



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I  
JOHN F. KENNEDY FEDERAL BUILDING  
BOSTON, MASSACHUSETTS 02203-0001

July 25, 1997

Mr. P. Howard Flanders, Director  
Waste Management Division  
Vermont Department of Environmental Conservation  
103 South Main Street/West Building  
Waterbury, VT 05671-0404

Re: Contained-In Waste Determination, Windsor School Site, Windsor, Vermont

Dear Mr. Flanders:

I am pleased to respond to the letter of June 18, 1997 in which you request EPA's assistance for a "contained-in" determination for media contaminated with an F032 waste. As you explained in your letter, Vermont has not yet adopted the F032 waste listing in its Hazardous Waste Management Regulations and cannot make a "contained-in" determination for this particular waste as outlined in an EPA OSWER policy letter dated September 15, 1995. The letter states in part that "In order to make contained-in determinations, a State must only be authorized for the part of the base program under which the waste of concern is identified as hazardous". The OSWER letter outlines the parameters for making a contained-in determination in most situations.

On July 9, 1997, a meeting was held between representatives of VTDEC and EPA to discuss the issues concerning the Windsor site remediation approach and to clarify the wastes to be included in the contained-in determination. A follow-up correspondence dated July 14, 1997 was received from George Desch of your office that summarized the proposed remediation approach, proposed cleanup standards, and the wastes to be included in the contained-in determination.

**Site Information**

Based on information provided, the site was the location of the former Windsor State Prison in Windsor, VT and is currently owned by the Windsor School District. Contamination at the site was discovered in August 1995. The contaminated media at the site contains pentachlorophenol (PCP), dioxin, and kerosene compounds. The contamination resulted from wood preserving activities (log dipping tanks) which occurred at the former State Prison. The logs were dipped in mixture of PCP and kerosene. The dioxin is presumed to be a co-contaminant resulting from the manufacture of the PCP. Contaminants are contained in groundwater, subsurface and surface soils, and a soil pile which was generated during construction of the school located near the site.



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Since the discovery of the contamination, VTDEC has overseen a Remedial Investigation (RI), Risk Assessment (RA), and Corrective Action Feasibility Investigation (CAFI) at the site. A summary of the site investigation as well as a proposed remedial plan for the contaminated soil and cleanup standard has been developed for the site and is discussed below.

The site investigation results indicated that the highest levels of contaminants found at the site was 910,000 ppb (parts per billion) for PCP and 9001 ppt (parts per trillion) for dioxin. The area with the highest contamination levels has been fenced off. The soil pile is located southeast from the fenced off area. The existing soil pile has low levels of dioxin and PCP in it. The soil pile is estimated to contain 2,000 cubic yards of soil. The contaminant levels in the soil pile averaged 45 ppb PCP and 220 ppt TEQ dioxin, with a maximum concentration of 200 ppb PCP and 501 ppt TEQ dioxin, respectively.

Based on discussions between staff members of VTDEC and EPA, it was determined that for purposes of the Contained-In Waste Policy, a direct contact standard of 1 ppb TEQ for dioxin is acceptable as a soil cleanup standard. This value is based on the EPA's default risk value for dioxin contaminated soils and equals a risk for residential exposure of  $10E-4$ . The VTDEC indicated at the meeting that this value is acceptable.

The preliminary efforts by VTDEC on the site specific SESOIL and AT123D modeling indicated a soil cleanup level for pentachlorophenol (PCP) of between 0.6 and 2.5 ppm at two different compliance points down gradient of the contaminated soil area. These results are based on removing all soils above this value in order to improve groundwater contaminant levels to below MCLs within the next 70 years if no other remedial approach is implemented to improve groundwater quality in a shorter time frame. Currently, using only natural attenuation of groundwater, groundwater is predicted to remain contaminated above MCLs for many hundreds of years, perhaps even a thousand. Based on the results of this modeling, the conditions at the site, and the detection limit of laboratory and field lab equipment, a proposed cleanup standard of 1 ppm for PCP in soil was agreed upon. Therefore, the proposed remedial standard for PCP in unsaturated soil and long term improvement of groundwater quality is 1 ppm.

The proposed remediation plan includes removing all soils above the proposed cleanup standards of 1 ppb TEQ dioxin and 1 ppm PCP and disposing of these soils at an EPA permitted hazardous waste facility. This includes removing soils in the fenced off "hot spot" area of approximately 80 by 120 feet down to 2 feet, and an area of approximately 60 feet by 60 feet with a depth down to approximately 12 feet. This amount of soil represents an estimated volume of 2,000 cubic yards to be removed and disposed of at a hazardous waste landfill.

Since groundwater is at an average depth of 6 feet below ground surface, groundwater will need to be withdrawn from the ground to make excavation easier and to lighten the weight of the soil. The groundwater will be pumped from the ground and treated before

being recharged. The treatment process will most likely involve the settling of sediments in a holding tank and pumping the groundwater through granular activated carbon. It has not been determined at this time whether to recharge the treated effluent either up gradient or down gradient of the "hot spot" area. The duration of this pumping is expected to last 2 to 4 weeks. The quality of the groundwater being recharged is expected to be cleaner than the quality of the groundwater which was extracted; ideally to MCLs for PCP and a significant reduction in dioxin contaminant levels.

Soils containing low level dioxin and PCP contaminated soils that are below the cleanup standards (1 ppb TEQ dioxin and 1 ppm PCP) will be placed back into the excavation, and a soil cap of a minimum thickness of two feet of clean fill from off-site will be placed on top of the excavated area. Additionally, all soils found on the school ground area near the site and found to be contaminated with dioxin that is below the 1 ppb TEQ dioxin standard will be covered with a soil cap of approximately two feet of clean fill.

After this work has been completed, additional evaluation will be completed in order to determine the need for groundwater remediation. Additionally, the VTDEC will investigate the appropriate type of institutional controls to be implemented at the site to ensure that the cap is maintained and the remaining contaminated soils are not disturbed. In order for the cleanup to be considered complete, VTDEC expects institutional controls to be placed in the land records to control groundwater exposures, future development and restricted use. Also, controls for future operations and maintenance will be required.

#### **Media Covered by Contained-In Policy**

The media which will be covered by the Contained-In Policy for this site includes: an existing soil pile which was generated during construction of the school; soils contaminated below the cleanup standards discussed above which will be generated during the excavation of the contamination "hot spot", and groundwater which must be extracted from the excavation pit to enhance the proposed remediation.

Groundwater will need to be extracted from the ground in order to de-water the excavation pit. The most contaminated groundwater identified under the site is 6,500 ppb for PCP and 65 ppt TEQ for dioxin, respectively. Pumping will need to occur for 2 to 4 weeks, with an expected pump rate of 1 to 10 gpm. All efforts will be made to reduce groundwater contaminant levels to the greatest extent possible before recharging this groundwater back into infiltration trenches or pits. Groundwater will be pumped into holding tanks to attempt to settle out fine sediments, and then will go through granular activated carbon to reduce PCP levels to below MCLs (1 ppb for PCP) and to reduce dioxin levels by a significant amount. The granular activated carbon and the sediments collected during this operation will be shipped to a hazardous waste treatment or disposal facility. This approach will meet Vermont Underground Injection Wells Rules.

### Contained-In Policy Determination

Its our determination that unsaturated soils and groundwater at the Windsor site will be considered to no longer contain F032 hazardous waste providing the following occur.

1. The proposed remedial standards of 1 ppb TEQ dioxin and 1 ppm PCP are implemented in the proposed remediation plan which is outlined above.
2. The F032 waste soils above the remedial standards of 1 ppb TEQ dioxin and 1 ppm PCP generated from this remediation plan and sediments generated from the groundwater pump and treatment process will be disposed at a hazardous waste facility that is in compliance with Federal and State regulations.
3. Soils from the existing soil pile and from the excavation that are found to be below the remedial standards of 1 ppb TEQ dioxin and 1 ppm PCP may be placed back into the excavation and are located below a two foot minimum clean fill soil cap. The soil cap with a minimum thickness of two feet of clean fill from off-site will be placed on top of the excavated area. The VTDEC will make provisions to ensure that the integrity of this soil cap is maintained.
4. Fugitive emissions generated during the remediation process will be properly controlled.
5. Appropriate institutional controls are to be placed in the land records that will control groundwater exposures, future development and restricted the use of this site.

If you should have any questions concerning the contents of this letter, please do not hesitate to contact Betsy Davis of the Vermont State Unit at (617) 565-3481, Stephen Yee of the Hazardous Waste Program Unit at (617) 565-3550, or me at (617) 565-3559.

Sincerely,



Kevin McSweeney, Associate Director  
Waste Policy  
Office of Ecosystem Protection

cc: George Desch, VTDEC  
Peter Marshall, VTDEC  
Lynne Hamjian, EPA  
Matt Hoagland, EPA  
Gary Gosbee, EPA  
Patricia Meaney, EPA