UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1 - NEW ENGLAND
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**Addendum to Third Five-Year Review Report (dated September 2012), Peterson/Puritan, Inc. Superfund Site, Operable Unit 1**

On September 24, 2012, the U.S. Environmental Protection Agency (EPA) issued a Third Five-Year Review Report (Report) for Operable Unit One (OU-1) of the Peterson/Puritan, Inc. Site (Site), located in Cumberland and Lincoln, Rhode Island. EPA deferred its final protectiveness determination for the remedy at OU-1 in that Report until it obtained further information. Through this document, EPA provides an update on the progress that has been made at OU-1 since its issuance of the Report, and amends its deferred protectiveness determination for the remedy in the Report.

The Report, signed by James T. Owens, III, Director, Office of Site Remediation and Restoration, U.S. EPA, Region 1 - New England, included the following protectiveness statement:

> A protectiveness determination for the remedy at OU-1 cannot be made at this time until further information is obtained. Further information will be obtained to determine protectiveness in the short term by completing the ongoing vapor intrusion assessment at the CCL Source Area and determining whether or not potential risk due to VI exists. It is expected that these actions will take approximately six months to complete, at which time a protectiveness determination will be made. For other elements of the groundwater component of the remedy at OU-1, the following facts should be noted for protectiveness in the short term: 1) alternative water supplies are available to meet current demand, and 2) some ICs have been formally implemented. However, in order for the groundwater component of the remedy to be protective in the long term, the following issues need to be addressed: a) arsenic concentrations above the MCL of 10 µg/L, b) the potential persistence of residual DNAPL at the CCL Source Area further extending the cleanup time frame, c) evaluate extraction/treatment systems, and d) ICs, which are not fully implemented throughout OU-1, need to be completed.

Progress since the Third Five Year Review Completion Date:

The Report documented that, in response to EPA's request based on the Second Five-Year Review recommendations (EPA, 2007), the CCL Settling Defendants (CCL SDs) had undertaken a vapor intrusion (VI) data collection effort under an EPA-approved work plan at the industrial building at 35 Martin Street within the CCL Remediation Area. This effort included: 1) a preliminary screening event (July 2011), the results of which indicated that some targeted volatile organic compounds were above screening thresholds; and 2) two separate seasonal sampling events in December 2011 (winter

conditions) and July 2012 (summer conditions) to collect subslab air, indoor air, and ambient air data.

Collectively, this data supported EPA's review and completion of a risk evaluation of vapor intrusion into the building. Due to work plan requirements and scheduling protocols, however, EPA had to complete this risk evaluation after it was required to issue its Third Five-Year Review Report. Due to the implications of potential vapor intrusion into the building, EPA deferred its protectiveness statement until it could complete the risk evaluation and later issue an addendum to its Third Five-Year Review Report. On December 13, 2012, EPA completed the risk evaluation, the findings of which are summarized below:

> The estimated risks and hazards for workers from exposures to volatiles at 35 Martin Street via the vapor intrusion pathway are within EPA's acceptable cancer risk range of 10E-04 to 10E-06, at Rhode Island Department of Environmental Management (RIDEM)'s acceptable risk level of 10E-05[1], and below EPA's target hazard index of 1. It can be concluded that exposure to indoor air concentrations of volatiles found during this sampling effort via the vapor intrusion pathway does not cause unacceptable health hazards to workers in this building.

A summary table of the estimated risks and hazards from the risk evaluation is provided below.

**Cancer risks and non-cancer hazard quotients from inhalation of indoor air via the vapor intrusion pathway at 35 Martin Street**

| **Compound** | | |
|---|---|---|
| | Excess lifetime cancer risk | Non-cancer hazard quotient |
| 1,2-DCA | 8.3E-06 | 0.13 |
| Benzene | 2.0E-06 | 0.02 |
| Cumulative cancer risk and hazard quotient | **1.0E-05** | **NC (different target organs)** |

NC-not calculated

[1] In review of the documentation, RIDEM commented that the concentrations of certain contaminants exceed the State's Target Indoor Air Levels (TIALs) for both the Winter 2011 and Summer 2012 investigations. As noted in the Third Five-Year Review Report, because these TIALs are not promulgated, EPA considers them "to be considered" guidance.

EPA notes that the estimated risks and hazards calculated by EPA on the indoor air results for 35 Martin Street (as summarized above) are based on the following exposure assumptions:

**Values used for daily exposure concentration calculations at 35 Martin Street**

| Exposure Route | Receptor Population | Receptor Age | Exposure Point | Parameter | Value |
|---|---|---|---|---|---|
| Inhalation | Worker | Adult | 35 Martin Street | EF | 250 days/year |
| | | | | ED | 25 years |
| | | | | ET | 8 hr/24 hr |
| | | | | AT-cancer | 25,550 days |
| | | | | AT-non-cancer | 9,125 days |

EC ($\mu g/m^3$) = exposure concentration;
CA ($\mu g/m^3$) = contaminant concentration in air;
EF (days/year) = exposure frequency;
ED (years) = exposure duration;
ET (hr/hr) = exposure time;
AT non-cancer = averaging time over 25 yrs (ED x 365 days/year); and
AT cancer = averaging time over lifetime of 70 years (70 yrs x 365 d/yr).

As a response to the above-noted findings and given that EPA's risk evaluation is based on the above-noted exposure assumptions, EPA has required the CCL SDs to notify EPA of any change(s) to the current use of the building, and depending upon any new factual circumstances, noting to them that EPA may require additional data collection and/or re-analysis of the potential indoor air risks, as necessary. EPA's risk evaluation is furthermore based on the VI data in light of the current conditions of the building, including but not limited to the present operation of the soil vapor extraction system, which EPA assumes will continue to operate given that projections for cleanup of the tank farm area are years away. A change in building conditions may also require EPA to obtain additional data and/or renew its risk evaluation.

EPA notes that the sampling data indicate that several volatile organic contaminants were detected at extremely high levels in the soil gas under the building. These very high levels suggest that a large source of volatile organics still exists under the building that could eventually migrate into the building. Therefore, EPA has required the CCL SDs to prepare and submit for EPA and RIDEM approval a work plan and schedule for (1) continued monitoring, no less than one Winter and Summer sampling event per five-year review period, of the indoor air within the building, and the subsurface source of contamination and its potential for migration into the building, and (2) annual inspection, documentation and reporting to EPA and RIDEM regarding building floor and foundation conditions, maintaining reasonable access to sub-slab sampling locations, and any operational changes. EPA has also required the CCL SDs to cooperate in amending the 35 Martin Street property (identified as Plat 34, Lot 100 by the Town of Cumberland

Assessor's Office) deed restriction, adding information about potential vapor intrusion risk, and requiring the property owner to notify EPA and RIDEM of any changes of use of the building and to obtain approval from EPA and RIDEM before any planned changes to the physical structure of the building.

Based on the above findings, EPA amends the protectiveness statement in the Third Five-Year Review Report as follows:

> EPA has determined, as part of the Third Five-Year Review and this subsequent addendum, that the remedy at OU-1 is currently protective in the short-term. For the VI component of the remedy to remain protective in the long term, however, continued monitoring, annual inspections, documentation and reporting of building conditions, and an amendment to the deed restriction, as prescribed in the Addendum to Third Five-Year Review Report, are required. For the groundwater component of the remedy at OU-1, the following facts should be noted for protectiveness in the short term: 1) alternative water supplies are available to meet current demand, and 2) some ICs have been formally implemented. However, in order for the groundwater component of the remedy to be protective in the long term, the following issues need to be addressed: a) arsenic concentrations above the MCL of 10 µg/L, b) the potential persistence of residual DNAPL at the CCL Source Area further extending the cleanup time frame, c) evaluate extraction/treatment systems, d) ICs, which are not fully implemented throughout OU-1, need to be completed.

EPA also amends Table 10 of the Third Five-Year Review Report with the language within the attached table. The amended protectiveness statements within the attached table supplant the language currently appearing in the row for item number 4 in Table 10 of the Third Five-Year Review Report. All other portions of Table 10 remain the same as they presently appear.

Next Five Year Review:

The next five-year review will be completed in September, 2017, five years after the signature of the Third Five-Year Review Report.

James T. Owens, III, Director
Office of Site Remediation and Restoration
U.S. EPA, Region 1 - New England

3-1-13
Date

References:

AECOM, 2011. Vapor Intrusion Investigation Data Report; Winter 2011, 35 Martin Street, Cumberland, Rhode Island, Peterson/Puritan, Inc. Superfund Site. March, 2012.

AECOM, 2012. Vapor Intrusion Investigation Data Report; Summer 2012, 35 Martin Street, Cumberland, Rhode Island, Peterson/Puritan, Inc. Superfund Site. September 2012.

EPA, 2012. EPA Correspondence to Douglas Simmons, AECOM. "Review and Evaluation of the Winter 2011 and Summer 2012 Vapor Intrusion Investigation Data Reports for 35 Martin Street in Cumberland, Rhode Island". December 13, 2012.

Vu, Chau, 2012. Technical Memorandum: "Review of the Winter 2011 and Summer 2012 Vapor Intrusion Investigation Data Reports, 35 Martin Street, Cumberland, RI, Peterson/Puritan, Inc. Superfund Site". October 13, 2012.

**Table 10. Issues at the Peterson/Puritan, Inc. Superfund Site, OU-1, Cumberland and Lincoln, RI.**

| | Issues | Affects Current Protectiveness | Affects Future Protectiveness |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | Vapor intrusion to occupied structures is a potential concern near the CCL Source Area. | No; Vapor intrusion evaluation complete as of December 13, 2012, indicates vapor intrusion as currently within EPA's acceptable cancer risk range of 10E-04 to 10E-06, at RIDEM's acceptable risk level of 10E-05, and below EPA's target hazard index of 1. | Yes; due to the uncertainty of future contaminant fate and transport from beneath the building and/or changes in the future use of the building. Therefore, continued monitoring, annual inspections, and changes to the deed restriction, as prescribed in this addendum, are required. |
| 5 | | | |
| 6 | | | |