
Phone: 907-465-5076
http://dec.alaska.gov/spar/csp/index.htm

To receive program updates, please join the Contaminated Sites Listserv:
list.state.ak.us/soalists/DEC-Contaminated-Sites-Program/jl.htm

Table 1: Reference Guide to Sample Collection and Laboratory Analysis
Part A: Soils, Sediments, Sludges, and Fill Materials

Parameter	Preparation/ Analytical Method[1]	Method Detection Limit[2]	Practical Quantitation Limit[3]	Container Description (Minimum) [Clear glass may be substituted for amber if samples are protected from exposure to light, this exception does not apply to metals]	Preservation/ Holding Time
Gasoline range organics	AK101*	2 mg/kg	20 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Diesel range organics	AK102*	2 mg/kg	20 mg/kg	4 oz. amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Residual range organics	AK103*	10 mg/kg	100 mg/kg	4 oz. amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aliphatic gasoline range organics	AK101AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar with Teflon lined silicon rubber septum seal	Methanol preservative / 28 days from sampling
Aromatic gasoline range organics	AK101AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar with Teflon lined silicon rubber septum seal	Methanol preservative / 28 days from sampling
Aliphatic diesel range organics	AK102AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aromatic diesel range organics	AK102AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aliphatic residual range organics	AK103AA*	10 mg/kg	100 mg/kg	4 oz. wide-mouth amber glass jar. TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aromatic residual range organics	AK103AA*	10 mg/kg	100 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction of sample, less than 40 days to analysis of extract
Benzene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Toluene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Ethylbenzene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Total xylenes	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Total BTEX	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Polynuclear Aromatic Hydrocarbons (PAH)[4]	8270C or 8310	0.1 mg/kg	1 mg/kg	4 oz. amber glass, TLS	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Total Volatile Chlorinated Solvents[6]	8260B or 8021B	0.008 mg/kg	0.08 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Polychlorinated biphenyls (PCBs)	8082	0.01 mg/kg	0.05 mg/kg	4 oz amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Total Arsenic	6010B, 6020, 7060A, or 7061A	0.3 mg/kg	3 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Barium	6010B, 6020, 7080A, or 7081	20 mg/kg	200 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months

Table 1: Reference Guide to Sample Collection and Laboratory Analysis Part A: Soils, Sediments, Sludges, and Fill Materials					
Parameter	**Preparation/ Analytical Method[1]**	**Method Detection Limit[2]**	**Practical Quantitation Limit[3]**	**Container Description (Minimum) [Clear glass may be substituted for amber if samples are protected from exposure to light, this exception does not apply to metals]**	**Preservation/ Holding Time**
Total Cadmium	6010B, 6020, 7130, or 7131A	0.8 mg/kg	8.0 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Chromium	6010B, 6020, 7190, or 7191	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Lead	6010B, 6020, 7420, 7421	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Nickel	6010B, 6020, 7520, or 7521	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Vanadium	6010B, 7911, 6020, or 7910	20 mg/kg	200 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months

Legend to follow Part B

Notes to Table 1, Part A:

[1] Unless otherwise noted, all preparation and analytical methods refer to those contained in EPA's *Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, adopted by reference in 18 AAC 78.090(i).

[2] Method detection limits (MDL), specified in 40 C.F.R. Part 136, Appendix B, revised as of July 1, 1996, adopted by reference, are determined at the department's chemistry laboratory and participating department-approved laboratories.

[3] Practical quantitation limits (PQL), like method detection limits, are instrument specific. PQLs must be established by each laboratory and must equal or have a value lower than the PQL in the table. For purposes of this chapter, PQL = 10 x MDL, except for PCB which is PQL = 5x MDL.

[4] Naphthalene can be analyzed by AK101.

[5] HDPE, High Density Polyethylene sample collection bottles, critically cleaned for trace metals analysis.

[6] May be analyzed out of AK101 methanol preserved sample, if not used, then sample must be preserved with methanol in the field.

* ADEC Analytical Methods AK101, AK102, and AK103 are included in Appendix D. ADEC Analytical Methods AK101AA, AK102AA, and AK103AA are included in Appendix E.

** The AK101 method can be extended for specific determination of volatile aromatics (BTEX) as specified in EPA Method 8021B for solids utilizing methanol preservation option only. All AK101 samples must be preserved with methanol.

Table 1: Reference Guide to Sample Collection and Laboratory Analysis (cont.)
Part B: Ground, Surface, Waste, and Marine Waters[4]

Parameter	Preparation/ Analytical Method[1]	Method Detection Limit[2]	Practical Quantitation Limit[3]	Container Description	Preservation/ Holding Time
Gasoline range organics	AK101*	10 µg/L	100 µg/L	40 mL VOA, TLS	HCL to pH less than 2, 4° ± 2°C /14 days from sampling
Diesel range organics	AK102*	80 µg/L	800 µg/L	1 L amber glass, TLC	HCL to pH less than 2, 4° ± 2°C /14 days to extraction, 40 days to analysis of extract
Residual range organics	AK103*	50 µg/L	500 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aliphatic gasoline range organics	AK101AA**	2 µg/L	20 µg/L	40 ml VOA with Teflon lined silicon rubber septum seal	HCL to a pH of 2 / 14 days from sampling
Aromatic gasoline range organics	AK101AA**	0.2 µg/L	2 µg/L	40 ml VOA with Teflon lined silicon rubber septum seal	HCL to a pH of 2 / 14 days from sampling
Aliphatic diesel range organics	AK102AA**	20 µg/L	200 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aromatic diesel range organics	AK102AA**	20 µg/L	200 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aliphatic residual range organics	--	--	--	--	--
Aromatic residual range organics	AK103AA**	50 µg/L	500µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Benzene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Toluene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Ethylbenzene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Total xylenes	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Total BTEX	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Polynuclear Aromatic Hydrocarbons (PAH)[6]	8270C or 8310	1 µg/L	10 µg/L	1 L amber glass, TLS	4° ± 2°C, Ascorbic acid, dark / 7 days to extraction, 40 days to analysis of extract
Total Volatile Chlorinated Solvents	8021B or 8260B	0.8 µg/L	8 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C $Na_2S_2O_3$/ 14 days
Polychlorinated biphenyls (PCBs)	8081A or 8082	1 µg/L	5 µg/L	1 L amber glass, TLC	4° ± 2°C / 7 days to extraction / 40 days to analysis of extract
Total Arsenic [7]	6010B, 6020, 7060, or 7061	8 µg/L	80 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Barium	6010B, 6020, 7080A, or 7081	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Cadmium [7]	6010B, 6020, 7130, or 7131A	0.6 µg/L	6 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Chromium [7]	6010B, 6020, 7190, or 7191	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time

Table 1: Reference Guide to Sample Collection and Laboratory Analysis (cont.) Part B: Ground, Surface, Waste, and Marine Waters[4]					
Parameter	**Preparation/ Analytical Method[1]**	**Method Detection Limit[2]**	**Practical Quantitation Limit[3]**	**Container Description**	**Preservation/ Holding Time**
Total Lead †	6010B, 6020, 7420, or 7421	2.0 µg/L	20 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Nickel	6010B, 6020, 7520, or 7521	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Vanadium	6010B, 6020, 7910, or 7911	20 µg/L	200 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time

Notes to Table 1, Part B:

[1] Unless otherwise noted, all preparation and analytical methods refer to those contained in EPA's *Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, (PB84128677), adopted by reference in 18 AAC 78.090.

[2] Method detection limits (MDL), specified in 40 C.F.R. Part 136, Appendix B, revised as of July 1, 1996, adopted by reference, are determined at the department's chemistry laboratory and participating department-approved laboratories.

[3] Practical quantitation limits (PQL), like method detection limits, are instrument specific. PQLs must be established by each laboratory and must equal or have a value lower than the PQL in the table. For purposes of this chapter, PQL = 10 x MDL, except for PCBs which is PQL = 5 x MDL.

[4] Sample collection and laboratory analyses for water collected from drinking water sources must be done in accordance with 18 AAC 80.

[5] HDPE, High Density Polyethylene sample collection bottles, critically cleaned for trace metals analysis.

[6] Naphthalene can be analyzed by 8021B or 8260B.

* ADEC Analytical Methods AK101, AK102, and AK103 are included in Appendix D. ADEC Analytical Methods AK101AA, AK102AA, and AK103AA are included in Appendix E.

† Analytical methods 6010B, 7080A, 7130, 7420, 7520, and 7910 are for high contaminant level screening only. These can be used for closure only if site specific MDL criteria are met. Analytical methods 6020, 7031A, 7060, 7061, 7081A. 7190, 7191, 7421, 7521, and 7911 are acceptable for closure.

Legend to Table 1:

PAH = acenaphthene, anthracene, benzo-a-anthracene, benzo-a-pyrene, benzo-b-fluoranthene, benzo-k-fluoranthene, chrysene, dibenzo-a,h-anthracene, fluorene ideno-123-cd-pyrene, naphthalene, and pyrene
VOA = Volatile Organic Analysis;
TLC = Teflon lined screw caps;
TLS = Teflon lined septa sonically bonded to screw caps

Schlichting, Sally G (DEC)

From: Ying Wang, PhD <ywang@bemsys.com>
Sent: Thursday, November 19, 2015 4:33 AM
To: Schlichting, Sally G (DEC)
Subject: RE: COMMENTS ON ADEC New Cleanup level

Good Morning,

The GWQS for VOCs, SVOCs, and several metals (Arsenic, Chromium) are extremely low. Please re-consider the risk assessment process . I know the detection limits of current analytical methods cannot meet the those levels, especially for PAHs, Arsenic and Chromium. In NJ, our GWQS for chromium is 70 ug/L, while the proposed ADEC GWQS for chromium is 0.347 ug/L. These values are unreasonable low.

Thanks,
Ying

Ying Wang, PhD
Environmental Scientist

BEM Systems, Inc. | 100 Passaic Avenue | Tel. - 908.598.2600 x137
www.bemsys.com | Chatham, NJ 07928 | Fax - 908.598.2622

From: Ying Wang, PhD
Sent: Wednesday, November 18, 2015 9:53 AM
To: 'sally.schlichting@alaska.gov'
Subject: COMMENTS ON ADEC New Cleanup level

Good Morning,

Just have one comment that the migration to GW standard for lead is 0 mg/kg. Is this a mistake?

Thanks,
Ying

Ying Wang, PhD
Environmental Scientist

BEM Systems, Inc. | 100 Passaic Avenue | Tel. - 908.598.2600 x137
www.bemsys.com | Chatham, NJ 07928 | Fax - 908.598.2622

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Transportation and Public Facilities

Northern Region Maintenance & Operations
Administrative & Engineering Support

2301 Peger Road
Fairbanks, Alaska 99709
Main: 907.451.2249
Fax: 907.451.5153
dot.state.ak.us

November 24, 2015

Sally Schlichting
Unit Manager for Technical Services, Policy & Regulation
ADEC Contaminated Sites Program
410 Willoughby, Ste. 303
Juneau, AK 99811

RE: Public Comment on Proposed Cleanup Level Amendments for 18 AAC 75

Hello Ms. Schlichting,

I have had the opportunity to review the Proposed Cleanup Level Amendments for 18 AAC 75 and am happy to report that in general I support the proposed changes. I do regret not attending the public workshop.

After reviewing the side by side comparison of cleanup levels I found two analytes with proposed changes that gave me cause for concern. The metals Chromium (III, IV, and Totals) and inorganic Arsenic occur at high background levels in much of the state. The new cleanup levels are much lower than current levels. Typically contaminated soil we encounter in the interior exceeds the current regulatory levels naturally. A background study is required on some projects.

Given the fact that the cleanup levels are typically exceeded for these metals under the current and proposed regulation's cleanup levels, it is unlikely that exceeding the proposed standard is much of a change for us, compared to exceeding the old standard. Again this is all due to naturally occurring background levels. I am concerned that the proposed changes may trigger the increased frequency and scope of potentially expensive background metals studies. I am unsure of the overall value of the reduction for these two analytes, and question the benefits of the change versus the potential costs.

Sincerely,

Sam V. Myers
Environmental Specialist III
Department of Transportation and Public Facilites

Schlichting, Sally G (DEC)

From: Dave.Hanneman@faa.gov
Sent: Monday, December 07, 2015 2:37 PM
To: Schlichting, Sally G (DEC)
Subject: RE: 18 AAC 75 Cleanup Level Amendments Comments
Attachments: DECregcomments2015.doc

Attached are my comments to your proposed cleanup regs. They are MY comments and not FAA comments.

Thank you for the opportunity to comment.

dave

Comments on the Proposed Changes to 18 AAC 75 Article 3

1. Re-opening closed sites is a bad idea. I am against it. Cleanup levels for the most part are overly conservative to begin with and forcing closed sites into stricter cleanup mode is a waste of time (mainly for DEC as you review all closed sites against new cleanup levels) and a waste of money for RPs.

2. Lower soil cleanup levels likely will require more indoor air studies. Hopefully DEC will use common sense and not require air studies at sites with low contaminant levels and/or low usage buildings.

3. Real world soil and water conditions do not allow laboratory limits to get down to the proposed cleanup levels.

4. Proposed groundwater cleanup levels are sometimes lower than drinking water limits. Groundwater sometimes cannot be cleaned up to meet the proposed limits. The DEC answer of "work with your site regulator" is a bad answer. Some site managers are competent and willing to see reason and logic. Others are not.

5. If soil cleanup levels are lowered for some of the proposed contaminants, it will sometimes be impossible to obtain backfill material that meets the new levels since background contaminants will exceed the cleanup levels. The DEC answer of "work with your site regulator" is a bad answer. Some site managers are competent and willing to see reason and logic. Others are not.

Schlichting, Sally G (DEC)

From: Scott Rose <srose@slrconsulting.com>
Sent: Tuesday, December 08, 2015 10:33 AM
To: Schlichting, Sally G (DEC)
Subject: Comments on Procedures for Calculating Cleanup Levels and Calculating Cumulative Risk
Attachments: 18AAC75 Comments.docx

Hi Sally
I am passing on a few comments on the proposed changes to: *Procedures for Calculating Cleanup Levels* and *Calculating Cumulative Risk* prepared by folks in our Risk Assessment group.
Thanks
Scott

Scott Rose
Geosciences Manager
SLR International Corporation

Direct: 907-264-6961
Office: 907-222-1112
Fax: 907-222-1113
Email: srose@slrconsulting.com
2700 Gambell Street, Suite 200, Anchorage, AK, 99503, United States

www.slrconsulting.com

December 11, 2015

Comments on ADEC proposed regulation changes to:
18 AAC 75 Regulation for Oil and Other Hazardous Substances Pollution Control

Comment 1: The proposed changes to the regulations have been made without a full economic analysis of the cost to the regulated community. The actual cost of implementing the significantly lower cleanup levels will correspond to significant increases in cleanup costs necessary to get to "Cleanup Complete" status. Are the Commissioner and the Governor aware of these potentially huge costs? The ADEC has indicated that they have evaluated the costs to the best of their ability however no actual cost estimate has been provided. Promulgation of the new rules should be postponed until a better evaluation of the cost to the regulated community has been completed.

Comment 2: Under Method Three, the current regulations include a means of calculating the Human Health Risk for three and four-phase contamination concentrations (the Hydrocarbon Risk Calculator). However, Method Three under the proposed regulation changes does not include a means of calculating three and four-phase contaminant risk. the actual risk associated and only allows using the online calculator which only uses the three-phase contaminant concentrations to assess risk (which while conservative is inaccurate). Eliminating the three and four phase calculator, eliminates a technically superior and much more accurate means of evaluating human health risk under Method Three. Promulgation of the new rules should be postponed until a three and four phase risk calculator is in place.

Comment 3: The promulgation of the new rules (slated for Spring 2016) does not allow the regulated community to properly plan for 2016 field work. In some cases, particularly in Federal projects, work plans can take four months and significant effort to prepare. Many of these work plans would be obsolete upon promulgation of the proposed rules. The proposed rules should be finalized with a date of implementation that would allow responsible parties to prepare work plans incorporating analytic methods and target cleanup levels commensurate with the proposed regulations.

Comment 4: In the FAQs regarding the proposed rule change on the ADEC this question and response was posted.

What is the technical and public health basis(es) for the new language added at 18 AAC 75.340(d) that states that any site-specific Alternative Cleanup Level cannot be used as a cleanup level at a site unless it is lower than any listed cleanup level in Table B1 or B2 of 18 AAC 75.341?

Currently and with the proposed language, a method three, site-specific cleanup level for the migration to groundwater pathway may be approved at a site unless the method two listed value for the human health (previously either direct contact or inhalation) exposure pathway is more stringent. Similarly, under the current and proposed wording, a responsible party has the option to propose a method three, site-specific cleanup level for the human health exposure pathway. If alternative cleanup levels are calculated for both the migration to groundwater and the human health exposure pathways, the more stringent of the two site-specific values would apply. Thus the revised language in this

subsection is intended to provide clarity and reduce repetitive language but otherwise preserves the existing meaning. Note the wording at the end of the proposed revisions in 18 AAC 75.340(d) that is "...for any other exposure or migration pathway that is present at the site."

The wording in response still is not sufficiently clear and still leaves room for misinterpretation. This text needs additional clarification even if it means adding words to convey the actual meaning.

Schlichting, Sally G (DEC)

From: Lauck, Terry S. <Terry.S.Lauck@conocophillips.com>
Sent: Thursday, December 10, 2015 10:35 AM
To: Schlichting, Sally G (DEC)
Cc: Kenshalo, Sarah M; Day, Peter (Swift Technical Services LLC); maggie.valentine@westonsolutions.com
Subject: Comments on Proposal to Update Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are used for Contaminated Sites
Attachments: 20151209 CPAI - ADEC - Rule Revision Comments.pdf

Dear Ms. Schlichting –

Please see attached letter with ConocoPhillips' comments on DEC's proposed soil and groundwater cleanup level regulations update.

Thank you.

--

ConocoPhillips Alaska
Terry S. Lauck | Director
ConocoPhillips Alaska, Inc. | Environmental & Permitting
1976 ATO | 700 G ST | Anchorage, AK 99501
O: +1.907.263.4889 | M: +1.707.260.5664
terry.s.lauck@cop.com | www.conocophillips.com

Terry S. Lauck
Director, Environmental & Permitting
ConocoPhillips Alaska, Inc.
700 G Street
Anchorage, AK 99501-3448
phone 970.263.4889
email Terry.S.Lauck@cop.com

ConocoPhillips Alaska

Sally Schlichting
Alaska Department of Environmental Conservation
410 Willoughby AVE, STE 303, PO Box 111800
Juneau, AK 99811-1800
Via email: Sally.Schlichting@alaska.gov

December 9, 2015

Re: Request for Comments: Notice of Proposal to Update Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are used for Contaminated Sites, August 26, 2015

Dear Ms. Schlichting:

ConocoPhillips Alaska, Inc. (CPAI) is pleased to provide comments on the Alaska Department of Environmental Conservation (ADEC) proposed rulemaking under 18 AAC 75 relating to "Cleanup Levels for Soil and Groundwater and how they are used for Contaminated Sites" and the two associated documents to be incorporated by reference. CPAI's comments address items in the following documents:

Public Comment Draft relating to 18 AAC 75 (dated August 26, 2015)
Procedures for Calculating Cleanup Levels (dated July 15, 2015)
Procedures for Calculating Cleanup Levels (dated July 15, 2015)

I. **Public Comment Draft relating to 18 AAC 75 (dated August 26, 2015)**

1) Deletion or clarification is needed for the following proposed text amendment in 18 AAC 75.340(d): **"The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d) for any other exposure or migration pathway that is present at the site."**

a. The amendment does not appear to be consistent with the existing language in 18 AAC 75.340(d) or the following language in 18 AAC 75.340(e) that contemplates alternate cleanup levels to be proposed by a responsible party and approved by the ADEC.

We recommend that the proposed amendment language to 18 AAC 75.340(d) be deleted. As written it is confusing and appears to contradict the specific requirements (as proposed) elsewhere in 18 AAC 75.340. At a minimum it should be revised and clarified. Moving the clause "...**for any other exposure or migration**

pathway that is present at the site..." to the beginning of the sentence and adding examples (e.g., migration to groundwater) might help.
Responsible persons should have the ability to propose site-specific alternative clean-up levels that may be less stringent than the associated value listed in Table B1 or B2. Their use is subject to ADEC's approval as described in the existing language in 10 AAC 75.340(d) which will not change.

b. In its response to Question 33 in the FAQs (see http://dec.alaska.gov/spar/csp/reg_faq.htm), ADEC does not sufficiently clarify the issue described above.

2) Under current 18 AAC 75, a responsible person may propose site-specific alternative cleanup levels per 18 AAC 75.340(e) and 18 AAC 75.340(f) under Methods Three and Four, respectively, provided certain requirements are met. As a condition, per 18 AAC 75.340(e)(3)(D) and 18 AAC 75.340(f)(2), the responsible party must obtain "consent of **and agreement to create, maintain, and abide by institutional controls from** each affected landowner."

   a. Clarification is needed regarding the type and form of the agreement that is proposed.

   b. The additional language proposed in 18 AAC 75.340(e)(3)(D) and 18 AAC 75.340(f)(2) would also seem appropriate for inclusion in 18 AAC 75.345(f) unless use of the term "concurrence" in 18 AAC 75.345(f) differs from the use of "consent of" along with ADEC's proposed amendment language in 18 AAC 75.340(e)(3)(D) and 18 AAC 75.340(f)(2).

3) 18 AAC 75.341(c) - Table B1 and 18 AAC 75 75.341(d) – Table C contain cleanup levels for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) that are based on draft criteria and documents from EPA, particularly EPA's February 2014 draft health effects documents for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) (see https://peerreview.versar.com/) .

   a. Until final versions of the health effects documents are published by EPA, the cleanup levels for PFOS and PFOA cannot be considered to be final. These draft EPA documents (dated February 2014) are stipulated as "Draft-Do not Cite or Quote."

      Therefore, cleanup levels based on draft documentation should be removed from the tables, or at a minimum properly annotated in the notes to Table B1 (note 19) and Table C (note 5) to clearly indicate that they are derived from draft information.

   b. In a response to Question 16 in its FAQs, ADEC justifies its use of these values and indicates that the relevant documents will be published before final adoption of the ADEC rulemaking (see http://dec.alaska.gov/spar/csp/reg_faq.htm). "Indications from EPA that the two documents will be finalized soon" is not a sufficient justification to warrant inclusion of its findings as other than draft.

II. Procedures for Calculating Cleanup Levels (dated July 15, 2015)

1. The risk-based values for Total Chromium in tables B1 and C assume that all chromium in soil or groundwater consists of hexavalent chromium. Hexavalent chromium concentrations are often low relative to trivalent chromium concentrations. Since cleanup levels are also provided for Chromium (III) and Chromium (VI) please clarify that speciation of chromium is allowed in order to derive the actual total chromium risk value and that the Total Chromium value is used as a default value when speciation is not performed.

2. Section 3 – For arsenic, a relative bioavailability factor of 0.6 should be incorporated into the soil ingestion cleanup level calculation (see EPA 2012, *Recommendations for Default Value for Relative Bioavailability of Arsenic in Soil*, OSWER 9200.1-113). This bioavailability value for arsenic is used in the EPA Regional Screening Level calculations mentioned in Section 1.

III. Comments on Procedures for Calculating Cumulative Risk (July 15, 2015)

1. Section 2.2.2 –The term Chemicals of Potential Concern (COPC) is introduced in "Procedures" (Section 2.2.2). It appears that a COPC is meant to refer to a chemical with a concentration greater than one-tenth of its cleanup level. The term COPC, as applicable to this document, should be better defined, preferably in Section 2.2.1.

2. Section 2 – For chemicals that are liquid at ambient soil temperatures, VF-based cleanup levels greater than Csat are set equal to Csat. Cleanup levels are described in Section 1.0 as risk-based values. The Csat is not a risk-based concentration and 1/10th of its value should not be incorporated into the evaluation of cumulative risks.

We appreciate your consideration of our comments.

Sincerely,

Terry S. Lauck

Schlichting, Sally G (DEC)

From: McCrum, Michael <mmccrum@blm.gov>
Sent: Wednesday, December 09, 2015 8:35 AM
To: Schlichting, Sally G (DEC)
Cc: Johnson, Philip; Larry Beck; Rebecca Hile; Marlo Draper; Douglas Cox
Subject: Comments on proposed formal amendments to 18 AAC 75 (October 2015)
Attachments: BLM Comments on ADEC Amendments Dec2015 (1).docx

Ms Schlichting

Please find attached BLM's comments on the proposed amendments. Thank you for the opportunity to comment.

Mike McCrum
Alaska Hazmat State Lead
Bureau of Land Management

BLM requests clarification regarding the wording of the proposed amendment to 18 AAC 75.340(d) as well as the overall intent of a specific change.

1. The meaning of the last part of the following sentence from the proposed amendment is not clear.
    a. "18 AAC 75.340(d) is amended to read:
    b. **The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d) for any other exposure or migration pathway that is present at the site.**"

    By using the phrase "for any other exposure or migration pathway", is the amendment referring to pathways in addition to the soil ingestion, dermal contact and inhalation pathways already included in the Table B1 and B2 values? What "other" pathways is ADEC referring to? It is not clear why this phrase is needed or what it is trying to accomplish.

2. A more significant issue is the fact that the proposed amendment appears to disregard site-specific cleanup values that are more stringent (i.e., higher in concentration) than those in Table B1 and B2. Instead, the proposed amendment would require the existing generic B1 and B2 table values to be default cleanup values. Site-specific cleanup levels are often higher than screening level table values, given that they include site-specific exposure parameters that, while potentially less conservative, are more accurate than default parameters. Given this approach, it appears that site-specific cleanup values higher than ADEC generic values are not considered acceptable, in spite of the fact that they better reflect the site and the underlying risk levels are the same.

    ADECs cleanup manual includes a list of exposure parameters that can be modified for industrial/commercial workers under Method 4 (Table 5, Procedures for Calculating Cleanup Levels, July 15, 2015). If any of these parameters were reduced to more accurately reflect workplace- and site-specific conditions (e.g., 250 days/year reduced to 100 days/year), the resultant cleanup value would be higher than in Tables B1 and B2, yet the acceptable risk level would remain the same.

    The move away from allowing site-specific cleanup values higher than generic screening values is inconsistent with EPA approaches to risk-based site decision making. EPA notes on their Regional Screening Level webpage that "*SLs are generic screening values, not de facto cleanup standards. Once the Baseline Risk Assessment (BLRA) is completed, site-specific risk-based remediation goals can be derived using the BLRA results.*" (http://www.epa.gov/risk/regional-screening-table-frequent-questions-november-2015#FQ3)

    As far back as 1991, EPA noted that "*preliminary (cleanup) goals may be modified based on results of the baseline risk assessment, which clarifies exposure pathways and may identify situations where cumulative risk of multiple contaminants or multiple exposure pathways at the site indicate the need for more or less stringent cleanup levels than those initially developed as preliminary remediation goals.* (EPA. Role of the

Baseline Risk Assessment in Superfund Remedy Selection Decisions, April 22, 1991. OSWER DIRECTIVE 9355.0-30 ("The Don Clay Memorandum").

Given that ADEC utilizes EPA generic exposure factors recommended by EPA for Method 1 and 2 (per their Cleanup Manual), it is unclear why ADEC rejects other aspects of EPA's risk management strategy.

If it can be demonstrated that

> "an alternative cleanup level proposed under method three or method four is protective of human health, safety, and welfare, and of the environment, and must demonstrate compliance with the applicable institutional control requirements under 18 AAC 75.375"

per existing ADEC guidance, using the same acceptable risk levels and ADEC risk assessment guidance, it does not seem appropriate that higher cleanup levels should automatically default to generic Table B1 or B2 levels.

SGS

From:
Stephen C. Ede
Technical Director
SGS Environment, Health & Safety, Inc.
200 West Potter Drive
Anchorage, Alaska 99518

December 10, 2015

To:
Sally Schlichting
Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 303
Box 111800
Juneau, Alaska 99811-1800

To Whom It May Concern:

SGS North America has evaluated the proposed amendments to 18 AAC 75 and would like to provide the following questions, comments and observations.

Several contaminants do not have available reference methods or are not defined.

Antimony (metallic)	Soil and Water
Free Cyanide	Soil
Formaldehyde	Soil and Water
Hydrazine	Soil and Water
Mercury (elemental)	Soil and water

Analytical procedures generally yield total metals and cannot differentiate between metallic, elemental or other oxidation states. ADEC should reference valid methods for metallic antimony, elemental mercury, Hydrazine in soil and water, Formaldehyde in soil and water, and free cyanide in soil that can achieve reporting limits below the MCLs.

The MCL for Arsenic of 0.2 mg/Kg has been proposed at 1/10th the crustal abundance level. Nearly every soil sample will fail this limit and therefore require background samples to be collected and analyzed.

At present, ADEC only supports the use of the medium level, methanol preserved method for VOCs in soil. The low level method with sodium bisulfate solution or freezing preservation is only allowed on a case by case basis. To even approach achieving the reporting limits required for some compounds the low level method must be allowed. This would require both low level and medium level samples to be collected and may necessitate both to be analyzed. It should be noted that 1,2,3-trichloropropane is not an analyte listed for SW-846 method 8011 and the water MCL of 0.0075 ug/L is below the PQL of this method for analytes included. Of greater significance is that this method is clearly for water only and EPA Region 10 laboratory experts are very sceptical of adapting the method for soils.

Many of the analytes have proposed MCLs that are as low as 1/20,000 the PQLs listed for the reference methods in SW-846. In response to the question if there will be an increased cost as a result of these new regulations ADEC indicates that "a more expensive analysis may be required to lower the PQL." Additionally, ADEC claims that, "This may result in increasing the analytical cost...by about 20%." Unless there is documented justification for this answer it should be withdrawn. Trace level environmental method development, continuing validation and support can be extremely costly.

It is likely that most laboratories can achieve PQLs no greater than those established in EPA's SW-846 guidance. However, ADEC may determine that additional action is necessary to ensure projection of human health, safety or welfare of the environment. Of the four options listed, the most viable would be special collection or analytical procedures. What oversight is proposed to assure equitable application of approved PQLs for all responsible parties and ensure the "improved or modified" methods are based on sound, reproducible science and adequate peer review?

One accepted technique for lowering reporting limits for organic compounds by GC/MS is the use of selected ion monitoring, SIM. This technique involves the practice of monitoring and recording ion currents at one or more selected ion m/z values rather than recording the full mass spectra. Because the detector is integrating the signal for a longer time at the relevant ion, limits of detection can be lowered, but at the cost of increased susceptibility of the analysis to unexpected interference. EPA reference method 8270D Section 11.5.5 cautions: "The use of selected ion monitoring (SIM) technique is acceptable for applications requiring quantitiation limits below the normal range of electron mass spectrometry. However, SIM may provide a lesser degree of confidence in the compound identification, since less mass spectral information is available. Although SIM analysis can lower reporting limits by 10X to 100X, petroleum contamination or naturally occurring biogenics can contribute to more false positives by the use of this technique.

In conclusion, ADEC has chosen to promulgate risk based MCLs for contaminants without due consideration of analytical method limitations and allowances for soils with petroleum or biogenic hydrocarbons slightly below MCLs.

Stephen C. Ede, Technical Director, SGS Environment Health & Safety

Stephen C. Ede

Schlichting, Sally G (DEC)

From: Mcanulty, Michael C <mcanumc@bp.com>
Sent: Thursday, December 10, 2015 10:15 AM
To: Schlichting, Sally G (DEC)
Cc: Dimitriou, Andrew (SLR); Beckman, Thomas J (Oasis); Barrett, Tom; Kenshalo, Sarah M (ConocoPhillips); Day, Peter (Swift Technical Services LLC)
Subject: BPXA's Comments on Notice or Propsoed Changes to Regulations Dealing wiht Clean UP Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites
Attachments: 20151208_ADEC_Rule_Revisions_BPXA_Comments.pdf

Ms. Schlichtling:

Attached please find the subject document.

Regards, Mike Mc Anulty

Mike Mc Anulty
Liability Business Manager
BP/Remediation Management
(W): (907) 564-5636
E-mail: mcanumc@bp.com

Address:
900 E. Benson Blvd, 480D
Anchorage, Alaska
99519

bp

Michael C. Mc Anulty
Liability Business Manager

BP/ Remediation Management
900 East Benson Boulevard
Anchorage, Alaska
99519-6612
Phone: (907) 564-5636
E-Mail: mcanumc@bp.com

December 10, 2015

Ms. Sally Schlichting
Alaska Department of Environmental Conservation
410 Willoughby Ave., Suite 303
Juneau, AK99811-1800

Subject: BPXA Comments on Notice of Proposed Changes to Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites

Dear Ms. Schlichtling:

Attached please find BPXA's comments on the proposed changes to the subject regulations. We appreciate the opportunity to provide input to this process.

Sincerely,

Mike Mc Anulty

Mike Mc Anulty

Attachment

BPXA Comments on Notice of Proposed Changes to Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites

Comments on Procedures for Calculating Cleanup Levels (July 15, 2015)

1. General – Risk-based concentrations for some metals such as arsenic in groundwater are below some natural background concentrations, in part due to the use of several conservative assumptions in the derivation. When a conservative risk-based value is below natural background levels, the value no longer functions as a screening level. A consequence of this is that site characterization efforts will un-necessarily be increased to determine natural background concentrations.
2. General – The risk-based values for total chromium assume that all chromium in soil or groundwater consists of hexavalent chromium. This assumption will be incorrect at many sites. In general, hexavalent chromium concentrations are low relative to trivalent chromium concentrations in surface water. Similarly, soil and groundwater may also have low concentrations of hexavalent chromium relative to trivalent chromium. Speciation of chromium should be allowed in order to derive the actual total chromium risk value, as an acceptable substitute methodology.
3. Section 1 – The Introduction section (pg. 1) refers to Table 8 in Appendix B, but there is no Table 8 in the document. The sentence should refer to Table 7.
4. Section 1 – The Introduction section (pg. 2) indicates that an age-adjusted approach is used for the soil ingestion exposure pathway. It should also be stated that age-adjusted exposure factors are also used to calculate cleanup levels for carcinogens based on other exposure pathways and media (e.g., groundwater ingestion) as shown by the equations in Sections 2 and 3.
5. Section 3 – Many agencies use a ceiling limit of 10^5 mg/kg (10% of sample by weight) if risk-based soil cleanup levels are above this level. The ceiling limit is used because soil of which 10% or more of the weight is made up of a chemical may no longer have the soil properties assumed in the exposure assessment. Please include the ceiling limit as appropriate (e.g., see ODEQ (2003) *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*, Oregon Department of Environmental Quality (ODEQ), September 22; EPA (2015) *Regional Screening Table User's Guide*).
6. Section 3 – For arsenic, a relative bioavailability factor of 0.6 should be included in the soil ingestion cleanup level (see EPA 2012, *Recommendations for Default Value for Relative Bioavailability of Arsenic in Soil*, OSWER 9200.1-113). This bioavailability value for arsenic is used in the EPA Regional Screening Level calculations mentioned in Section 1.
7. Section 2.3.1 – The EPA's 2011 *Exposure Factors Handbook* could be used to estimate more realistic body weights for the various age classes in the mutagenic risk equation. Assuming that children in the 0-2 age class have an average weight of 15 kilograms is unnecessary (same as with some other age class weight assumptions).
8. Section 3.1.3 and other inhalation equation sections should be renamed to incorporate inhalation of vapors as well as particulates, particularly for Section 3.4.3 since the vinyl chloride equation includes only vapor and not particulate inhalation.

BPXA Comments on Notice of Proposed Changes to Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites

9. Section 5.1 – The model given in this section assumes an infinite mass of chemicals in soil. VFs based on this model may violate the principle of conservation of mass (there may be insufficient mass to achieve the modeled VF over the assumed exposure duration). Many other regulatory agencies include finite source models to check whether conservation of mass is violated. Please include appropriate finite source models (see ODEQ 2003, *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*, September 22; Interstate Technology Regulatory Council (ITRC) guidance, http://www.itrcweb.org/risk-3/; etc).
10. Section 5.1 – Default dermal absorption values for water exposures are reported to come from EPA's 2004 *Supplemental Guidance for Dermal Risk Assessment*. In Appendix B of this EPA guidance document, chemicals with physical properties that fall outside the predictive domain of the model used to estimate dermal absorption are identified. Please remove the dermal absorption values that are outside the model's predictive domain from Table 6 because quantification of health risks using these values is highly uncertain (see Appendix B of EPA's 2004 *Supplemental Guidance for Dermal Risk Assessment*).
11. Section 5.3 – The first sentence has a typographical error. The default PEF is 1.36×10^9, and not 1.36 x 109.
12. Section 5.4 – For chemicals that are liquid at ambient soil temperatures, VF-based cleanup levels greater than Csat are set equal to Csat. Cleanup levels are described in Section 1.0 as risk-based values. The Csat is not a risk-based concentration and should not be incorporated as a risk-based value. It is recommended that ADEC use the convention of other regulatory agencies and simply note that the risk-based value is above Csat and that additional evaluation for the presence of NAPL may be needed (e.g., see ODEQ (2003) *Risk-Based Decision Making for the Remediation of Petroleum Contaminated Sites*; EPA (2015) *Regional Screening Table User's Guide*).
13. Appendix A, Table 6 – Please give the sources of the values in Table 6. These values can't be independently verified for accuracy and relevance if no source is reported.

Comments on Procedures for Calculating Cumulative Risk (July 15, 2015)

1. Section 1.2 – Vinyl chloride is mentioned as having a unique set of risk equations. Trichloroethene (TCE) also has a unique set of equations and should also be discussed in this section.
2. Section 2 – COPCs are introduced in the second list item. It is unclear whether the term COPCs is meant to refer to chemicals with concentrations greater than one tenth of the cleanup level, as discussed in the first list item, or if a different meaning is intended here. The term COPCs as applicable to this document should be further defined.
3. Section 2 – For chemicals that are liquid at ambient soil temperatures, VF-based cleanup levels greater than Csat are set equal to Csat. The Csat is not a risk-based concentration and should not be used to evaluate cumulative risks.
4. Section 5.2 – The WHO is discussed as the recommended source of TEFs for dioxin like compounds, and text refers to Appendix C for a discussion of TEFS. However, dioxin TEFs are not

discussed in Appendix C, and this discussion should be added to the appendix. Other specific sources of toxicity information should also be discussed.

Comments on 18 AAC 75.340(e)(3)(D), 18 AAC 75.340(f)(2), and 18 AAC 75.18 AAC 75.345 (f)(2)(C) (October, 2015)

1. Clarification is needed for the following proposed text: "The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d) for any other exposure or migration pathway that is present at the site." The text is not consistent with the preceding language in 18 AAC 75.340 (d)or the following language in 18 AAC 75.340 (e) that contemplates alternate cleanup levels to be proposed by a responsible party and approved by the Department that are not identical (ie may be higher or lower) than those listed in Tables B1 or B2.

2. Under current 18 AAC 75 regulations, a responsible person may propose site-specific alternative cleanup levels per 18 AAC 75.340(e) and 18 AAC 75.340(f) under methods three and four, respectively, provided certain requirements are met. Under each of these regulations, it is inferred or directly stated that the responsible party must obtain "consent of **and agreement to create, maintain, and abide by institutional controls from** each affected landowner" that a cleanup level less stringent than a cleanup level appropriate for residential land use is appropriate or acceptable for the site.

a) Clarification is needed regarding the type of agreement that is proposed amendments - a simple written agreement, a notarized agreement, a legal agreement, an ADEC-approved agreement, or some other agreement. BPXA suggests that if the department will require a written agreement, that a template be developed by the department and reviewed by the Attorney General's Office so that the agreements are consistent statewide.

3. Under current 18 AAC 75.345(f) regulations, groundwater cleanup levels must be attained throughout the site unless the department approves of an alternative point of compliance. The regulation provides requirements that must be met for the department to approve an alternative point of compliance. Similar to the soil cleanup criteria, the proposed amendment to 18 AAC 75.345(f)(C) includes requirements stating the responsible party "has gained concurrence from the affected neighboring property owner for the creation and maintenance of institutional controls."

a. Clarification is needed regarding the type of agreement that is proposed amendments - a simple written agreement, a notarized agreement, a legal agreement, an ADEC-approved agreement, or some other agreement. BPXA suggests that if the department will require a written agreement, that a template be developed by the department and reviewed by the Attorney General's Office so that the agreements are consistent statewide.

BPXA Comments on Notice of Proposed Changes to Regulations Dealing with Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites

Comments on 18 AAC 75 75.341 (c)

1. **Tables B1 and C - The establishment of cleanup levels for PFOA and PFOS are based on unpublished draft criteria and documents from USEPA. For all practical purposes these are "interim" cleanup levels. Delaying the establishment of cleanup levels until draft data and documents are published to allow for the development of "final" cleanup levels makes more sense to the regulated community. Cleanup levels based on draft documentation should be removed from the tables, or properly annotated for interim use.**

Schlichting, Sally G (DEC)

From: Phillip Stallings <phillip.stallings@gmail.com>
Sent: Friday, December 11, 2015 4:26 PM
To: Schlichting, Sally G (DEC)
Subject: Comments on ADEC proposed changes to 18AAC75 regulations
Attachments: Comments to Proposed 18AAC75 Regulation Change.pdf

Dear Ms. Schlichting,
Please see the attached comments for the proposed regulation change.

Respectfully submitted.
Phillip Stallings

12750 Killey Street
Anchorage, Alaska 99516

Comments on *Procedures for Calculating Cleanup Levels*

1. Section 5.4 discusses situations in which VF-based cleanup levels exceed the soil saturation limit. For liquid contaminants, VF-based cleanup levels are set equal to the Csat if greater than Csat. Cleanup levels are described in Section 1.0 as risk-based values. The Csat is not a risk-based concentration and should therefore not be incorporated as a risk-based value. An alternative recommendation is to provide risk-based cleanup levels with a notation for VF-based values to indicate that free-phase product may be present at concentrations above Csat and additional evaluation may be necessary.
2. Section 5.4 also discusses situations in which inhalation-based cleanup levels exceed the soil saturation limit for solid contaminants. Chemicals to which this situation applies should be identified with a notation to make the user is aware that the cleanup level does not include the inhalation pathway.
3. A discussion of soil cleanup levels above the ceiling limit of 10^5 (10% of sample by weight) should be included to make the user aware that assumptions for direct contact may be violated at or above this level, and such values should be noted in Table B1.
4. The relative bioavailability factor of 0.6 should be included in the soil ingestion cleanup level for arsenic, consistent with the RSL calculations.
5. The source(s) of chemical-specific parameters (other than toxicity values) in Table 6 should be provided. Although a hierarchy of sources for toxicity values is provided in the *Procedures for Calculating Cumulative Risk*, identifying the sources of toxicity values in the subject document (following Table 6) would also be helpful.
6. Some discussions included in the document appear to be incomplete. For example, the Introduction section (pg. 2) indicates that an age-adjusted approach is used for the soil ingestion exposure pathway. This approach should also be used to calculate cleanup levels for carcinogens based on other exposure pathways and media. It is assumed that such discussion was simply omitted from the document and that this process is followed, but the document should include a more complete discussion.
7. Section 3.1.3 and other inhalation equation sections should be renamed to incorporate inhalation of vapors as well as particulates, particularly for Section 3.4.3 since the vinyl chloride equation includes only vapor and not particulate inhalation.
8. In section 5.3 it is assumed that the default PEF is 1.36×10^9 and not 1.36 x 109 as currently indicated, but this should be corrected to avoid confusion.
9. The Introduction section (pg. 1) refers to Table 8 in Appendix B, but there is no Table 8 in the document.

Comments on *Procedures for Calculating Cumulative Risk*

1. Vinyl chloride is mentioned in Section 1.2 as having a unique set of risk equations. Trichloroethene (TCE) also has a unique set of equations that should be used to calculate mutagenic cancer risks for TCE. This should also be discussed in this section.
2. In Section 2, COPCs are introduced in the second list item. It is unclear whether the term COPCs is meant to refer to chemicals with concentrations greater than one tenth of the cleanup level, as discussed in the first list item, or if a different meaning is intended here. The term COPCs as applicable to this document should be further defined.
3. Section 5.2 discusses the WHO as the leading recommended source of TEFs for dioxin like compounds and refers to Appendix C. However, this is not discussed in Appendix C; this discussion should be added to the appendix. Other specific sources of toxicity information should also be discussed.
4. Section 5.4 discusses chemicals not found in ADEC tables. The recommendation is to consult the RSL table, but additional recommendation is not provided for chemicals not found in the RSL table. The procedure for evaluating such chemicals should also be described in this section.

ALASKCHEM Engineering
PO Box 1846, Palmer, AK 99645
Ralph Hulbert, P.E.
phone (907)746-4587 email hulbert@alaska.net

December 11, 2015

Via email: sally.schlichting@alaska.gov

Sally Schlichting
DEC/CSP
Juneau

RE: Comments on DEC's 2015 Proposed Cleanup Levels

The DEC Contaminated Sites Program (CSP) has proposed more stringent cleanup levels for 134 chemicals[1]. This can impact routine activities and create new contaminated sites far beyond what the CSP claims. Natural backgrounds, burned forests, roads, and building sites exceed these new cleanup levels, for which DEC has no suitable protocols to distinguish between allowable and contaminated. Potentially impacted activities include all soil movement, road construction and repair, restoration, rebuilding, and construction debris disposal.

Some of the specific chemicals and distribution include:

Metals:

Arsenic soil cleanup level was 3.9 mg/kg; the proposed limit of 0.2 mg/kg is below soil ranges reported for Alaska[2], and far below the 17 mg/kg mean of sediments. All Alaskan soils and many anthropogenic substances presumably contain arsenic exceeding the cleanup limit. DEC has referenced no methods for differentiating natural from anthropogenic, organic from inorganic, background from clean fill, or provided narrative descriptions of forbidden waste. Arsenic in groundwater is less related to surface soil arsenic levels than to historic groundwater chemistry (beyond CSP's expertise).

The proposed chromium soil cleanup level for Cr(VI) is 0.088 mg/kg and for Cr(III) is 534 kg/kg (CSP hasn't explained if that math extends to the entire proposal). All chromium is presumed to be Cr(VI) unless expensive out-of-state lab speciation tests prove it is below levels. Natural chromium, mostly Cr(III), has a mean of 50 mg/kg background for Alaska soil and 115 mg/kg for sediments. More troubling is that natural backgrounds of Cr(VI) are several times the proposed limit; Health Canada[3] reported soils of rural parkland had a 98th percentile Cr(VI) concentration of 0.5 mg/kg. No such studies exist for Alaska.

[1] Soil cleanup levels are usually MTGW on the spreadsheet: http://dec.alaska.gov/spar/csp/docs/Side-by-Side%20Comparison%20of%202008%20vs.%202015%20Cleanup%20Levels.pdf
[2] L. P. GOUGH, R. C. SEVERSON, and H. T. SHACKLETTE; Element Concentrations in Soils and Other Surficial Materials of Alaska; USGS; 1984.
[3] Health Canada; Chromium in Drinking Water; 9/23/2015

Wood ash from forest fires typically exceeds arsenic and chromium concentrations of the underlying soils. The predominant form of Cr found in fire-impacted soil and ash is Cr(VI)[4].

The CSP's arsenic tech memo (which applies to all metals) states:

"Arsenic samples within site boundaries must be collected if there are known or suspected anthropogenic arsenic sources, including altered or disturbed areas that may contain naturally occurring arsenic."

Even though clean fill material was below local arsenic backgrounds, the CSP has required soil be returned to its source or applied well setback restrictions and institutional controls.

Polyaromatic Hydrocarbons (PAH):

The CSP lists 16 of the many PAHs, which are naturally occurring and found in food, petroleum, and products of combustion. The proposed naphthalene soil cleanup level of 0.0381 mg/kg is 1/525th the 2008 level and phenanthrene is 1/77th the 2008 level.

Naphthalene is ~0.3% of typical Alaskan diesel fuel. The proposed level effectively creates a new lower controlling soil cleanup level for diesel spills. It will also require increased testing for PAHs, a very expensive procedure. Diesel spills are by far the most common regulated contaminant, typically occurring on small lots near wells. The CSP has no recorded cases of diesel fuel (or its constituents) contaminating a drinking water well exceeding cleanup limits. Regardless, dig/haul/burn is the default response.

PAHs are common constituents of asphalt and sealers, especially older coal tar based products. Both sources contain naphthalene exceeding CSP's proposed limits. Abraded tires, combustion products, and oil drippings increase the asphalt surface PAH content. The CSP has an unwritten policy to simply not test asphalt, since it obviously exceeds limits for diesel and residual range organics. Milled recycled asphalt pavement (RAP) is commonly used for highways, driveways, and parking lots; it is difficult to visibly discern from gravel or by chemical analyses from the ubiquitous oil leaks and fuel spills.

Soil in burned forest and tundra often exceeds proposed limits for naphthalene. Urban backgrounds often exceed limits for other PAHs, especially if coal was used.

Volatiles:

Benzene is usually the controlling contaminant in soil and groundwater for diesel and gasoline cleanups. The proposed xylene limit is 1/41th of the 2008 limit for soil and groundwater, and will become the controlling last remaining contaminant for a small but significant portion of fuel contaminated sites. Asphalt concentrations of benzene and xylene far exceed cleanup limits, but were rare concerns since the CSP's GRO/BTEX test method uses methanol solvent instead of the

[4] Wolf, Ruth E., Hoefen, Todd M., Hageman, Philip L., Morman, Suzette A., and Plumlee, Geoffrey S., 2010, Speciation of arsenic, selenium, and chromium in wildfire impacted soils and ashes: U.S. Geological Survey Open-File Report 2010–1242, 29 p.

more aggressive methylene chloride used for semi-volatiles including DRO. Milled asphalt and RAP, especially from non-HMA sources, would likely also exceed cleanup levels for xylene as well as the semi-volatiles.

Summary:

Drastically reducing cleanup levels for naturally occurring commonly used chemicals will expand CSP's "contaminated soil" designation to vast new areas and common practices. While lucrative for the CSP and us minions, remaining Alaskans will face potentially huge costs.

By proposing arsenic and chromium cleanup levels at respectively 1/87th and 1/1307th of Alaskan sediment backgrounds the CSP ensures all soils are contaminated, challengeable only through "a discussion with the CS project manager"[5], huge expenses, with unknown criteria or results.

Soils impacted by forest fires exceed naphthalene and Cr(VI) levels, at least until naturally attenuated. If your village used coal or residual fuels for heating, expect higher concentrations of persistent PAHs in ash and "urban" background. Disposal of ash from any source onto land or unlined C&D landfills could require "a discussion with the CS project manager", etc.

If tested by EPA methods, asphalt and RAP will exceed cleanup levels for As, Cr, GRO/BTEX, DRO, RRO, and naphthalene. Since RAP is so widely distributed, expect "a discussion…", etc. for site characterizations near roads, driveways, parking lots, asphalt plants, and DOT facilities.

"Cleaning" soil to CSP's proposed levels is ludicrous. The root cause is the CSP's presumption that a risk based screening level regardless of source can become a cleanup level by simply moving a decimal. While convenient, it avoids the all-important risk management, where common sense, cost feasibility, and balancing health vs remediation risks force modification of screening levels into site cleanup levels. Consider EPA's 10 ug/L arsenic MCL cleanup level, ~200 times the 10^{-6} risk-based 0.052 ug/L screening level; their lengthy risk management process determined a lower MCL would cause more harm than good for the nation.

The CSP recognizes the requirement for risk management, yet declines to develop any compliance guidance for the statutory clauses about safety, feasibility, environmental harm, or potentially greater threats to human life or health[6]. Remediating to the proposed soil cleanup levels would cause more harm than good at most sites.

I strongly oppose these proposed changes. Instead, I suggest the CSP first develop comprehensive risk management guidance that can be applied to potentially contaminated sites, but clearly shows our virgin forests are not naturally contaminated above cleanup levels.

Sincerely,

Ralph Hulbert

Ralph Hulbert, P.E.

[5] http://dec.alaska.gov/spar/csp/reg_faq.htm
[6] AS 46.09.020(a)

Schlichting, Sally G (DEC)

From: Kreps, Kathy <Kathy.Kreps@testamericainc.com>
Sent: Friday, December 11, 2015 3:40 PM
To: Schlichting, Sally G (DEC)
Cc: Torres, Terri; Engstrom, Troy; Bean, Dennis; Schemmer, Pamela; Redman, Eric; Pollock, Crystal
Subject: FW: [DEC-Contaminated-Sites-Program] SPAR Cleanup Level Amendments to 18 AAC 75--Supplemental Public Notice
Attachments: AK2015 TestAmerica Review_12-11-15.xls

Hi Sally,

Please find attached a spreadsheet detailing TestAmerica's evaluation of the new 2016 limits. We have only listed compounds where we don't meet the new limits. In columns N, O, P we have classified how these limits might be met (definititions for "A, B & C" categories at the bottom of the table). Additional comments are in column Q and at the bottom of the table.

We identified in column M if our LOD meets the limits (for DoD work in AK). If not, we identified in column Q if our MDL meets the limit (for commercial AK work).

Please let us know if you have any questions.

Thanks,
Kathy

KATHY E. KREPS
Client Relations Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Tel 253.248.4964 | Cell 253.380.6574
www.testamericainc.com

From: Engstrom, Troy
Sent: Friday, October 23, 2015 4:39 PM
To: Torres, Terri; Morris, Lance
Cc: Schemmer, Pamela; Kreps, Kathy
Subject: FW: [DEC-Contaminated-Sites-Program] SPAR Cleanup Level Amendments to 18 AAC 75--Supplemental Public Notice

TROY J. ENGSTROM
Laboratory Director
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2000 W. International Airport Road, Suite A10
Anchorage, AK 99502
Tel 907.563.9200 | Cell 907.830.1852
www.testamericainc.com

					AK_Limits			Seattle					Analyte Assessment			
Matrix	Method	Analytes	CAS #	Units	AK2009	AK2016	Method Limit	MDL	LOD	RL	LOD Meets 2009	LOD Meets 2016	A	B	C	comment
Solid	6020	As	7440-38-2	mg/Kg	3.9	0.2		0.18	0.4	0.5	Yes	No			X	(MDL OK)
Solid	6020	Tl	7440-28-0	mg/Kg	1.9	0.188		0.13	0.26	0.4	Yes	No			X	(MDL OK)
Solid	8270	1,2,3-Trichlorobenzene	87-61-6	ug/Kg		150						-	X			not offered
Solid	8270	1,3-Dinitrobenzene	99-65-0	ug/Kg	20	14.2		71	267	330	No	No		X		limits from Denver, 8330 might achieve
Solid	8270	1,4-Dioxane	123-91-1	ug/Kg	210	12.3		66	133	660	Yes	No			X	limits from Denver, if added to Seattle list might achieve
Solid	8270	2,6-Dinitrotoluene	606-20-2	ug/Kg	9.4	5.03	660	15	20	100	No	No		X		8330 might achieve
Solid	8270	3,3'-Dichlorobenzidine	91-94-1	ug/Kg	190	55.4	1300	30	100	200	Yes	No			X	(MDL OK)
Solid	8270	4-Chloroaniline	106-47-8	ug/Kg	57	15	1300	15	50	100	Yes	No			X	(MDL OK)
Solid	8270	Bis(2-chloroethyl)ether	111-44-4	ug/Kg	2.2	0.4	660	15	20	100	No	No	X			
Solid	8270	Hexachlorobenzene	118-74-1	ug/Kg	47	8.25	660	5	10	50	Yes	No			X	(MDL OK)
Solid	8270	Hexachlorobutadiene	87-68-3	ug/Kg	120	19.6	660	15	20	50	Yes	No			X	(MDL OK)
Solid	8270	Hexachlorocyclopentadiene	77-47-4	ug/Kg	1300	9.25	660	10	20	100	Yes	No			X	
Solid	8270	Hexachloroethane	67-72-1	ug/Kg	210	17.7	660	15	20	100	Yes	No			X	(MDL OK)
Solid	8270	Kepone	143-50-0	ug/Kg		8.1						-	X			
Solid	8270	Nitrobenzene	98-95-3	ug/Kg	94	7.9	660	34	50	100	Yes	No		X		8330 might achieve
Solid	8270	N-Nitrosodimethylamine	62-75-9	ug/Kg	0.053	0.00329		250	500	1000	No	No	X			
Solid	8270	N-Nitrosodi-n-propylamine	621-64-7	ug/Kg	1.1	0.676		15	20	100	No	No		X		
Solid	8270	Pentachlorophenol	87-86-5	ug/Kg	47	27.2	3300	20	50	200	No	No			X	(MDL OK)
Solid	8260low	1,2,3-Trichloropropane	96-18-4	ug/Kg	0.53	0.0313		0.3	1	2	No	No		X		8011 (Denver) achieves with MDL
Solid	8260low	1,3-Dichloropropene, Total	542-75-6	ug/Kg	33	17.7					-	-			X	(meet with Cis & Trans)
Solid	8260low	1,4-Dioxane	123-91-1	ug/Kg	210	12.3		145	200	300	Yes	No			X	add to Sea 8270 - see line 84
Solid	8260low	Ethylene Dibromide	106-93-4	ug/Kg	0.16	0.238		0.2	0.5	1	No	No			X	(MDL OK)
Solid	8260low	Vinyl chloride	75-01-4	ug/Kg	8.5	0.8		0.3	1	2	Yes	No			X	(MDL OK)
Solid	8260med	1,1,2,2-Tetrachloroethane	79-34-5	ug/Kg	17	2.96		2.3	5	10	Yes	No			X	(MDL OK)
Solid	8260med	1,1,2-Trichloroethane	79-00-5	ug/Kg	18	1.44		2.8	10	12	Yes	No		X		Low VOA OK
Solid	8260med	1,2,3-Trichloropropane	96-18-4	ug/Kg	0.53	0.0313		11.5	30	40	No	No		X		8011 (Denver) achieves with MDL
Solid	8260med	1,2-Dichloroethane	107-06-2	ug/Kg	16	5.5		3.3	10	16	Yes	No			X	(MDL OK)
Solid	8260med	1,3-Dichloropropene, Total	542-75-6	ug/Kg	33	17.7					-	-			X	(meet with Cis & Trans)
Solid	8260med	1,4-Dioxane	123-91-1	ug/Kg	210	12.3					-	-		X		
Solid	8260med	2-Hexanone	591-78-6	ug/Kg		108		35.6	120	200		No			X	(MDL OK)
Solid	8260med	Bromomethane	74-83-9	ug/Kg	160	23.9		13.4	30	140	Yes	No			X	(MDL OK)
Solid	8260med	Butadiene	106-99-0	ug/Kg		1.21		32.1	100	200		No		X		Low VOA OK
Solid	8260med	Chlorodibromomethane	124-48-1	ug/Kg	32	5.2		2.8	10	20	Yes	No			X	(MDL OK)
Solid	8260med	Chloroform	67-66-3	ug/Kg	460	7.15		4.2	10	40	Yes	No			X	(MDL OK)
Solid	8260med	Cyclohexane	110-82-7	ug/Kg		77400						-			X	
Solid	8260med	Dibromomethane	74-95-3	ug/Kg	1100	23.7		13.1	30	60	Yes	No			X	(MDL OK)
Solid	8260med	Bromodichloromethane	75-27-4	ug/Kg	44	4.25		1.4	5	40	Yes	No			X	(MDL OK)
Solid	8260med	Ethylene Dibromide	106-93-4	ug/Kg	0.16	0.238		3.4	10	16	No	No		X		
Solid	8260med	Hexachlorobutadiene	87-68-3	ug/Kg	120	19.6		18.1	60	80	Yes	No			X	(MDL OK)
Solid	8260med	Isopropyl alcohol	67-63-0	ug/Kg		1100		2000	2000	2000		No		X		Might achieve using 8015
Solid	8260med	Vinyl chloride	75-01-4	ug/Kg	8.5	0.8		7.1	15	16	No	No		X		Low VOA MDL OK
Solid	9012A	Cyanide, Amenable	STL00015	mg/Kg	27	0.195		0.51	1.2	2	Yes	No	X			
Solid	9012A	Cyanide, Total	57-12-5	mg/Kg	27	0.195		0.51	1.2	2	Yes	No	X			
Water	6020	As	7440-38-2	mg/L	0.01	0.000517	0.001	0.00135	0.004	0.005	Yes	No		X		(Method limit OK)
Water	6020	Cr	7440-47-3	mg/L	0.1	0.00035		0.000705	0.0015	0.002	Yes	No		X		
Water	6020	Tl	7440-28-0	mg/L	0.002	0.0002		0.00071	0.0025	0.005	No	No		X		
Water	8011	Ethylene Dibromide	106-93-4	ug/L	0.05	0.0746	0.1				-	-		X		
Water	8081	Toxaphene	8001-35-2	ug/L	3	0.153		0.27	0.5	1	Yes	No	X			
Water	8260	1,1,2-Trichloroethane	79-00-5	ug/L	5	0.415	0.08	0.24	0.5	1	Yes	No			X	(MDL OK)
Water	8260	1,2,3-Trichloropropane	96-18-4	ug/L	0.12	0.00747	0.09	0.41	1	2	No	No	X			Should be done by 8011/504
Water	8260	Butadiene	106-99-0	ug/L		0.18		0.37	1	5		No		X		
Water	8260	Ethylene Dibromide	106-93-4	ug/L	0.05	0.0746	0.1	0.15	0.5	1	No	No		X		Should be done by 8011/504
Water	8260	Vinyl chloride	75-01-4	ug/L	2	0.188	0.04	0.22	0.5	1	Yes	No	X			Could be met by 8260_LL method in Seattle
Water	8270	1,2,3-Trichlorobenzene	87-61-6	ug/L		7.4						-	X			not offered
Water	8270	Benzaldehyde	100-52-7	ug/L		1.93		2	2	10		No			X	limits from Denver, if added to Seattle list might achieve
Water	8270	Bis(2-chloroethyl)ether	111-44-4	ug/L	0.77	0.136	10	0.1	0.2	0.4	Yes	No			X	(MDL OK)
Water	8270	Hexachlorobenzene	118-74-1	ug/L	1	0.0976	10	0.1	0.2	0.4	Yes	No			X	(MDL OK)
Water	8270	Kepone	143-50-0	ug/L		0.0345						-	X			not offered
Water	8270	N-Nitrosodimethylamine	62-75-9	ug/L	0.017	0.00112		0.2	0.5	2	No	No	X			
Water	8270	N-Nitrosodi-n-propylamine	621-64-7	ug/L	0.12	0.108		0.1	0.2	0.4	No	No			X	(MDL OK)
Water	8081_LVI	Aldrin	309-00-2	ug/L	0.05	0.00917		0.007	0.02	0.03	Yes	No			X	(MDL OK)

Water	8081_LVI	Toxaphene	8001-35-2	ug/L	3	0.153		0.22	0.8	1	Yes	No	X
Water	9012A	Cyanide, Amenable	STL00015	mg/L	0.2	0.00146		0.04	0.05	0.06	Yes	No	X
Water	9012A	Cyanide, Total	57-12-5	mg/L	0.2	0.00146		0.04	0.05	0.06	Yes	No	X

A Alaska proposed 2016 limit probably cannot be achieved with conventional analytical methods/instruments
B Alaska proposed 2016 limit might be achieved with major method modifications or alternate specialty methods
C Alaska proposed 2016 limit are not currently available with the specified analytical method but likely would be achieved with minimal effort

Note:
Method limits listed above for 8260 are "Lower Limit of Quantitation" from Method 8260C, Table 2 and are from a 25 ml purge volume.
These limits are also present in Table 2 of Method 8260B, but there they are referred to as "Method Detection Limits" and are based on a 25 ml purge volume.
Most laboratories only purge either 5 ml or 10 ml purge volumes. The Method limits in 8260B & 8260C are un-realistic for real-world samples.

DEPARTMENT OF DEFENSE
REGIONAL ENVIRONMENTAL COORDINATOR, REGION 10
50 Fremont Street, Suite 2450
San Francisco, CA 94105

11 December 2015

Alaska Department of Environmental Conservation
410 Willoughby Ave., Suite 303
P.O. Box 111800
Juneau, AK 99811-1800

Subject: Proposed Cleanup Level Amendments for 18 AAC 75

Dear Ms. Schlichting:

As the Department of Defense (DoD) Regional Environmental Coordinator within EPA Region 10, I represent the military interests of the Services and installations on environmental legislative and regulatory matters within Alaska. The DoD appreciates the opportunity to provide comments on the Alaska Department of Environmental Conservation (ADEC) proposal to adopt regulation changes in Title 18, Chapter 75 of the Alaska Administrative Code, dealing with Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites.

Attached are general and specific comments on the proposed regulation changes in Title 18, Chapter 75 of the Alaska Administrative Code. Our office previously provided comments to ADEC on 27 July 2015 addressing proposed changes to Title 18, Chapter 75.325(h) and 75.340(f) which we believe are still appropriate.

The DoD remains committed to working with the State of Alaska and ADEC on environmental cleanup and other issues. Please let me now if you have any questions or would like to discuss our comments in more detail. I can be reached at (415) 977-8846 or by email at robert.shirley.2@us.af.mil.

Sincerely,

ROBERT SHIRLEY
DoD Regional Environmental Coordinator
Region 10

Attachment:
DoD Comments on proposed revisions to 18 ACC 75

Attachment: DoD Comments on proposed revisions to 18 ACC 75

General Comments:

(1) The Department of Defense (DoD) welcomes the use of risk-based cleanup goals in our cleanup program as it is consistent with the Defense Environmental Restoration Program (DERP) objectives for cost-effective cleanup that is protective of human health and the environment. The DERP conducts environmental restoration activities in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the National Contingency Plan (NCP) and Executive Order 12580 regarding lead agent authority. Please note that state environmental laws such as 18 AAC 75 and proposed revisions apply only as provided by CERCLA and judicial interpretations thereof. CERCLA 42 USC § 9620(a)(1) and 42 USC § 9621(d)(2) limit the role of state laws on federal facilities to the applicable or relevant and appropriate requirements (ARARs).

(2) The proposed regulations will result in substantial changes to cleanup objectives that could result in the evaluation of re-opening of closed sites, and could require revisions to current work plans and implementation of land use controls which all entail long-term costs. Additionally, there is considerable uncertainty and variability as to how and when this will be implemented, and substantial cost increases resulting from this regulation. The implementation of the proposed rules as written will likely result in protracted debate and delay of remedial actions at DoD sites without achieving commensurate health protection, thus potentially resulting in inefficient use of limited state and federal resources. As such, a comprehensive and focused evaluation of the impacts, unintended consequences, and implementation challenges of the proposed regulations is recommended.

(3) The Alaska Department of Environmental Conservation (ADEC) has proposed to revise several portions of regulation 18 AAC 75.325 that involve a general protectiveness standard. The DoD does not consider a general protectiveness standard to meet the definition of an ARAR, since a state requirement must be specific to the hazardous substance involved to constitute a level or standard of control. A state law stating that all cleanups must achieve a specified cumulative cancer risk level for all contaminants and pathways does not establish a chemical specific requirement, but rather is a generic protectiveness level. Also, even if it is stated that a state protectiveness requirement applies to all individual contaminants present, as 18 AAC 75.325 does, such a general standard is not specific to an individual chemical and therefore not considered a valid ARAR. This pertains solely to remedial actions conducted pursuant to CERCLA.

It is noted that at DoD sites where remedial action is conducted pursuant to CERCLA, the proposed Soil and Groundwater Cleanup Levels for chemicals listed in the tables of 18 AAC 75 regulations, once promulgated by Alaska, will constitute valid ARARs as they are chemical specific levels/standards of control, but only if they provide a more stringent level of cleanup than federal standards.

(4) At federal facility sites, the cleanup levels of 18 AAC 75 are potential CERCLA ARARs. They do not, however, constitute a basis for action in a remedial investigation at federal facility sites. A basis for action for groundwater requires that a federal or state non-zero Maximum Contaminant Level Goal or Maximum Contaminant Level (MCL) is exceeded and there is a potential or actual exposure pathway; or ecological risk is determined unacceptable; or cumulative cancer risk exceeds one in ten thousand (10^{-4}); or the non-cancer risk exceeds a hazard index (HI) of 1. Since 18 AAC 75 no longer uses MCLs, a DoD remedial action (following a Remedial Investigation) will generally only be triggered at federal facility sites when a federal or more stringent State MCL or non-zero MCL goal is exceeded, or a risk assessment finds that cumulative cancer risk exceeds 10^{-4}, or a non-cancer HI exceeds 1.

(5) Several new cleanup levels (soil and groundwater) are likely to be determined to be below background levels. EPA CERCLA guidance does not require cleanup below background levels. Any cleanup up levels that are potentially below background levels will require case by case discussion on the applicable background level to ensure that cleanup is not below that level. This may require a background analysis that would cause significant delay and substantial additional cost.

(6) It is appreciated that ADEC is cognizant of the resultant impact of re-opened sites and re-mobilization of field work and the potential cost impacts to a responsible party. Please evaluate the intended and unintended effects of the regulations on current and closed sites and provide more clarity as to how ADEC intends to implement these changes along the cleanup process. For example, remedial actions at ongoing remediation sites with approved work plans should be allowed to use the previous cleanup levels and/or previous methodology.

(7) The FAQs state that cleanup levels are based on the toxicity values hierarchy; however some toxicity values do not meet the EPA classification of Tier 1, 2, or 3 values. See specific comments below.

(8) The proposed regulation requires responsible parties to obtain concurrence from affected property owners for the creation and maintenance of institutional controls if proposing to not meet the unlimited use and unrestricted exposure cleanup levels beyond the property boundary. In exercising its CERCLA authorities the DoD components do seek to negotiate voluntary Land Use Controls (LUCs) with off-installation property owners whose property has been contaminated by our on-installation releases. This can, where necessary, include the negotiated purchase of restrictive easements and other similar property interests using authority granted under 42 USC §9604(j). However, in cases where a property owner unreasonably declines to grant permission, the same CERCLA provision grants us authority to condemn property interests where necessary to conduct remedial action and ensure protectiveness. The State of Alaska and ADEC may not impede this statutory authority of condemnation by always requiring an owner's consent. Also, this and other additional LUCs requirements may cause substantial costs to DoD which may need to be evaluated and negotiated on a site-specific basis.

(9) Revisions to the Risk Assessment Procedures Manual substantially change the calculation of hydrocarbon (DRO, GRO and RRO fractions) risk, and therefore have the potential to change cleanup levels and site closure at many DoD sites. This will result in significant operational and cost impacts which have not been fully evaluated, and per Alaska statute, cost impacts should be evaluated prior to adoption of all proposed regulations.

(10) The proposed Section 18 AAC 75.340(e)(2) as written, limits the calculation of alternative cleanup levels using "an approved fate and transport model" (such as the 4-phase HRC), to the GRO, DRO & RRO hydrocarbon fractions listed in Table B2. Individual compounds listed in Table B1 can no longer have site specific, alternative cleanup levels (ACL) calculated with an "an approved fate and transport model". The equations used in the Oak Ridge National Laboratory (ORNL) calculation tool are not accurate at regulated hydrocarbon spill sites (which constitute about 80% of the contaminated sites in the state) and many other organic spill sites. The proposed regulations need to allow the calculation of ACLs for the individual compounds using "an approved fate and transport model" and the proposed regulations should not be implemented until a fate and transport model (such as the 4-phase HRC) is approved by the ADEC.

(11) The impact of cleanup levels near or below lab analytical detection limits is a significant issue, and greater understanding, analysis, and clarification of how this will be addressed in a consistent manner needs to be provided.

Specific Comments:

(1) Sections 18 AAC 75.325(g) and 18 AAC 75.325(h) call for estimated cancer risk and non-carcinogenic hazards to be rounded to one significant figure. This is appropriate given the level of precision regarding these risk estimates. However, when the state cleanup levels are back-calculated based on those same risk assessment algorithms and assumptions, a similar level of "precision" should be considered. For example, the EPA's Regional Screening Level (RSL) table rounds values to two significant figures. In comparison, the Alaska cleanup levels are reported to three significant figures. This seems to assign an artificial level of precision and accuracy to both the calculations and the analytical laboratory methods that will be used to compare to the risk-based cleanup levels (e.g., the benzo(a)pyrene soil level for the under 40 inch zone is 0.204 mg/kg, which suggests that the analytical methods are precise to three decimal places and that this is the level of precision required to make site management decisions). It is recommended to round the proposed clean up levels to a maximum of two significant figures since requiring three significant figures in a promulgated standard overstates the accuracy of both the cleanup levels and laboratory analytical methods.

(2) Footnotes 19.D and 19.E to Tables B1 and B2 of Section 18 AAC 75.341(c) and to Table C identify the source of the PFOA and PFOS toxicity values, as EPA's 2014 Health Effects Documents. These documents are DRAFT which is not stated in the references or notes, and should be identified as such because the use of any draft, non-peer reviewed toxicity value is inappropriate for derivation of a promulgated standard. Also, and more importantly, the covers on both documents indicate "Draft – Do Not Cite or Quote."

(3) The source of toxicity values for each hazardous substance in the Tables of Section 18 AAC 75.341(c) should be clearly identified. The footnote states that "where one or more toxicology values were unavailable, toxicity values from other sources were used". While the FAQs state that DEC employs a tiered approach to determining toxicity values, it is not at all transparent as to when a toxicology value was determined to be unavailable. Tier 3 toxicology values are subject to varying degrees of scientific reliability and relevance and thus any cleanup level calculated from Tier 3 should be identified and separated from others that have a more credible toxicological basis. Note that the document "Procedures for Calculating Cleanup Levels" dated July 15, 2015, also suffers from this lack of transparency for the source of the toxicity values used to derive these proposed "cleanup levels". Tier 3 toxicity values may have varying levels of peer review and are subject to more uncertainty than toxicity values from Tier 1 and Tier 2 sources. When outlining the "updated" hierarchy for CERCLA toxicity values in OSWER Directive 9285.7-53, EPA cautions that, "Consultation with the Superfund Health Risk Technical Support Center (STSC) or headquarters program office is recommended regarding the use of the Tier 3 values for Superfund response decisions when the contaminant appears to be a risk driver for the site." For example, some of the toxicity values to calculate the Alaska Cleanup Levels in soil and groundwater for thallium are based on toxicity values that EPA states,

> "For the reasons noted in the main document, it is inappropriate to derive a provisional subchronic or chronic p-RfD for thallium. However, information is available which, although insufficient to support derivation of a provisional toxicity value, under current guidelines, may be of limited use to risk assessors. In such cases, the Superfund Health Risk Technical Support Center summarizes available information in an appendix and develops a screening value. Users of screening toxicity values in an appendix to a Provisional Peer Reviewed Toxicity Value (PPRTV) assessment should understand that there is considerably more uncertainty associated with the derivation of a supplemental screening toxicity value than for a value presented in the body of the assessment. Questions or concerns about the appropriate use of screening values should be directed to the Superfund Heath Risk Technical Support Center."

(4) Section 18 AAC 75.341(c) states "If a responsible person uses method two for chemicals other than petroleum hydrocarbons under 18 AAC 75.340, the soil cleanup levels must be based on Table B1". The last column of this table has soil cleanup values for the migration to groundwater pathway. A dilution attenuation factor (DAF) is used in calculating these soil cleanup values. ADEC used a DAF of 13.2; shown in the ADEC document "Procedures for Calculating Cleanup Levels" dated July 15, 2015. However, this calculation requires several assumptions for site hydrogeological conditions to calculate this DAF: (a) Considering that hydrogeological conditions vary from site to site and these values could be significantly different than in the ADEC calculation, it is recommended including appropriate text in the note for Table B1 to inform the public that site specific conditions should be used for calculating the DAF and for developing soil cleanup levels for the groundwater migration pathway; (b) EPA uses default DAF of 20 in soil screening guidance documents which state this value to be protective. ADEC

documents do not provide reasoning for using a lower value than EPA. It is recommended that ADEC provide appropriate text to clarify the use of a 13.2 DAF instead of the EPA default value.

(5) The elimination of EPA Maximum Contaminant Levels as cleanup goals, as implemented by Table C in Section 18 AAC 75.345(b) causes a vast discrepancy between different regulatory programs that establish "safe" levels. Since Alaska relies on the EPA MCLs for drinking water protection, the state is essentially sending mixed messages regarding "safe" levels in groundwater and in drinking water. For example, public drinking water with 10,000 µg/L of xylenes is allowable compared to 193 µg/L of total xylenes as per Table C. Additionally, given the language in 18 AAC 75.345(c) the department wants flexibility to establish more stringent groundwater cleanup levels than those in Table C if necessary to protect human health and the environment. With this language in the regulation, it provides the state sufficient flexibility to decide on a site-specific basis that the EPA MCL is not adequately protective. In order to maintain a consistent regulatory program regarding "safe" levels in drinking water/groundwater, it is recommended that when available, the MCL remain as the groundwater level on Table C.

(6) The language of Section 18 AAC 75.345(d) would require actions to be taken when there is no ARAR and a potentially unacceptable risk has not (and cannot) be demonstrated. Furthermore, the only "exit strategy" for providing alternate drinking water could potentially either take years to be developed or may never be agreed to, so the state is essentially requesting that alternate drinking water be provided in perpetuity when no risk has been demonstrated. This type of action and resultant expenditure without an ARAR or a potential risk is not consistent with CERCLA and should be revised.

(7) While not a proposed revision, text in sentence three of 18 AAC 75.345(i) states "Unless otherwise approved by the department, a responsible person shall conduct monitoring quarterly for at least one year to establish the concentration trend." Considering some sites may be inaccessible or have frozen wells, or might already have existing data to establish concentration trend, it should not be necessary to collect additional quarterly data for these sites.

End of DoD REC 10 Comments on proposed revisions to 18 ACC 75

Schlichting, Sally G (DEC)

From: Margaret Valentine <mvalen99@yahoo.com>
Sent: Friday, December 11, 2015 12:16 PM
To: Schlichting, Sally G (DEC); Margaret Valentine
Subject: Comments on 18 AAC 75
Attachments: Comments on ADEC proposed regulation changes.pdf

Please see attached.
Thank you,
Maggie Valentine-Graham

Comments on ADEC proposed regulation changes:

18 AAC 75 Regulation for Oil and Other Hazardous Substances Pollution Control

December 11, 2015

1. Comment:

   ADEC has proposed changes without fully explaining the basis for the proposed changes, offering a rationale for the proposed changes, or explaining why the changes need to be made at this time. A justification for the proposed changes besides the mention that new science and new toxicity data (and draft toxicity data) has become available is warranted. During this economically challenging time for Alaska, and by your own admission that private businesses are more likely to face additional costs, these changes need to be postponed until the price of oil goes back up as the price of natural resources (oil, natural gas) directly effects Alaska's economy both in and out of the oil industry (e.g. the three legged stool). Toxicity data alone and change for the sake of change does not justify the significant additional expenses private businesses will incur when there has been no evidence of real impacts (e.g. cancer clusters or other health impacts in the population).

2. Comment:

**18 AAC 75.340(d) amended to read*

(d) The soil cleanup levels provided under method one and method two apply at a contaminated site unless the department approves and alternative cleanup level that the responsible party has proposed under method three or method four. To obtain approval for an alternative cleanup level, a responsible person must demonstrate that an alternative cleanup level proposed under method three or method four is protective of human health, safety, and welfare, and of the environment, and must demonstrate compliance with applicable institutional control requirements under 18 AAC 75.375. The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 or Table B2 for any other exposure or migration pathway that is present at the site.

   Although an attempt to clarify this regulation was provided online in the FAQ's, the response is still confusing and misleading. The text is not consistent with the preceding language or the subsequent language in the regulation and it is recommended that it be re-phrased or deleted.

3. Comment:

   Prior to promulgation, the ADEC is required to evaluate the economic impact to the regulated community and it does not appear that those costs have been quantified to private businesses at all. The only costs that appear to have been evaluated are the costs to the Agency.

The cost to the regulated community has the potential to be quite large. ADEC needs to postpone the promulgation of these regulations until an economic impact evaluation has been completed. Promulgation of the regulations in 2016 does not allow time for the regulated community to properly plan, or most importantly budget, for these changes. It is recommended that the effective date of these revised regulations should be pushed to 2017.

Additionally, it has been stated that the ADEC state only "re-opened" one site in 2008 when the 18 AAC 75 was last updated, but the magnitude of the changes in 2008 do not compare to the 2015 significantly more conservative cleanup levels and risk assessment burden imposed upon the regulated community. It is misleading to make this comparison statement to the public and it should be discontinued.

4. Comment:

   There does not appear to be and won't be a means to calculate the correct hydrocarbon numbers under Method 3 until the Hydrocarbon Risk Calculator (HRC) is updated. A Method 4 calculation would have to be performed in its place, but it is inconsistent to not roll out the updated HRC at the same time as the new Method 3 calculations are being promulgated or as soon as possible thereafter. The effective date should be pushed to 2017 to allow for the HRC to be updated.

5. Comment:

   Although cleanup levels for petroleum hydrocarbons are not being changed at this time, the often associated site contaminants (BTEX, PAH's) are changing, thereby affecting many hydrocarbon impacted sites. It is misleading to imply to the public that hydrocarbon impacted sites would not be effected by these regulation changes. Additionally, it is mentioned that petroleum cleanup levels remain unchanged (for now), but that these numbers will be considered for a later revisions package. Again, the effective date should be pushed to 2017 and the hydrocarbon cleanup levels reviewed all at the same time as the Table B1.

6. Comment:

   18 AAC 75.340 (e)(3)(D)

   Consent of and agreement to create, maintain, and abide by institutional controls from each landowner who is affected by the contamination at the site that a cleanup level less stringent than a cleanup level appropriate to residential land use is appropriate for the site.

   Requiring land owners affected by contamination to create and maintain institutional controls where a cleanup level is less stringent than a level appropriate for unrestricted land use is impractical and will delay many cleanup efforts in negotiations, especially when the landowner is the Department of Natural Resources or the Bureau of Land Management (which is the case in much of the North Slope of Alaska). Ideally it would be preferable to have a notation that if the landowner is a State or Federal agency, this provision does not apply. These agencies should

defer to the judgement of their sister agency, the ADEC, when it comes to contaminated sites and not implement their own separate cleanup requirements.

Additionally, some clarification and an example of a form is needed regarding the type of agreement that would be appropriate between the land owner and the RP (e.g. simple written agreement, notarized agreement, legal agreement).

7. Comment:

18 AAC 75.340(i)(2)

Sensitive subpopulation: Defined in 18 AAC 990 "*A group of individuals that is at increased risk of some adverse health event or outcome after exposure to a contaminant*".

Item (E) was added but was not listed with **BOLD** to differentiate it from the old regulations in the Public Comment Draft document (Aug 26, 2015). As such, the public may not realize the change was made and may fail to comment on this change.

Additionally, ADEC needs to define the term 'sensitive subpopulations' more clearly in the regulation (18 AAC 990), not just the Summary of Proposed Modifications (Oct 20th) which is the only place examples are currently provided (e.g. pregnant women and the elderly). A nearby day care center or a senior assisted living environment would be more appropriate examples. Will subsistence hunters on the North Slope be considered in the definition of a sensitive subpopulation?

What is meant by a 'site specific analysis'? This should be well defined in the revised 18 AAC 990 and clearly laid out in the Risk Assessment Procedures Manual (RAPM). According to the RAPM, Section 3.3.1 Toxicity Hierarchy, sensitive subpopulations are already accounted for in the chronic reference values: '*The chronic reference value is an estimate of a daily exposure level for humans, including sensitive subpopulations that are likely to be without an appreciable risk of deleterious effects during a lifetime*'.

Also, 18 AAC 75.340(i) does not use the word "may" as is stated on the Summary of Proposed Modifications document (Oct 20, 2015), as in sensitive subpopulations may require a site-specific analysis, it actually says "*the Department will require a responsible person to modify a cleanup level under this section or to perform a site-specific analysis of additional site risks if the department determines...a site-specific analysis is necessary due to the presence of sensitive subpopulations who respond biologically to lower levels of exposure to hazardous substances*". This should be corrected in the final version.

8. Comment:

After the public comment period ends, the ADEC will either adopt the proposed regulation changes or other provisions dealing with the same subject, without further notice, or decide to take no action. By ADECs own admission, the language in the final regulations may be different

from that of the proposed regulations. If that in fact becomes the case, and significant changes in the final regulations are made, then a new public comment period should be announced before the new regulations are promulgated.

9. Comment:

The establishment of cleanup levels for PFOA and PFOs (firefighting chemicals) are based on draft criteria and documents from USEPA. Cleanup levels based on draft documents are not appropriate for reference on Tables B1 and C. The USEPA documents (February 2014) clearly stipulate "Draft-Do not cite or quote". Postponing the promulgation of these regulations until 2017 would allow time for these documents to become finalized and properly cited.

Geosphere, Inc.
Lawrence Acomb • 3120 Legacy Drive • Anchorage, Alaska • 99516

Date: December 10, 2015

To: ADEC
Juneau, Alaska

Attn: Ms. Sally Schlichting

Re: Comments on Proposed Modifications to 18 AAC 75 (Site Cleanup Rules), Procedures for Calculating Cleanup Levels, and Procedures for Calculating Cumulative Risk

Dear ADEC:

I reviewed the proposed changes to the ADEC site cleanup regulations, the Procedures for Calculating Cleanup Levels, and Procedures for Calculating Cumulative Risk, and I am providing comments on the proposed changes. Note that the comments are relatively brief and focus on what I see as the most important proposed changes. The most significant conclusion drawn from my review is that **the proposed regulation package should not be adopted**.

General comments:

1. This is the fourth set of proposed changes to the contaminated site regulations in the last year. I am concerned that responsible parties, environmental professionals, and the public will lose track of the regulation change packages and not provide comments when there are significant issues that affect them (i.e. multiple regulation change packages, closely spaced in time will tend to suppress comments). Also I am concerned that by going through multiple, incremental changes to the regulations, there may be cumulative effects which do not become clear until after several regulation changes have been made. I think it would be better to have fewer regulation change packages and make the packages a more complete update of the regulations.
2. I think it would benefit everyone (ADEC, RPs, consultants, and the public) to have input from environmental professionals outside ADEC, in a working group format, while ADEC is developing the revisions to the regulations and guidance documents (i.e. prior to the public comment period). I think this approach would help ADEC, RPs and consultants vet technical problems, provide solutions to problems (instead of identifying a potential problem but not providing guidance for how to solve the problem), wordsmith documents, improve understanding and communication regarding what the issues are, and facilitate implementation of the regulations once they are promulgated.
3. There is not a significant assessment of the impact of the proposed regulation changes. The Alaska Statutes clearly require an assessment of the impact of the changes and the existing assessment (for example in FAQ 14) is inadequate and likely misleading.
4. There is not enough discussion of the changes and there are no examples of the changes to understand how the proposed changes will work. Several proposed changes identify an issue but don't provide information on how to analyze or resolve the problem (e.g. background metals concentrations, compounds with cleanup levels below reporting and/or detection limits).

18 AAC 75 Oil and Other Hazardous Substances Pollution Control

1. 325(g)……The words "*Instructions for determining*" cumulative risk have been inserted into 325(g) (but not into 325(H)). I assume this change is intended require that cumulative risk be calculated essentially, exactly as shown in the cumulative risk document -- however, the cumulative risk document is technically in error. Changes to the cumulative risk document need to

be made and the regulations don't need to require that the cumulative risk calculation is performed as shown in the cumulative risk document. Was there a real problem with the old wording of the regulation?

2. 340(d) .....The proposed edits to the regulations are more confusing than the previous text -- they do not clarify the issue. The old text, although longer, was more clearly worded. I know that this was addressed in FAQ 33, but the proposed text in the regulation needs to be reworded.
3. 340(e) (1) ....What is the purpose of the bold text that in the following excerpt: "*a responsible person may propose for the department's approval* ***or the department may set*** *a site-specific alternative cleanup level*"?
4. 340(e) (2) ....This section of the regulations used to say that site specific cleanup levels for the compounds in Table B1 and the petroleum hydrocarbon fractions in Table B2 could be calculated "*using an approved fate and transport model*". The proposed wording of 340(e) (2) deletes the reference to the Table B1 compounds. The regulations need to allow the calculation of site specific cleanup levels for the compounds in Table B1 (in addition to the petroleum hydrocarbon fractions in Table B2) "*using an approved fate and transport model*" because the calculation methods in the new Procedures for Calculating Cleanup Levels document are technically in error for most sites (they do not account for 4-phase partitioning with Raoult's Law). Further, there has to be "*an approved fate and transport model*" in place before the regulation changes are promulgated. Without this, the ADEC would be forcing RPs and consultants to use calculations that are technically in error. Note that the approval process for the current HRC (which accounts for 4-phase partitioning with Raoult's Law), took about 10 years from the time that the correct equations were sent to the ADEC, and about 5 years from the time that the University of Alaska confirmed that the equations were accurate. Also note that the update and approval of a revised HRC could readily be accomplished in a few months (the previous long review period was not related to the technical difficulty of the task).
5. What is shown in the proposed regs following 340(e) (2) and currently listed as 340(e) (2) (D) appears to be mislabeled. Should it be listed as 340(e) (3) or 340(f) or 340(e) (2) (A)?
6. During the (Oct 14, 2015?) public meeting the ADEC said several times that they wanted the tables to be risk based. However, several of the Table B1 values use the Csat value in place of a risk based value, and several of the Table C values use the solubility value in place of a risk based value.
7. 345(b) (1) and 345(b) (2) locks in the use of the Andelman volatilization factor for Methods Two and Three. The Andelman volatilization factor appears to be overly conservative in that it has been documented to yield results above maximum theoretical vapor concentrations. The EPA regions that I talked to, use the Andelman volatilization factor for screening but not for risk calculations.

Procedures for Calculating Cleanup Levels

1. As described in 18 AAC 75 comment #4, the Procedures for Calculating Cleanup Levels document needs to identify that the soil inhalation calculations and migration to groundwater calculations for the organic compounds are not correct when NAPL is present (which at occurs at virtually every regulated hydrocarbon site).
2. The Procedures for Calculating Cleanup Levels document needs to acknowledge that the migration to groundwater calculations are not correct when the contaminant is in the saturated or seasonally zone.
3. The document locks in the use of the Andelman volatilization factor for Methods Two and Three. The Andelman volatilization factor appears to be overly conservative in that it has been documented to yield results above maximum theoretical vapor concentrations. The EPA regions that I talked to, use the Andelman volatilization factor for screening but not for risk calculations.
4. The representativeness of the exposure factors should be reviewed.

Procedures for Calculating Cumulative Risk

1. The cumulative risk document appears to require the use of the RBCs presented in Appendix B, however, the inhalation RBCs presented in Appendix B for the organic compounds are not correct for most sites because the inhalation RBCs for soils do not account for 4-phase partitioning with Raoult's Law.
2. The Andelman volatilization factor appears to be overly conservative in that it has been documented to yield results above maximum theoretical vapor concentrations. The EPA regions that I talked to, use the Andelman volatilization factor for screening, but not for risk calculations. The use of the Andelman volatilization factor needs to be fully evaluated and/or vetted before it becomes cemented in the regulations.
3. The first paragraph of Section 3.0 says "*Unless it is shown that the groundwater at the site is not used or could not potentially be used for human consumption,* ***it should be assumed that these groundwater pathways are complete***". The text should be edited to differentiate between sites where the groundwater pathway is currently complete, versus sites where the groundwater pathway is potentially complete in the future. The revised text needs to clarify that site closure, IC requirements and potentially the need for remedial action will be based on the assumption that the pathway is complete, but the short term risk communication, short term risk management and potentially rapid response should be based on whether the pathway is currently complete. This is consistent with the CSM guidance.

As stated previously, I am opposed to adopting the regulation changes because they need more work. I hope my comments are useful. Should you have any questions, please contact me at (907) 345-7596 or at acomb@ak.net.

Sincerely,

Lawrence J. Acomb
Geosphere, Inc.

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 6898
JBER, AK 99506-0898

District Commander

Ms. Sally Schlichting
Alaska Department of Environmental Conservation
410 Willoughby Ave, Suite 303
P.O. Box 111800
Juneau, AK 99811-1800

Dear Ms. Schlichting:

The U.S. Army Corps of Engineers - Alaska District (District) appreciates the opportunity to provide comments on the Alaska Department of Environmental Conservation's proposal to adopt regulation changes in Title 18, Chapter 75 of the Alaska Administrative Code, dealing with *Cleanup Levels for Soil and Groundwater and how they are Calculated for Contaminated Sites*.

We have outlined District comments in the attached pages for your consideration. The District remains committed to working with the State of Alaska on environmental cleanup. Thank you again for the opportunity to provide comments on the proposed regulation changes. If you have any questions or would like to discuss our comments in more detail please contact Lisa Geist, Technical Lead, at 907-753-5742 or by email at lisa.k.geist@usace.army.mil.

Sincerely,

Michael S. Brooks
Colonel, U.S. Army Corps of Engineers
District Commander

Enclosure

U.S. ARMY CORPS OF ENGINEERS, Alaska District CEPOA-PM-ESP		Comments on Alaska Department of Environmental Conservation (ADEC), August/October 2015 Proposed Cleanup Level Amendments for 18 AAC 75 and Updated Documents Adopted by Reference	
#	**Section**	**COMMENTS**	**RESPONSE**
1.	General	ADEC is proposing that when the proposed risk-based cleanup levels are too low to be analytically achievable, that the project cleanup levels will be determined by the ADEC PM on a site-specific basis. This would not constitute a consistent application of cleanup levels. If cleanup levels are not applied consistently, they do not meet the requirements to be considered ARARs. Under 40 CFR § 300.400(g)(4) only state standards that meet the following requirements can be potential ARARs: 1) promulgated; 2) identified by the state in a timely manner; and 3) are more stringent than federal requirements. In addition, to be considered ARARs, the requirement must be consistently applied by the state. [42 USC 9621 (d)(4)(E)] General goals that express legislative intent but are non-binding are not ARARs. State guidelines or advisories will not be ARAR but may be "to be considered" (TBC) guidance. [Ref 40 CFR § 300.400(g)(3)]	
2.	General	ADEC representatives indicated that a responsible party working to clean up a site would be able to work the with appropriate ADEC project manager to reach clean up decisions. Yet, without clear guidance via regulations, each ADEC project manager may see the same site differently. This is especially problematic when considering personnel changes. The proposed regulations are subject to considerable discretion in application and will result inconsistent cleanup decisions. For example, subjective decisions will be made when routine cleanup limits are not analytically achievable. A more formal procedure is needed to enable project decisions to be made more clearly, efficiently, robustly, and consistently.	
3.	General	The additional cost impacts and unintended cost impacts due to the proposed changes have not been thoroughly evaluated. Analytical data will become more expensive as laboratories attempt to recover costs from lowering detection limits, increasing method sensitivities, recalculating required detection limit studies, etc. Cleanups and long term monitoring will take longer and cost additional resources to meet these new levels. Additional effort will be required to monitor and maintain institutional controls for longer periods than currently planned. The ADEC must evaluate the increase of required resources and more explicitly quantify the potential benefits.	

		Other factors resulting in unintended additional costs include the potential for more site-specific risk assessments, additional sampling, and collection of site-specific parameters for soil background levels, and hydrogeologic conditions. Additional long term management costs will be incurred. Furthermore, based on past experience it can be very difficult to obtain regulator agreement on site-specific risk-based cleanup levels, and responsible parties will continue to incur additional management, negotiation, and oversight costs to reach regulatory concurrence for site-specific decisions.	
4.	General	Soil cleanup levels tables use units of mg/kg, whereas the groundwater cleanup levels table uses µg/L. Please use consistent units to avoid confusion and to be consistent with similar requests frequently received from ADEC personnel.	
5.	General	Several new cleanup levels (soil and groundwater) are near or below background levels. CERCLA prohibits cleanup below background levels. Any cleanup levels that are below background levels will require case by case discussion. These sites will thus require a background analysis that will also cause significant delay and substantial additional cost to achieving remedial objectives. Many of the proposed cleanup levels are set at concentrations below currently achievable laboratory detection limits. We are concerned with having to prove the negative and being unable to resolve differences of opinion on COPCs, non-detects, and reaching closure.	
6.	General	ADEC's stated intent is to make derivation of regulatory cleanup levels consistent for all compounds and applicable to human health risk levels. However, this approach leads to a number of cleanup levels that are not achievable given the currently available analytical technology. We recommend revising the approach to consider the currently available analytical technology. Different laboratories have different reporting limits and different analytical techniques, making data comparison of nondetects within a given site with data from different laboratories (a common practice) difficult at best. Rather, the ADEC should determine a ***feasible*** detection limit that all approved labs under the CS program are able to reach. In cases where that detection limit is greater than the cleanup limit, ADEC would then be able to develop a programmatic approach, making cleanup decisions that are much more legally defensible.	

7.	General	For sites already underway and in the investigation phase, any approved workplans and reports should be grandfathered and follow the existing regulations. The application of new cleanup levels and methods to open sites during or after a remedial investigation and field work is completed, is extremely problematic and will result in substantially increased costs. Please evaluate the intended and un-intended effects of the regulations on current and closed sites and provide more clarity as to how ADEC intends to implement these changes along the cleanup process. Suggest that any remedial actions at ongoing remediation sites with approved work plans are allowed to use the previous cleanup levels and/or previous methodology.	
8.	Table B1 Note 15 Arsenic	Further clarification is warranted for Note 15 "Due to naturally occurring variable concentrations throughout the state, arsenic must be evaluated as a contaminant of potential concern on a site-specific basis". This could be interpreted along with the 2009 technical memo, "Arsenic in soil" to mean that only sites with a known or suspected source of anthropogenic arsenic would require background studies for arsenic or arsenic sampling however, this isn't stated in the proposed regulations. This clarification is important since the proposed migration to groundwater value of 0.199 mg/kg would be problematic and add unnecessary cost and time for virtually every environmental project in Alaska where anthropogenic sources of arsenic are absent with no reduction in risk.	
9.	Table B1 Note 15 Arsenic	The 2010 Field Sampling Guidance requires sampling for arsenic, barium, cadmium, chromium, lead, nickel, and vanadium for "crude oil, waste oil, used oil, or unknowns". The individual 'known' historical fuels such as gasoline, diesel, arctic diesel, and other fuel oils are the predominant types of spills at old sites and do not require metals analysis, but it is nearly impossible to prove the negative and ensure no waste oil, used oil, or unknowns were spilled as a particular historical site, thus leading to regulatory project managers pushing for metals analysis at many sites. Arsenic should only be considered on a site-specific basis if a known anthropogenic source exists. This concept should be consistent for all potential contaminants at all sites. Anthropogenic sources should be the only reason to require evaluation. In addition, this requirement to evaluate on a case-by-case basis must be consistently applied in order to be considered an ARAR.	

<table>
<tr><td>10.</td><td>Table B1</td><td>It would be problematic to find clean fill that is below cleanup levels for metals (i.e. 0.19 mg/kg arsenic) in most areas of Alaska. Additional clarification is necessary to define requirements for clean fill where arsenic and other metals are naturally occurring.</td><td></td></tr>
<tr><td>11.</td><td>Table B1</td><td>In the past, ADEC has required methanol preservation for volatile analytes via method SW846-5035A. Published detection limits for the applicable analytical method (SW846-8260B/C) are greater than the proposed clean up limits for several volatile compounds, notably the chlorinated compounds. How does the ADEC intend to address this deviation to the published EPA method?</td><td></td></tr>
<tr><td>12.</td><td>General, Table B1</td><td>If soil samples are analyzed for compounds at the cleanup levels proposed in Tables B1 several issues will be encountered:

Underground Storage Tanks Procedures Manual August 18th, 2014 Table 1 requires MDLs that are a factor of 10 lower than the PQL set forth within the table.
<table>
<tr><th>Compound</th><th>Table 1 MDL</th><th>Table 1 PQL</th><th>Table B1 MTGW (2008)</th><th>Table B1 MTGW (2015)</th><th>Resulting MDL requirement</th></tr>
<tr><td>Benzene</td><td>0.007</td><td>0.05</td><td>0.0250</td><td>0.0220</td><td>0.0022</td></tr>
<tr><td>Benzo[a] pyrene</td><td>0.1</td><td>1</td><td>2.10</td><td>0.27</td><td>0.027</td></tr>
<tr><td>Arsenic</td><td>0.3</td><td>3</td><td>3.9</td><td>0.20</td><td>0.020</td></tr>
<tr><td>Cadmium</td><td>0.8</td><td>8.0</td><td>5.00</td><td>9.15</td><td>0.9</td></tr>
<tr><td>Chromium-total</td><td>2</td><td>20</td><td>25.0</td><td>0.0880</td><td>0.0088</td></tr>
<tr><td>Xylenes</td><td>0.007</td><td>0.05</td><td>63.0</td><td>1.53</td><td>0.0153</td></tr>
</table>
Labs are already failing to meet Table 1 MDL requirements for Benzene in soil. Proposed MTGW Benzene requirement for a MDL would be almost 1/3 lower than current requirement.

New arsenic MDL requirement will be an order of magnitude lower than the value required by the UST Procedures Manual.</td><td></td></tr>
</table>

		Compliance with the UST Procedures manual will not generate data that is in compliance with the new Table B1.	
13.	General, Table B1	UST Procedures Manual Table 1 requires that VOCs by 8260B be preserved with Methanol. Note 1 requires the use of EPAs Test Methods for the Evaluation of Solid Waste be used. 2012 September 14th Letter to All Laboratories Performing AK101 and VOC in Soil, Re: Alaska Volatile Organic Compound Soil Preservation Requirements. Requires the use of Methanol for preservation of VOC samples. "If the methanol analysis cannot meet Alaska regulatory cleanup levels and/or project specific action, low level collection and analysis can be approved on a site specific basis for those Compounds of Concern not meeting required levels with the methanol analysis." The EPA has classified the use of 5035A methanol extraction for high level concentration samples, greater than 200 ppb. ADEC has set their program up to require the use of Methanol extraction for regulatory cleanup limits well below 200 ppb. Thus requiring the use of other extraction methods to generate high quality analytical data. But restrict the use of the low level extraction methods to a site specific basis with approval from ADEC. The UST Procedures manual, 18 AAC 75, and laboratory certification program must be brought into sync so that required data can be generated using methods approved by EPA.	
14.	18 AAC 75.340 (d)	"The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1…for any other exposure or migration pathway that is present at the site." Please clarify that this applies to pathways *currently* present on site and not future land use.	
15.	18 AAC 75.340 (e) (D)	"consent of and agreement to create, maintain, and abide by institutional controls from each landowner who is affected by the contamination at the site that a cleanup level less stringent than a cleanup level appropriate to residential land use is appropriate for the site."	

		This requirement may not be achievable and is not consistent with CERCLA authority. USACE has no authority to force a landowner to comply with or agree to land use controls.	
16.	18 AAC 75.340 (g)	"The department will develop a site-specific cleanup level for a hazardous substance not listed under 18 AAC 75.341(c) using the procedures set out in the department's Risk Assessment Procedures Manual adopted by reference…" This fails to establish a consistent cleanup standard and therefore would not be considered an ARAR. This applies to other areas of 18 AAC 75 that include determining cleanup levels on a site-specific basis.	
17.	18 AAC 75.340 (j)(2)	"(2) human exposure from ingestion, dermal [DIRECT CONTACT] or inhalation of particulates or a volatile hazardous substance must be attained in the surface soil and the subsurface soil to a depth of at least 15 feet, unless an institutional control or site conditions prevent human exposure to the subsurface soil;" Depth to "at least 15 ft" is open ended. The compliance depth should either be tied to a trigger to extend the depth from the preset minimum as necessary or should be set at a fixed depth. Using the same clean up value from surface to 15 ft depth seems overly conservative in that residential and recreational exposures would be limited to a much shallower depth. The 15 ft depth exposures would only be associated with construction activities utilizing heavy equipment where the exposure would probably be of relatively short duration. Risk analysis of that exposure would likely result in a higher clean up number.	
18.	Table B1, Table C	Several of the risk-based decision limits are likely not analytically achievable (at least not by conventional, commercial, environmental laboratory test methods). For example, the "Groundwater Cleanup Level" for n-nitrosodimethylamine in Table C is 0.00112 µg/L. Contract Laboratory Program (CLP) reporting limits for the aqueous VOCs are of the order of 10 µg/L, about three orders of magnitude larger than the decision limit for this compound. Similarly, the cleanup level proposed for 1,2,3-trichloropropane (TCP) is 0.0075 µg/L, but the method detection limit listed in drinking water Method 504.1 for	

		TCP is of the order of 0.01 µg/L. To monitor contamination at the proposed decision limit for TCP, a limit of detection limit about an order of magnitude less than this decision limit will likely be needed (e.g., as the quantitation limit is often an order of magnitude greater than the detection limit). We recommend the ADEC verify all of the listed decision limits are analytically achievable. Otherwise, the decision limits should be increased.	
19.	Table C Vs. EPA groundwater MCLs	The proposed groundwater cleanup levels contain values less than EPA drinking water standards. MCLs for protection of human health for groundwater consumption would not be consistently applied by the state if these new cleanup levels are adopted, potentially causing issues with legality of application of groundwater ARARs.	
20.	Table C	In 2014, Anchorage Water and Wastewater reported arsenic in public drinking water at a maximum of 1.92 µg/L (compared to the proposed groundwater cleanup level of 0.52 µg/L) and chromium at 1.38 µg /L (proposed chromium cleanup level is 0.35 µg/L). Fairbanks and North Pole, Alaska also contains arsenic in public drinking water at levels above the proposed groundwater cleanup levels. 2001 USGS looked at arsenic in groundwater in the Cook Inlet basin. 30% of samples tested had groundwater with arsenic concentrations greater than 10 µg/L. 109 wells sampled in the Kenai Peninsula Borough, 9% had more than 50 µg/L. Mean dissolved concentration of 220 samples was 3 µg/L. The samples were all filtered to remove suspended solids. http://pubs.usgs.gov/fs/fs-083-01/pdf/fs-083-01.pdf The proposed 18 AAC 75 cleanup levels for arsenic and chromium in groundwater imply that the population of Anchorage and other locations are currently consuming arsenic and chromium at levels that are a risk to human health. The proposed cleanup levels should result in health warnings to residents consuming drinking water from municipal and private water supplies across the state.	

21.	18 AAC 75.345 (b)(1)	ADEC has indicated their intent is to adopt risk-based values throughout the table rather than deferring to MCLs. However, it appears that a mathematical-only approach was applied across than board, not a risk-based approach. Some proposed cleanup levels are greater than pure products and less than current method detection limits. For example: Chromium III MTGW is 5.34E+08 =534,000,000. This is 534 million parts per million.	
22.	Table C	Several groundwater cleanup levels are less than the current drinking water standards (arsenic, for example, has a cleanup value of 0.517 µg/L while the drinking water standard is 10 µg/L). This inconsistency is unacceptable. 18 AAC 70 allows the Municipality of Anchorage to discharge wastewater with arsenic concentrations of 36 µg/L dissolved. 18 AAC 75 does not allow the use of dissolved metals values or concentrations exceeding 0.517 µg/L. Consistent application of regulations is not happening.	
23.	Footnote 4 to Table C	Footnote 4 indicates the cleanup level for total chromium assumes 100% of a detected concentration is chromium VI. Why then is there a separate line in the table specifically for chromium VI? This seems redundant.	
24.	18 AAC 75.345 (c)	(c) says the department may set a more stringent cleanup level than the applicable level under (b) of this section, if the department determines that a more stringent cleanup level is necessary to ensure protection of human health, safety, or welfare, or of the environment, and based on actual onsite and actual or likely offsite uses of the groundwater that are likely to be affected by the hazardous substance. This is not substantive and will be difficult to apply consistently; therefore it likely will not be an ARAR.	
25.	18 AAC 75.345 (f)(2)(c)	If an alternative point of compliance is approved, this section requires that the cleanup levels must be met at the property boundary unless a responsible person gains concurrence from any affected neighboring property owner for the creation and maintenance of institutional controls. A responsible party cannot ensure that adjacent property owners will remain compliant with the ICs, this should be the responsibility of the ADEC. What protection does the RP have if the adjacent property owners are lax with IC compliance?	

26.	18 AAC 75.345 (f)	The following requirement is not scientifically defensible "The point of compliance where groundwater cleanup levels must be attained is throughout the site from each point extending vertically from the uppermost level of the zone of saturation to the lowest possible depth that could potentially be affected...." Chronic risk depends on the mean concentration of the Exposure Unit (EU). A sampling design can defensibly demonstrate the mean concentration of the EU (estimated from a set of samples that represent the Exposure Unit) is less than a decision limit (e.g., risk-based threshold or cleanup goal). However, owing to temporal variability and spatial heterogeneity, without exhaustively sampling all of the groundwater, no sampling design can show "point-by-point" compliance (i.e., the contaminant concentration in every possible aliquot of groundwater in the population/aquifer meets the cleanup objective). Recommend revising this requirement to state the mean concentration of the groundwater EU or Decision Unit (DU) must be confidently demonstrated to be less than the cleanup or risk-based thresholds.	
27.	18 AAC 75.325 (g) (h)	Sections 18 AAC 75.325(g) and 18 AAC 75.325(h) call for estimated cancer risk and non-carcinogenic hazards to be rounded to one significant figure. This is appropriate given the level of precision regarding these risk estimates. However, when the state cleanup levels are back-calculated based on those same risk assessment algorithms and assumptions, a similar level of "precision" should be considered. The proposed Alaska cleanup levels are reported to three significant figures. This assigns an artificial level of precision and accuracy to both the calculations and the analytical laboratory methods that will be used to compare to the risk-based cleanup levels (e.g., the benzo(a)pyrene soil level for the under 40 inch zone is 0.204 mg/kg, which suggests that the analytical methods are precise to three decimal places and that this is the level of precision required to make site management decisions). It is recommended to round the proposed cleanup levels to a maximum of two significant figures since requiring three significant figures in a promulgated standard overstates the accuracy of both the cleanup levels and laboratory analytical methods.	
28.	18 AAC 75.345 (i)	Conducting quarterly groundwater sampling is not feasible at most FUDS sites due to weather and logistics of mobilizing to remote locations.	

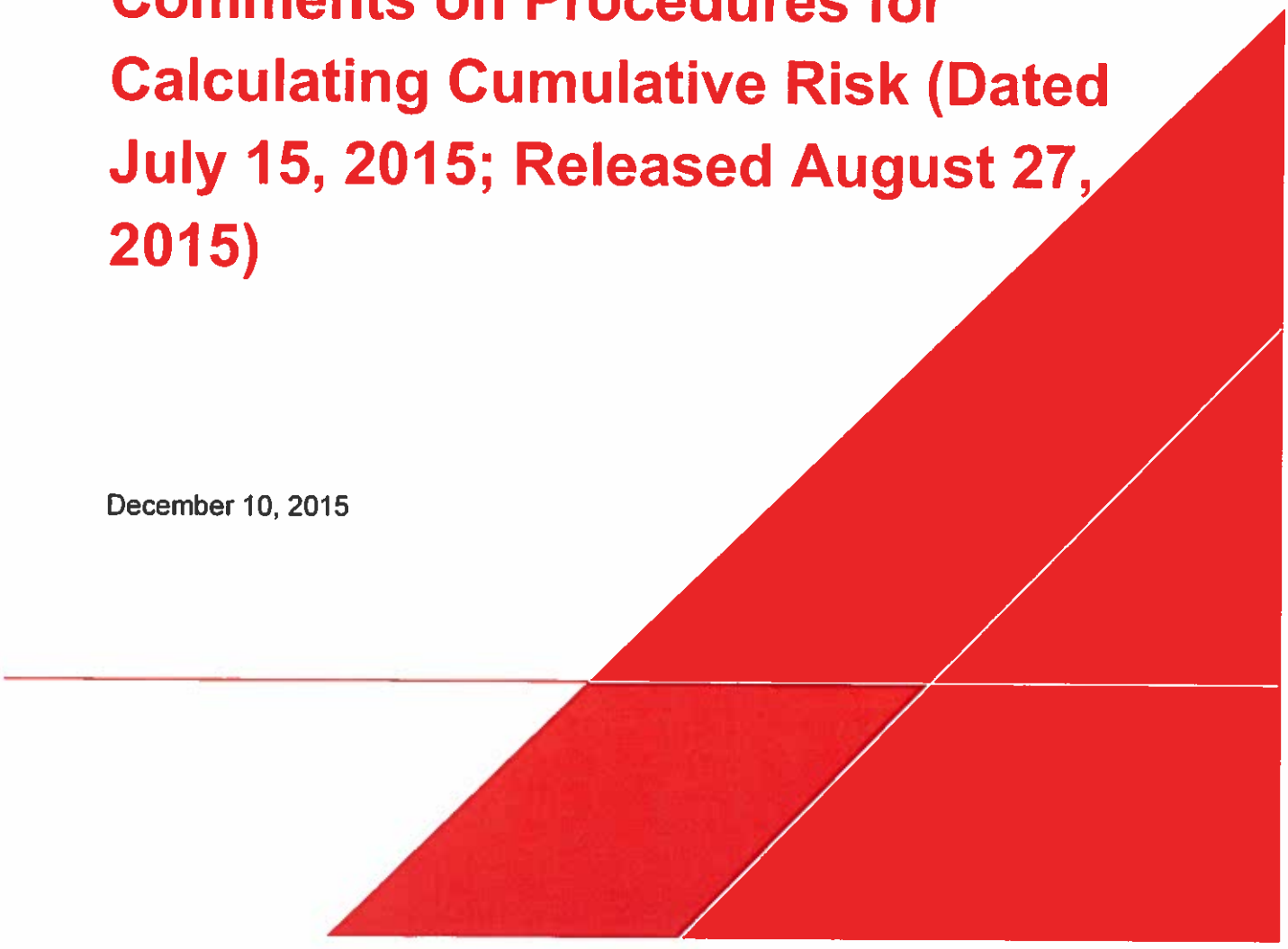
29.	18 AAC 75.345 (j)	"(j) The department will require groundwater, surface water, soil, or sediment monitoring to estimate contaminant flux rates and to address potential bioaccumulation of each hazardous substance at the site," While general monitoring requirements and determination of contaminant flux rates are generally straightforward the reference to "addressing potential bioaccumulation " is vague as to what is actually being required. Clarify what is required to "address" potential bioaccumulation.	
30.	Cumulative Risk Procedures	The regulations require that a chemical that is detected at one-tenth or more of the Table C value must be included when calculating cumulative risk. This requirement is not achievable for chemicals that are already below standard analytical detection limits and will greatly increase costs.	
31.	Procedures for Calculating Cleanup Levels	It is not clear how the percentages of aromatics and aliphatics were derived. As petroleum products greatly vary in composition and there is no explanation of how the percentages were determined, the percentages seem arbitrary. Even if the percentages are correct (e.g., are 95% upper confidence limits of average values), as toxicity greatly varies by individual compound, small differences in percentages of select compounds at a particular study area can give significantly different risk outcomes. Therefore, the scientific defensibility of the approach seems highly questionable. Recommend ADEC present additional technical rationale for the approach being used to evaluate TPH. In particular, explain (a scientifically defensible rationale) how it determined the percentage of aromatics and aliphatics should sum to 120.	
32.	Procedures for Calculating Cleanup Levels	The document requires determining "the maximum concentration or the mean soil concentration at the 95th percent upper confidence limit (UCL)." Thus depending on the sample size and shape of the distribution, the sample maximum will not necessary provide coverage of the population mean. The sample maximum is not necessarily a "conservative" estimate of the population mean; it is not comparable to a 95% UCL of the mean. In fact, the sample maximum will likely underestimate the population mean when the sample size is small and the distribution is positively skewed. ADEC should require exposure point concentrations to be based on the 95% UCLs of the population mean unless a technical rationale to do otherwise is presented (e.g., the data set consists of non-detects).	

33.	18 AAC 75.340 (e)(2)	The proposed regulations have eliminated the use of 4-phase hydrocarbon risk calculator (HRC). The remaining HRC uses inaccurate methodology to assess risk and cleanup levels of hydrocarbons that does not account for actual 4-phase partitioning. The lack of an approved fate and transport model that accounts for 4-phases in-effect does not use site-specific exposure and risk assessment.	
34.		--End of Comments--	

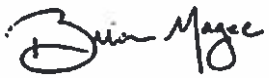
ARCADIS Design & Consultancy for natural and built assets

Comments on Procedures for Calculating Cumulative Risk (Dated July 15, 2015; Released August 27, 2015)

December 10, 2015



COMMENTS ON PROCEDURES FOR CALCULATING CUMULATIVE RISK (JULY 15, 2015)



Brian Magee, Ph.D.

Vice President, Principal Toxicologist

Prepared by:
Arcadis U.S., Inc.
1 Executive Drive
Suite 303
Chelmsford
Massachusetts 01824
Tel 978 322 4519
Fax 978 937 7555

Our Ref.:
B0081981.0085

Date:
December 10, 2015

Arcadis offers the below comments on selected sections of Alaska Department of Environmental Conservation's (ADEC's) proposed *Procedures for Calculating Cumulative Risk*. The document is dated July 15, 2015, but was released on August 27, 2015.

1.3 Noncarcinogens

ADEC states in Section 1.3 that the Hazard Index (HI) can only be segregated by target organ despite the fact that ADEC states in that same section that "[t]o accurately assess the possible effects of noncarcinogenic compounds, the HI can be segregated by target organ or system endpoint and mechanism of toxicity consistent with EPA's Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A) – Interim Final (USEPA, 1989), Guidelines for the Health Risk Assessment of Chemical Mixtures (USEPA, 1986), and Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures (USEPA, 2000)." Moreover, ADEC further states in Section 2.5 that "[t]he hazard index (HI) is the summation of all HQs across all pathways that are affecting the same target organ or system endpoint." The document should clarify that the HI can be segregated by organ or *organ system* as stated in Section 2.5.

Heart, lung, and spleen are organs, and chemicals for which the sensitive endpoints are based on heart, lung and spleen can be grouped. However, some chemicals have RfDs that are based on different aspects of an organ system, such as the immune system. The organs of the immune system include the thymus, bone marrow, spleen, lymph nodes, and others. An adverse effect on the immune system can be noted by effects on these organs or also on effects that result from organ damage, like modifications to the numbers of circulating lymphocytes or decrease in number of antibody forming cells against sheep red blood cells in male mice.

Similarly, chemicals can adversely affect the nervous system and manifest the damage in different ways. RfDs based on adverse effects of the central nervous system, peripheral nervous system, brain, myelin, or specific nerve cells should be considered an organ group for endpoint-specific HI calculation. Another example is the reproductive organ system groupings. Some RfDs are based on "reproductive toxicity," changes in sperm count or sperm motility, or adverse effects in the testes. These chemicals should all be grouped to derive a HI for male reproductive effects. Accordingly, ADEC should clarify effects to *organ system* groupings are consistent with USEPA guidance as cited.

ADEC addresses this issue in its response to Questions #46 and #47, by stating: "In a method four risk assessment, segregation of hazard indices is allowed. See the *2015 Risk Assessment Procedures Manual* on our technical guidance page for details." Arcadis agrees that the *Risk Assessment Procedures Manual* allows for segregation of hazard indices by target organ or system endpoint. Arcadis recommends that ADEC revise Section 1.3 of *Procedures for Calculating Cumulative Risk* to delete the last sentence in Section 1.3, which reads "Since the mechanism of toxicity is not well understood for many compounds, the department will evaluate segregation of the HI by target organ alone." This statement is inconsistent with the *Risk Assessment Procedures Manual*.

2.1 When to Perform the Cumulative Risk Analysis

ADEC has proposed language to allow a responsible party to avoid a cumulative risk assessment under certain circumstances: "The cumulative risk standard must be met upon completion of site cleanup work, but contaminant levels established during a thorough site characterization effort may be sufficient to rule out a cumulative risk, with ADEC approval." However, ADEC offers no threshold criteria or standard by

which a responsible person may propose and justify, or ADEC decide, that a cumulative risk analysis is not necessary. We recommend that ADEC provide criteria for identifying the circumstances in which a cumulative risk assessment is not needed.

ADEC addresses this issue in its response to Question #48, but the response is inconsistent with the proposed language, which states: "...contaminant levels established during a thorough site characterization effort may be sufficient to rule out a cumulative risk, with ADEC approval."

2.2 Procedures

In Section 2.2.3, consistent with the 2008 *Cumulative Risk Guidance*, ADEC states that a cumulative risk assessment be performed using the single maximum groundwater concentration of a constituent. Consistent with EPA guidance, however, a conservative estimate (95th upper confidence limit ("UCL")) of average concentrations of constituents in groundwater representing current conditions is used to represent groundwater exposure point concentrations (EPCs). (EPA. 2013. *ProUCL 5.0 Technical Guide*, EPA/600/R-07/041. September. USEPA. 2006. *On the Computation of a 95% Upper Confidence Limit of the Unknown Population Mean Based upon Data Sets with Below Detection Limit Observations*. EPA/600/R-06/022. March. USEPA, 2002. *Supplemental Guidance to RAGS: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*. OSWER Pub. No. 9285.6-10. December).

EPA developed this approach because a risk assessment based solely on the maximum detected groundwater concentration fails to address potential seasonal or temporal variation that affect average exposures. To that end, EPA recently issued guidance for CERCLA and RCRA sites directing that groundwater EPCs be based on the 95% UCL of the mean concentration among the highest detected concentrations in recent groundwater samples collected from a minimum of three monitoring wells within the same aquifer or plume. (EPA. 2014. *Determining Groundwater Exposure Point Concentrations, Supplemental Guidance*. OSWER Directive 9293.1-42. March 11.) ADEC should not depart from EPA guidance for the development of groundwater EPCs for the purposes of its approach to cumulative risk assessment.

ADEC addresses this issue in its response to Question #49 by stating only that "ADEC has established a more stringent requirement. . . ." Arcadis recommends that ADEC provide the public health basis(es) for departing from EPA policy which focuses risk assessment activities on high end rather than maximum exposures.

According to Section 2.2.3, for soil, the maximum value must be used unless ADEC approves an appropriate statistical method for estimating the 95th percent UCL of the site after cleanup. This approach for a cumulative risk assessment is at odds with the newly proposed *Risk Assessment Procedures Manual* (RAPM) (February 16, 2015). The proposed RAPM specifically states that the 95th UCL should be used as the soil exposure point concentration for risk assessments in Alaska, and not the maximum concentration:

> "The EPC is used to assess risk and must be estimated using a 95% upper confidence limit (UCL) on the mean of the contaminant concentrations in soil. If data quality objectives are established and followed, and exposure units are chosen to minimize variability in the data, then using the 95% UCL will rarely pose a problem. There is a great deal of uncertainty associated with substituting the maximum value for the 95%

> UCL. If the maximum value is less than the 95% UCL, it typically means that variability is high and/or data quality is poor. If the maximum value is greater than the 95% UCL, and there is a weight of evidence suggesting that the maximum value is truly a conservative value, ADEC will consider it as a substitute for the UCL.
>
> The distribution of the data set can be determined and the 95% UCL calculated using EPA's ProUCL 5.0 software (USEPA, 2013b). Alternative statistical methods for calculating the 95% UCL will be considered on a project-specific basis and must be approved by ADEC prior to their use."

Accordingly, ADEC should revise this section to state that the 95% UCL on the mean of the soil data calculated using EPA's ProUCL software can be used as the EPC and alternative statistical methods for calculating the EPC (e.g., spatial weighted averages) will be considered on a project-specific basis and must be approved by ADEC prior to their use. In essence, we recommend that ADEC pre-approve the 95% UCL of the mean as an "appropriate statistical method."

ADEC addresses this issue in its response to Question #50 and states that: "DEC currently accepts and will continue to accept EPA's ProUCL software as an appropriate statistical method." Arcadis recommends that ADEC clarify Section 2.2.3 by revising bullet (d) to add the word "groundwater" as follows: "maximum groundwater concentration or the mean soil concentration at the 95th percent upper confidence limit (UCL) remaining on-site following cleanup" and remove footnote #2, which states: "To employ the mean soil concentration at the 95% UCL under 18 AAC 75.380(c)(1), the department must approve an appropriate statistical method." From its answer to Question #50, it appears that ADEC does not require approval of a "statistical method."

The following statement at Section 2.2.3 is incorrect: "The RBCs differ from Table B1 and Table C in that individual exposure pathways are shown rather than the most protective value of all the pathways as listed in the Tables." They are, in fact, the composite human health values that include all three exposure pathways (ingestion, dermal and inhalation). For each compound, the RBC represents the more protective of the carcinogenic composite RBC and the noncarcinogenic composite RBC.

Appendix B: Human Health Risk Based Concentrations

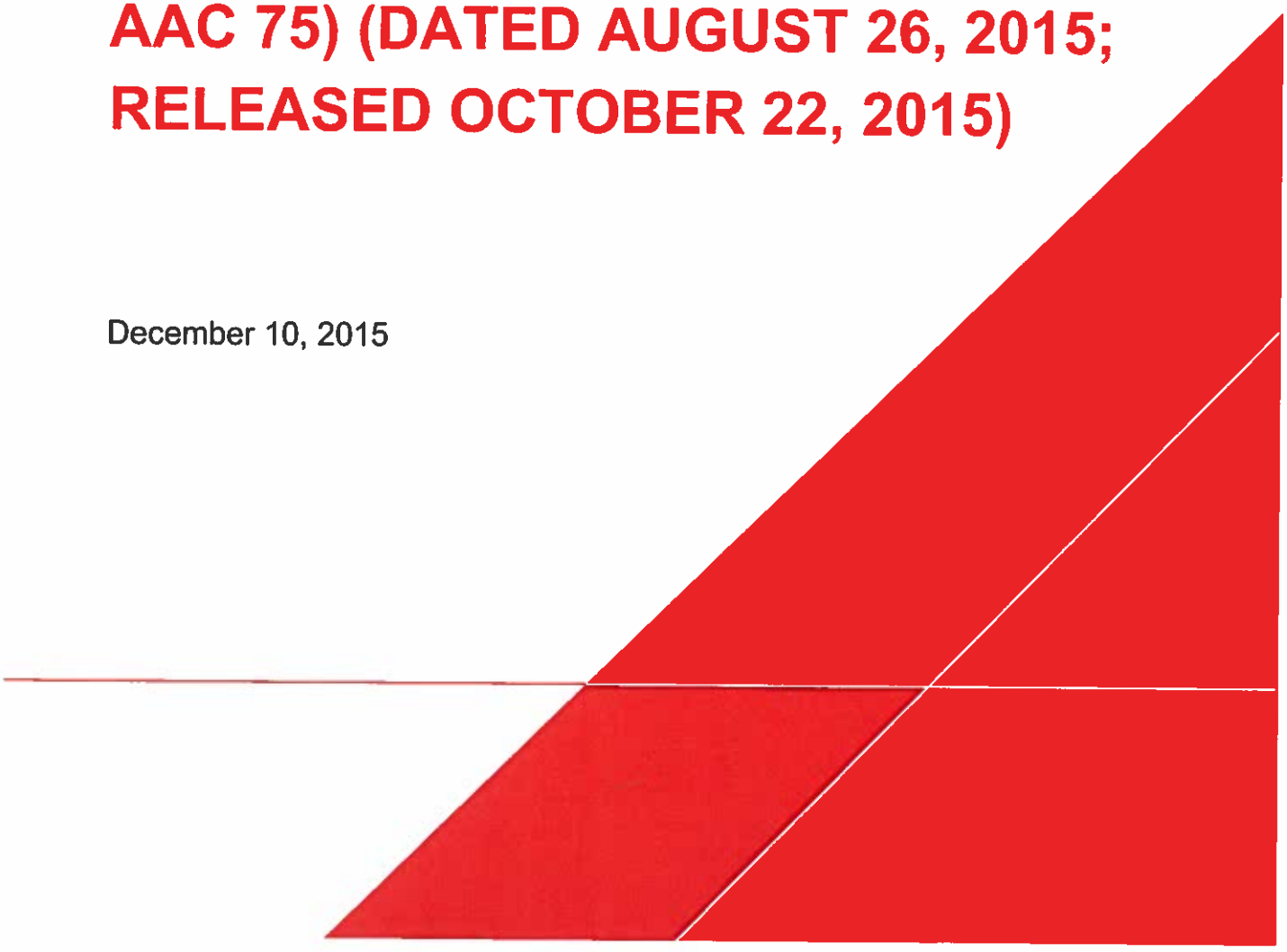
1. The proposed regulations at 18 AAC 75 give soil and groundwater cleanup levels for both 1,1,2,2- and 1,1,1,2-tetrachloroethane, as does the online calculator. However, this document only lists 1,1,2,2-tetrachloroethane and not 1,1,1,2-tetrachloroethane.

2. The proposed regulations at 18 AAC 75 give soil and groundwater cleanup levels for tri-n-butyl tin hydride (CAS# 688-73-3), as do the *Procedures for Calculating Cleanup Levels*, dated July 15, 2015, and the online calculator. However, the *Procedures for Calculating Cumulative Risk*, dated July 15, 2015, also presents human health risk based concentrations for soil for tri-n-butyl tin chloride (CAS# 56573-85-4). These human health risk based concentrations are based on carcinogenic effects, but this chemical is not classified as carcinogenic by EPA. The only toxicity factor listed in the online calculator and *Procedures for Calculating Cleanup Levels* is a noncarcinogenic Reference Dose. EPA does not list any carcinogenic slope factor for either tributyltin compounds or tri-n-butyl tin hydride (CAS# 688-73-3). It is recommended that ADEC remove all reference to tri-n-butyl tin chloride (CAS# 56573-85-4) in *Procedures for Calculating Cumulative Risk*.

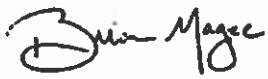
ARCADIS Design & Consultancy for natural and built assets

COMMENTS ON PROPOSED CHANGES TO ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION REGULATIONS (18 AAC 75) (DATED AUGUST 26, 2015; RELEASED OCTOBER 22, 2015)

December 10, 2015



COMMENTS ON PROPOSED CHANGES TO REGULATIONS (18 AAC 75) (AUGUST 26, 2015)



Brian Magee, Ph.D.

Vice President, Principal Toxicologist

Prepared by:
Arcadis U.S., Inc.
1 Executive Drive
Suite 303
Chelmsford
Massachusetts 01824
Tel 978 322 4519
Fax 978 937 7555

Our Ref.:
B0081981.0085

Date:
December 10, 2015

Comments on Proposed Changes to Regulations (18 AAC 75) (August 26, 2015)

Arcadis offers the below comments on selected sections of Alaska Department of Environmental Conservation's (ADEC's) proposed changes to the regulations found at 18 AAC 75. The initial document was dated August 24, 2015. It was subsequently updated and released on October 22, 2015, with a date of August 26, 2015.

1. 18 AAC 75.340(a): ADEC proposes to amend the cited rule to include the bolded text as follows: *"For each site . . . a responsible person shall propose soil cleanup levels for approval, shall base those cleanup levels upon an estimate of the reasonable maximum exposure expected to occur* ***through one or more exposure or migration pathways*** *under current and future site conditions . . . ."* The proposed text is unclear absent further explanation as to the nature and extent of examination of exposure or migration pathways. Cleanup levels are derived for human health, based on the three exposure pathways: direct ingestion of soil, direct dermal contact with soil, and direct inhalation of soil-derived soils and vapors. Consequently, if what ADEC means by "exposure pathways" is an examination of these three exposure pathways, then the proposed language is not necessary. If ADEC intends to include other exposure pathways, then it is incumbent upon ADEC to say so. According to ADEC's proposal, soil cleanup levels are also derived for "Migration to Groundwater." There are no other "migration pathways" discussed in the proposed regulations, so the language about "migration pathways" is also not necessary and unclear. We recommend that ADEC strike the proposed language.

2. 18 AAC 75.340(d): ADEC proposes to amend the cited rule to include the following sentence: "*The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d) for any other exposure or migration pathway that is present at the site."* The quoted language negates the rule provision that allows responsible persons to derive alternative cleanup levels (ACLs) for soil by stating that any soil ACL that is higher than a listed Method 2 Cleanup Level is not allowed.

   ADEC's response to this issue appears on its website as a response to Question #33. Therein, ADEC states that the new language at 18 AAC 75.340(d) was not meant to disallow site-specific cleanup levels that are less stringent than the cleanup levels listed in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d). ADEC's response indicates that if site-specific cleanup levels are derived for human health and migration to groundwater then the more stringent of the two applies. Arcadis agrees with this statement. However, a careful reading of the language proposed by ADEC for 18 AAC 75.340(d) does not accurately reflect ADEC's stated intent as expressed in response to Question #33.

   The proposed new sentence is repeated here: "The cleanup level that applies at a site is the most stringent of any site-specific calculated level and the listed value for that compound, if any, in Table B1 of 18 AAC 75.341(c) or Table B2 of 18 AAC 75.341(d) for any other exposure or migration pathway that is present at the site." The plain text of the proposed language can be read to always require the imposition of listed cleanup levels instead of site-specific cleanup levels in any instance that the listed values are more stringent. We recommend that ADEC strike the proposed language, because it would disallow the use of scientifically defensible, site-specific soil ACLs to be derived and used as cleanup levels. ADEC must clarify the language to reflect its response to Question #33.

3. In 18 AAC 75.345(b), ADEC lists proposed groundwater cleanup levels in Table C that were derived using the methods and procedures detailed in the proposed *Procedures for Calculating Cleanup Levels* (July 15, 2015). These proposed cleanup levels are considerably lower than the current cleanup levels for two major reasons. First, the proposed values for noncarcinogenic compounds are based on a 6-year child exposure using a chronic RfD (or equivalent lifetime toxicity factor). Without offering any technical basis(es), ADEC assumes that children are one hundred-fold more sensitive to exposure to *all* noncarcinogenic substances than average members of the exposed population *even* for effects that are not relevant for children (see comment #4 below).

   ADEC addressed this issue in its response to Question #36 by stating that chemical body burdens are not the same as those for adults. Arcadis agrees with this fact, but the response does not answer the question which focuses on the application of a chronic toxicity factor for a subchronic exposure which assumes that children are 100-fold more sensitive than adults to all noncarcinogenic chemicals.

   Second, the current Method 2 groundwater cleanup levels default to the federal drinking water standards, principally the Maximum Contaminant Levels (MCLs). For instance, the current Method 2 groundwater cleanup levels for benzene, benzo(a)pyrene, dioxin, ethylbenzene, polychlorinated biphenyls (PCBs), toluene, xylenes and arsenic are all set at their respective federal MCLs. With this proposal, ADEC is requiring responsible parties to clean up groundwater to levels that are lower than standards that were determined to be protective by the United States Environmental Protection Agency for drinking water supplied nationwide by public water systems. For instance, the proposed cleanup level for arsenic in groundwater is 0.5 µg/L, but the MCL is 10 µg/L. Similarly, ADEC proposes an ethylbenzene cleanup level of 15 µg/L but the MCL is 700 µg/L, a factor of 50 higher.

   ADEC addresses this issue in its response to Question #35 by stating that MCLs are not based on their risk-based equations and are not routinely updated to incorporate new information about toxicity. Nonetheless, ADEC fails to explain why groundwater should be required to contain concentrations of compounds at levels lower than the levels deemed safe by EPA for potable drinking water from public water systems.

4. ADEC proposes to amend 18 AAC 75.345(c) to add several factors ADEC *may* consider to determine if a more stringent cleanup level than listed in Table C is necessary *"to ensure protection of human health, safety or welfare, or of the environment . . . ."* One factor is *"the presence of sensitive subpopulations who respond biologically to lower levels of exposure to a hazardous substance."* In addition, at 18 AAC 75.340(i)(2), ADEC adds to its reasons for requiring a site-specific analysis "the presence of sensitive subpopulations who respond to lower levels of exposure to [sic] hazardous substance."

   At 18 AAC 75.990, ADEC defines "sensitive subpopulation" to mean "a group of individuals that is at increased risk of some adverse health event or outcome after exposure to a contaminant." However, the ADEC definition offers no criteria or guidance as to when a "group of individuals is at increased risk of some adverse health event or outcome" and when ADEC would require use of a groundwater cleanup level lower than those listed in Table C.

   In fact, ADEC is already protecting sensitive subpopulations by using RfDs that are specifically designed to protect sensitive subpopulations. Some RfDs are derived from developmental toxicology studies in which pregnant laboratory animals are dosed during the gestation period at the critical time of organogenesis to determine if the developing fetus is harmed by the mother's exposure to the

chemical. If so, then the RfD is derived from that study specifically to be protective of the sensitive subpopulation of developing fetuses. Such RfDs are applied to children and adult risk assessments even though protection of a developing fetus is not relevant for a six-year old child receptor. Such RfDs are used to set cleanup levels using the standard equations outlined in the *Risk Assessment Procedures Manual* (2015), and the cleanup levels listed in Table C are specifically derived to be protective of this most sensitive subpopulation. ADEC confirms in its response to Question #38 that it will use toxicity values that are only relevant to receptors of reproductive age to set cleanup levels based on exposure scenarios for children aged one to six if they are in the database used for the EPA Regional Screening Levels.

In addition, RfDs (or other health-based toxicity criteria, such as USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs)), including those that are derived from studies of the effects of exposure to developing fetuses, are derived using a safety (i.e., aka uncertainty) factor (typically 10) that is specifically used to ensure that the RfD is protective of sensitive subpopulations. By definition, RfDs represent the "[d]aily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime." (USEPA. 2015. http://www.epa.gov/risk_assessment/glossary.htm.)

In addition, ADEC proposes to change the equations it uses for calculating groundwater cleanup levels in *Procedures for Calculating Cleanup Levels* (July 15, 2015) such that the cleanup levels for noncarcinogenic substances listed in Table C are based on 6-year exposures to a young child (age 0 to 6 years of age) with the use of chronic RfDs (or equivalent lifetime toxicity values). As discussed above, existing chronic RfDs already assume that sensitive subpopulations are typically ten-fold more sensitive to exposure to all noncarcinogenic substances than average members of the exposed population. For instance, the RfDs for acrylonitrile, acenaphthene, barium, carbon tetrachloride, styrene, toluene and many others were derived using an Intraspecies Uncertainty Factor of 10 to protect sensitive subpopulations.

By basing the groundwater cleanup level on a 6-year exposure by a young child and applying a chronic RfD, ADEC is assuming that children (a sensitive subpopulation) are typically one hundred-fold more sensitive to exposure to noncarcinogenic substances than average members of the exposed population. This is because a 6-year exposure is a *subchronic* exposure not a *chronic* exposure. When USEPA and other regulatory agencies derive chronic RfDs, they assume that exposure to any member of the population for seven years or more (up to a lifetime) to a substance is typically ten-times more harmful than exposure for less than seven years. Accordingly, ADEC is more than adequately protecting sensitive subpopulations by requiring use of the groundwater cleanup levels listed in Table C.

Deriving ACLs for groundwater for subchronic child exposures using chronic RfDs that are already protective of a child by the use of the Intraspecies Uncertainty Factor further results in unnecessary compounding conservatism that ADEC's independent expert sulfolane panel assembled by Toxicology Excellence in Risk Assessment (TERA) repeatedly warned risk assessors to avoid. Further, nowhere does ADEC consider the cost of unnecessary compounding conservatism which results in remediation of sites to levels lower than required to protect the affected population.

Accordingly, we recommend that ADEC strike the proposed language about sensitive subpopulations, because toxicological reference values used by ADEC for derivation of cleanup levels are already specifically designed by EPA and other regulatory agencies to be protective of the human health, safety and welfare of sensitive subpopulations. If ADEC has examples of scientific publications that

have shown children to be more than one hundred-fold more sensitive to any substance in groundwater compared to an average member of the exposed population, then it is incumbent upon ADEC to make these studies available to the public to demonstrate the need for its proposal about sensitive subpopulations. Similarly, if ADEC has any scientific papers that demonstrate that individuals who were exposed to any chemical for a period of six years in groundwater were more than one hundred-fold more sensitive than an average member of the exposed population, it should make those papers and the supporting data available to the public as the rationale for this proposed language. Otherwise, the language should be stricken in its entirety.

ADEC addresses the issue of "sensitive subpopulations" in its response to Question #37, by stating that it will not establish any criteria beyond the criteria included in the definition found at 18 AAC 75.990. ADEC should expressly state so in the amendments.

5. 18 AAC 75.345: ADEC proposes to amend the cited rule to include the following sentence. "Where the department determines that toxicity data is [sic] insufficient to establish a cleanup level for a hazardous substance or a pollutant as defined under AS 46.03.90(20) that ensures protection of human health, safety, and welfare, and of the environment, the department may require a responsible person to provide an alternative source of drinking water for the affected parties or implement other institutional controls under 18 AAC 75.375 until a cleanup level is established under 18 AAC 75.345(b)(2), (b)(3) or (b)(4)." The proposed language provides no threshold criteria and ADEC offers no guidance regarding how it will determine that "toxicity data are insufficient to establish a cleanup level." Moreover, the proposed rule would appear to afford ADEC unbounded authority to require alternative drinking water for an indefinite period of time.

   Nowhere in the proposed rule does ADEC offer any guidance regarding the standard it intends to apply to determine "that toxicity data is [sic] insufficient." Many RfDs have been derived by EPA from databases that are not as robust as the regulator might prefer by application of a database uncertainty factor. And these RfDs have been used by ADEC, and serve as the basis for many of the soil and groundwater cleanup levels listed in 18 AAC 75.345. EPA's IRIS database currently provides RfDs for a number of chemicals with limited toxicological databases that ADEC might consider insufficient, including several polycyclic aromatic hydrocarbons, benzene, ethylbenzene, toluene, xylenes, and many commonly used solvents. Furthermore, there are many chemicals listed in IRIS with RfD values based solely on the results of a single subchronic rodent bioassay, such as anthracene, acenaphthene, ethyl acetate, ethylbenzene, fluorene, fluoranthene, pentabromodiphenyl ether, and pyrene.

   Thus, at a minimum, ADEC must clarify whether it intends to make an "insufficiency" determination for the toxicity data base for chemicals for which there is a single well-designed, executed, and fully documented subchronic study in rodents or other suitable animal species. If so, ADEC would be deviating in a major way from the risk assessment process as practiced nationally and internationally. Substances with a single, well-designed, executed, and fully documented subchronic study are assigned a RfD (or equivalent chronic toxicity criterion) derived using an uncertainty factor for the sufficiency of the data base and regulated along with other chemicals having more robust data bases. Chemicals with such data bases are relied upon routinely to set soil and groundwater cleanup levels.

   ADEC has even derived cleanup levels for several chemicals for which there are *no toxicity data*. Where there is a total absence of data; one must conclude that the toxicity data base is "insufficient." These chemicals include:

   - acenaphthylene

- benzo(g,h,i)perylene
- phenanthrene
- 1,3-dichlorobenzene
- dimethylphthalate

In the total absence of data, ADEC has assumed that the toxicity of these chemicals is similar to the toxicity of a structurally related chemical. For acenaphthylene, benzo(g,h,i)perylene, and phenanthrene, ADEC has assigned the RfD for pyrene. However, the pyrene toxicity data base, itself, would appear to be clearly insufficient according to ADEC's proposed approach, because it consists of a single subchronic mouse study.

ADEC proposes that once it has decided that a chemical has an "insufficient" toxicity data base it "may require a responsible person to provide an alternative source of drinking water for the affected parties or implement other institutional controls under 18 AAC 75.375 until a cleanup level is established under 18 AAC 75.345(b)(2), (b)(3) or (b)(4)." The proposed regulatory language fails to establish any time limitation for the provision of alternative water supplies. ADEC addresses the issue of the amount of time it will require responsible persons to provide an alternative source of drinking water in its response to Question #44 by stating that the time will "depend upon when sufficient toxicity information becomes available to calculate a cleanup level." However, ADEC itself acknowledges in its response to Question #39 that data are sufficient when toxicity values are listed on EPA's toxicity database that supports the Regional Screening Levels.

Significantly, in its proposed *Risk Assessment Procedures Manual* (February 16, 2015), ADEC states it may approach EPA or the National Toxicology Program (NTP) for consideration of future testing when it determines that a toxicity database is insufficient. Such an approach only would further exacerbate the impact of ADEC's failure to establish a final or interim cleanup level where ADEC has also directed a responsible person to undertake response activities or provide alternative drinking water. For example, the referral to NTP would produce significant delays in the completion of a risk assessment because it would take several years to accept a new compound for future testing and upwards of five years to complete the actual toxicity studies and evaluate the results. Once data are produced from the studies, it takes another year or two to finalize risk assessments based on the studies. This creates uncertainty in communities and potentially responsible persons regarding site activities and has the potential to greatly exacerbate response costs. In its response to Question #45, ADEC states that costs cannot be estimated with precision, but that they are "expected to be limited." ADEC's response is inadequate. It is incumbent upon ADEC to calculate the cost to the regulated community of providing an alternative source of drinking water. Years could elapse between a request by ADEC that EPA or NTP perform a 2-year animal toxicology study (which can typically take between 5 and 7 years) and the finalization of an alternate cleanup level based on the results of such tests, which could take years longer. By no means, would costs be "limited" as ADEC states.

In conclusion, ADEC should strike the proposed language because it fails to reflect best science (or any science for that matter), is vague, is contradictory to its own polices for deriving soil and groundwater cleanup levels, and is inconsistent with USEPA policy.

ADEC addresses the issue of insufficient toxicity data in its response to Question #39 by stating that in instances where is a toxicity value in the database used by EPA to derive Regional Screening Levels, then sufficient toxicity data exists per se and when there are no toxicity data in the database, there are insufficient toxicity data. This response is inadequate, because it provides no information on emerging chemicals, which have yet to be addressed by EPA for which a robust toxicity database

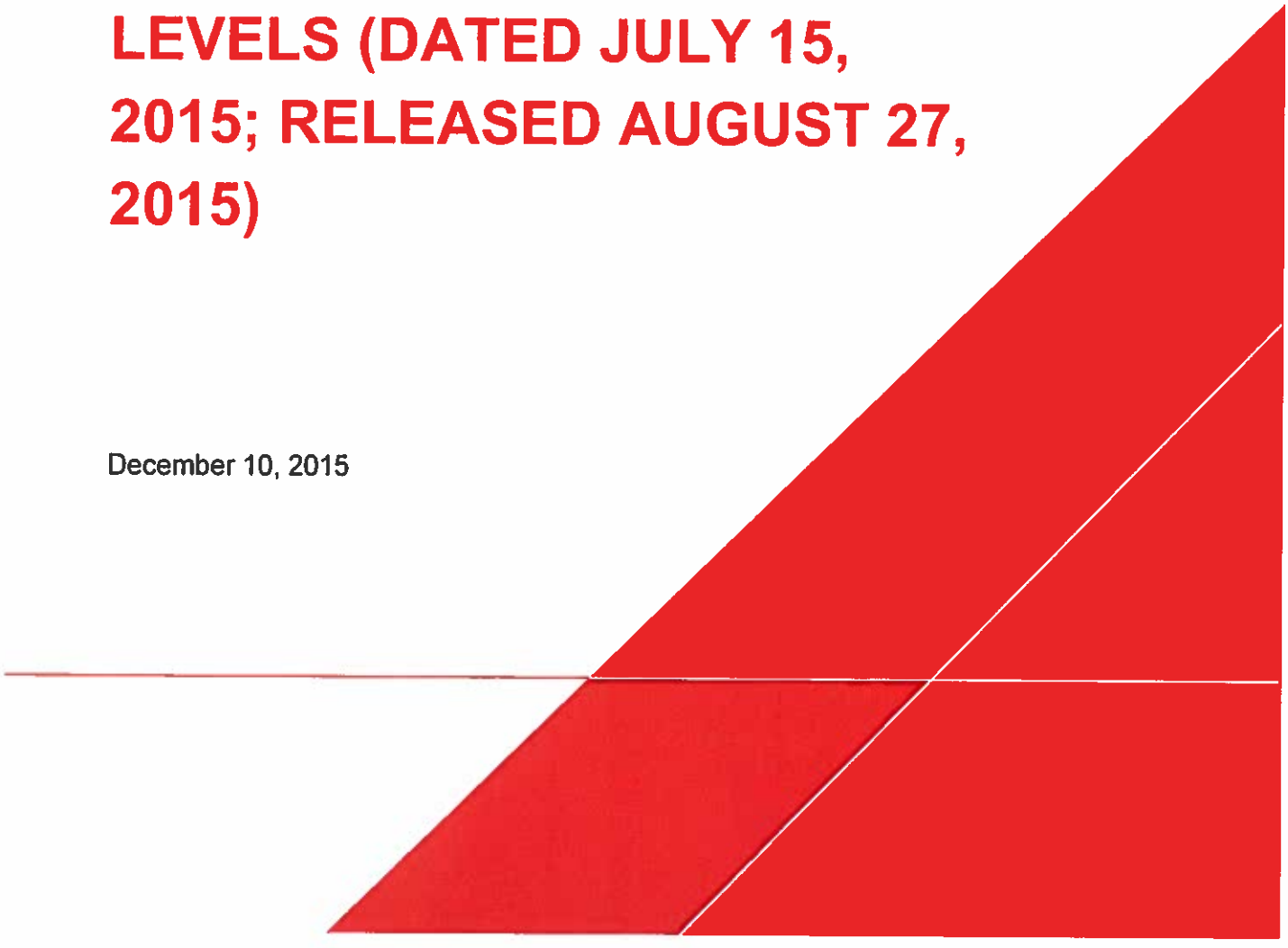
exists elsewhere. It is also factually incorrect, as many chemicals with RfDs in EPA's database are based on a single subchronic animal study, and meet EPA's criteria for an adequate toxicity database, which stands in stark contrast to ADEC's approach to sulfolane. Moreover, ADEC acknowledges in response to Question #41 that it routinely uses chronic toxicity values that are derived from subchronic studies and the use of subchronic-to-chronic uncertainty factors, which also represents is a marked difference from its approach to sulfolane. Further, ADEC specifically states in response to Question #42 that it was appropriate to derive cleanup levels for anthracene, acenaphthene, ethyl acetate, ethylbenzene, fluorene, fluoranthene, pentabromodiphenyl, and pyrene, because EPA derived chronic RfDs for these chemicals based on a single, subchronic study by the use of subchronic-to-chronic uncertainty factors. In response to Question #43 ADEC states that it was appropriate to derive cleanup levels for acenaphthylene, benzo(g,h,i)perylene, phenanthrene, 1,3-dichlorobenzene and dimethylphthalate, although they are not even listed on EPA's database because of a total absence of toxicity data. The setting of cleanup levels for these chemicals deviates from ADEC's policy as outlined in the responses to Questions 38, 39, 40, 41 and 42, in which ADEC repeatedly states that it uses toxicity data listed on EPA's database on the website for the Regional Screening Levels.

6. 18 AAC 75.341 states that chloromethane is a toxicity surrogate for hydrazine and methyl mercury (Kd value only). These three chemicals do not have similar fate and transport properties.

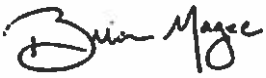
ARCADIS Design & Consultancy for natural and built assets

COMMENTS ON PROCEDURES FOR CALCULATING CLEANUP LEVELS (DATED JULY 15, 2015; RELEASED AUGUST 27, 2015)

December 10, 2015



COMMENTS ON PROCEDURES FOR CALCULATING CLEANUP LEVELS (JULY 15, 2015)



Brian Magee, Ph.D.

Vice President, Principal Toxicologist

Prepared by:
Arcadis U.S., Inc.
1 Executive Drive
Suite 303
Chelmsford
Massachusetts 01824
Tel 978 322 4519
Fax 978 937 7555

Our Ref.:
B0081981.0085

Date:
December 10, 2015

Comments on Procedures for Calculating Cleanup Levels (July 15, 2015)

Arcadis offers the below comments on selected sections of Alaska Department of Environmental Conservation's (ADEC's) proposed *Procedures for Calculating Cleanup Levels*. The document is dated July 15, 2015, but was released on August 27, 2015.

1. Appendix A: Organic and Inorganic Chemical Specific Parameters

   ADEC has presented hundreds of values used to calculate cleanup levels in Appendix A, but offers no source citation or support for any parameter. Consistent with the standard established by ADEC in its *Risk Assessment Procedures Manual,* "[a]ll exposure assumptions must be documented and referenced accordingly." ADEC should provide full citations to each of its parameters in Appendix A: Organic and Inorganic Chemical Specific Parameters. On December 4, 2015, ADEC posted a response addressing the above-discussed lack of support and references by stating in response to Question #51 that it would add a single footnote in Appendix A to reference the Regional Screening Levels. ADEC's response is inadequate as not all input parameters listed in Appendix A, Table 6 (including toxicity factors) were derived from EPA's Regional Screening Levels. Given that certain toxicity factors, such as those for PFOS and PFOA are not listed on the November 2015 Regional Screening Level table, ADEC must ensure that specific support for all 17 parameters listed in Appendix A, Table 6 is provided.

   For much of the public comment period, the information presented in Appendix A, Table 6 was not fully legible as the parameters appearing on the right side of the table were cropped. See document released on August 27, 2015. ADEC recently corrected this presentation error on December 4, 2015 after Question #52 was submitted on December 1, 2015. Prior to December 4, 2015, reviewers could not review the table in its entirety. ADEC should extend the public review and comment period to ensure that the public has a meaningful chance to review and comment.

2. Discrepancies in Risk Assessment Input Parameters

   As noted below, there are discrepancies between certain default parameters that are listed for estimation of the volatilization factor for soil in Section 6.4 compared to the parameters presented in Appendix B Table 7 of the *Procedures for Calculating Cleanup Levels*, which ADEC proposes to adopt as a regulation. As a rule, the proposed *Procedures for Calculating Cleanup Levels* must reflect all the actual input parameters used to calculate the risk-based cleanup levels, and ADEC must ensure that it has eliminated all errors and inconsistencies as outlined below. Arcadis was only able to infer ADEC's intent regarding these default parameters because of its careful study of the recently posted online calculator tool, which ADEC does not propose to incorporate into the proposed rules. The regulations themselves must unambiguously define the required parameters.

   On December 4, 2015, ADEC replied to Question #53 and stated that it would reformat Table 6 and provide a reference dose and a slope factor for perfluorooctanoic acid and that it would make any other corrections as necessary based on public comments. The table below outlines errors and discrepancies that require correction by ADEC.

DISCREPANCIES IN VOLATILIZATION FACTORS USED TO CALCULATE INHALATION RISK BASED CONCENTRATIONS FOR SOIL

Parameter	Arctic Zone Soil Value in Section 6.4	Arctic Zone Soil Value in Appendix B Table 7	Value Used by ADEC Online Calculator
Q/C (inverse of mean conc. at the center of a 0.5 acre square source)	100.13	101.5958	101.5958
A (Dispersion Constant) B (Dispersion Constant) C (Dispersion Constant)	Not defined	7.144 (undefined basis) 31.1784 (undefined basis) 382.6078 (undefined basis)	7.144 (undefined basis) 31.1784 (undefined basis) 382.6078 (undefined basis)
T (exposure interval)	9.5×10^8	8.2×10^8	8.2×10^8
n (total soil porosity) calculated as 1- (ρ_b/ ρ_s)	0.434	0.43	0.43 (calculated from calculator inputs)
Θw (water filled soil porosity)	0.15	0.3	0.15
Θa (air filled soil porosity) Calculated as n- Θw	0.284	0.42 (this value is in error and should be 0.133)[1]	0.284
Foc (organic carbon content of soil)	0.001 (defined in text as 0.1%)	0.001 (defined in table as 1%)	0.001 (0.1%)

[1] Based on total soil porosity of 0.43 and water filled soil porosity of 0.3, the air filled soil porosity must be 0.133.

3. Averaging Time

An incorrect averaging time for a resident (ATress; defined in Appendix B Table 7 as 25550 days per year) is listed in the equations in Section 3.1 to derive the noncancer soil cleanup levels protective of ingestion, dermal contact, and inhalation exposures. The correct averaging time term for deriving the noncancer soil cleanup levels is the averaging time for a child (ATressc, or 6 years x 365 days per year = 2190 days). Furthermore, the averaging time for an adult resident (ATressa or 9490 days) as defined in Appendix B Table 7 is incorrect. The correct value for ATressa is 7330 days (ED of 20 years x 365 days per year).

4. Source of Dispersion Coefficients A, B, and C for Calculating Volatilization Factors

Information provided in the *Procedures for Calculating Cleanup Levels* indicates that EPA soil screening guidance (2002, 1996) was used to establish chemical-specific volatilization factors (VF) and the particulate emission factor (PEF) used to derive the Risk Based Concentrations protective of inhalation exposures for three residential soil categories, including Arctic Zone soil, Under 40" Zone soil, and Over 40" Zone soil. Based on the information presented in Appendix B Table 7, three dispersion constants (A, B, and C) were used to estimate the Q/C term (inverse of the mean concentration at the center of a 0.5-acre-square source), which was then used to estimate zone-specific PEFs and chemical and zone-specific VFs. Three different constants are defined for each of the dispersion factors in Appendix B Table 7 depending upon the soil zone, citing EPA 2002 as the source but with no other explanation. USEPA's 2002 guidance states:

> "Site managers should use the map shown in Exhibit D-1 to identify their climate zone and refer to the relevant lookup table (Exhibit D-2 ....) to identify the appropriate values for the constants A, B, and C."

A comparison was made of the dispersion constants presented in *Procedures for Calculating Cleanup Levels,* Appendix B, Table 7 against the information presented in Exhibit D-2 in EPA (2002). EPA's Exhibit D-2 contains constants established at each of 29 meteorological station sites used in EPA's dispersion model analysis. Based on this comparison, it appears that ADEC selected the dispersion constants for Casper, Wyoming (Zone 4) to represent Arctic Zone soil, dispersion constants for Minneapolis, Minnesota (Zone 5) to represent Under 40" Zone soil, and dispersion constants for San Francisco, California (Zone 2) to represent Over 40" Zone soil. The rationale for selecting dispersion constants associated with three disparate locations to represent climate conditions in Alaska is not described anywhere in the Department's documentation. We recommend that ADEC revise its *Procedures for Calculating Cleanup Levels* to explain the rationale for the use of these dispersion coefficients and to afford the commenting parties a more meaningful opportunity to comment on this aspect of the guidance.

5. Appendix A, Table 6: Organic and Inorganic Chemical Specific Parameters

The proposed regulations at 18 AAC 75 give soil and groundwater cleanup levels for both 1,1,2,2- and 1,1,1,2-tetrachloroethane, as does the online calculator. However, this document only lists 1,1,2,2-tetrachloroethane and not 1,1,1,2-tetrachloroethane.

PERKINSCOIE

1029 West Third Avenue
Suite 300
Anchorage, AK 99501-1981

T +1.907.279.8561
F +1.907.276.3108
perkinscoie.com

December 11, 2015

Eric B. Fjelstad
EFjelstad@perkinscoie.com
D +1.907.263.6973
F +1.907.263.6473

VIA Email sally.schlichting@alaska.gov

Sally Schlichting
Alaska Department of Environmental Conservation
P.O. Box 111800
Juneau, AK 99811-1800

Re: Comments on Proposed Changes to 18 AAC Chapter 75 Regulations Dealing with Cleanup Levels for Soil and Groundwater

Dear Ms. Schlichting:

Please find enclosed the following documents prepared by the consulting firm Arcadis on behalf of Flint Hills Resources Alaska, LLC ("FHRA") in response to the Alaska Department of Environmental Conservation's ("ADEC") notice of proposed rulemaking relating to soil and groundwater cleanup levels under Chapter 75. This comment letter contains the following four documents as attachments:

- Comments on Online Calculator;
- Comments on Proposed Changes to Regulations;
- Comments on Procedures for Calculating Clean-up Levels; and
- Comments on Procedures for Calculating Cumulative Risk.

In addition to the comments contained in these four documents, FHRA notes that the proposed regulation at 18 AAC 75.345(b)(4) would authorize ADEC to establish a site-specific cleanup level using the Risk Assessment Procedures Manual. This approach would change the existing regulations which provide that ADEC can establish a groundwater cleanup standard through rulemaking (found in Table C under 75.345(b)(1)) or alternatively, a responsible party can conduct a risk assessment to support a site-specific cleanup level; any such risk assessment must be approved by the Department.

The proposed regulation would allow the department to develop a groundwater cleanup standard without the due process protections that are inherent in the existing regulations. The proposed approach in proposed Section 345(b)(4) does not afford a responsible party or the broader public any opportunity to provide input on a proposed cleanup level, nor does it obligate ADEC to respond to comments. The proposed regulation would be inconsistent with the requirements of

the Alaska Administrative Procedures Act ("APA") and relevant case law which expansively defines "regulation." The APA requires agencies to undertake rulemaking before enacting standards or policies that will be used to govern the public. This provision – 18 AAC 75.345(b)(4) – would effectively allow ADEC to develop and impose a cleanup standard outside of the APA. The proposed regulation should be stricken, recognizing that ADEC should set standards through rulemaking, or through its oversight of the risk assessment work conducted by responsible parties.

FHRA appreciates ADEC's consideration of the comments on the four Arcadis documents, and the comment contained in this letter. If you have any questions, please contact Linda Tape at linda.tape@fhr.com or (316) 828-8037.

Very truly yours,

Eric B. Fjelstad

EBF:bij

Attachments: As stated.

cc: Linda Tape, FHR

Schlichting, Sally G (DEC)

From: Peter Beardsley <peter@nortechengr.com>
Sent: Friday, December 11, 2015 4:39 PM
To: Schlichting, Sally G (DEC)
Cc: Michele Sherwood; Timothy Shaw; Jason Ginter; Susan Vogt; Doug Dusek; David Hooper; Hilary Pletta
Subject: Comments on Proposed Regulations Changes

Sally-

As you know, ***NORTECH*** had folks attend both the Anchorage and Fairbanks events at which the proposed changes to the regulations were presented. We talked about the changes internally and reviewed the FAQs as well. Based on this, we wanted to make a few comments. In general, these are not really questions about the new regulations, but more comments on issues we are concerned about as the new cleanup levels are worked into the existing regulatory environment.

Cleanup Levels: Overall, we like the science based approach to these cleanup levels. We don't have any specific concerns about whether levels go up or down, as long as the change is based on new and/or more rigorous exposure data. The use of a single number to encompass multiple possible exposure routes is potentially concerning because it assumes that all of these pathways are actually complete at a site. While you explained that the math was done in accordance with EPA calculations and our review confirmed that, we expect this to result in longer discussions and/or an additional level of site specific risk calculation at sites that don't have all pathways present.

Laboratory LOQs: After talking to SGS and having trouble with timeliness of low level VOC results at a project site this summer, we are concerned that laboratories are not going to have sufficient resources and capability to achieve the LOD/LOQ necessary to document sites are clean for some of these compounds. While we are willing to work with our clients and the labs over the next several years to utilize low level analyses, we are concerned that clean closure recommendations may be withheld by the Department because definitive data proving the contaminant is not present below the cleanup level cannot be obtained. Is the Department is willing to recognize the technical, financial, and time constraints that are present on some projects and provide some flexibility while we all wait for the analytical technology to improve?

ADEC Implementation of ICs without Landowner Approval and ICs on Adjacent Parcels:
Earlier in the year and related to a separate discussion, I was informed that ADEC had an opinion from the AG's office that ADEC could record a Notice of Environmental Contamination (NEC) on a property without the consent/participation of the landowner. During that discussion, I provided my opinion that I could see where that could be helpful with some landowners that utilize stalling/delaying tactics with the Department and try to sell property without disclosing the environmental concern. Based upon a review of the Department's February 2011 *Guidance on Using Institutional Controls in Oil and Other Hazardous Substance Cleanups,* it is our understanding that these deed notices cannot be removed from the title history, but the effect can be terminated by recording a second notice. If the Department is going to continue with this line of thought, I recommend limiting the number of individuals authorized to approve and implement this type of document recording. Furthermore, has the Department consulted with Title Companies to confirm that such notices will not prevent the transfer or property and issuance of title insurance if the landowners affected by this type of IC or a more stringent IC is imposed because of contamination on a neighboring property?

As for the ICs on adjacent parcels, the new regulations and FAQ page suggest that the Department will develop a mechanism so that ICs can be recorded on non-source properties upon consent from the affected landowners. Overall, we think recording documents on non-source parcels is a bad idea. At a minimum, needs much more exploration and explanation to consultants and other parties at any site that it is considered. Has the Department fully evaluated the

legal ramifications of recorded documents on adjacent non-source properties with Title Insurance Companies before these changes are finalized? What will be the course of action if adjacent landowners will not consent to ICs and it is not feasible to remediate a site to below the required cleanup levels? While we understand the Department's need to obtain landowner consent and facilitating the discussion in these cases, we think it is important that the Department explore these areas completely so as to avoid the inadvertent damage to property value through unclear or improperly worded recorded documents.

Re-Opening IC and Closed Sites: In general, we are not in favor of ADEC opening any closed site when new regulations are promulgated. While we recognize that regulations can change based on both science and policy, we think it is generally unfair to re-open a site that was closed under a previous closure regime unless some physical condition(s) changes at the site such as a change in use, subdivision of parcels, new observations of contaminants/contamination, or other possible concerns. The Department already has a mechanism in place for these events since all "closure" letters have a "re-opener" clause. In the case of existing closed sites, we think it will be better for all parties, including the Department, to not try to re-evaluate the previous results compared to the new standards. On the technical side, the laboratory data may not have adequate LOQs or there may be some other concern. Property owners and/or Responsible Parties should only be held to the laws and regulations that were in place when the "offence" occurred. We believe that the regulated community will be outraged, which will have negative implications for all parties, and the quantifiable reduction in human health risk will be minute, if any.

In addition, (related to the issue described above), this type of "re-opening" activity may make it more difficult for property owners to obtain title insurance or bank financing as insurers and lenders may conclude that "closure" by ADEC no longer has much meaning. This is a particular concern in the current fiscal environment where ADEC is becoming more aggressive with cost recovery, which is frustrating for many Responsible Parties that already view environmental regulation with skepticism. As a consulting firm that works with regulated parties state-wide, we recommend that the Department considers a "wait-and-see" approach on how the closure process changes with the revised regulations and then potentially re-evaluate sites that have on-going ICs.

Thanks for working on putting more science in the regulations, as well as putting on the workshops and providing outreach about the proposed changes. Please let me know if you have any questions about these comments.

Have a good weekend,
Peter

Peter Beardsley, PE
Principal, Fairbanks Technical Manager
***NORTECH** Environment, Energy, Health & Safety*
2400 College Road, Fairbanks, AK 99709
907-452-5688 Ext 222, 907-452-5694 - fax
peter@nortechengr.com
http://www.nortechengr.com/