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Oregon Department of Environmental Quality
Attn: Jim Orr, R.G., Project Manager, Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Dear Mr. Orr:

Thank you for your October 24, 2023, letter providing comments on the Irwin-Hodson Post RD/RA Implementation Performance Monitoring Report dated August 30, 2022 (July Monitoring Report). And thank you for the discussion on November 13, 2023 to clarify a few points in ODEQ's letter. This letter responds to your comments, outlined in this letter (below highlighted), with our un-highlighted responses below each highlighted ODEQ comment.

As discussed during our phone call on November 13, 2023, Irwin-Hodson has agreed to activate the current passive sub-slab ventilation (SSV) system. As discussed in our meeting on June 13, 2023, which was attended by ODEQ (you, Franziska, Henning Larsen, Kevin Parret), Gary Vrooman (Department of Justice), Irwin-Hodson (Heather Brown and TJ McDonald) Scott Jerger (attorney for Irwin-Hodson), as well as EVREN Northwest, Inc. (me and Evan Bruggeman), ODEQ agreed that, if activating the SSV system consistently lowered sub-slab vapor concentration below ODEQ generic hotspot concentrations, then Irwin-Hodson can achieve a conditional closure for the site with the SSV system. Based on our phone call discussion with you on November 13, 2023, you agreed that ODEQ would use data collected during the monitoring of the active system to either support an engineering control, as part of a conditional closure, or to support development of a Feasibility Study (FS). You made it clear in this phone conversation that ODEQ expects that a FS will be required for this site; however, ODEQ has agreed to review additional data, once available, prior to the development of a FS. As such, Irwin-Hodson requests a 180-day extension to prepare an FS, as 30 days is an insufficient amount of time to prepare an FS for this site given the current dataset. This extension will allow additional monitoring of the active system, during both the winter and late spring months, and incorporation of this data into the FS, as needed.

General Comments:

- 1) As stated in our August 23, 2021 letter, DEQ did not approve the operational status of the sub-slab ventilation (SSV) system in "passive" mode but instead agreed to collect data to evaluate the effectiveness of the removal action to inform long-term risk management decisions. The monitoring data collected between January 2022 and January 2023 demonstrates that concentrations in the sub-slab pose risks to current and future occupational workers that exceed statutory criteria.
 - a) ENW disagrees with ODEQ's interpretation of this data. Risk-based concentrations (RBCs) are screening levels and not statutory criteria. While we agree that sub-slab vapor data does exceed vapor intrusion risk-based concentrations (which are used for screening potential indoor air impacts), we have demonstrated through five quarters of monitoring that indoor air concentrations have remained below applicable occupational RBCs for indoor air, which demonstrates the efficacy of the passive SSV system.

- 2) While concentrations in the sub-slab pose risks exceeding criteria to current and future occupational workers, indoor air conditions are below risk-based screening levels. Trichloroethene (TCE) concentrations in indoor air remain below the risk-based concentration of 2.9 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for workers. The highest detected concentration since the soil removal has been 1.0 $\mu\text{g}/\text{m}^3$ in the SW quadrant in April.
 - a) It should be clarified that this detection in April 2022 was using the Radiello passive sampling method. ENW has reported a likely high bias using Radiello samplers, based on side-by-side comparisons with method TO-15 using summa canisters. ENW anxiously awaits ODEQ's opinion on the data from this side-by-side comparison. The highest concentration reported by method TO-15, which includes data collected over a 25-day period using consecutive sampling events, was 0.29 $\mu\text{g}/\text{m}^3$, which is an order of magnitude below the occupational indoor RBC for TCE.
- 3) Data shows that TCE concentrations in sub-slab and soil gas vapor have rebounded. The maximum detected concentration of 515,321 $\mu\text{g}/\text{m}^3$ at sample location SUB14 far exceeds the risk-based concentration for occupational workers of 2,900 $\mu\text{g}/\text{m}^3$ and also exceeds the applicable hotspot concentration of 88,000 $\mu\text{g}/\text{m}^3$. TCE at locations SUB14 and SUB15 have exceeded hotspot concentrations for two consecutive monitoring periods. Further TCE concentrations at locations SUB13, SUB22, SUB21, SUB20, SUB18, SUB19, and SUB16 have been increasing, which also suggests a sub-slab vapor concentration rebound.
 - a) As previously reported to ODEQ, we do not agree with the interpretation that concentrations in sub-slab are rebounding. Since the system is passive and relies on floor sealing and a vapor barrier, sub-slab vapors are not actively advected, as you would expect from an active depressurization system. So higher concentrations in sub-slab vapor are expected. The passive system responds to seasonal fluctuations between indoor and outside temperature and barometric pressure fluctuations, so operates more efficiently during the winter months, when the temperature difference between indoor and outside areas are greatest. This is confirmed in the sub-slab data collected at this site, where ODEQ generic hotspot concentrations were exceeded at only two locations and only during the warmer portion of the year. We also want to remind ODEQ that ODEQ hotspot guidance states that "When the generic hot spot levels are not appropriate, site-specific hot spot levels must be calculated." As we have previously stated to ODEQ, since the building has been permanently modified with floor sealing and installation of a vapor barrier with a passive SSV system, using generic hotspot concentrations, which are based on a generic vapor intrusion attenuation factor, is not appropriate. Further, ODEQ Generic Hotspot Table states that "Soil gas data may be used instead of ambient air sampling data, **but can be superseded by reliable direct air sampling results when available**" (bolding and underlining added for emphasis). However, as discussed in our June 2023 meeting, ODEQ clarified that ODEQ its guidance on generic hotspot concentrations in its upcoming new vapor intrusion guidance document.
- 4) Given the increasing and high TCE concentrations in sub-slab vapor, DEQ recommends that Irwin Hodson:
 - a) Install and operate fans to increase the effectiveness of the subslab venting system as an interim measure during the development and implementation of an active remedy.
 - a) This was discussed during our June 13, 2023, meeting with ODEQ and it was agreed that if this 'active remedy' - to be implemented at the insistence of ODEQ - consistently lowered sub-slab vapor concentrations below the ODEQ generic hotspot concentration for TCE (88,000 $\mu\text{g}/\text{m}^3$), that the site can achieve conditional closure. As previously discussed, we intend to activate this system immediately (once we confirm the timeline, we will provide ODEQ with

- an update) and will use this data as part of a FS to confirm effectiveness, or if additional mitigation measures are needed.
- b) Prepare a feasibility study that screens technologies and provides recommendations for treating and/or removing subsurface VOC contamination at the Irwin Hodson site. The report should include a schedule for submitting a draft remedial system design to DEQ for review and approval and a schedule for implementing remedial actions.
 - a) This is inconsistent with our understanding of our meeting on June 13, 2023, where ODEQ agreed that an FS would only be required if the 'active remedy' is not able to consistently lower sub-slab vapor concentrations below the ODEQ generic hotspot concentration for TCE (88,000 $\mu\text{g}/\text{m}^3$). Our intention is to move forward with the activation of the current SSV system, followed by post-activation monitoring to demonstrate the effectiveness of the active system. As discussed during our phone conversation on November 13, 2023, ODEQ expects that a FS will be required for this site; however, agreed to review additional data once available, prior to the preparation of a FS.
- 5) On-going monitoring results should be considered for the feasibility study.
- a) We agree that ongoing monitoring results should be considered for a FS, if it is determined that activation of the SSV is not able to consistently lower sub-slab vapor TCE concentrations below the ODEQ generic hotspot concentration for TCE (88,000 $\mu\text{g}/\text{m}^3$) and the feasibility of exploring additional or alternate remedial actions is warranted. As discussed during our phone call on November 13, 2023, and as implied in this statement, a FS is not required at this time, as it will take time to gather additional on-going monitoring results and address possible data gaps, if any, and therefore an extension of time would be appropriate for this. Please clarify if our understanding is correct.
- 6) The December 28, 2022, letter from your attorney, Scott Jerger, was a follow-up to our meeting with your team on December 5, 2022. The letter details the rationale for site-specific evaluation or vapor risks at the Site. Due to the very high concentrations of sub-slab vapor that exceed hot spot levels, the apparent rebound in subsurface vapor, and uncertainty regarding transport to the building interior and future building use, active remediation is warranted and preferred.
- a) Understood. While we disagree with some of ODEQ's interpretations, as outlined above, we have agreed to activate the current passive SSV system.
- 7) Existing data does not demonstrate effective control of sub-slab vapors. The absence of significant differential pressure measurements and increased subslab concentrations does not support the conclusion that indoor air can be consistently protected.
- a) As previously discussed, since the current system was designed to be a passive system and included a vapor barrier, you would not expect significant differential pressure between sub-slab and indoor air as you would for an active system. As previously described, sub-slab concentrations respond seasonally, and have not suggested a continuing upward trend.
- 1) The untreated source of contamination also represents an uncontrolled potential VI risk to surrounding properties.
- a) Previous soil gas testing (Envirologic, 2019 and ENW, 2019) from around the facility prior to the installation of the current passive SSV system does not suggest a VI risk to adjacent properties.

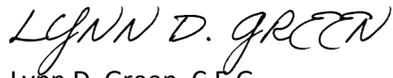
As previously stated, Irwin-Hodson has agreed to activate the current passive SSV system, and it is our understanding that if post-activation system monitoring data demonstrates sub-slab vapor concentration are consistently below ODEQ generic hotspot concentrations, ODEQ would allow this active remedy to achieve conditional closure of this site. Based on our phone call discussion with you on November 13, 2023, you clarified that ODEQ is expecting monitoring of the active system such that this additional data

could be used to either support an engineering control, or to support development of a FS. While you made it clear that ODEQ is expecting that a FS will be required for this site, you agreed to review additional data once available to confirm that requirement. As such, Irwin-Hodson requests a 180-day extension to prepare an FS to allow additional monitoring of the active system and use this data as part of the FS, as needed.

Thank you for all your assistance with this project and we look forward to moving this project forward. Please let me know if you have any questions regarding our response to ODEQ's comments or wish to discuss this project further in a meeting.

Kind regards,

EVREN Northwest, Inc.



Lynn D. Green, C.E.G.

Principal Engineering Geologist

CC:

Paul Seidel, ODEQ (sent electronically)
Kevin Parret, ODEQ (sent electronically)
Heather Brown, Irwin-Hodson (sent electronically)
TJ McDonald, Irwin-Hodson (sent electronically)
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