



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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December 16, 2015

Mr. David Selig
Brunswick Corporation
1 North Field Court
Lake Forest, IL 60045-4810

Re: Opinion Pursuant to WAC 173-340-515(5) on the Monitored Natural Attenuation Work Plan for the Following Hazardous Waste Site:

- **Name:** US Marine Bayliner Marine
- **Address:** 17825 59th Ave NE, Arlington, WA 98223
- **Facility/Site No.:** 51332889
- **VCP No.:** NW2270
- **Cleanup Site No.:** 4208

Dear Mr. Selig:

Thank you for submitting documents regarding your proposed Monitored Natural Attenuation (MNA) Work Plan for the US Marine Bayliner Marine (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release at the Site:

- Tetrachloroethylene (PCE) in ground water

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.



Mr. David Selig
December 16, 2015
Page 2

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed closure strategy:

- 1 *Remedial Investigation and Feasibility Study Former US Marine / Bayliner Marine*, dated April 12, 2011, prepared by Stantec Consulting Corporation.
- 2 *Work-Plan for In-Situ Chemical Oxidation Former US Marine / Bayliner Marine*, dated September 24, 2012, prepared by Stantec Consulting Corporation.
- 3 *In Situ Chemical Oxidation and Ground Water Monitoring Report US Marine / Bayliner Marine*, dated February 10, 2015, prepared by Stantec Consulting Corporation.
- 4 *Technical Memorandum – Proposed Closure Strategy US Marine / Bayliner Marine*, dated March 12, 2015, prepared by Stantec Consulting Corporation.
- 5 *Monitored Natural Attenuation Work Plan*, dated October 20, 2015, prepared by Stantec Consulting Corporation.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7239 or sending an email to: nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following release:

- PCE in ground water

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the release at the Site, Ecology has determined:**

- During May and June 2013, an In-Situ Chemical Oxidation (ISCO) interim action was performed at the Site. During this action, ISCO soil probe injections were conducted in the former septic tank area adjacent to Building 11. A total of approximately 8,160 gallons of 5% sodium permanganate (NaMnO₄) solution were injected in 12 locations within and upgradient of the former septic tank leach field at the southeast corner of the building.

- Post-injection performance monitoring commenced in September 2013 and continued quarterly through September 2014. During monitoring events, the following water quality parameters were also monitored: pH, oxygen reduction potential, temperature, dissolved oxygen, and conductivity.
- The current data does not indicate natural attenuation is occurring at the Site. The lack of any detected PCE degradation products and the generally aerobic geochemical ground water conditions at the Site indicate that reductive dechlorination may not be occurring.
- Ecology also notes that post ISCO injections, concentrations of PCE in monitoring well MW-8 increased from 34 µg/L to 42 µg/L and concentrations of PCE in MW-1 appear to have stabilized at 35 to 36 µg/L. Additional ground water monitoring and analyses will be necessary to demonstrate natural attenuation is occurring.
- As a requirement of demonstrating MNA on the Site, additional monitoring wells are necessary to the northwest, north, and east. Also as a requirement of MNA, additional wells will be necessary through the center line of the plume.
- It is Ecology's opinion that if the ISCO injections of sodium permanganate are determined to be ineffective in reducing PCE concentrations then other cleanup alternatives should be considered and evaluated.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

Mr. David Selig
December 16, 2015
Page 4

If you have any questions regarding this opinion, please contact me at (425) 649-4446 or by email at dale.myers@ecy.wa.gov.

Sincerely,



Dale Myers
Site Manager
Toxics Cleanup Program

Enclosures: A – Site Summary and Figures

cc: Greg McCormick, Stantec Consulting Corporation
Sonia Fernandez, Ecology

Enclosure A

Site Summary and Figures

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined by the release of tetrachloroethylene (PCE) in ground water. The Site is located at 17825 59th Avenue NE, Arlington, WA (Property) in Snohomish County.

Area and Property Description: The Property is the location of the former Bayliner Marine facility, a 32.8-acre industrial complex located east of Arlington Airport. The Site contains three office buildings and 13 industrial buildings constructed between 1969 and 1996. The Property also includes employee parking lots, outdoor equipment storage areas, and three stormwater retention ponds.

The Site is located in an area of moderately dense industrial and commercial development. It is bordered on the north by 180th Street NE. Across 180th Street are three parcels:

- Across the street from the northwest portion of the Property is Campbell and Neilson Auto Wrecking (18021 59th Avenue NE). This area was undeveloped land prior to construction of the auto wrecking facility in the late 1990s.
- Land across the street from the north-central portion of the Property has always been undeveloped.
- Across the street from the northeast portion of the Property is undeveloped land that is part of the Stella-Jones wood preserving plant (6520 188th Street NE). The undeveloped land covers approximately 28 acres known as Parcel B. Portions of Parcel B have historically been used by Stella-Jones for storage of untreated wood and for pole peeling. No wood treating has ever occurred on Parcel B. The Stella-Jones facility treats telephone and power poles using a pressure-treating process with a solution of five percent pentachlorophenol (PCP) in a base oil carrier. An alternate treatment process using copper naphthanate was added to the facility in approximately 2002 to 2003. The pole treatment operations are located in the northern part of the Stella-Jones facility, more than 1,500 feet north of the Property. The wood treating facility began operation in the mid-1960s.

The Property is bordered on the east by a currently vacant former manufacturing building. Further to the east are a Burlington Northern Railroad line, smaller commercial structures, and 67th Avenue NE. A residential neighborhood beyond 67th Avenue to the east was developed beginning in the late 1980s. The adjoining land to the south has always been undeveloped.

To the west of the Property is 59th Avenue NE. The Arlington Municipal Airport has been present across the street to the west since the mid-1950s.

Site History and Current Use: The Property was undeveloped land prior to 1968, when it was developed as a fiberglass boat manufacturing plant. The plant operated from 1968 until operations ceased in December 2008.

Building #4, constructed in 1969, was the first manufacturing building on the Property. Other buildings were added between 1971 and 1996.

Current Property Use and Facilities: Currently, the facilities at the Property are being used for commercial light manufacturing.

- **Proposed or Potential Future Property Uses**
The planned use for the Site is continued use as General Industrial.
- **Zoning**
According to the City of Arlington Development Services office, the Site has a current zoning designation of GI (General Industry).

Contaminant Source: Small quantities of PCE were used for a brief time at the facility. It appears that a small quantity of PCE was inadvertently disposed into sink drains at the facility which discharged to the septic system leach field near Building 11, resulting in leaching of the contaminant into the underlying shallow ground water.

Physiographic Setting: The Site is situated at an elevation of approximately 133 feet above mean sea level (MSL). The general topographic gradient in the vicinity is toward the northwest. The area to the north, south and west is relatively flat, sloping downward slightly toward the Stillaguamish River approximately 1.4 miles to the northwest. However, an area of low hills rise steeply just to the east of the Site, reaching to ridges of up to 350 feet above MSL within less than one-half-mile.

Surface/Storm Water System: The nearest surface water bodies are the Middle Fork of Quilceda Creek, approximately 0.4 miles south of the Property and Portage Creek about 1.1 mile north of the Property.

Ecological Setting: The nearest identified wetland areas are approximately 0.75 miles southeast and 1.5 miles northwest of the Property.

The Site is located in a moderately developed industrial and commercial area in the southern portion of Arlington, Snohomish County, WA.

Geology: Observed soils in the Site from investigative borings consist of fine-to-coarse-grained sand with traces of gravel. Similar soil conditions were noted at all depth intervals in all of the previous borings, with the only noticeable difference being slight variations in the amount of gravel.

Ground Water: Depth to water as observed in Site investigative borings and ground water monitoring wells is between 14 to 22 feet below ground surface. Inferred groundwater flow is to the northwest toward the Stillaguamish River.

Water Supply: The Property's drinking water is provided by a pipeline from the City of Arlington.

Water well logs reviewed at the Department of Ecology, identified approximately 136 wells within a 0.5 mile radius of the Site. The majority of the wells were located either upgradient (60) or cross-gradient (60) from the Property. Of the 16 well logs from the downgradient quadrant, 15 are listed in the $\frac{1}{4}$ section directly northwest of the Property (T31N, R03E, Section 22, SE $\frac{1}{4}$ of the NW $\frac{1}{4}$). Fourteen of those are listed as resource protection wells (monitoring wells). One well is listed as a City of Arlington municipal water supply well, located approximately 1,500 feet north-northwest or downgradient from the northwest corner of the Site. The City well (Airport Well #1) is reported to be 110 feet deep, with a screened interval between 100 and 110 feet bgs. The Site is within the six month time of travel of City of Arlington Airport Well #1.

Release and Extent of Soil and Ground Water Contamination: Site investigations identified the presence of tetrachloroethene (PCE) in shallow ground water associated with a former septic leach field near Building 11. Trichloroethene (TCE), a degradation by-product of PCE, was detected in one monitoring well (MW-4) at the beginning of the baseline ground water monitoring program in December 2009, however, TCE has not been detected since that time nor has it ever been detected in any of the other on-Site wells. TCE is not considered a constituent of concern at the Site. The extent of ground water impacts are depicted in Figure 5.

