ENVISION ENVIRONMENTAL, INC.

1997 – 2018 21 YEARS OF SERVICE Envision Environmental, Inc.

July 10, 2018

Mr. Jason Cook
State of Washington
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: Progress Report
Ball Corp (Former REXAM Beverage Can Company)
1220 North 2nd Avenue
Kent, King County, WA 98032
Site No. 35918556
VCP Project No. NW1105

ENVISION Project ID: 302.REX

Dear Mr. Cook:

On behalf of Ball Corp/Rexam Beverage Can Company, ENVISION ENVIRONMENTAL, INC. (ENVISION) is submitting this Progress Report to provide the Washington Department of Ecology (WA DOE) with an update on the environmental investigation being conducted under the Voluntary Cleanup Program (VCP) at the above-referenced facility (the Site). As proposed in ENVISION's e-mail correspondence dated April 27, 2018, this submission provides the results of the groundwater sampling conducted in February 2018. The report also provides the results of ENVISION's review of WA DOE files under the Freedom of Information Act (FOIA) pertaining to properties hydrogeologically downgradient of the Site, and proposes locations to install offsite monitoring wells for downgradient delineation of the Site groundwater contaminant plume for WA DOE review and approval as required in the WA DOE correspondence dated April 28, 2017 (see Attachment 1).

The Site location is shown on Figure 1 – Property Location Map. Figure 2 depicts the overall layout of the Site and the locations of the existing monitoring wells.

## Groundwater Sampling

Groundwater sampling of all Site monitoring wells was conducted on February 27 and 28, 2018. The purpose of the sampling was to provide data on the current contaminant concentrations both to assist in determining the potential installation locations of downgradient offsite monitoring wells and to help interpret indoor air (IA) data when IA sampling is conducted following the installation of the new flammable storage rooms in the manufacturing building interior.

Prior to purging the monitoring wells, each well was opened and the headspace was screened with a photoionization detector (PID). Depth to water was then measured using a Solinst

electronic water level meter and recorded to the nearest 0.01 foot. The water level meter was decontaminated between wells. Wells were gauged in order from clean to most impacted. The PID was calibrated in the field before use to a standard of 100 ppm isobutylene. Monitoring well MW-101 was found to contain 0.03 feet of light non-aqueous phase liquid (LNAPL – oil). LNAPL has not been observed in this well since early in the Site investigation. The depth to water and PID data are listed in Table 1.

The groundwater elevations were calculated from the surveyed top of casing elevations and used to prepare a groundwater elevation contour map, which is included as Figure 3. The groundwater flow direction is similar to that observed in the previous sampling events, with flow being generally to the northwest in the area of the groundwater contaminant plume.

All monitoring wells were sampled for volatile organic compounds (VOCs) plus tentatively identified compounds (TICs) via USEPA Method 8260C and 1,4-dioxane via USEPA Method 8260C with selective ion monitoring (SIM). In addition, unpreserved samples were collected and analyzed for vinyl chloride via USEPA Method 8260C from each well. The SW-846 method for preserving vinyl chloride samples changed to the use of unpreserved samples during the course of the investigation. ENVISION elected to analyze both preserved and unpreserved samples for vinyl chloride to allow comparison between the different preservation methods, and to provide data comparable to earlier sampling events. Selected wells were also sampled for both total dissolved solids (TDS) and total suspended solids (TSS) for water quality determination.

The monitoring wells were also sampled in order from clean to impacted to minimize the potential for cross-contamination. Each well was purged to remove stagnant water within the well casing and sand pack using low-flow purging. The shallow wells were purged using a peristaltic pump equipped with Teflon-lined polyethylene tubing of ¼-inch internal diameter. The end of the tubing was set to the center of the screened interval. During purging, depth to water was monitored using an electronic water level meter in the 2-inch diameter wells; this was not possible in the smaller diameter ETMW-series wells. The 1,4-dioxane, TSS, and TDS samples were collected through the pump. To collect VOCs, the tubing was carefully withdrawn from the well, and the pump flow was reversed to fill the containers as the final step in the sampling process.

Monitoring well MW-201 was sampled using a decontaminated Grundfos submersible pump equipped with Teflon-lined polyethylene tubing of ¼-inch internal diameter. The pump was set at the center of the screened interval. Samples were collected directly through the pump, with the VOCs being collected first.

During purging, water quality parameters (temperature, pH, dissolved oxygen, specific conductivity, oxidation-reduction potential (ORP) and turbidity) were measured using a Horiba U-22 water quality meter and a flow-through cell to monitor well stabilization. Data were recorded on field forms. The field forms are included as Attachment 2. Purging was conducted in accordance with USEPA Region 9 Guidance and Protocols. The water quality parameters from the sampling are provided in Table 2.

Groundwater samples were collected in new laboratory-supplied bottles containing preservatives appropriate for the specific analytes. Each sample was labeled with project identification, sample identification, and time and date of sample collection, then immediately placed in a laboratory cooler containing ice. The samples were transported under chain-of-custody protocol to Friedman & Bruya, Inc. of Seattle, WA (a Washington-licensed analytical laboratory) for analysis. The TDS samples were delivered by Friedman & Bruya, Inc. to Fremont Analytical of Seattle, WA, an appropriately qualified and certified analytical laboratory for analysis of TDS. One (1) blind duplicate sample was collected each day for analysis of VOCs and 1,4-dioxane. Field blanks were collected each day for all analytes by collecting laboratory-supplied analyte-free water through new sampling equipment into appropriately preserved containers. Each cooler containing VOC samples also contained a laboratory-supplied trip blank.

All purge and decontamination water was placed in steel 55-gallon drums which were labelled and staged for proper offsite disposal as part of the Site's wastestream.

## Groundwater Analytical Results

*Water Quality Parameters*

With the exception of MW-201, which exhibited dissolved oxygen at 1.92 mg/l after purging, the wells exhibited little to no dissolved oxygen. Wells MW-101 and MW-108 exhibited 0.57 mg/l and 0.56 mg/l, respectively; and the dissolved oxygen content of the remaining wells was 0.00 mg/l. The ORP values in all wells except MW-107 were negative, further indicating reducing conditions in groundwater.

Turbidity was low, with the highest reading observed in MW-201 at 10.5 nephelometric turbidity units (NTU). Conductivity readings varied. Wells MW-102 and MW-103 exhibited 1.25 mS/cm and 1.16 mS/cm, respectively; whereas MW-107 exhibited 0.091 mS/cm. Conductivities in the remaining wells ranged from 0.360 mS/cm to 0.703 mS/cm. In the shallow wells, pH ranged from 6.61 Standard Units (SU) to 6.95 SU; MW-201 exhibited 7.23 SU.

The wells all stabilized relatively quickly during purging. Other than the presence of trace LNAPL in MW-101, no unusual conditions or behavior were observed.

*Laboratory Analytical Results*

The laboratory deliverables packages for the data are included as Attachment 3. The laboratory data was reviewed to determine if issues were present that might limit the data usability. No significant issues were identified. Duplicate samples exhibited good agreement with original samples. Trip and field blanks exhibited low concentrations of one or both of the TICs 2-propanol and 2-ethyl-1-hexanol. One or both of these compounds were detected in all samples. These compounds were flagged with the "fb" qualifier by the laboratory, indicating their detection in the associated method blanks, and are attributed to laboratory contamination. Both

field blanks exhibited 18 µg/l of chloroform and 1.3 µg/l of bromodichloromethane; neither analyte was detected in any sample.

The groundwater analytical results are summarized in Table 3. Shallow monitoring wells ETMW-3, MW-104, and MW-107 and deep well MW-201 exhibited no detections with the exception of TICs, which were attributed to laboratory contamination. Wells ETMW-2 and ETMW-7 exhibited low concentrations of 1,4-dioxane (2.1 µg/l and 4.1 µg/l, respectively). This analyte was also detected in MW-101, MW-102, MW-103, MW-105R, MW-106, and MW-108, with the highest concentration observed being 1,400 µg/l in MW-102. The lowest concentrations of 1,4-dioxane in these wells were 10 µg/l and 12 µg/l in MW-103 and MW-105R, respectively. Concentrations of 1,4-dioxane in the remaining wells ranged from 120 µg/l (MW-106) to 380 µg/l in MW-108 (450 µg/l in its duplicate).

Vinyl chloride concentrations were detected above the MTCA Method A Cleanup Level of 0.2 µg/l in MW-101, MW-103, MW-106 (unpreserved sample only), and MW-108 and its duplicate. Concentrations were low, ranging from 6.2 µg/l (unpreserved sample, MW-108) to 0.22 µg/l (unpreserved sample, MW-106). There was close agreement between the preserved and unpreserved samples. The only other exceedance of a MTCA Method A Cleanup Level was of 1,2-dichloroethane at 6.9 µg/l in MW-102.

Elevated concentrations of chloroethane (which does not have a MTCA Method A Cleanup Level) were detected in MW-102 (920 µg/l), MW-106 (220 µg/l), and MW-108 (350 µg/l and 410 µg/l in the duplicate). Chloroethane was detected in MW-105R at a much lower concentration (71 µg/l). The only other elevated analyte concentrations were found in MW-108; with 1,1-dichloroethane detected at 310 µg/l (260 µg/l in the duplicate) and 1,1,1-trichloroethane at 110 µg/l (160 µg/l in the duplicate). The presence of 1,1,1-trichloroethane in MW-108 (below its MTCA Method A Cleanup Level) was the only detection of a parent compound which had been used historically at the Site.

Sporadic low to trace concentrations of hexane, 1,1-dichloroethane, benzene, cis-1,2-dichloroethene, toluene, o-xylene, and 1,2,4-trimethylbenzene were detected in one or more of MW-101, MW-102, MW-105R, and MW-108 (and its duplicate). Some wells (ETMW-2, MW-102, and MW-108 plus its duplicate) exhibited detectable concentrations of VOC TICs not attributed to laboratory contamination. Figure 4 depicts the detected VOC concentrations for the groundwater samples collected in this sampling event.

Of the samples analyzed for TSS, only MW-107 did not exhibit a detectable concentration. In MW-101, MW-102, MW-105R, and MW-108, TSS ranged from 33 mg/l (MW-105R) to 150 mg/l (MW-102). All samples analyzed for TDS exhibited concentrations ranging from 54.0 mg/l (MW-107) to 703 mg/l (MW-102).

The historical groundwater results since March 2005 are plotted in Table 4. The analytes and contaminant distributions from the February 2018 round of sampling are similar to those observed in previous monitoring events, with a general overall continuing decreasing trend in concentrations. Wells ETMW-2, ETMW-3, ETMW-7, MW-103, MW-104, MW-107, and MW-201

exhibited results that were similar to those from previous rounds. Concentrations in MW-101 were similar to previous rounds with the exception of 1,4-dioxane, which exhibited an increase from the previous round. Concentrations in MW-102 exhibited increases from the previous round. Concentrations in MW-105R, MW-106, and MW-108 decreased from the previous round. These wells have generally shown a consistent decreasing concentration trend over the course of the investigation.

**Neighborhood Conditions and Proposed Offsite Well Locations**

The WA DOE correspondence dated April 28, 2017 requested the installation of monitoring wells to the north, northwest, and west of the Site to laterally delineate groundwater contamination. In order to assist in identifying suitable locations for downgradient offsite monitoring wells, ENVISION conducted a review of facilities in the vicinity of the Site to identify which properties were unlikely to exhibit groundwater impact either from activities at that property or from migration of a contaminant plume from an offsite source. In addition, this review was used to determine the potential presence of offsite plumes which could impact the area downgradient of the Site.

ENVISION first reviewed information on properties listed in various government databases obtained from Environmental Data Resources, Inc. (EDR). Properties that were listed in databases indicating large-scale use of hazardous materials and/or petroleum products, in databases indicating the possible or known occurrence of releases, or in databases indicating former or ongoing environmental investigation or cleanup activities were selected for additional review. Information on such properties available on the WA DOE online database was also searched for and reviewed. Based on the findings and locations of the identified properties, ENVISION requested files on selected nearby properties from WA DOE under FOIA.

The findings relative to the neighboring properties are:

1215 North 2nd Avenue – This property is located west of the central and southern part of the Site, across North 2nd Avenue. It was formerly occupied by Protective Coatings Inc., a plating facility. The current owner/operator is Precision Castparts. This property is enrolled in the VCP. The facility historically used both 1,1,1-trichloroethane and trichloroethene. Soil, soil gas, and groundwater exhibit impact from chlorinated VOCs, including trichloroethene, cis-1,2-dichloroethene, and vinyl chloride. The main soil source of contaminants is located on the western side of the property; however, vinyl chloride has been detected in groundwater in the northeastern corner of the property. Groundwater flow is generally to the southwest, but is also found to be to the south and southeast in parts of the property (based on the elevations determined from the monitoring wells installed at this property). Based on the file review, this appears to be the only property immediately downgradient of the Site which contains monitoring wells.

1221 North 2nd Avenue – This property is located west of the northern part of the Site across North 2nd Avenue. This property is currently occupied by Hermanson, which designs and builds sheet metal construction for large heating, ventilation and air conditioning systems. This facility

is listed as formerly having a heating oil underground storage tank (UST), it was reportedly removed in 1996 and its waste generator status is listed as a non-generator.

7650 South 228th Street – This property is located northwest of the Site, across South 228th Street. It is a warehousing facility currently occupied by Sears. Based on the construction of the building and historic aerial photographs, its former uses were similar to its current use. It is not listed under any environmental regulatory databases.

7820 South 228th Street – This property is located north of the western side of the Site, across South 228th Street. The property is currently occupied by Puget Bindery Inc./UltraKote, a printing and binding facility. Its waste generator status is listed as a non-generator.

7908 South 228th Street – This property is located north of the eastern side of the Site, across South 228th Street. It is occupied by Guided Products, a printing services and office equipment firm. It is not listed under any environmental regulatory databases.

8030 South 228th Street – This property is currently occupied by Northwest Real Foods, Taylor Farms, and Sealed Air Corporation. The latter company is a plastic packaging facility, which had solvent and hazardous waste handling activities identified in a stormwater permit application. This facility started operations in 1998. Fisher Scientific was also located at this address.

8041 South 228th Street – This property was formerly occupied by Wasser Coatings and was listed as a Large Quantity Generator, with waste codes D001, D002, and F003. It was subsequently occupied by Fikes, a janitorial and pest control services firm, and is apparently currently vacant.

ENVISION considered that 1215 North 2nd Avenue is not a suitable property from which to collect downgradient groundwater samples. This facility and the Site exhibit the same contaminants of concern. Furthermore, this facility is not directly downgradient of the Site groundwater plume. In addition, characterization of this facility is apparently not complete.

The proposed offsite downgradient monitoring well locations are shown in Figure 5. The proposed well locations are:

- MW-109: To be installed at 1221 North 2nd Avenue
- MW-110: To be installed at 7650 South 228th Street
- MW-111: To be installed at 7820 South 228th Street/7908 South 228th Street

These proposed locations are hydraulically downgradient of the groundwater flow direction and the groundwater plume in this part of the Site. Based on ENVISION's review of the nearby properties, these properties do not appear to have likely been impacted by current or historic activities that have taken place at them, nor does there appear to be information indicating the

presence of hitherto unidentified groundwater contaminant plumes impacting these properties, which would interfere with delineation of the Site groundwater plume.

It should be noted that review of the EDR database and FOIA information showed that there are several nearby properties that exhibit the same contaminants of concern as the Site in addition to the 1215 North 2nd Avenue property. These additional properties are all located generally to the west of the properties at 1215 North 2nd Avenue and 1221 North 2nd Avenue.

**Conclusions and Recommendations**

The results of this round of groundwater sampling continue to indicate that deeper groundwater is not impacted. In general, the contaminant trends are similar to what has been observed historically. ENVISION considers that the proposed downgradient well locations will provide suitable locations to complete the delineation of the groundwater impact.

Within 30 days of receipt of WA DOE approval of the proposed well locations, ENVISION/Ball Corp will commence the process of obtaining the Access Agreements needed to install the offsite monitoring wells. It is assumed that the Access Agreements will be obtained by the end of the fourth quarter of 2018. The WA DOE will be kept informed of the progress of these negotiations.

It is anticipated that installation of the downgradient offsite delineation monitoring wells will take place in the Fourth Quarter 2018/First Quarter 2019. Following installation and development of the new wells (including the replacement well for MW-108; see below), all onsite and offsite monitoring wells will be sampled for VOCs and 1,4-dioxane.

ENVISION has reviewed the final design of the two (2) interior flammable material storage rooms that are to be installed at the Site and has found that source-area monitoring well MW-108 will be located beneath the anticipated footprint of the new rooms. As a result, ENVISION will contract with a Washington-licensed well drilling firm to properly abandon and replace the well. The well will be abandoned prior to construction of the rooms and the new well will be installed as close as possible to the original location of MW-108 after completion of construction of the rooms. The Site is currently determining the schedule for the construction of the rooms and ENVISION will update this schedule once the room construction schedule has been finalized. It is anticipated that this phase of work will take place during the Third Quarter of 2018.

Within 45 days after the completion of the new flammable material storage rooms, ENVISION will conduct the IA sampling as proposed in the previously submitted Vapor Intrusion Assessment Workplan, and as modified based on the review by, and ENVISION's subsequent discussions with, the former WA DOE Case Manager, Mr. Christer Loftenius. It is anticipated that this sampling will take place during the Fourth Quarter of 2018.

During the Second/Third Quarter 2019, ENVISION will submit a comprehensive Remedial Investigation Report (RIR), which will include the results of the groundwater delineation sampling, the IA sampling, the derivation of Site cleanup levels, and identification of areas

requiring remediation. The report will also include the review, assessment, and selection of remedial options for all impacted environmental media, and will include a Remedial Action Workplan (RAW) to carry out the selected options. Finally the report will contain an implementation schedule for the implementation of the RAW. Within 60 days of receiving WA DOE approval of the RIR/RAW, ENVISION will commence implementation of the RAW.

As customary, ENVISION will provide the WA DOE with two (2) weeks' notice of the schedule for all field activities.

Again, please note that modification of the tasks and schedule described above may become necessary, whether due to factors outside of the control of ENVISION and Ball Corp (such as the time needed to obtain offsite property access) or due to findings of the investigation tasks described above. ENVISION will keep you informed of the progress and schedule of the project and any modifications based on the conditions identified.

Please be assured that Ball Corp is committed to completing the VCP filing and remediating the impacted media at this Site. ENVISION looks forward to working with you on this project. Should you have any questions or wish to discuss the information provided, please feel free to contact us at any time.

Very truly yours,

John H. Weakliem P.G
Senior Geologist

State of Washington
2708
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cc: Adam Musulin – Ball Corp