



1180 NW Maple St., Suite 310
Issaquah, WA 98027

T 425.395.0010
TRCcompanies.com

May 29, 2020

Mr. Adam Harris, L.H.G.
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
300 Desmond Drive SE
Lacey, Washington 98503

Re: Response to Ecology Comments dated December 10, 2019
Remedial Investigation Report
Former Brookdale Golf Club
1802 Brookdale Road E
Tacoma, Washington 98445
VCP Project ID: SW1672

TRC Project Number: 015397

Dear Mr. Harris:

TRC Environmental Corporation (TRC) is pleased to submit the following responses to the Washington State Department of Ecology's (Ecology's) comments on the Remedial Investigation of the Former Brookdale Golf Club in Tacoma, Washington. This response to comments (RTC) is being provided on behalf of the current property owner Ichijo USA Co., LTD (Ichijo). Included with the RTC is a Supplemental Remedial Investigation (SRI) Report documenting additional assessment activities completed at the Site in response to Ecology's comments. Due to timing and logistics the SRI focused mainly on the northern half of the Site, north of Clover Creek. Ichijo will perform a similar scope of additional assessment in the portion of the Site south of Clover Creek as those portions of the Site are nearer to redevelopment.

It is our opinion that the SRI and the additional information provided herein are fully responsive to Ecology's comments and serve to document a completed remedial investigation of the Site. The additional data provided in the SRI will also support a determination that the completed remedial actions at the Site are fully protective of human health and the environment.

TRC's responses to the comments provided in the December 10, 2019 opinion letter are provided below. For ease of reference, Ecology's original comments are presented verbatim in italics followed by TRC's response.

Comment 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.

As noted above, an SRI Report covering the northern portion of the Site is attached. The SRI has further assessed each of the concerns expressed by Ecology in its comments.

A Cleanup Action Report (CAR) for the completed actions is in preparation. It is Ichijo's preference to address all Ecology comments prior to completing the CAR.

Comment 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. 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. The former Brookdale Golf Course toxic cleanup Site includes a release of hazardous substances that requires evaluation under MTCA.

Ichijo understands its obligation to evaluate the potential impacts to the Site and to remediate those as necessary. This is confirmed by the completion of the substantial assessment and remediation of the Site completed to date. Ichijo did not use the compounds that have been detected at the Site nor owned or operated the Site while those compounds were used. At the time the compounds were used, it is TRC's understanding that those uses were both lawful and for their intended purposes.

Comment C. *Potentially Liable Person Determination.* Regarding the Report statement 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. 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.

TRC understands that the responsibility for determining potentially liable persons is with the courts. Nonetheless, it is clear from the available documentation that Ichijo was neither the owner nor operator of the Site during the time when the observed hazardous materials were used at the Site.

Comment 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.*

The attached SRI Report documents the additional assessment of these compounds on the northern portion of the Site. As noted within the SRI Report, the potential presence of these compounds was broadly assessed and if detected, the extent of those compounds was further evaluated.

- 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.

The requested data are contained within the SRI Report.

- 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.*

The requested data are contained within the SRI Report.

- 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.*

The requested data are contained within the SRI Report.

- 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).*

Acknowledged.

- 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.*

The CAR will present detailed descriptions of each remedial excavation and the result of both performance samples used to guide the excavation and conformational samples from the limits of the remedial excavations. The excavation methodology and sampling frequencies are presented in detail within the CAP that was submitted for Ecology review. The sampling methodology used provides a very high level of confidence confirming the removal of all contaminants at a concentration exceeding a cleanup level.

- 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.

The surficial soil layer was not presented in the RI as a potential point of compliance. The RI selects the most conservative (i.e., lowest) cleanup level available. That cleanup level is by necessity protective of groundwater. The SRI Report presents additional data regarding groundwater quality and confirmation of this finding. The SRI Report includes an updated conceptual site model (CSM) as requested by Ecology.

- 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.*

It is important to note that the remediation of the Site has been completed in a manner consistent with the CAP. The preparation of isopleths and cross-sections would have little meaning since confirmation samples from the lateral and vertical limits of remedial excavations demonstrate compliance with the selected cleanup levels. There was a total of 36 remedial excavations at the Site and preparation of cross-sections for each area places an unreasonable burden on Ichijo. The SRI Report documents the absence of additional compounds at concentrations exceeding cleanup levels in soil, groundwater, surface water and sediment, as represented by a post-CAP assessment.

- 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.*

The SRI Report presents the available historical documentation for the Site.

- 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.

Acknowledged. This task is now complete.

- 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. 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).*

The CAP for the Site included analysis of 10 percent of samples from the terminal limits of remedial excavations for the full list of organochlorine pesticides, including all compounds detected during the RI. This approach was used to field-validate the selection of the indicator hazardous substance and that sampling was conducted during the CAP implementation. In none of those samples was a compound other than dieldrin detected at a concentration greater than a Method Detection Limit (MDL). The attainment of cleanup levels throughout the Site eliminates the need for evaluating cumulative effects because no compounds remain at a concentration exceeding a cleanup level.

- 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.*

Acknowledged. This information is included in the SRI Report.

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.*

TRC and Ichijo request additional detail from Ecology. The CAP presented a method for remediating the Site to a MTCA Method B residential standard in all media throughout the Site. The SRI Report and forthcoming CAR will document attainment of those cleanup levels at the standard point of compliance.

Selection of Cleanup Action. *Ecology has determined that additional remedial investigation is necessary at the Site before selecting a cleanup action.*

Additional remedial investigation of the Site is documented in the SRI Report. The SRI is focused on the northern portion of the Site. A similar scope of work will be performed on the southern portion of the Site prior to redevelopment, but is expected to yield similar results. There were no differences in land use or management between the northern and southern portions of the Site.

As noted, and acknowledged by Ecology, the remediation of the Site has been completed. While Ecology may consider the completed remediation an Interim Action, the CAR will document attainment of cleanup levels in all media throughout the Site and the SRI further confirms that additional compounds are not present at the Site.

The selection of direct excavation and off-site disposal as the remedial action is documented in the FS and clearly supported by the selection criteria. The only open question is whether the extent of direct excavation and the selected cleanup levels were appropriate. The SRI Report documents that additional contaminants are not present at the Site and the CAR (in preparation) will document the attainment of cleanup levels in all media throughout the Site.

The SRI did identify one remedial area (AOI-20) where arsenic concentrations in soil exceed the cleanup level. The SRI has fully characterized the lateral and vertical extent of those impacts. Additional remedial excavation will be performed in AOI-20, using the same procedures documented in the CAP and that have been implemented throughout the Site. This includes the collection of performance and conformational samples to document the attainment of cleanup levels.

On behalf of Ichijo, TRC appreciates Ecology's attention to this matter. We request that Ecology review the attached SRI Report and provide us with any additional comments. Prior to providing comments, TRC would appreciate the opportunity for a conference call to discuss those comments prior to preparation of a formal opinion. We would also like to offer to make ourselves available for a Site inspection. Any such visit would require all parties to follow current statewide social distancing and personal protection guidance.

Sincerely,



NATHANIEL DAVID HINSPERGER

Prepared by:
Nathaniel Hinsperger, L.G.
Senior Geologist



THOMAS C. MORIN

Thomas C Morin

signed electronically on 5/29/2020 at 4:53pm

Reviewed and approved by:
Thomas C. Morin, L.G.
Principal Geologist / PNW Area Leader

cc: Mr. Randy Barnett – Ichijo USA Co., LTD
Mr. William Lynn – Gordon Thomas Honeywell LLP
Mr. Paul Green – Azure Green

Mr. Adam Harris, LHG, Ecology
Response to Ecology Opinion, Former Brookdale Golf Club
1802 Brookdale Road E, Tacoma, WA
May 29, 2020

ENCLOSURES

Attachment A Supplemental Remedial Investigation Report – Former Brookdale Golf Course