

TECHNICAL MEMORANDUM

DATE December 3, 2021 **Project No.** 923-1000-007.1040

TO Jerome Cruz
Washington State Department of Ecology

CC Landsburg PLP Group

FROM Gary Zimmerman **EMAIL** gzimmerman@golder.com

LANDSBURG MINE SITE PRIVATE WELL SURVEY

During the Remedial Investigation (RI) (Golder 1996), private wells near the Landsburg Mine Site (Site) were surveyed, and sampling was completed on private wells whose owners consented to the sampling. Additional sampling of private wells surrounding the Site was conducted by Ecology in 2014. Previous private well sampling indicated that there was no contamination coming from the Site. The Cleanup Action Plan (CAP) for the Landsburg Mine Site (Ecology 2017) requires re-surveying of private wells located closest to the north and south portals to determine if any changes in private wells present in these areas have occurred since the previous survey. Additionally, the CAP indicates that private wells closest to the north and south portals whose owners consent to testing of their wells will also be sampled annually for five years for the same suite of chemicals as the monitoring wells at the Site.

Golder Associate USA Inc. (Golder) conducted a survey of the private wells located closest to the north and south portals. The private well survey included a search of Ecology's Well Construction and Licensing Search Tool and King County iMap to identify all private wells listed within these publicly available data bases. Additionally, Site reconnaissance was completed by Golder personnel to identify private wells that are not included in the public databases. The current survey was completed in September and October 2021. The current survey results were compared to the results of the private well survey completed during the RI to evaluate potential changes in the presence of private wells located closest to the north and south portals.

North of the Site, groundwater from the Rogers seam discharges to the Cedar River through the highly permeable glacial sands and gravels that overlie the coal seam and underlie the Cedar River. There are no private wells between the Site north portal and the Cedar River. The closest private wells are located northwest of the Site. Figure 1 shows the location of the north portal area and the nearest private well, which is located northwest of the Site. The private well northwest of the Site is referred to as the Landsburg Estates well and is classified by Washington State Department of Health as a Group B public water system.

In association with the Site investigation (Golder 2020), Golder installed three groundwater monitoring wells north of the Site along the groundwater flow path between the Site and the Cedar River. Water level elevation data from these monitoring wells confirms that the dominant groundwater flow north of the Site is towards the Cedar River, and groundwater flow from the Site would not flow towards the Landsburg Estates well.

South of the Site, several of the private wells that were sampled during the RI are no longer present. The properties were purchased by the City of Kent and are no longer occupied parcels. The attached Figure 2 shows the private wells that are currently located south of the south portal. Groundwater beneath the waste disposal area within the former Roger's mine seam flows to the north towards the north portal and does not flow towards the south.

In association with the Consent Decree Amendment public comment period, the only private well located north or south of the Site whose owners submitted a request to Ecology to allow sampling of their well was the Landsburg Estate well, which is located northwest of the Site as shown on Figure 1. Golder will contact representatives of the Landsburg Estate well to arrange property access approval and to confirm the condition of the well head protection for collection of representative samples.

Golder Associates USA Inc.



Gary L. Zimmerman
Principal

GZ/JX/sb

Distribution: Landsburg PLP Group

Attachments: Figures 1 and 2

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References

- Golder Associates Inc. (Golder) 1996. *Remedial Investigation and Feasibility Study for the Landsburg Mine Site*. Prepared for the Landsburg PLP Steering Committee. Redmond, Washington.
- Golder. 2020. White Paper – 1,4-Dioxane Detection, Occurrence, and Evaluation of Remedial Alternatives at the Landsburg Mine Site. April 10.
- Washington State Department of Ecology (Ecology). 2017. Exhibit B of the Consent Decree - Final Cleanup Action Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. Prepared by Golder Associates Inc. June 7.

Figures



LEGEND

-  PARCEL BOUNDARY
-  SITE MONITORING WELLS

CLIENT
LANDSBURG MINE SITE PLP GROUP

CONSULTANT



YYYY-MM-DD	2021-11-22
DESIGNED	JX
PREPARED	REDMOND
REVIEWED	JX
APPROVED	GZ

PROJECT
LANDSBURG MINE SITE
PRIVATE WELL SAMPLING

TITLE
PRIVATE WELLS LOCATED CLOSEST TO THE NORTH PORTAL

PROJECT NO. 9231000007	PHASE 2021	REV. A	FIGURE 1
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1 in



LEGEND

-  PARCEL BOUNDARY
-  SITE MONITORING WELLS

CLIENT
LANDSBURG MINE SITE PLP GROUP

CONSULTANT



YYYY-MM-DD	2021-11-22
DESIGNED	JX
PREPARED	REDMOND
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PROJECT
LANDSBURG MINE SITE
PRIVATE WELL SAMPLING

TITLE
PRIVATE WELLS LOCATED CLOSEST TO THE SOUTH PORTAL

PROJECT NO. 9231000007	PHASE 2021	REV. A	FIGURE 2
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI/A 11