COPY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
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April 1,2024

Sterling Gray
Realta Thuaidh LLC
1200 W 13th St.
Vancouver, WA 98660
sterlingG@northstarcasteel.com

Re: Response to November 27, 2023, Martin S. Burck Associates, Inc. (MSBA) Comments on Ecology January 5, 2023, Opinion at the following Site:

Site Name: Varicast, Inc.
Site Address: 1200 W 13th St, Vancouver, Clark County, WA 98660
Facility/Site ID: 1034
Cleanup Site ID: 3022
VCP Project ID: SW1712

Dear Sterling Gray:

On November 27, 2023, the Washington State Department of Ecology (Ecology) received your consultant's (MSBA) comments regarding our most recent January 5, 2023, opinion on the Excavation Cleanup and Closure Report for the Varicast, Inc. (Site). This letter provides our response to MSBA's comments. We are providing this technical assistance under the authority of the Model Toxics Control Act (MTCA),[1] Chapter 70A.305 Revised Code of Washington (RCW).[2]

Technical Assistance (TA)

Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This TA is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Washington

[1] https://apps.ecology.wa.gov/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/rcw/default.aspx?cite=70A.305

Administrative Code (WAC) chapter 173-340[3] (collectively "substantive requirements of MTCA"). The analysis is provided below.

Site Description

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

- Total Petroleum Hydrocarbons (TPH), metals, volatile organic compounds (VOC[s]), semivolatile organic compounds (SVOC[s]), polycyclic aromatic compounds (PAH[s]); polychlorinated biphenyls (PCB) in soil.
- TPH, metals, and VOC in groundwater.

A parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the TA

This TA is based on the information contained in the following suite of documents:

1. MSBA Response to Ecology January 5, 2023, Further Action Letter (Opinion).
2. North Star Casteel (NSC), Martin S. Burck Associates (MSBA), *Excavation Cleanup and Closure Report*, May 20, 2022.
3. NSC, MSBA, *Remedial Investigation/Feasibility Study*, March 3, 2021.
4. Associated Environmental Group, LLC (AEG), *Summary of Selected Confirmational Soil Sampling – Vancouver Iron and Steel, Inc.*, December 5, 2018.
5. Environmental Partners, Inc. (EPI), *Updated Subsurface Investigation Letter Report*, May 3, 2018.
6. Varicast, *Soil Sample Project*; November 10, 1995.

This TA is based on the information in the documents listed above. You can request these documents by filing a records request.[4] For help making a request, contact the Public Records

[3] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340
[4] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests

Officer[5] at or call 360-407-6040. Before making a request, check whether the documents are available on Ecology's Cleanup Site Search web page.[6]

Response to MSBA Comments

Ecology responses to MSBA comments are sequential with the order of said comments from MSBA's November 27, 2023, Response. Ecology's January 5, 2023, Opinion comments are included below as originally written and Ecology responses to MSBA comments will be designated below in **bolded blue.**

General Comment to MSBA's May 20, 2022, Excavation Cleanup and Closure Report

Ecology recommends reconfiguring the figures to illustrate the separate individual AEG/Magna and EPI events and the associated respective soil borings/data as they were sequentially performed. As the current figures stand, Ecology review staff find the multiple events and copious sample locations and data input on one figure very cumbersome and difficult to follow and understand whether the contaminants exceeding the MTCA CULs in soil were effectively removed. Presentation of each event as a separate figure in chronological order would enable a more succinct understanding of the various investigative and removal actions/data.

General Comment to MSBA's RTC prolog:

Ecology appreciates MSBA's RTC's and hopes our responses below will provide further direction regarding the results of MSBA's Draft Excavation and Cleanup Report (ECR), dated May 20, 2022.

Ecology understands that the ECR was developed and implemented with input from Ecology's prior cleanup project manager via phone calls and emails as opposed to a formal Opinion letter due to time constraints associated with the customer's cleanup schedule. Ecology also understands that the prior Ecology PM provided agreements on ECR workplan soil and groundwater sample locations and depths, was satisfied with the scope of work based on prior consultant EPI's groundwater data throughout the Site and did not request additional soil sampling in areas that were not previously investigated at the Site.

Ecology understands that a total of 183 soil and 10 groundwater samples have been collected at the site and that MSBA feels the site has been adequately characterized. MSBA concluded that all contaminants appeared to originate at or near the surface, were relatively limited in

[5] publicrecordsofficer@ecy.wa.gov
[6] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=3022

depth based on soil data that generally showing decreasing concentrations with depth and is consistent with the conceptual model for foundries in general. To that end, MSBA requested that Ecology reconsider requiring the additional sampling that was requested in the January 5, 2023, Further Action opinion letter.

With respect to the aforementioned, and as happened in this case, there are instances where a former Ecology site manager's technical assistance was provided to a customer via informal discussion (e.g., emails and phone calls) and is apparently relied upon by the customer in lieu of a formal Opinion. Beyond the site manager providing assistance by informal discussion, Ecology holds paramount that ultimate reliance on non-binding assistance by a site manager must ultimately be documented in the formal Opinion as a requirement of Ecology, rather than that of the site manager. This is a consequence of the formal Opinion being the product of analysis and development by the site manager with subsequent peer review by both the Section's Unit Supervisor and the Section Manager. That being said, along the way to that Opinion, while conversations with the customer may be helpful, instructive, and indeed expedite the VCP process, they are always considered preliminary to the eventual Opinion of the Department as to whether further action is needed and can thereby never be regarded as a substitute for the Opinion.

In addition, under independent cleanups like this one, Ecology does not provide oversight nor approval, and can only provide non-binding informal advice and technical assistance, per WAC 173-340-515.

In addition, and as previously discussed in my opinion comments, analysis for RCRA 8 metals is designed for waste disposal and characterization and is not representative of remedial investigation and the far larger suite of metals that are typically encountered at foundry sites and associated mold sands and sandblast grits. To that end, I had mentioned use of Priority Pollutant 13 metals including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc—with copper, nickel, and zinc representing additional exposure sources for both human and ecological species. In addition, aluminum, tin, titanium, platinum, iron, cobalt, and manganese may also be analyzed as accessory metals, depending on the metal feedstocks used.

1. **Historical Aerial Evaluation.** Please present a historical aerial photo correlation with past facility layouts, operations, and RI sample boring locations. Such correlation is key to assess other Site areas as potential sources beyond that which is currently represented. Based on Ecology's review of several of the aerial photos provided in the reports to date, the following observations were evident:

- **1935:** Maintenance Building present. Long large rectangular building present adjacent to western Site-boundary occupying southern perimeter—may have extended on-Site. Circular line of what appears to be large ASTs or silos aligned north-south at west end of what is now foundry building. Structure at northeast corner.
    - **Ecology concurs with MSBA's response.**
- **1948:** Another north-south oriented building just west of AOPC 8 (Maintenance Shop Building) occupying area of Site that is now vacant between AOPC 5 (Southwest Compressor) and AOPC 8—no investigation there to date.
    - **Ecology does not concur that the former presence of a building does not warrant additional investigation. Buildings often harbor internal processes, operations, and component/waste storage that can often be released to the subsurface via improper disposal/storage and/or lack of secondary containment. Accordingly, one random hand auger boring sample obtained from a building footprint that large would normally be considered biased and not representative nor significant. However, given the prior pattern and woodworking use of the building as discussed and that no foundry operations were historically conducted there, Ecology will concur that additional foundry-related investigation is more likely than not warranted there.**

    - Also, another north-south oriented building east of and the length of 80 feet along uninvestigated swath of land adjacent to Lincoln Ave. Many other structures once existed in northern half of the Site, an area that is now mostly devoid of structures and relatively uninvestigated. AOPC 3 – Foundry building extended to western Site-boundary in area that is now vacant and uninvestigated. Also, structures are off-Site along western boundary beyond foundry building that may be associated with foundry—should verify as Site would need to be extended in that direction if so.

    - **Ecology concurs on MSBA response on the former office building, residences, and the red property boundary as defined in the EPI Phase I ESA.**

    - **While Ecology acknowledges that several soil samples were collected within the AOPC3 foundry building footprint, these soil samples were designated as near-surface and do not therefore assess/define the vertical extent of potential contamination.**

- **Ecology recommends additional vertical soil sampling to depths above the capillary fringe within the former Foundry building footprint for the contaminants of concern including PP13 metals and manganese and sampled to a depth above the capillary fringe.**

- **Ecology concurs with MSBA conclusions of the off-Site buildings beyond the western Site boundary.**

- **1951:** Foundry building appears to extend on to neighboring property along the western Site-boundary. Same structures in northern half of Site that is now vacant and relatively uninvestigated.

    - **Ecology concurs with MSBA response.**

- **1955:** Basically, same configuration of buildings; although, sister building appears adjacent to foundry building and extends off-Site to the west.

    - **Ecology concurs with MSBA response and Attachment D.**

- **1960/63:** Same configuration but more buildings appear in northern half of property that are currently uninvestigated.

    - **Ecology concurs with MSBA response and 1966 Sanborn map.**

These observations appear to indicate that large areas of the site between the AOCs remain both laterally and vertically uninvestigated when historical aerial photographs indicate prior activities. Additional soil and groundwater sampling should be conducted in these areas to assess the presence/absence of contamination due to past practices and/or unknown activities.

- **Ecology concurs with MSBA response of current soil/soil boring investigative extent based on prior Ecology input and agreements, further review of provided documentation, and explanation of existing data related to the former site history and selection of operational AOPCs.**

2. **Insufficient RI Borings/AOPC.** Existing deeper soil boring and interval sampling via HSA (excluding hand auguring) at the Site was not performed to a level that would be considered as adequately defining the nature and extent of contamination both in the existing source areas and in the intervening uninvestigated areas. The following soil borings by SB boring number and depth, per AOC, were completed:

- **AOPC 1** – Metal Receiving Area: SB-9/10 (5'/5'); SB-15 (<1')
- **AOPC 3** – Foundry Buildings: SB-12/13/14 (1'/1'/1')
- **AOPC 4** – Stormwater Drain Main Yard: SB-5 (15')
- **AOPC 5** – Southwest Compressor: SB-1/2/3 (20'/15'/5'); SB-18 (5')
- **AOPC-6** – Southwest Drywell: SB-1 (20')
- **AOPC-7** – South Compressor: SB-4 (15'); SB-19 (5')
- **AOPC-8** – Maintenance Shop Building: SB-17 (5')
- **AOPC-9** – Welding Station Building: SB-7(5); SB-16 (5')
- **AOPC-10** – Stormwater Retention Structure: SB-7 (5')
- **AOPC-13** – Foundry Waste: SB-6 (10'); SB-11 (5')
- **AOPC-14** – North Compressor: SB-8 (5')

AOCs 2 (Electric Arc Furnace), 11 (Oil-Sand Storage and Baghouse), 12 (Northwest Petroleum Storage), and 15 (Clark County Transformer) were investigated via only shallow hand augering and/or surface/near surface sampling.

Ecology suggests additional soil boring with interval soil sampling via either direct-push or HSA to better characterize both the lateral and vertical extent of COC impact. Such characterization should be conducted in the vadose zone to groundwater and within both the AOCs and the uninvestigated areas based on correlation with said AOC or other operations as discussed above in the historical aerial photo assessment. Such characterization should be detailed along the southern Site border to assess any potential comingling of contaminants between North Casteel and the adjoining Emerald Petroleum property.

In addition, despite the removal actions completed to date, additional removal and/or other remedial activities may need to occur based on deeper soil boring and groundwater data obtained during subsequent investigation.

- **Excluding the aforementioned recommendation for additional soil boring work in the former Foundry Building footprint, Ecology concurs with MSBA response of current soil/soil boring extent based on prior Ecology input and agreements, further review, and consideration of provided documentation, and explanation of**

existing related to former site history, selection of operational AOCs, and existing groundwater data from the Site and the Emerald Petroleum property.

- **Institutional and engineered controls memorialized by an Environmental Covenant (EC) for the two areas of contaminated inaccessible shallow soil exceeding the MTCA CULs that are capped with concrete at sample locations S24-0 (<1 foot) and S25 (0-3.5 feet) will likely be needed. If an EC is used at this Site, a Contaminated Media Management Plan should be developed and include a contingency for management of other site waste streams should they be encountered/detected in the future.**

3. **Metals.** RCRA 8 metals are not typically representative of either remedial investigation or foundry operations. Ecology recommends analyzing soil for each AOPC for Priority Pollutant 13 metals including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc—with copper, nickel, and zinc representing additional exposure sources for both human and ecological species. In addition, aluminum, tin, titanium, platinum, iron, cobalt, and manganese should also be analyzed as accessory metals.

    - **As discussed under 2. above, Ecology recommends additional soil boring/sampling at the Foundry Building for the Priority Pollutant 13 metals plus manganese.**

4. **Groundwater Assessment.** The former and existing monitoring well network is not sufficient to assess seasonal groundwater chemical and hydraulic conditions across the Site. Further, RI HSA groundwater grabs are typically turbid and may not be representative of intrinsic groundwater conditions across a full seasonal cycle. Please obtain groundwater samples from permanent, developed, and surveyed monitoring wells across the Site. For metals, please collect samples using low flow groundwater sampling methodology and analyze samples for both total and dissolved metals as well as turbidity.

    Please also obtain groundwater elevation data from the well network such that both groundwater gradient and flow direction can be quantitatively calculated and determined over a complete annual seasonal cycle. The monitoring well network should extend across the Site-proper in assumed upgradient, crossgradient, and downgradient directions to better characterize all existing AOCs and intervening areas as well as provide for evaluation

of soil contamination and source areas that are inaccessible due to existing building footprints, beyond the finite soil data sets that currently exist. Such groundwater characterization should be detailed along the southern Site border to assess any potential comingling of contaminants between North Casteel and the adjoining Emerald Petroleum property. Groundwater samples should be analyzed for the full suite of site COCs including TPH as GRO/DRO/ORO, Priority Pollutant metals, VOCs, and SVOCs including PAHs, and PCBs.

- **Ecology generally concurs with the MSBA response regarding the current grab groundwater data set based on the analyses conducted and prior Ecology input and agreements and the existing groundwater data from the Site and the Emerald Petroleum property. However, Ecology needs a confirmatory groundwater data set to have sufficient data for Ecology to concur that groundwater is not contaminated. As a result, Ecology recommends collecting a second groundwater data set consisting of two samples adjacent to the northern Site boundary and two samples adjacent to the southern site boundary with analysis for Priority Pollutant 13 metals plus manganese.**

This data coupled with the recommended additional soil boring data will provide further assessment and validation that other foundry-related metals have not been released nor are a concern at the Site.

5. **Ecology Comment #5.** EPI and MSBA determined that site COC were limited to a depth of 5-6 feet bgs sub-slab or less based on the surficial nature of the past operational releases. This assumption discounts the potential for vertical mobilization through the soil column from chronic and long-term historical use and surface recharge from rain and snowmelt in open soil at the Site. In addition, chlorinated VOCs (cVOCs) can often be used as metal degreasers in foundries and have been detected in Site soil.

   In sufficient quantities, VOCs can form dense nonaqueous phase liquids within environmental media. Further Site-wide evaluation of cVOCs in soil and groundwater, is recommended. To that end, the groundwater investigation should be expanded via collection of samples from wells that are screened through the first saturated cohesive (or most cohesive) horizon.

   - **Chlorinated VOC are often used at foundry sites for cleaning and degreasing purposes. However, Ecology concurs with the MSBA**

response regarding the current grab groundwater data set based on the analyses conducted and prior Ecology input and agreements and the existing groundwater data from the Site and the Emerald Petroleum property.

6. **Conceptual Site Model (CSM).** The CSM should be updated based on collection of additional deeper soil and groundwater data. Although sub-slab areas may have formerly harbored Site COC to a depth of 6 feet bgs, Ecology does not concur that Site COCs are generally limited to 6 feet bgs based on past operations. The CSM should also include an evaluation of off-Site receptors potentially exposed via historical emission of hazardous air pollutants (HAP) that are typical of foundry operations.

   Ecology recommends that the CSM also be depicted schematically and include primary and secondary sources, migration pathways, exposure pathways, and receptors of concern. Receptors should also include trespassers. Potential exposure pathways for both human and ecological receptors should include dermal contact, inhalation, and ingestion. Vapor intrusion is not considered an exposure pathway but represents a migration pathway for conveyance of Site COCs to the available receptors. Ecological risk is neither a migration nor an exposure pathway and should not be listed as such.

   - **Ecology recommends the CSM be updated based on our prior recommendations of additional soil and groundwater sampling. Thank you for revising the CSM per prior Ecology recommendations.**

7. **Vapor Investigation (VI).** VI assessment may need to be expanded beyond sub-slab surveys and should be updated as applicable once additional soil and groundwater data are collected.

   - **Based on Figure 9 of the current MSBA Report, sub-slab soil gas data at SV-1 in AOPC 8 identified contamination above the MTCA cleanup levels. As such and to provide confirmatory data within this area and SV-2 near AOPC 9, Ecology recommends additional vapor investigation in these areas. The resulting data will then be used to assess and/or validate whether in-situ contamination poses an exposure risk or not.**

8. **Off-Site Emissions Assessment.** Foundries have historically constituted sources of HAP

emissions including both metals and organic compounds. To assess the potential for historical HAP emissions to have impacted off-Site properties, please conduct an off-property evaluation of relevant COC to assess whether such emission impacts have occurred**.**

- **Ecology concurs with the MSBA response based on prior Ecology input and agreements, no prior emission violations based on EPA data presented under the Clean Air Act, further review, and consideration of provided documentation, and explanation of existing data related to former site history.**

Selection of Cleanup Action.

Until the lateral and vertical extent of soil and groundwater contamination are assessed, Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA. Please re-evaluate the cleanup standards when the nature and extent of contamination is fully characterized via the prior recommendations.

Limitations of the Opinion

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 70A.305.040(4).

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 70A.305.080 and WAC 173-340-545.

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 70A.305.170(6).

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 page.[7] If you have any questions about this opinion, please contact me 360-489-5347 or joseph.hunt@ecy.wa.gov.

Sincerely,

Joseph B. Hunt, LHG
VCP Project Manager
Toxics Cleanup Program
Southwest Region Office

JBH/at

cc by email: Josh Owen, MSBA, jowen@msbaenvironmental.com
Tim Mullin LHG, Ecology, tim.mullin@ecy.wa.gov
Ecology Site File

[7] https://www.ecy.wa.gov/vcp