

## Joseph Martella

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**From:** Margaret Kilpatrick [Margaret.Kilpatrick@gza.com]  
**Sent:** Thursday, August 04, 2011 1:08 PM  
**To:** Barbara Morin  
**Cc:** Joseph Martella; Gina Friedman; Leone, Michele; James Clark  
**Subject:** RE: Tidewater - Pipe Removal Activities  
**Attachments:** WO1108003.pdf; Excavation Emissions Modeling 43654.00 8.1.11.pdf; Pipe Removal Calculations Write-Up 080111.pdf

Dear Barbara,

This email is sent in response to the Office of Air Resources comments emailed to GZA on August 1, 2011 regarding the Department's review of GZA's July 23, 2011 Regulation No. 9 applicability evaluation for the pipe removal process proposed at the Tidewater Site. For ease of reference, the Department's comments are provided below, followed by GZA's responses in *italics*. In addition, the revised results of the emission calculations are included as an attachment to this email.

Please also see the attached letter from the abutting ICS School which National Grid received in response to the public notification associated with this activity. Assuming a RIDEM approval date no later than August 16, 2011, National Grid is prepared to complete this activity unless there is any weather related delays prior to the start of school date of August 31, 2011 referenced in the ICS letter.

1. A worst case calculation of emissions associated with the soil removal process, which assumed that 20 ft<sup>3</sup> of material will be removed, that all of that material is contaminated at the maximum concentration measured for each pollutant in any of the samples, and that all of the contaminants evaporate during the excavation, yielded an emissions estimate that was substantially lower than the threshold quantities for a Regulation No. 9 permit. Therefore, we are not concerned with that part of the operation.

*GZA Response: Comment acknowledged.*

2. We do, however, have concerns about the pipe removal calculations, including:
  - a. The analysis assumed that the content of the material in the pipe is the same as that of the NAPL in a well on the site, but does not provide any evidence that the two materials are similar. Unless there is some reason that a sample cannot be obtained, the content of the material in the pipe, particularly the concentrations of naphthalene and benzene, should be determined.

*GZA Response: On August 1, 2011, GZA collected an additional sample of the pipe material content. The sample was submitted for volatile organic compounds (VOCs) via EPA Method 8260. Results of the analytical testing were used to recalculate the potential emissions during the proposed pipe removal activities. The revised results of the emission calculations (attached) are consistent with the original July 23, 2011 evaluation and indicate that proposed activities do not have the potential to increase emissions by greater than the minimum quantity as specified in Appendix A of RIDEM APC Regulation No. 9.*

- b. The analysis assumed that the temperature in the pipe would be 15° C, (59°F) during the pipe removal. This is an inappropriate assumption, particularly since the removal is slated for the summer months. A steel pipe on a hot day would be at least at ambient temperature. In fact, the temperature of the contents of a closed vessel in the heat, like a car with the windows closed, is likely to be substantially higher than ambient temperature. A better and more conservative assumption would be 60° C. It should be noted that that temperature is approaching the flash point of naphthalene.

*GZA Response: Per the Department's request, the temperature assumed in the emission analysis was increased to 60° C. The revised emission rates (attached) are well below the thresholds specified in RIDEM*

8/10/2011

- c. When using Raoult's Law, the vapor pressure of pure component  $i$ ,  $P_i$ , must be identified for each component at the correct temperature, as discussed above.

*GZA Response: See response above and revised emission calculations (attached).*

- d. The Universal Gas Constant used in the Ideal Gas Law was in the wrong units and so is not correct, resulting in a considerably lower result than if the correct number were used.

*GZA Response: The Universal Gas Constant (R) used in the Ideal Gas Law calculations in the "Pipe Emission Calculations" write-up has been corrected. Please refer to the attached revised calculations. As indicated above, the results indicate that proposed activities do not have the potential to increase emissions by greater than the minimum quantity as specified in Appendix A of RIDEM APC Regulation No. 9.*

3. We are about the flammability of the materials in the pipe. Although this issue is out of our direct purview, we would recommend strongly that, if this work is to be done in the summer without first evacuating the pipe, OSHA hot work standards be followed carefully. It may also be prudent to use a water jacket to cool the pipe during the removal process.

*GZA Response: All applicable OSHA hot work procedures will be followed during any pipe cutting including air monitoring and fire watch. In addition, appropriate health and safety equipment including a fire extinguisher will be on-site.*

Meg Kilpatrick, P.E.  
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**From:** Barbara Morin [mailto:barbara.morin@DEM.RI.GOV]  
**Sent:** Monday, August 01, 2011 1:00 PM  
**To:** Margaret Kilpatrick  
**Cc:** Joseph Martella; Gina Friedman  
**Subject:** RE: Tidewater - Pipe Removal Activities

Meg-

The Office of Air Resources reviewed the Regulation No. 9 applicability evaluation that you submitted for the pipe removal process and have the following comments:

8/10/2011

1. A worst case calculation of emissions associated with the soil removal process, which assumed that 20 ft<sup>3</sup> of material will be removed, that all of that material is contaminated at the maximum concentration measured for each pollutant in any of the samples, and that all of the contaminants evaporate during the excavation, yielded an emissions estimate that was substantially lower than the threshold quantities for a Regulation No. 9 permit. Therefore, we are not concerned with that part of the operation.
2. We do, however, have concerns about the pipe removal calculations, including:
  - a. The analysis assumed that the content of the material in the pipe is the same as that of the NAPL in a well on the site, but does not provide any evidence that the two materials are similar. Unless there is some reason that a sample cannot be obtained, the content of the material in the pipe, particularly the concentrations of naphthalene and benzene, should be determined.
  - b. The analysis assumed that the temperature in the pipe would be 15° C, (59°F) during the pipe removal. This is an inappropriate assumption, particularly since the removal is slated for the summer months. A steel pipe on a hot day would be at least at ambient temperature. In fact, the temperature of the contents of a closed vessel in the heat, like a car with the windows closed, is likely to be substantially higher than ambient temperature. A better and more conservative assumption would be 60° C. It should be noted that that temperature is approaching the flash point of naphthalene.
  - c. When using Raoult's Law, the vapor pressure of pure component  $i$ ,  $P_i$ , must be identified for each component at the correct temperature, as discussed above.
  - d. The Universal Gas Constant used in the Ideal Gas Law was in the wrong units and so is not correct, resulting in a considerably lower result than if the correct number were used.
3. We are about the flammability of the materials in the pipe. Although this issue is out of our direct purview, we would recommend strongly that, if this work is to be done in the summer without first evacuating the pipe, OSHA hot work standards be followed carefully. It may also be prudent to use a water jacket to cool the pipe during the removal process.

If you have any questions, please contact me or Gina Friedman (ext. 7016, [gina.friedman@dem.ri.gov](mailto:gina.friedman@dem.ri.gov)).

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**From:** Margaret Kilpatrick [<mailto:Margaret.Kilpatrick@gza.com>]  
**Sent:** Monday, July 25, 2011 11:49 AM  
**To:** Barbara Morin  
**Cc:** Joseph Martella  
**Subject:** Tidewater - Pipe Removal Activities

Hi Barbara,

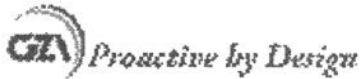
8/10/2011

As discussed, please see attached submittal for the proposed pipe removal activities. A signed LOT is also attached.

National Grid would like to complete this work prior to the start of the school year. As such, your timely review would be greatly appreciated. Please feel free to contact me should you have any questions.

Thanks  
Meg

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