

December 11, 2015

Via email: [sally.schlichting@alaska.gov](mailto:sally.schlichting@alaska.gov)

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RE: Comments on DEC's 2015 Proposed Cleanup Levels

The DEC Contaminated Sites Program (CSP) has proposed more stringent cleanup levels for 134 chemicals<sup>1</sup>. 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<sup>2</sup>, 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<sup>3</sup> reported soils of rural parkland had a 98th percentile Cr(VI) concentration of 0.5 mg/kg. No such studies exist for Alaska.

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<sup>1</sup>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>

<sup>2</sup> L. P. GOUGH, R. C. SEVERSON, and H. T. SHACKLETTE; Element Concentrations in Soils and Other Surficial Materials of Alaska; USGS; 1984.

<sup>3</sup> 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)<sup>4</sup>.

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 1/525<sup>th</sup> the 2008 level and phenanthrene is 1/77<sup>th</sup> 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 1/41<sup>th</sup> 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

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<sup>4</sup> 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  $1/87^{\text{th}}$  and  $1/1307^{\text{th}}$  of Alaskan sediment backgrounds the CSP ensures all soils are contaminated, challengeable only through "a discussion with the CS project manager"<sup>5</sup>, 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.

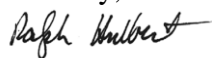
If tested by EPA methods, asphalt and RAP will exceed cleanup levels for As, Cr, GRO/BTEX, DRO, RRO, and naphthalene. Since RAP is so widely distributed, expect "a discussion...", etc. for site characterizations near roads, driveways, parking lots, asphalt plants, and DOT facilities.

"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<sup>6</sup>. 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, P.E.

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<sup>5</sup> [http://dec.alaska.gov/spar/csp/reg\\_faq.htm](http://dec.alaska.gov/spar/csp/reg_faq.htm)

<sup>6</sup> AS 46.09.020(a)