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DEPARTMENT OF ECOLOGY
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December 10, 2019

Randy Barnett
Ichijo USA Co., LTD
1406 140th PI NE, Ste 104
Bellevue, WA 98007

Re: Further Action at the following Site:

- **Site Name:** Former Brookdale Golf Club
- **Site Address:** 1802 Brookdale Rd E Tacoma, Pierce County, WA 98445
- **Cleanup Site ID:** 14894
- **Facility/Site ID:** 7758
- **VCP Project ID:** SW1672

Dear Randy Barnett:

On March 21, 2019, the Washington State Department of Ecology (Ecology) received your request for an opinion on the proposed independent cleanup of the Former Brookdale Golf Club (Site). On September 14, 2019, your request for opinion, including upload of electronic data, was complete and ready for our review. This letter provides our opinion. We are providing this opinion under the authority of the [Model Toxics Control Act \(MTCA\)](#),¹ chapter 70.105D Revised Code of Washington (RCW).

Issue Presented and Opinion

You requested that Ecology review the Site's remedial investigation, feasibility study, and cleanup action plan. Ecology reviewed the remedial investigation, and has determined that additional remedial investigation is necessary at the Site to meet the requirements of WAC 173-340-350.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). The analysis is provided below.

¹ <https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html>.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Pesticides into the Soil, Groundwater, Surface Water, and Sediment.

The parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Environmental Partners, Inc., *Remedial Investigation and Focused Feasibility Study Report, Brookdale Golf Course*, March 18, 2019.
2. Environmental Partners, Inc., *Cleanup Action Plan, Brookdale Golf Course*, March 18, 2019.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on [Ecology's public records requests web page](#).² Some site documents may be available on [Ecology's Cleanup Site Search web page](#).³

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Site Characterization is described in the March 18, 2019, Remedial Investigation and Focused Feasibility Study Report (the Report).

² <https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>.

³ <https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14894>.

Ecology's Comments:

- A. **Cleanup Already Underway.** For this opinion, you requested that Ecology evaluate a remedial investigation, feasibility study, and cleanup action plan. Ecology's comments in this opinion are focused on completing the remedial investigation sufficient for Ecology to determine that the requirements of WAC 173-340-350 are met. Ecology will review the feasibility study and cleanup action plan when there is sufficient information for Ecology to determine that the Site's remedial investigation is complete. Ecology has determined that characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action.

We understand that the proposed cleanup action submitted for this review is already underway at the Site. Ecology suggests that you provide a remedial action report showing the results of the independent interim action currently underway and incorporating comments from this opinion, or provide a workplan addressing Ecology's comments.

- B. **Exemptions to Release Notification Requirements at a Toxic Cleanup Site.** The Report states that because the chemicals at the property were used in a lawful manner consistent with their intended uses, those impacts are not considered a release under MTCA and do not require remediation.⁴ MTCA does exempt some releases from regular release notification requirements. It is not clear how this release was exempt from release notification requirements, and this letter does not provide an opinion whether a release notification was required or timely done.

In any case, an exemption from notification requirements does not create a release from liability under MTCA. A party is not liable for remedial action costs related to pesticides/fertilizers in very narrow circumstances, including limited domestic uses, acts of God, certain innocent owners, and for the purpose of growing food crops.⁵ The former Brookdale Golf Course toxic cleanup Site includes a release of hazardous substances that requires evaluation under MTCA.

- C. **Potentially Liable Person Determination.** Regarding the Report statement⁶ that the current property owner is not a potentially liable person, Ecology has not yet determined potentially liable persons at this toxic cleanup Site. A potentially liable person includes any person that Ecology finds to be liable based on credible evidence.⁷ The definition of potentially liable person also includes the owner of a facility and/or the operator of a facility at the time of release, unless that party can show they are not liable pursuant to RCW 70.105D.040.

⁴ For example Report Page 10, Page 1.

⁵ RCW 70.105D.040(2).

⁶ Report Page 2.

⁷ RCW 70.105D.040.

D. **Additional Remedial Investigation Needed.** Ecology does not concur that sufficient remedial investigation has been completed at the Site. Ecology will need additional analytical data results and evaluation of:

- i. **Additional Analytes.** Based on the location and use history of this Site, Ecology needs data evaluating the occurrence and distribution of the following additional chemicals in soil, groundwater, surface water, and sediment throughout the former Brookdale Golf Course toxic cleanup Site:
 - Nitrates and phosphates.
 - Arsenic from the possible prior application of arsenical-containing pesticides throughout the former golf course.
 - Ethylene dibromide, from the possible prior application as a golf course turf fumigant.
 - Diazinon from the possible prior application as a golf course insecticide.
- ii. **Groundwater.** Groundwater as shallow as 2.5 feet below ground surface has been reported at the Site, and sections of the Site are located within the 5 and 10-year travel times of established wellhead protection zones. Ecology will need to review sufficient groundwater analytical sample results to geostatistically evaluate contaminant concentrations and extents throughout the Site.

Samples should be collected from all locations throughout the Site where soil samples were determined to exceed cleanup screening levels protective of groundwater quality for any hazardous substance in the remedial investigation or during the cleanup. Include groundwater data at the location of each remedial excavation.

Ecology will need to review analysis methods and data results for all hazardous substances detected at the Site for each groundwater sample. Please collect and report sufficient groundwater samples for Ecology to concur that hazardous substances in groundwater throughout the Site are not impacted by hazardous substances released to the environment.

- iii. **Surface Water.** Ecology will need to review sufficient statistically significant analytical results from surface water samples obtained from Clover Creek and the North Fork Clover Creek Tributary for all chemicals detected at the Site, including the additional chemical analyses requested in this opinion.
- iv. **Sediment.** The Washington State Sediment Management Standards (WAC 173-204) will need to be used to evaluate sediment contamination at the pond, and throughout Clover Creek and its tributaries. The first step in the sediment contamination evaluation is identifying sediment station clusters of potential concern using the criteria of WAC 173-204-510.

- v. Clover Creek is reported to run across the southern half of the Site, and the North Fork Clover Creek Tributary 1 is reported to run across the north quarter of the Site. "Surface sediment" or "sediment" means settled particulate matter located at or below the ordinary high water mark, where the water is present for a minimum of six consecutive weeks, to which biota (including benthic infauna) or humans may potentially be exposed, including that exposed by human activity (e.g., dredging).⁸
- vi. **Site Delineation.** At some locations of the Site, the extents of contamination delineated in Report figures are not bounded by data results. While this approach may be sufficient to evaluate potential remedial alternatives, it will not be sufficient to demonstrate that contamination above proposed cleanup levels was removed at all points of compliance. Collect sufficient analytical performance samples at the lateral and vertical extents of contamination at each excavation, and provide data results showing that hazardous substances have been removed to below cleanup levels at all points of compliance throughout the Site. The data should be sufficient to establish delineated boundaries with geostatistical confidence.
- vii. **Conceptual Site Model.** The conceptual site model provided in the remedial investigation evaluates a 0-2 foot surficial soil layer. MTCA does not include a 0-2 foot surficial soil layer as a point of compliance. Please evaluate direct contact/incidental ingestion based on the MTCA standard point of compliance of 0-15 feet below ground surface. Please add migration to groundwater as a transport mechanism, and evaluate if groundwater is impacted. Also consider the additional requested analyses provided above.
- viii. **Concentration Isopleth Maps.** Provide delineated concentration isopleth maps in plan view and geologic cross section showing remaining contamination at the Site based on data results. Indicate how the isopleths were determined sufficient for Ecology to recreate the figures. Include data results to background concentrations, and indicate where there are insufficient data to bound results. Include groundwater to surface water hyperheic zones and surfaces.
- ix. **Historical Configuration of Golf Course.** Please provide evaluation supporting that the golf course has been in the same configuration since developed in the 1930s.
- x. **EIM Results.** Please upload the following results not currently in EIM prior to Ecology's next Site review:
- 4,4 DDE results obtained on January 25, 26 and 27 2017.
 - 4,4 DDT results obtained on January 25, 26 and 27 2017.

⁸ WAC 173-204-505(22).

xi. **Adjustments to Cleanup Levels/Use of Indicator Hazardous Substances for the Project.** Additional information is needed for Ecology to concur that the proposed use of indicator hazardous substances is supported for this release of hazardous substances to the environment. That information includes analysis of how the cumulative effects of hazardous substances at the Site were evaluated based on MTCA requirements, and better demonstrating how the selected indicator hazardous substance meets MTCA criteria.

- **Cumulative Effects.** Ecology suggests that you review the requirements for soil contained in WAC 173-340-740(5) and groundwater contained in WAC 173-340-720(7) to determine if cleanup levels need to be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. Provide an analysis showing that without those adjustments, the hazard index does not exceed (1), and the total excess cancer risk is not greater than one in one hundred thousand (1×10^{-5}).

To help evaluate this, an Ecology toxicologist conducted a forward risk calculation for the Site using this Site's remedial investigation maximum concentrations as a conservative assumption. Those risk calculations are available at the link below.⁹ Ecology suggests reviewing the results and consider instead using a 95% upper confidence level on mean soil and groundwater concentrations, based on current conditions and incorporating any additional chemicals determined present in the remedial investigation.

- **Indicator Hazardous Substance.** Provide a detailed analysis showing how the proposed indicator hazardous substances meet the specific criteria of WAC 173-340-703(2)(a-g).

xii. **Terrestrial Ecological Evaluation:** Ecology's terrestrial ecological evaluation specialist reviewed the remedial investigation and provided cleanup screening levels based on protection of ecological receptors. Those cleanup screening levels are also provided in the link below. Please incorporate these screening levels into the remedial investigation.

⁹ <https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=87172>.

2. Establishment of Cleanup Standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

Cleanup Standards. Under MTCA, cleanup standards consist of three primary components; (a) points of compliance,¹⁰ (b) cleanup levels,¹¹ and (c) applicable state and federal laws.¹²

(a) Points of Compliance. Points of compliance are the specific locations at the Site where cleanup levels must be attained. For clarity, Ecology provides the following table of standard points of compliance:

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. ¹³
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site. ¹⁴
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. ¹⁵
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site. ¹⁶
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water. ¹⁷
Air Quality	Based on the protection of air quality, the point of compliance is indoor and ambient air throughout the Site. ¹⁸
Sediment	Based on the protection of sediment quality, compliance with the requirements of 173-204 WAC. ¹⁹

(b) Cleanup Levels. Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. Additional evaluation requested in this opinion needs to be completed prior to Ecology concurring with the use of any proposed cleanup levels at the Site.

¹⁰ WAC 173-340-200 "Point of Compliance."

¹¹ WAC 173-340-200 "Cleanup level."

¹² WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c).

¹³ WAC 173-340-740 (6)(d).

¹⁴ WAC 173-340-747.

¹⁵ WAC 173-340-7490(4)(b).

¹⁶ WAC 173-340-720(8)(b).

¹⁷ WAC 173-340-730(6).

¹⁸ WAC 173-340-750(6).

¹⁹ WAC 173-340-760.

(c) Applicable Laws and Regulations. In addition to establishing minimum requirements for cleanup standards, applicable local, state, and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. These requirements are described in WAC 173-340-710. An online tool is currently available to help you evaluate the local requirements that may be necessary.²⁰

All cleanup actions conducted under MTCA shall comply with applicable state and federal laws.²¹ The person conducting a cleanup action shall identify all applicable local, state, and federal laws. The department shall make the final interpretation on whether these requirements have been correctly identified and are legally applicable or relevant and appropriate.^{22, 23}

There are three general groups of applicable local, state, and federal laws that need to be included:

- i. **Chemical-Specific.** Examples of chemical-specific laws include promulgated concentrations from another rule that result in adjusting proposed cleanup levels. Method A is inclusive of these laws. For Methods B or C, additional evaluation of chemical-specific applicable state and federal laws is required.
- ii. **Action-Specific.** Examples of action-specific laws include requirements for obtaining local permits to excavate and/or dispose of contaminated soil, stormwater construction permits, or the requirement to notify in case human remains are discovered during excavation. All MTCA cleanups require evaluation of action-specific applicable state and federal laws.
- iii. **Location-Specific.** Examples of location-specific laws include specific requirements for working near wetlands or archeologically important areas. All MTCA cleanups require evaluation of location-specific applicable state and federal laws.

Enclosed with this opinion is a list of some of the potentially applicable laws and regulations for this cleanup for your review. After you have identified appropriate applicable local, state, and federal laws, report to Ecology the applicable local, state, and federal laws applicable to this cleanup, and how those laws and regulations specifically effect the proposed cleanup.

3. Selection of Cleanup Action.

Ecology has determined that additional remedial investigation is necessary at the Site before selecting a cleanup action.

²⁰ Washington State Governors Office for Innovation and Assistance Project Questionnaire, accessible at: <https://apps.oria.wa.gov/opas/index.asp>.

²¹ WAC 173-340-710(1).

²² WAC 173-340-710(2).

²³ Note – MTCA Method A includes ARARs and concentration-based tables (WAC 173-340-700(5)(a)) If MTCA Method A remains in use as proposed Site cleanup levels, identify non-concentration based technical and procedural requirements. If Method B cleanup levels are proposed, also include concentration-based requirements.

Limitations of the Opinion

1. Opinion Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. See RCW 70.105D.080 and WAC 173-340-545.

3. State is Immune from Liability.

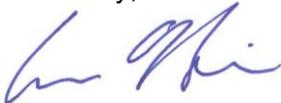
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our [Voluntary Cleanup Program web site](#).²⁴ If you have any questions about this opinion, please contact me at (360) 407-6528 or adam.harris@ecy.wa.gov.

Sincerely,



Adam Harris, LHG
Toxics Cleanup Program
Southwest Regional Office

AH: tm

cc: Thomas Morin, Environmental Partners
Sharon Bell, Tacoma Pierce County Health District
Robert Jenkins, Senior Planner, Pierce County Planning and Land Services
Michael M. McCarthy, Deputy Hearing Examiner, Office of the Pierce County Hearing Examiner
Nicholas Acklam, Ecology (by email)
Ecology Site File

²⁴ <https://www.ecy.wa.gov/vcp>.

Enclosure A

List of Some Applicable Local, State, and Federal Laws

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Partial List of Possible Applicable Local, State, and Federal Laws, Permits, and Regulations.

Model Toxics Control Act (chapter 173.105D RCW), and Model Toxics Control Act Regulation (chapter 173-340 WAC).

Sediment Management Standards (chapter 173-204 WAC).

State Water Pollution Control Act (chapter 90.48 RCW).

Water Quality Standards for Surface Waters of the State of Washington (chapter 173-201A WAC).

Shoreline Management Act (chapter 90.58 RCW and chapter 173-14-28 WAC).

State Environmental Policy Act (chapter 43.21C RCW and chapter 197-11 WAC).

Washington Hydraulic Code (chapter 220-660 WAC).

Washington State Hazardous Waste Management Act (chapter 70.105 RCW).

State Dangerous Waste Regulation (chapter 173-303 WAC).

Hazardous Waste Operations (chapter 296-843 WAC).

Solid Waste Management-Reduction and Recycling (chapter 70.95 RCW).

Solid Waste Handling Standards (chapter 173-350 WAC).

Municipal Solid Waste Landfills (chapter 173-351 WAC).

Minimum Standards for Construction and Maintenance of Wells (chapter 173-160 RCW).

Washington State Clean Air Act (chapter 70.94 WAC).

Construction Stormwater General Permit, Sustentative Requirements.

Regional Clean Air Agency Regulations.

Underground Storage Tank Statue & Regulations (chapter 90-76 RCW and chapter 173-360 WAC).

Federal Clean Water Act and the Surface Water Quality Criteria promulgated hereunder (33 U.S.C 1251 et. Seq).

Section 401 and 404 of Clean Water Act-Water Quality Certification and Dredge and Fill Requirements (USC 1340, 1344; 33 CFR Parts 320 through 330, and 40 CFR Parts 230 and 231), also State Program under chapter 173-225 WAC.

Section 10 of the Rivers and Harbors Appropriations Act (33 USC 403; 33 CFR Part 320 and 322).

National Toxics Rule (40 CFR Subpart 131.36).

Federal Endangered Species Act (16 USC 1802 et seq., 50 CFR, Part 600).

Federal Coastal Zone Management Act (16 USC 145 1 et seq., 33 CFR Part 325).

Fishery Conservation and Management Act (Magnuson FCMA, 16 USC 1801 et seq.).

Resource Conservation Recovery Act (RCRA), 42 USC 321 et seq.).

State Hydraulic Code (chapter 77.20 RCW; chapter 2210-110 WAC).

Corps of Engineers JARPA Permit.

Puget Sound Dredged Material Management Program

Occupational Safety and Health Act (OSHA), 29 CFR Subpart 1910.120

Washington State Industrial Safety and Health Act (WISHA), chapter 296-843 WAC and also chapter 896-62 WAC.

Archaeological and Cultural Resources Act (chapter 43.53 RCW).

Archaeological and Historic Preservation Act (chapter 43.334 RCW).

Indian Graves and Records (chapter 27.44 RCW).

Archeological Sites and Resources (chapter 27.53 RCW).

Cemeteries and Human Remains (chapter 68 RCW).

National Historic Preservation Act (NHPA) 16 USC 470 et seq.).

Uniform Environmental Covenants Act (chapter 64.70 RCW).

Local Requirements (City and County).