



Vitt & Associates
LAW OFFICE

October 27, 2016

HAND-DELIVERED

Trustees of Dartmouth College
6010 Parkhurst Hall, Suite 204
Hanover, NH 03755

RE: *Notice of Violations and Notice of Intent to Sue The Trustees of Dartmouth College for Violations of the Resource Conservation and Recovery Act, 42 U.S.C. § 6972(b)(2)(A), at the Rennie Farm Hazardous Waste Dump Site in Grafton County, NH.*

Dear Trustees:

Pursuant to the 1976 Amendments to the Solid Waste Disposal Act (hereinafter referred to as the "Resource Conservation and Recovery Act" or "RCRA"), 42 U.S.C. § 6972(b)(2)(A), Richard and Deborah Higgins (the "Higgins") hereby notify Dartmouth College that on or after the 90th day from the date of your receipt of this notice, the Higgins intend to initiate a citizen suit in U.S. District Court for the District of New Hampshire against The Trustees of Dartmouth College ("Dartmouth College"), located in Hanover, N.H.

The lawsuit will allege that Dartmouth College has contributed, and is contributing, to the past and present handling, transportation, and disposal of solid waste, hazardous waste, medical waste, and mixed waste in such a manner that presents an imminent and substantial endangerment to health and the environment. The lawsuit will also allege that Dartmouth College is engaged in open dumping in violation of the prohibitions of RCRA. And finally, the lawsuit will allege common law theories of negligence, nuisance, and trespass, in that the College has failed to properly handle hazardous wastes and failed to properly maintain the property on which the waste was stored such that it allowed the Rennie Farm site to become a nuisance and allowed hazardous waste to trespass onto the Higgins' property.

The Higgins will seek injunctive relief requiring Dartmouth College to properly investigate and remediate the source(s) of the endangerment to health and the environment; an order requiring Dartmouth College to pay to relocate the Higgins to a comparable, but

uncontaminated property, in order to immediately and temporarily abate the imminent and substantial endangerment; an award of damages for the harm suffered by the Higgins as a result of the contamination of their property and exposure to hazardous waste; an order requiring Dartmouth College to pay the maximum civil penalties allowable under the law; and an order requiring Dartmouth College to pay the attorney's fees, expert witness fees, and other costs incurred in bringing this enforcement action.

RENNIE FARM SITE

During the 1960s and 1970s, Dartmouth College used its property located at 572 Hanover Center Road, Etna, New Hampshire, and known as "Rennie Farm," to dispose of and/or store hazardous waste materials associated with Dartmouth Medical School research experiments and possibly hazardous wastes from other Dartmouth College activities. These materials were periodically transported to, and buried on, the Rennie Farm site across a number of "burial plots." The College neglected to create or maintain accurate records of the waste disposed at the Rennie Farm site. Upon information and belief, records from that time period reflect only the burial of radioactive animal waste and, in some instances, the type of radionuclide deposited in particular plots.

In 2011, the College excavated the site in preparation for its potential sale or development. During excavation, it became clear that the scope of contamination far exceeded the expected radioactive animal waste. The remediation contractor discovered chemical and radiological liquids in compromised containers, plot intrusion from tree roots and groundwater, and loose waste including syringes, broken glass vials, and rusted metal drums and cans. Soil and groundwater in the plots smelled strongly of solvents and some areas were coated with a purple sheen. Trees covering the site were cut down during the excavation, but left on site. There is no publicly-available evidence that the trees were ever tested for contamination. Despite the College's assurances that all source material at the site had been cleaned up during the 2011 excavation, additional waste was discovered in June of 2016 on the site, and the remediation contractor reports indicate that it is likely that additional waste products remain on site.

Limited testing was conducted and, as expected, radionuclides including tritium, carbon-14, lead-210, and nickel-63 were found at the site. In addition to the known and expected radionuclides, the remediation contractor discovered vials of cesium-137 at the site. The College submitted a Final Status Survey report in 2013 and the site was ultimately released from radiologic controls. However, no off-site testing for migration of radionuclides was conducted.¹

Upon information and belief, other hazardous substances at the site included, for example, naphthalene, diethyl ether, nitric acid, toluene, and scintillation fluid. Dartmouth College did not fully disclose to the public what chemicals it has found at the site, the quantities of such chemicals, their location in the environment, or their likely fate and transport. There is no publicly-available evidence that the College ever conducted a thorough investigation of the extent of hazardous materials at the Rennie Farm site, and off-site testing for migration of those hazardous substances has never been undertaken.

After the excavation project was completed in 2011, the College learned that a number of hazardous substances—most prominently a substance known as 1,4-dioxane—were being found in high quantities in groundwater testing wells outside of the burial zone. The Higgins' property borders the Rennie Farm site on the north-west side. Despite learning in April 2012 that test wells at Rennie Farm showed high levels of 1,4-dioxane, it was not until September 2015 that the College finally requested to test the Higgins' well. It was at that time the College discovered that unsafe levels of 1,4-dioxane had migrated to the Higgins' property. There has been no systematic groundwater study to determine the date on which the Higgins' well first became contaminated nor for how long the Higgins were being exposed to 1,4-dioxane.

The 1,4-dioxane found at Rennie Farm is believed to have been part of scintillation fluid, a chemical cocktail that researchers used to detect radioisotopes. The chemical is readily adsorbed through the lungs and the gastrointestinal tract. Short-term exposure to high levels can result in nausea, drowsiness, headache, and irritation of the eyes, nose, and throat. Chronic exposure may result in dermatitis, eczema, drying and cracking of skin, as well as liver and kidney damage. There is evidence that it may harm a developing fetus and cause certain types of tumors, resulting in its classification by the EPA as a probable human carcinogen. No federal

¹ As of October 21, 2016, the College has, for the first time, commenced testing of the Higgins' well for radionuclides.

maximum contaminant level (“MCL”) has been set for 1,4-dioxane, but EPA risk assessments indicate that an increased cancer risk is present for concentrations above 0.35 µg/L and the State of New Hampshire requires reporting of levels above 0.25 µg/L in public water supplies. New Hampshire’s Ambient Groundwater Quality Standard (AGQS) for 1,4-dioxane is 3.0 µg/L. Soil samples at the Rennie Farm site registered levels of 1,4-dioxane as high as 670 µg/L in the past year.

1,4-dioxane is known to migrate quickly through groundwater, often ahead of other contaminants. Therefore, in a situation where there are multiple contaminants, finding migration of 1,4-dioxane is a likely precursor to finding later migration of the other contaminants. In addition, it has the potential to bind with other chemicals and carry them along for the ride. Nonetheless, there is no publicly-available evidence that the College or its contractors have tested the Higgins’ well, or any off-site well, for any contaminant other than 1,4-dioxane. The concentrated plume of 1,4-dioxane has traveled from the Rennie Farm burial site in a northwesterly direction, migrating off site through the Higgins’ property and reaching at least as far as a tributary of the Hewes Brook. Recent testing has also shown that the 1,4-dioxane is migrating in ways unanticipated by the College. In October of 2016, it was reported that a private well, almost a mile north east of the burial site, registered 1,4-dioxane. Both the College and the State of New Hampshire have been publicly quoted as being “surprised” at both the distance and direction the contaminate had spread. This further highlights that the College’s investigation to date has been insufficient to understand the full extent of contamination.

Other hazardous waste found at the Rennie Farm site has a similar potential for harm to health and the environment. Tritium is a radioactive isotope of hydrogen. It will bind anywhere hydrogen does (including bonding with oxygen to form radioactive water) and, once released, is difficult if not impossible to remove from the environment. It is most harmful when ingested. Exposure to tritium can cause mutations, tumors, and cell death. Similarly, cesium-137 and the other radionuclides found at the site can cause radiation sickness and increased cancer risk. Diethyl ether is often used as a solvent. Exposure can cause headaches, skin irritation, vomiting, dizziness, sleep and mood disturbances, hyperglycemia, cardiac irregularities, and harm to the kidneys. Toluene is another common solvent. It passes easily into the bloodstream through the lungs, skin and GI tract. Portions of the contaminant can build up in the fat tissue over

repeated exposure. Exposure can cause temporary or permanent nervous system damage, headaches, sleep and cognitive disturbances, hearing damage, immune dysfunction, and impairment of the liver, kidney, and lungs. Exposure to naphthalene can cause hemolytic anemia and damage to the liver and eyes as well as neurological damage, skin irritation, headaches, and nausea. It is classified by the EPA as a possible human carcinogen and is listed on the CERCLA priority list of hazardous substances. Lead-210, cesium-137, and 1,4-dioxane are also on the CERCLA priority list. Lead-210 was found at borderline unsafe levels in at least one location 375 feet from the Higgins' well. Because there is no publicly-available evidence that the College has conducted off-site testing for any of these hazardous substances, the full extent of actual or potential exposure is presently unknown.

The Higgins have a 4-acre rural property on which they used to walk their dogs and generally enjoy their land. The Higgins have lived on their property since 1998. The property was handed down to them from Mrs. Higgins' parents, who remain next door. Mrs. Higgins works part-time from home and is also able to help care for her elderly parents due to the proximity of the two properties. Mr. Higgins has a property maintenance business and keeps his work equipment on the property. Mrs. Higgins is wheelchair-bound, and the property and the Higgins' residence have been extensively customized to accommodate her physical limitations. Without funding and assistance to relocate to a suitable property during the investigation and remediation activities, the Higgins face the possibility of continued exposure to toxic substances and on-going damage to their mental and physical health. Over at least the past four years, they and their family dogs have experienced numerous health complaints consistent with exposure to high levels of 1,4-dioxane. Due to contamination of their soil and groundwater with hazardous waste, they are not able to have a garden, to let their dog out to run (she would drink water from the stream), drink their water, shower without fear of additional contamination, or even to get a property loan to do maintenance on their home. Hauling and using bottled water for cooking and cleaning food and vegetables is an added challenge for someone in a wheelchair. Furthermore, the extreme stress associated with learning of the contamination of their property and the uncertainty over the extent to which they have been exposed to hazardous chemicals and radioactive materials has greatly affected the Higgins' health.

The College has been wrong at nearly every turn when it comes to the management of the Rennie Farm site and cannot be trusted to voluntarily remediate the site, the Higgins' property, or other neighboring properties. The College has no idea what materials were disposed of at the Rennie Farm site and has not conducted a sufficiently-thorough investigation to make that determination. It stored and disposed of hazardous and radioactive waste in inadequate containers. It neglected the property on which the hazardous materials were buried, allowing intrusion from groundwater and tree roots. In 2011, it excavated the site in a manner that caused or exacerbated a release of hazardous and radioactive materials into the soil and groundwater. For five years, it insisted it had removed the complete source of the contamination, and then located another burial site with additional materials. It claimed that only residual contamination was present and would quickly dissipate, when test wells showed contaminant levels continuing to increase. It made erroneous assumptions about the direction and extent of migration of contaminants, causing the Higgins and possibly others to suffer extended exposure to toxic materials without their knowledge. And it installed a water filter for the Higgins' property and told them the water was now clean, when they had not tested for any substance other than 1,4-dioxane. There is no evidence that the filter is effective at removing all potential contaminants (for example, the installed carbon-filtration system would not remove tritium contaminants, if present). The filtration system is subject to potential failure and is not continuously monitored by the College. Furthermore, the water filter does not remediate the soil and groundwater contamination or the resulting need to curtail the Higgins' use and enjoyment of their property. There is simply no reasonable expectation that the College, without a Federal Court order, will properly, promptly, and completely investigate and remediate the hazardous conditions its gross negligence have created.

The first step (after relocation of the Higgins for their safety) needs to be a complete investigation of the Rennie Farm site to fully determine the extent to which source material remains on the site. Delineation of source-area contamination is not complete, especially in the west side of the former animal disposal area, and it is essential that this comprehensive delineation be completed so the full extent of residual contamination can be defined. Once this source area is fully delineated it is critical that complete source removal be accomplished to eliminate contaminant loading to the overburden and bedrock aquifers and to yield rapid flushing and remediation of these impacted groundwater sources. Once source removal is complete, due

to the chemical properties of 1,4-dioxane, rapid plume collapse would be expected to occur. Without source removal, contaminant loading and plume stability is expected to persist until the source of contamination is naturally weathered. Without full delineation of the source area and source material it contains, it is impossible to estimate the lifetime of the source material (and subsequently the life of the overburden and bedrock plumes) due to natural weathering, and consequently impossible to estimate the full extent of the impact on the Higgins' property and surrounding community.

The College's current clean-up plans (including the pump and treat system) involve only the Rennie Farm site, not that of the Higgins' or of other neighboring properties to which the contaminants have migrated. As stated above, the full extent of continued toxic exposure is unknown because the College has not conducted a comprehensive investigation. Likewise, the nature and extent of mediation required cannot be known until the College is required to conduct a full investigation. Given the inability of the Higgins' to obtain a home equity loan for their own property due to the contamination, it is reasonable to expect that other properties will be similarly affected and that neighborhood property values will decrease overall. Given its past failures, there is no reason to expect that the College's voluntary remediation measures will succeed. Until a full investigation is completed, no adequate remediation plan can be initiated nor can the affected parties begin to recover.

VIOLATIONS OF THE RESOURCE CONSERVATION AND RECOVERY ACT: IMMINENT AND SUBSTANTIAL ENDANGERMENT

Citizens are authorized under RCRA to bring suit against any person who is the "past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment." 42 U.S.C. § 6972(a)(1)(B). The "imminent and substantial" standard is broadly interpreted and "intended to confer upon the courts the authority to grant affirmative equitable relief to the extent necessary to eliminate *any risk* posed by toxic wastes." See *Cordiano v. Metacon Gun Club, Inc.*, 575 F.3d 199, 210 (2009) (quoting *Dague v. City of Burlington*, 935 F.2d 1343, 1355 (2d Cir. 1991))

(emphasis in original). Imminency is understood to mean that “a risk of threatened harm is present” while “substantial” is equated to “serious.” *Id.* at 210–11.

In this case, Dartmouth College is the generator, transporter, and owner and operator of a storage and disposal facility, and has contributed and is contributing to the storage and disposal of solid waste, hazardous waste, medical waste, and mixed waste, namely in the form of (but not necessarily limited to):

1. Animal carcasses used in laboratory radiological testing;
2. Radiological waste, including but not limited to: carbon-14, tritium, nickel-63, cesium-137, and lead-210;
3. Hazardous waste, including but not limited to: 1,4-dioxane, naphthalene, toluene, and diethyl ether;
4. Medical waste, including laboratory instruments used in radiological experiments such as syringes, vials, and pipettes;
5. Scintillation fluid; and
6. Human remains used as cadavers in medical training.

Dartmouth College’s practices of storing and disposing of solid waste, including hazardous waste, medical waste, and mixed waste may, and do, present an imminent and substantial endangerment to the health of nearby residents and to the environment. Limited testing has already indicated that one or more chemicals have and are continuing to migrate off the Rennie Farm site onto neighboring properties at unsafe levels. The Higgins have already felt the physical effects of this contamination. And it is likely that there is more to come.

The evidence in support of the RCRA violations includes the following:

1. In 2011, Dartmouth College excavated Rennie Farm. During the excavation process, the remediation contractor discovered large amounts of unanticipated chemical and radioactive liquids in broken and compromised containers as well as substantial groundwater and tree root intrusion into the burial plots. The Phase One remediation project report notes that it is likely that loose small waste items remain in the ground at the burial site.

2. Dartmouth College was obligated to keep detailed records of the wastes it buried. Despite numerous requests, Dartmouth College has been unable to provide records that reflect all the hazardous wastes that it buried on Rennie Farm, the containers used for those wastes, or the precise locations where the dumping occurred. The lack of sufficient records is further highlighted by the discrepancies between the records and what was ultimately recovered on site.
3. Dartmouth College neglected the Rennie Farm site, letting the fence fall down and large trees to grow up over the dumping area. The roots of the trees compromised the integrity of some of the canisters and other containers that it buried.
4. The College encountered groundwater intrusion and unexpected discoveries at the site. The College deviated from its hand-excavation plans and resorted to using heavy equipment to excavate the site, which, upon information and belief, likely contributed to the release of the hazardous waste and accelerated the migration of chemicals through the soil and groundwater. The remediation contractor reported that the area smelled strongly of naphthalene and solvents during the dig and reported that the groundwater and soil had a purple sheen to it.
5. A plume of 1,4-dioxane was released during the excavation.
6. Test wells between 2012 and 2015 consistently registered dangerously high levels of 1,4-dioxane on and around the Rennie Farm disposal site, including in a dug well feeding an off-site property and a well close to the boundary line of two neighboring properties.
7. Nonetheless, it was not until September of 2015 that Dartmouth College requested to test the Higgins' well (which is located on the southern part of their property, at the edge of what Dartmouth suspects is the area of the plume). Even that test was grossly inadequate, as it did not look for the full range of contaminants that the College had already found at the Rennie Farm site but only looked for 1,4-dioxane. The Higgins'

well water has tested as high as 6 µg/L for that hazardous substance, more than twice the New Hampshire AGQS and over 17 times the level at which the EPA has found detrimental health effects.

8. Dartmouth provided the Higgins with bottled water and warned them not to drink the water and limit their time in the shower. Months later a carbon filter was installed in the Higgins' home.
9. Dartmouth acknowledged that the 1,4-dioxane in the Higgins' well is from the Rennie Farm site.
10. Of additional concern, what appears to be the center of the plume runs through the northwest corner of the Higgins' property. That area has tested as high as 520 µg/L.
11. Ever since September of 2015, during monthly tests of the Higgins' well, the College first "purges" the well by running a hose from the contaminated well onto the Higgins' back lawn and allowing water to drain out onto the lawn for twenty minutes. Upon information and belief, this has resulted in additional contamination of the Higgins' property. Conversely, when water is purged from wells on the contaminated Rennie Farm property, it is collected and not dispersed on the ground.
12. The Higgins experienced unexplained health issues periodically between 2012 and 2015, consistent with many of the listed health risks for 1,4-dioxane and other suspected chemicals present at the Rennie Farm site. The Higgins' dogs experienced health issues during the same time period.
13. Despite Dartmouth College's assertions that all the source material had been recovered in the 2011 excavation, testing of a well on the Rennie Farm site in February of 2016 showed the continued presence of 1,4-dioxane at over 200 times New Hampshire's established AGQS. These results were not released for over three

months. In June 2016, additional animal carcasses and hazardous waste and materials were located in the burial region.

14. It is known that other hazardous chemicals were buried at the Rennie Farm site; however, Dartmouth College and its agents have not to date performed adequate testing to determine the extent to which this hazardous waste has migrated off the Rennie Farm site onto neighboring properties. Upon information and belief, such chemicals have also contaminated the surrounding areas and passed through the Higgins' well, exposing them to health risks.

These conditions have created and continue to create an imminent and substantial endangerment to the Higgins and the environment. By not knowing, or disclosing, the full extent of the contamination at the Rennie Farm site, and the full extent of the migration of contamination from the site, the College has created a substantial risk that the Higgins and their property are continuing to be exposed to hazardous materials. Without a comprehensive and prompt investigation of the pathways by which the Higgins have been and continue to be exposed to hazardous waste from the Rennie Farm site, the College is unable to assure that the Higgins and their property are not being exposed to additional hazardous wastes and additional health risks.

VIOLATION OF RESOURCE CONSERVATION AND RECOVERY ACT: OPEN DUMPING

In addition to presenting an imminent and substantial endangerment to health and the environment, Dartmouth College's solid waste management practices constitute "open dumping" in violation of RCRA. Under 42 U.S.C. § 6945(a), open dumping of solid waste or hazardous waste is prohibited. Disposal of solid or hazardous waste at a facility or site not meeting RCRA's standards constitutes open dumping. *See* 42 U.S.C. § 6903(14) (defining "open dump"). "Disposal" means "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste . . . into or on any land or water[.]" 42 U.S.C. § 6903(3). Enforcement of this prohibition is available through RCRA's citizen suit provision. *Id.*

By continuing to allow hazardous wastes to be present on and under the Rennie Farm site, the College is continuing to place hazardous waste into and on the Rennie Farm site without any legal right to do so, and remains in violation of RCRA's prohibition on open dumping. The lawsuit will allege, and present evidence, that Dartmouth College's past and present waste disposal practices have caused 1,4-dioxane, and likely other hazardous substances, to travel beyond the facility boundaries, at dangerously high levels, in violation of RCRA's open dumping prohibitions.

RELIEF FOR RCRA VIOLATIONS

Under 42 U.S.C. § 6972(a), the court may order any person who "has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste" that presents an imminent and substantial endangerment to health or the environment to take such action as may be necessary to alleviate the harm. In addition, the court may apply any appropriate civil penalties and award costs and attorney's fees to the person bringing the enforcement action. The Higgins will seek injunctive relief requiring Dartmouth College to properly investigate and remediate the source(s) of the endangerment to health and the environment; an order requiring Dartmouth College to pay to relocate the Higgins to a comparable, but uncontaminated property, in order to immediately and temporarily abate the imminent and substantial endangerment; an order requiring Dartmouth College to pay the maximum civil penalties allowable under the law; and an order requiring Dartmouth College to pay the attorney's fees, expert witness fees, and other costs incurred in bringing this enforcement action.

TORT CLAIMS

In addition to claims under RCRA's citizen suit provisions, the Higgins will allege common-law tort claims related to the College's grossly negligent solid and hazardous waste-management practices. The Higgins intend to allege that the College has created a public and private nuisance in that its actions at the Rennie Farm site have contaminated the area's soil, subsoil, and groundwater; have unreasonably interfered with the health, safety, peace, comfort, and convenience of the Higgins specifically and the surrounding community generally; and have

caused substantial harm to health and the environment. Further, the Higgins will allege that by causing and/or failing to prevent migration of the hazardous waste from Rennie Farm, the College trespassed on the Higgins' property and caused harm.

The Higgins will seek temporary and permanent injunctive relief as well as damages for their past, present, and future harm related to the contamination of their property, exposure to toxic substances, and the substantial detrimental impact to their mental and physical health.

PARTIES GIVING NOTICE

The name, address, and phone number of the people giving this Notice of Intent to Sue is:

Richard & Deborah Higgins
9 Rennie Road
Hanover, NH
(603)

The names, addresses, and phone numbers of Counsel for the parties giving this Notice of Intent to Sue is:

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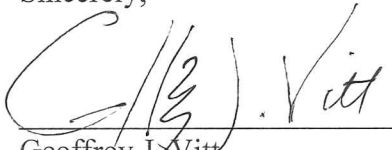
CONCLUSION

For the reasons set forth above, Dartmouth College has violated and continues to violate RCRA, and the Higgins intend to seek relief from these violations under the citizen suit

provisions of RCRA. Furthermore, the solid and hazardous waste management practices of the College have created a nuisance at the Rennie Farm site and have permitted toxic substances to trespass onto and across the Higgins' property. The Higgins will seek injunctive relief requiring Dartmouth College to properly investigate and remediate the source(s) of the endangerment to health and the environment; an order requiring Dartmouth College to pay to relocate the Higgins to a comparable, but uncontaminated property, in order to immediately and temporarily abate the imminent and substantial endangerment; an award of damages for the harm suffered by the Higgins as a result of the contamination of their property and exposure to hazardous waste; an order requiring Dartmouth College to pay the maximum civil penalties allowable under the law; and an order requiring Dartmouth College to pay the attorney's fees, expert witness fees, and other costs incurred in bringing this enforcement action.

If you have any questions regarding the allegations in this Notice or believe any of the foregoing information may be in error, please contact us immediately. Please advise, prior to 90 days from the date of service of this letter, if Dartmouth College intends to implement the thorough and comprehensive investigation and clean up outlined in this letter and necessary to fully remediate the contamination of the Rennie Farm site and the Higgins' property.

Sincerely,



Geoffrey J. Vitt

cc: **Administrator of the EPA**
Regional Administrator of the EPA
State of New Hampshire (Chief Admin Officer of solid waste mgmt. agency)
Dartmouth College Office of the General Counsel
Ellen Arnold
Philip J. Hanlon
Bruce Felmlly