



May 12, 2015
Chris Marcoux-Norton
59 Valiquette Ct.
Colchester, VT 05446

RE: AST Release 2014WMD309

Dear Mr. Marcoux-Norton,

ENPRO Services, Inc. (ENPRO) has prepared the following summary report detailing the activities we performed at your residence related to a heating oil release from a 275-gallon above ground storage tank (AST). The Vermont Department of Environmental Conservation (VTDEC) was notified of the fuel release by the local fire department and have assigned this release spill number 2014WMD309.

Based on our conversations, heavy rains reportedly resulted in the AST settling, which caused the copper fuel line to fail within the crawl space of the residence. Strong fuel odors prompted you to contact the local fire department who deemed that the situation was stable. On June 26, 2014 you contacted ENPRO requesting we respond to a fuel release.

When ENPRO personnel arrived they proceeded to transfer the remaining fuel from your tank into two 55-gallon drums. Based on the amount of fuel transferred and your knowledge of the AST being approximately half full prior to the release, it was estimated that 50 to 75 gallons of fuel had been released.

ENPRO personnel observed staining on the grass directly below the failed copper line, approximately two feet from the side of the residence. Free phase product (heating oil) was also observed on the standing water in the crawl space of the residence. There was approximately 10" of water in the crawl space at the time. Clean up efforts began with removal of the free phase product and water from the crawl space via vacuum truck generating approximately 1,700 gallons of a fuel/water mixture. The fuel/water mixture was taken to ENPRO Services of Maine, Inc. for proper disposal following all applicable State and Federal regulations.

Sampling of the indoor ambient air was performed using a calibrated Photo Ionization Detector (PID). Ambient air readings ranged from 17 to 25 parts per million (ppm) within the first floor, and six to seven ppm on the second floor. To reduce the fuel odors within the residence, a petroleum vapor mitigation system was installed consisting of a self-contained activated carbon unit (SAU-55) placed on the first floor and a negative pressure vapor system installed in the crawlspace. The SAU-55 unit is designed to draw ambient air into and through granular carbon to remediate the petroleum vapors. The crawl space vapor system consisted of a coppus blower withdrawing air from under the home. The air was then plumbed through a second carbon drum for treatment. PID monitoring after the installation of the vapor mitigation systems yielded ambient air reading ranging from zero to 3 ppm throughout the first and second floors.

Soil sampling was conducted within the crawl space as well as on the exterior of the residence (see diagram 1.). Hand tools were used to collect soil samples with the crawl space. Test pits were excavated along the exterior of the home to determined potential impact to the subsurface. Groundwater was observed approximately 30 inches below ground surface (bgs) which contained visible indications of free phase





product. A hydrophobic petroleum absorbent pad was placed in the test pit to collect the fuel oil from water table. To minimize the migration of the fuel oil, the impacted area was covered with poly-sheeting prior to ENPRO demobilized from site.

On June 27, 2014 ENPRO returned to site to monitor indoor air and to check on the vapor mitigation systems. PID readings on the first floor ranged from zero to 0.8 ppm. The crawlspace was observed to have recharged with approximately 2 inches of water. While no separate phase product was observed, a visible sheen was noted.

On June 30, 2014 ENPRO mobilized to site to begin removal of petroleum contaminated soils (PCS). Using a Mini Excavator, approximately 32 tons of PCS were removed to a maximum depth of 30 inches bgs, which correlated to the depth of groundwater. Excavated soils were poly-encapsulated on site pending future disposal. Based on PID readings following the removal of the PCS, all side walls were found to be below the VTDEC guidance value of 10 ppm for fuel impacted soils (see diagram 2). Oil absorbent pads were deployed in the excavation following PCS removal in an effort to remove remaining free phase product from the groundwater.

Following conversations with VTDEC Sites Manager Matt Moran, ENPRO installed a recovery well at the point of origin of the release to a depth of 48 inches bgs. Oil absorbent boom was installed in the recovery well to passively collect free product. Backfilling of the excavation began using one-inch clean, imported stone. Snow fence was installed around the open excavation for safety reason prior to ENPRO leaving the site.

On July 1, 2014 the 1,700 gallons of fuel oil/water mixture removed from within the crawl space was sent to Tradebe Environmental Services for final disposal.

ENPRO completed the excavation backfilling on July 2, 2014. Upon completion of backfilling the excavation was covered with topsoil/seed/mulch and the site was restored to original condition.

On July 7, 2014 ENPRO mobilized to site to load out the temporarily stockpiled PCS which was disposed of at Environmental Soil Management Inc. (ESMI) of Loudon, New Hampshire. Indoor air quality readings were taken via PID with the highest reading being 1.1 ppm within the residence.

On July 8, 2014 ENPRO returned to site to restore the area disturbed where stocked piled PCS had been located. The area was then seeded and mulched.

On July 14, 2014 ENPRO returned to site to remove indoor SAU-55 and check on the crawlspace negative pressure vapor mitigation system. Indoor air readings taken via PID ranged from zero to 1.8 ppm. The SAU-55 was then removed. Readings of indoor air were taken an hour after the unit was removed with the highest reading observed at 1.1 ppm.

Prior to shutting off the outside unit, the crawlspace air readings were taken via PID with a reading of 7.3 ppm. Readings via PID of the effluent of the carbon unit were 18.4 ppm. The outside unit was then shut down and the crawlspace ambient reading was then taken again an hour later with a reading of 5.5 ppm via PID.

On July 21, 2014 ENPRO returned to site to change out the activated carbon in the negative pressure vapor mitigation system of the crawlspace. While onsite readings were taken inside the residence via PID with a reading of 0.0 ppm. A reading was obtained from within the crawl space of 7.0 ppm.

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On July 31, 2014 ENPRO returned to site to monitor indoor air. Multiple PID readings of 0.0 ppm were observed both inside the living space and the crawl space.

On August 5, 2014 ENPRO returned to the site to again monitor the indoor air and check on the boom within the recovery well. Again, multiple indoor air readings were observed at 0.0 ppm both in the home and in the crawlspace. No fuel odors were noted. A slight sheen was observed in the recovery well, but was not heavy enough to be picked up by the absorbent pads.

Recommendations

Impact to sensitive receptors from the release included indoor air, soils, seasonal surface water, and shallow groundwater. Screening of soils remaining in-place post excavation indicated that the undisturbed soils meet the VTDEC guidance value of less than 10 ppm for fuel oil impacted soils. Drinking water is not likely to be affected based on the residence being supplied by the municipal drinking water system. Impact to shallow groundwater was noted but is presumed to be minimal based on the immediate response to the fuel spill, the amount of oil recovered from the crawlspace, and the removal of PCS from the residence. PID readings of indoor air post cleanup efforts eventually yielded readings of 0.0 ppm in both the crawlspace and the house.

Based on the field efforts conducted by ENPRO, as well as visual and PID reading evidence, ENPRO conservatively recommends collection of a groundwater sample from the recovery well for laboratory analysis to determine if residual, dissolved-phase hydrocarbons are present. Laboratory results will be compared to the current VTDEC residential standards. Results will dictate if additional investigation is necessary. If the VTDEC does not feel this effort is warranted and is satisfied with current results, we recommend decommissioning of the recovery well and closing out this spill.

Feel free to contact one of the undersigned at 802.488.3900 if you have any questions or concerns regarding the enclosed information.

Sincerely,
ENPRO Services, Inc.

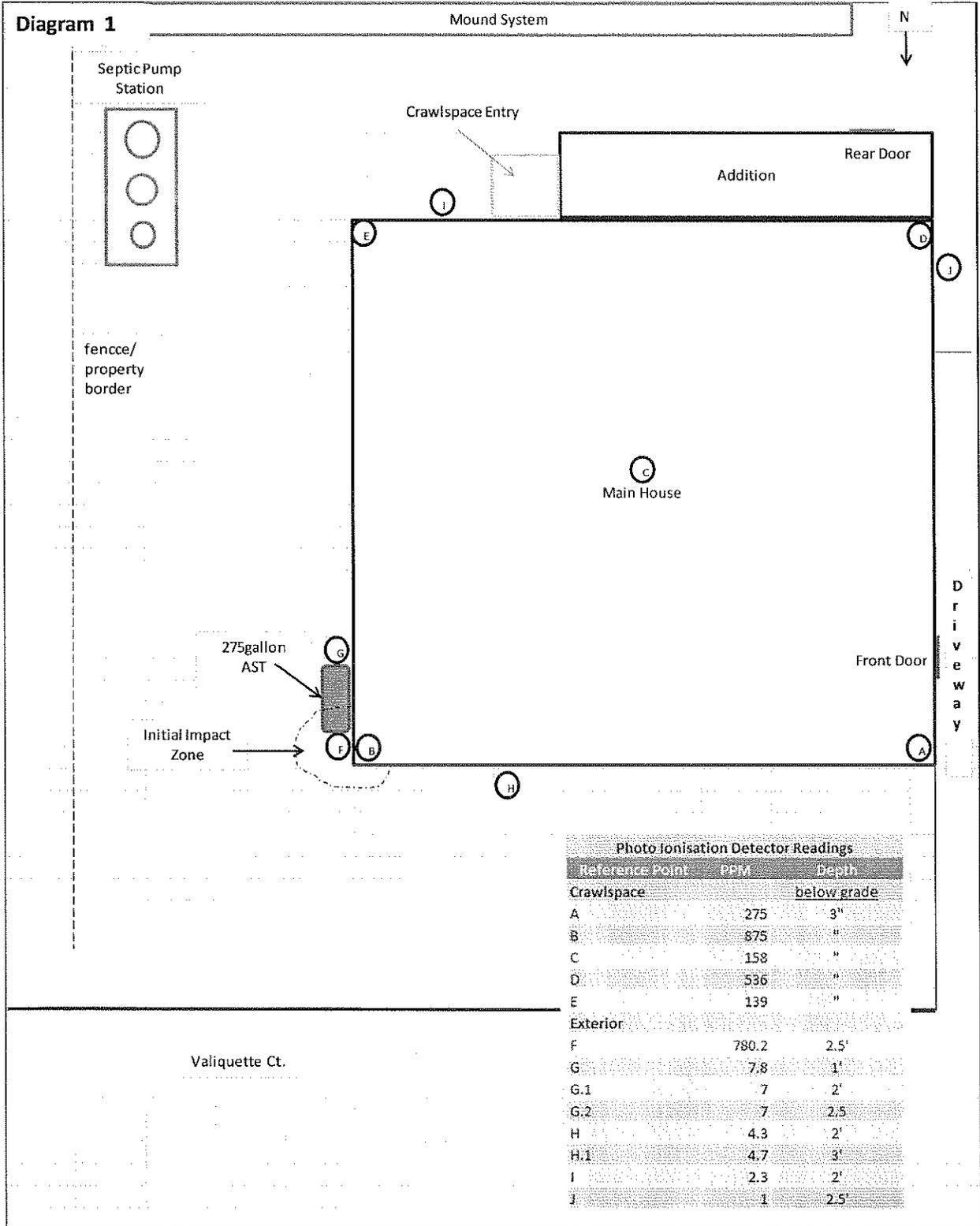
Kyle Cousino
For

Kyle Cousino
Staff Scientist

Thomas P. Murphy

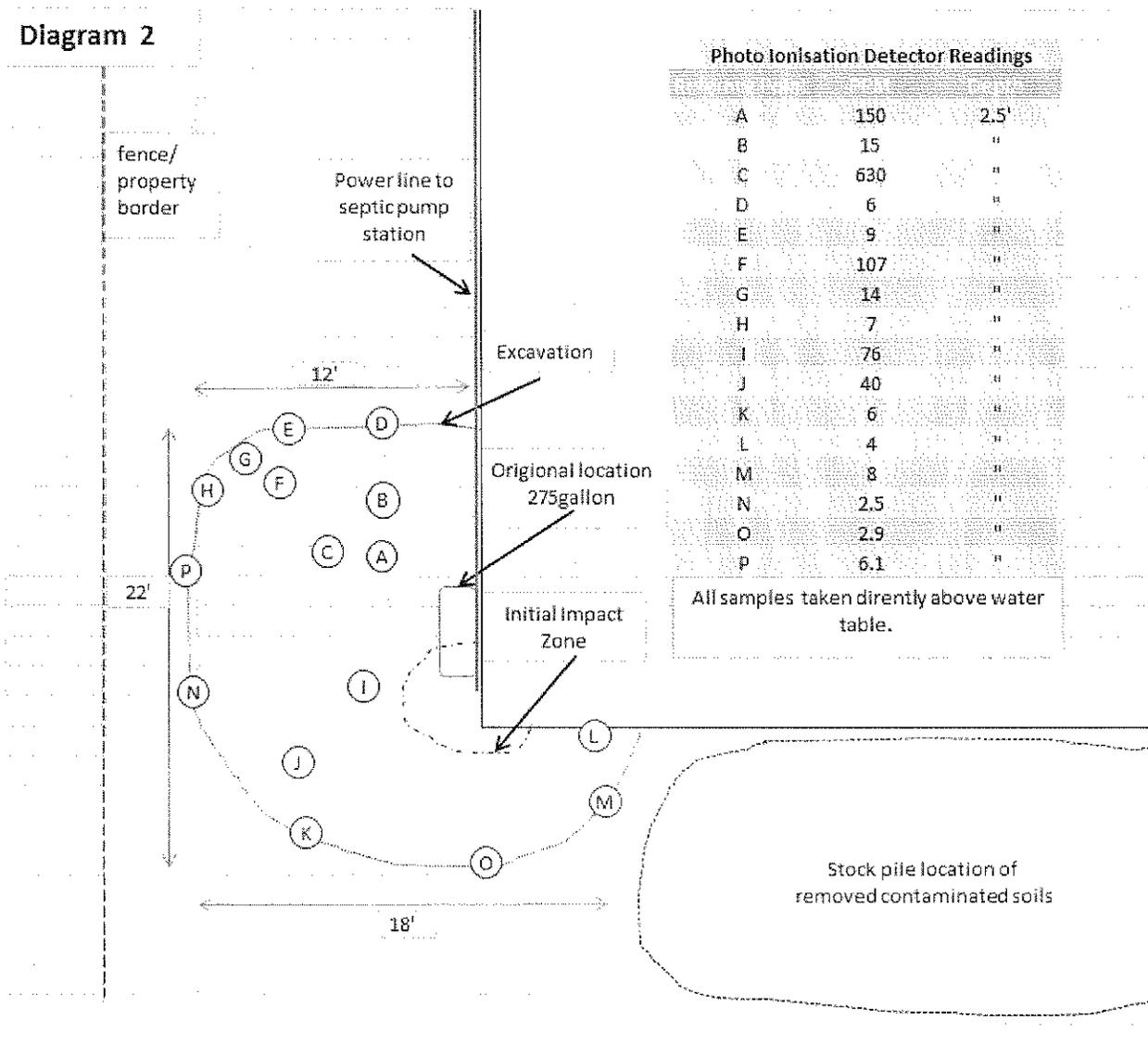
Thomas P. Murphy
Senior Project Manager

Cc: Matt Moran -Hazardous Waste Management Program, State of Vermont



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Diagram 2



Valiquette Ct.

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