



Integrity Environmental LLC  
12110 Business Blvd., Ste. 6  
PMB #434  
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June 25, 2019

Paul Horwath  
43335 Kalifornsky Beach Rd  
Ste 11  
Soldotna, AK 99669

Re: 2538.38.017 Frosty Fuels Cold Bay Hydrant Ditch Spill

Mr. Horwath,

Please see our response to your questions from your June 6, 2019 email. Please feel free to contact me or Melissa Meyer at Susitna Environmental (907) 350-7952 if you have any follow up or technical questions.

From the June 6, 2019 email:

The work plan states on page 4 that "The site will be characterized to the maximum extent possible without compromising the structural integrity of Reeve Avenue.", and on page 5 that "The road will act as the northern boundary of the site and no borings or test pits will be done in the road or north of the road."

Questions:

- 1) Is it somehow obvious when looking at the road and adjacent roadside ditches that the release fuel wouldn't be expected to infiltrate the road bed?
  - a. *The spill happened in the winter (February 1992) when the soil was frozen, limiting the spill pathway.*
  - b. *When the spill occurred, the road bed was substantially elevated (>3 ft) compared to the ditches. (HartCrowser, 1992) This is common for the area to accommodate the significant rainfall the area is subject to.*
- 2) The proposed soil assessment work is restricted solely to the ditch. Could you describe the construction features of the Reeve Avenue road surface and road bed? For example,
  - a. Is the road surface native soil, imported gravel, or asphalt?
    - i. *The road surface appears to be highly compacted imported gravel. Local gravel has sandy/silty fines and isn't suitable for road construction.*
  - b. Is the road constructed of native soil, simply by excavating the two roadside ditches;
    - i. *Both the 1992 and 1999 Hart Crowser reports indicate that the soil borings within the ditch were primarily red-brown silts, with some borings overlain by sands and gravel.*
    - ii. *Field observations in 2018 also noted red-brown silts, overlain by sands and gravel. The 2018 observations showed a larger area (almost 100%) of the ditch borings being red brown silts covered by gray sand and gravels, likely related to a 2016 road reconstruction project.*

- c. Is the road bed substantially elevated compared to the ground surface beyond the roadside drainage ditch?;
- i. *When the spill occurred, the road bed was substantially elevated (>3 ft) compared to the ditches. Note that much of the impacted soil from the ditch was excavated and backfilled with clean fill in 1992, and that soil was placed into a remediation cell in 1995.*
  - ii. *It is unknown if the fill used in 1992 was local or imported, but soil borings from 2018 indicate it was likely a combination of local fill as red brown silts, overlain by gray sand and imported gravel.*
  - iii. *A local worker noted that the road had been significantly improved (reconstructed) in 2016, and that fill had been placed in the ditches which are now about 1 to 1.5 feet below the road-bed grade.*
  - iv. *The road is wider than in 1992, having been widened during the 2016 reconstruction. 2018 borings were performed very close to the graded edge of the road to obtain sample results as close to the original spill pathway as possible. Borings were not placed into the road so as not to interrupt the compaction and drainage grade that keeps the road free of water.*
- d. Any other features to help explain the rationale for only sampling in the ditch. Having never been onsite, I'm trying to draw out justifications for avoiding the sampling and analysis of soils in the road bed or beyond the roadside ditch. What are the odds soil contamination could extend entirely thru the roadbed to the other side of the road, or extend beyond the ditch itself to adjacent land/soil. There may be some good reasons for your proposal to avoid assessment of soils in the road or outside the southern ditch. If there are, I'm asking for further description and explanation supportive of your proposal.
- i. *The spill occurred in February as a result of a snow plow contacting the line. The fuel flowed along the frozen drainage ditch and through the culvert. All subsequent reports list the road as a boundary to the spill.*
  - ii. *In the 1992 Hart Crowser report soil staining was observed only at the point of discharge, in the low areas of the ditch, and on the North side of the road where the culvert underlay the road. The sampling and analysis occurred in July of 1992.*
  - iii. *Finally, the topography of the site indicates overland flow that supports the observed soil staining locations, with less hydrocarbon concentrations along the flow path, and higher values where the fuel was able to pool. The 1992 Hart Crowser report shows an elevation estimation along with a geologic cross-section. This figure does not show the elevation of the ditch in relation to the road bed, but it does show the elevation of the flow path.*
- 3) Does the road bed serve as a utility corridor? Are there pipelines or other subsurface utilities buried within the road bed?
- a. *There are some utilities located along the road, but none are believed to be in this particular section.*



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Sincerely,

A handwritten signature in black ink that reads "Shannon Oelkers".

Shannon Oelkers  
Owner and Principal Consultant  
Integrity Environmental