

August 19, 2016

ECI Project Number: 0603-01-01

Mr. Paul Kuchenmeister  
17815 40<sup>th</sup> Avenue East  
Tacoma, Washington 98446

Re: **Remedial Investigation / Cleanup Action Plan Addendum**  
7202 South Park Avenue  
Tacoma, Washington 98408

Mr. Kuchenmeister:

Pursuant to your recent request, EcoCon Inc. (ECI) has prepared this Remedial Investigation/ Cleanup Action Plan (RI/CAP) Addendum for the property located at 7202 South Park Avenue in Tacoma, Washington (the Property). This addendum was prepared for submittal to the Washington State Department of Ecology (Ecology) and was developed in response to comments provided by Ms. Carol Johnston via email on July 15, 2016 verbally on July 21, 2016, regarding ECI's RI/CAP dated May 17, 2016. Specifically, Ms. Johnston suggested that we reevaluate our Model Remedy selection, and evaluate the potential for vapor intrusion at the site based on existing data.

This letter should be used only in conjunction with ECI's full RI/CAP, as the data presented herein does not provide the full detail required to support our conclusions.

### **REMEDY SELECTION**

In accordance with the criteria outlined in Ecology's Publication No. 15-09-043 *Model Remedies for Sites with Petroleum Contaminated Soils*, and based on the data presented within ECI's RI/CAP, the Site appeared to qualify for the selection of Model Remedy 3, which applies to situations where Method A levels are selected, but the soil removal action is not sufficient to fully comply at all locations (i.e. within the right-of-way). Using Model Remedy 3, an environmental covenant would be necessary to ensure the remedy remains protective. Based on Ms. Johnston's suggestion, ECI has further evaluated Model Remedy 4, which is described below:

This Model Remedy Applies to situations where Method B has been selected to establish the cleanup levels and removal of contaminated soil is sufficient to meet the calculated Method B levels and confirmation testing has been performed to confirm the cleanup levels have been achieved.

ECI had previously compared confirmation sample results to Method A Cleanup Levels, however given that groundwater is not a media of concern for the Site, calculated Method B values for direct contact appear to be a more appropriate regulatory cleanup standard by which to compare. Ecology's Model

Remedies guidance document referenced above provides a generic TPH cleanup level of 1,500 mg/kg, which ECI has elected to apply as opposed to analyzing samples using the EPH/VPH methods.

ECI compared the contaminant concentrations to the calculated Method B values (Table 1), and it is now apparent that the confirmation testing confirmed that the cleanup levels had been achieved at the points of compliance throughout the entire site. Therefore, Model Remedy 4 appears to be the most appropriate remedial alternative.

### **VAPOR INTRUSION EVALUATION**

The air-filled pore space between soil grains in the unsaturated zone is referred to as soil gas or soil vapor. Soil vapor can become contaminated from the volatilization of contaminants adsorbed to soil mineral surfaces and/or dissolved in groundwater and present a risk to indoor air quality.

Due to the presence of potential vapor forming chemicals at the Site, ECI has evaluated this exposure pathway in accordance with EPA's *Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites* (June 2015). This guidance document suggests an evaluation of the risk to indoor air quality based on the following criteria:

1. Whether a source of vapor-forming chemicals is present underneath or near the buildings;
2. Vapors form and have a route along which to migrate toward the building(s);
3. The buildings are susceptible to soil gas entry;
4. One or more vapor forming chemicals comprising the subsurface vapor source are also present in the indoor environment;
5. The building is occupied by one or more individuals when the vapor-forming chemicals are present indoors.

If one or more of these conditions is absent and is reasonable expected to remain absent in the future, the vapor pathway would be considered "incomplete". ECI believes that the vapor pathway is incomplete at this site based on the following reasons:

1. Benzene is considered a vapor forming chemical, and is present near the existing building, however Washington Administrative Code (WAC) 173-340-740(3)(b)(iii)(C)(I) states that the vapor pathway shall be evaluated whenever the concentration in **significantly** higher than the concentration derived for protection of groundwater. In this instance, the concentrations of benzene on the Site range from 0.036 to 0.039 mg/kg. Comparing these values to the concentration considered protective of groundwater of 0.03 mg/kg, ECI does not believe that these represent significantly higher values.

ECI considers the concentration of gasoline in soil beneath the right-of-way of 72<sup>nd</sup> Street to be significantly higher than the value considered protective of groundwater, however this area of contaminated media is over 40 feet from the northwest corner of the building.

2. Vapors do not appear to have a direct route along which they can migrate towards the building. The subsurface vapor source does have the potential to migrate radially in all directions via diffusion, however the lateral migration of the soil vapor would be greatly retarded by the glacial geology beneath the site. According to the United States Geological Survey (USGS) Tacoma South Quadrangle Geologic Map, the vicinity is underlain by relatively impermeable glacial till deposits that are present at or near the ground surface.
3. The building does not appear to be susceptible to soil gas entry, as the concrete slab appears intact, with no visible cracks or holes.

ECI appreciates the opportunity to provide environmental consulting services on this project. Should you have any questions, please contact our office at (253) 238-9270.

Respectfully submitted,  
EcoCon, Inc. | Environmental Services



Brian A. Dixon  
Vice President/ Sr. Environmental Scientist

**Attachments:**

- *Revised* Table 1: Summary of Soil Analytical Results

**Table 1: Summary of Soil Analytical Results**

Sample ID	Sample Date	Sample Depth	Total Petroleum Hydrocarbons (mg/kg)			Select Volatile Organic Compounds (mg/kg)				PCB Mixtures (mg/kg)	Select Metals (mg/kg)				
			Gasoline-Range Organics	Diesel-Range Organics	Oil-Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes		Arsenic	Cadmium	Chromium	Mercury	Lead
AA Enviro Assessment, Inc. 1998 - UST Decommissioning and Site Assessment															
E1	10/21/1998	7'-8'	<10	--	--	0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E2	10/21/1998	9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E3	10/21/1998	13'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E4	10/21/1998	8'-9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E5	10/21/1998	14'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E6	10/21/1998	9'-10'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E7	10/21/1998	9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E8	10/21/1998	14'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E9	10/21/1998	14'-15'	--	<20	--	--	--	--	--	--	--	--	--	--	--
E10	10/21/1998	9'	--	<20	--	--	--	--	--	--	--	--	--	--	--
P3	10/21/1998	U	--	<20	--	--	--	--	--	--	--	--	--	--	--
W01	10/21/1998	7'	--	--	930	0.24	<0.05	<0.05	<0.05	<0.05	<88	<18	46	<0.1	52
W02	10/21/1998	7'	--	--	<40	--	--	--	--	--	--	--	--	--	--
W03	10/21/1998	7'	--	--	<40	--	--	--	--	--	--	--	--	--	--
H01	10/21/1998	8'	--	--	210	--	--	--	--	--	--	--	--	--	--
L1	10/22/1998	U	<10	<20	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
P1	10/22/1998	U	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
P4	10/22/1998	10'	71	--	--	<0.05	0.14	0.47	1.62	--	--	--	--	--	--
SW72	10/22/1998	5'-8'	D	<50	<100	--	--	--	--	--	--	--	--	--	--
P2	10/22/1998	10'	--	--	--	--	--	--	--	--	--	--	--	--	--
H01B	10/26/1998	9'	--	--	84	--	--	--	--	--	--	--	--	--	--
W01B	10/26/1998	10'	--	--	130	--	--	--	--	--	--	--	--	--	--
SW72W	10/26/1998	5'-8'	--	--	<40	--	--	--	--	--	--	--	--	--	--
SW72B	10/28/1998	5'	770	--	--	0.1	0.6	2.7	15	--	--	--	--	--	<5
ECI 2016 - Focused Subsurface Investigation															
B1-12	5/5/2016	12	1,090	--	--	<0.02	<0.1	4.67	5.46	--	--	--	--	--	--
B1-18	5/5/2016	18	6.9	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B2-11	5/5/2016	11	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B2-15	5/5/2016	15	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B3-10	5/5/2016	10	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B4-10	5/5/2016	10	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B5-08	5/5/2016	8	<10	--	--	<0.02	<0.1	0.067	<0.15	--	--	--	--	--	--
B5-11	5/5/2016	11	14	--	--	0.039	0.18	0.24	1.6	--	--	--	--	--	--
B5-13	5/5/2016	13	6.8	--	--	0.036	0.25	0.075	0.43	--	--	--	--	--	--
MTCA Method B Cleanup Levels			1,500			18.2	6,400	8,000	16,000	1 <sup>2</sup>	24	80	120000 <sup>1</sup>	2 <sup>2</sup>	250 <sup>2</sup>

<: Not detected above laboratory reporting limit

U: Unknown

<sup>1</sup>: Chromium III

<sup>2</sup>: Method A Value (No Calculated Method B Value Exists)