DEPARTMENT OF ECOLOGY
State of Washington

Landsburg Mine Site

Toxics Cleanup Program **October 2013**

Consent Decree and Draft Cleanup Action Plan Now Available for Review

The Washington State Department of Ecology (Ecology) prepared this fact sheet to announce the planned cleanup of the Landsburg Mine site (Site). Landsburg Mine is a former underground coal mine located approximately 1.5 miles northwest of Ravensdale in southeast King County. During the late 1960s to late 1970s, industrial wastes were disposed in the trench that formed above the former mine.

Ecology and the Potentially Liable Persons (PLPs) will enter into a legal agreement called a Consent Decree to be filed in court. Under the Consent Decree, the PLPs agree to clean up the Site in accordance with the Cleanup Action Plan (CAP). The Draft CAP is one of the exhibits to the Consent Decree. The public is invited to review the Draft CAP and other exhibits and provide comments to Ecology.

Public Meeting

A public meeting will be held to provide information about the proposed cleanup actions and other documents for Landsburg Mine Site. You will have an opportunity to ask questions about the Site.

Date: October 24, 2013

Time: 6:30 –7:00 p.m. Open House
7:00 – 8:30 p.m.
Presentation and Questions and Answers

Location: Tahoma Jr. High School
25600 SE Summit Landsburg Rd
Ravensdale, WA 98051

Comments Accepted
October 11 – November 11, 2013

Submit Comments and Technical Questions to:

Jerome Cruz - Site Manager
Washington State Department of Ecology – Toxics Cleanup Program
3190 160th Ave SE
Bellevue, WA 98008
Phone: (425) 649-7094
E-mail: jerome.cruz@ecy.wa.gov

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Document Review Locations

Maple Valley Public Library
21844 SE 248th Street
Maple Valley, WA 98038
Phone: (425) 432-4620

Washington State Department of Ecology Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008

Call for an appointment: Sally Perkins
Phone: (425) 649-7190
Fax: (425) 649-4450
E-mail: sally.perkins@ecy.wa.gov
Hours: Tuesday – Thursday
8:00 a.m. – 12:00 p.m.
1:00 p.m. – 4:30 p.m.

Ecology's Landsburg Mine Website:
https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=60

Cleanup ID #: 60 FSID#: 2139

Public Comment Invited

Ecology seeks your input. You are invited to review and comment on the following documents:

- Consent Decree and exhibits, including the Draft CAP which describes the preferred remedial alternative chosen for the Site and how the cleanup will be conducted with Ecology oversight.
- State Environmental Policy Act (SEPA) Checklist and Determination of non-significance.
- Updated Public Participation Plan.

Send your written comments to Jerome Cruz, Ecology Site Manager, by e-mailing jerome.cruz@ecy.wa.gov or mail to 3190 160th Ave SE, Bellevue, WA 98008. Comments will be accepted October 11 – November 11, 2013.

Draft Cleanup Action Plan

Based on Site work and previous investigations, the wastes are located only in the northern trench and possibly within the former mine beneath this area of the trench, but have not spread. Groundwater is the primary pathway for any contaminants to migrate. To date, there have been no impacts to groundwater at the Site. No contaminants have been detected in over 20 years of water testing. This cleanup action will confine the areas of known waste, maintain the contingency plans and detection systems, and keep funds in place should groundwater contamination ever be detected at the Site.

The Cleanup Action Plan calls for covering the wastes in the northern portion of the trench with clean fill to bring the grade to the surface. A low-permeability soil cap, with vegetation, will be placed as the final surface of the trench to minimize water infiltration. This final surface will be graded to direct surface water away from the trenches. Long-term groundwater monitoring will be performed indefinitely to test for any contamination from the mine in the future. Contingency plans will be put in place to prevent contaminated groundwater from leaving the Site if it is detected. Infrastructure will be installed for a Contingent Groundwater Treatment System in order to treat and safely dispose of the water after treatment, if necessary.

In order to protect human health and the environment, the following measures will be implemented:

- Isolate and contain the wastes in the trench,
- Prevent or reduce leaching of the wastes by rain and groundwater,
- Maintain water levels within the former mine so that Rock Creek (located south of the Site) is protected, and
- Contingency plans in case contaminants are detected in groundwater discharging from the mine, in the future.

Public Participation Plan

An updated Public Participation Plan is one of the exhibits to the Consent Decree for your review and comment. The plan is designed to promote meaningful community involvement during the cleanup process. The plan outlines and describes the methods that Ecology will use to inform the public about Site activities. It also identifies opportunities for the community to become involved in this process.

State Environmental Policy Act (SEPA) Determination

The SEPA environmental checklist and determination of non-significance are available for public review. Ecology has reviewed this checklist and has determined that no significant adverse environmental impacts will be caused by implementing this cleanup.

What Happens Next?

After the public comment period ends on November 11, 2013, Ecology will review and respond to all comments in a responsiveness summary. If no significant changes are made to the Consent Decree and its exhibits, these documents will be final and filed in court. If significant changes are recommended, then Ecology will conduct another public comment period for the revised documents.

Where can I find more information about Landsburg Mine?

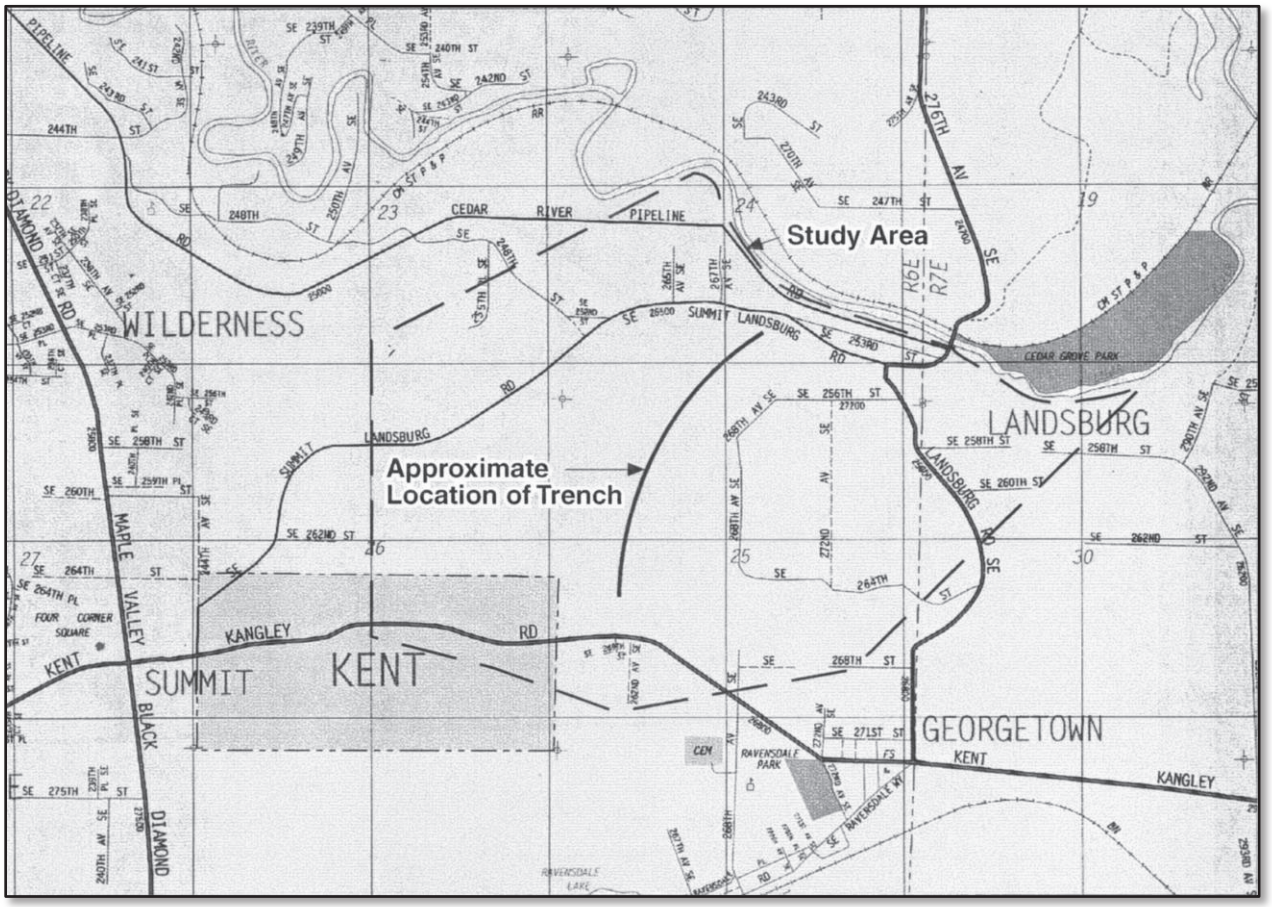
See the "Questions and Answers on the Landsburg Mine Site" section on the next page to learn more about this site.

Questions and Answers on the Landsburg Mine Site

Q: What is the Landsburg Mine Site?

A: The Landsburg Mine Site is a former underground coal mine located approximately 1.5 miles northwest of Ravensdale in southeast King County. The Site is located directly south of the S.E. Summit-Landsburg Road and north of S.E. Kent-Kangley Road.

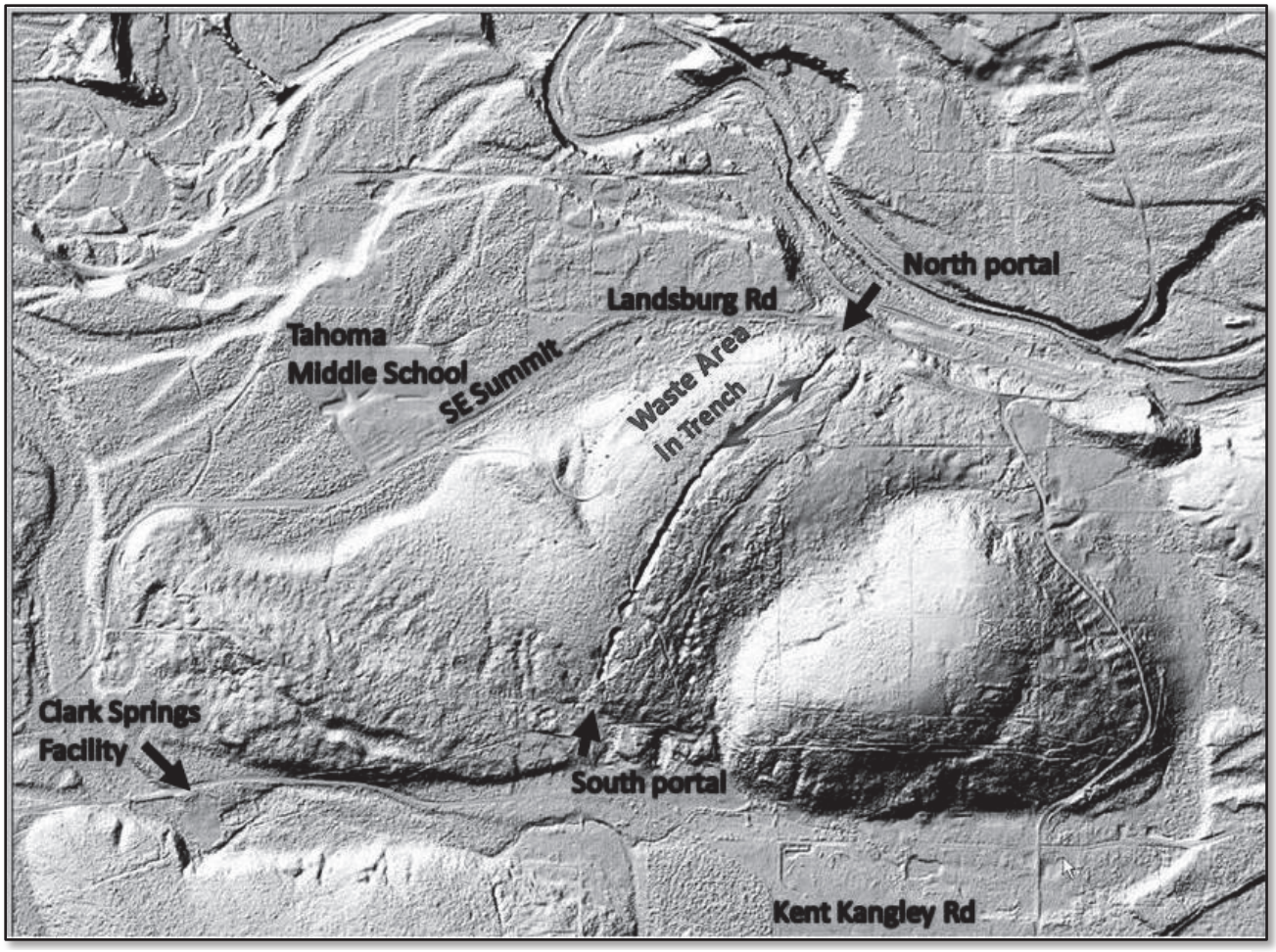
Underground mining methods were used to extract the coal from the Rogers coal seam, one of three coal seams mined in this location. These methods resulted in the ground sinking above the abandoned mine and forming a trench. This trench is roughly three-quarters of a mile long, 20-60 feet deep, and 60-100 feet wide. Later, industrial wastes were disposed in the trench during the late 1960s to the late 1970s.



Q: What is the nature and history of contamination at the Site?

A: From the late 1960s to the late 1970s, the northern part of the trench was used as a disposal site for a variety of industrial wastes. The wastes either were contained in drums or were drained from tanker trucks. Records indicate that about 4,500 drums and 200,000 gallons of oily waste water and sludge were disposed of in this portion of the trench.

Samples taken from recovered drums indicate that the contents were organic and inorganic industrial waste, including paint waste, polychlorinated biphenyls (PCBs), solvents, cyanide, metals, and oily sludge. A portion of the waste may have been burned during fires in the early 1970s. Disposal of land-clearing debris and construction debris in the trench continued until the early 1980s.



Lidar (Light radar) image of the Site, showing the "bare earth" surface without trees or vegetation. Lidar uses lasers to image land surfaces in great detail. At the center of this figure, the trench that formed above the former coal mine can be seen as a dark line and pits on top of the hill and bordered by the former north and south mine portals.

Q: Who are the Potentially Liable Persons (PLPs) for cleaning up Landsburg Mine Site?

A: They are: Browning-Ferris Industries of Illinois, Inc., BNSF Railway Company, PACCAR Inc, Plum Creek Timberlands, L.P., TOC Holdings Co., and Palmer Coking Coal Company. Burlington Environmental Inc., a subsidiary of Philip Services Corporation or PSC, settled its liability under a 2003 bankruptcy settlement.

Q: Who pays for the cleanup?

A: The Potentially Liable Persons are responsible for paying all costs associated with cleaning up the Landsburg Mine Site, including state oversight costs.

Q: Who oversees the cleanup at this site?

A: The Department of Ecology Toxics Cleanup Program in the Northwest Regional Office. The assigned site manager is responsible for ensuring the cleanup follows state cleanup regulations.

Q: Who investigated the contamination at the Site?

A: The United States Environmental Protection Agency (EPA) conducted a preliminary assessment of the Site in 1984 under the federal "Superfund" law. In 1989, the Washington State Model Toxics Control Act (MTCA) went into effect. Based on records, about ten years elapsed from the time of the disposals to the time when state laws on hazardous waste cleanup were adopted and preliminary investigations took place. MTCA is the state law governing the cleanup of hazardous waste sites. That same year, an initial investigation was conducted by the Department of Ecology. In 1990, surface water was sampled by Geraghty and Miller, and Applied Geotechnology sampled soil gas at the Site.

In 1990, the Washington State Department of Health (WDOH) evaluated the drinking water quality of water wells in the area. DOH concluded that the drinking water wells have not been impacted by any wastes from the mine.

In 1993, the EPA transferred the Site to state authority under Ecology and in the same year, an Agreed Order to study the Site was signed by Ecology and the PLPs.

Under the Agreed Order, the Remedial Investigation and Feasibility Study (RI/FS) was carried out from 1993 to 1996. The RI/FS investigated the nature and extent of contamination, the risks, and cleanup alternatives at the Site. The RI/FS report was made final after it went through a public comment period in 1996. Around the same time, a Draft Cleanup Action Plan (DCAP) was first written. The current DCAP provides a plan for cleaning up the Site based on the results of the RI/FS and additional work.

The PLPs have been monitoring groundwater at the Site while the DCAP was being finalized under Ecology's continued oversight.

Q: Is the contamination at the Site dangerous?

A: Based on the results of the remedial investigation, the wastes are confined to the northern part of the trench and within the former mine. This area is fenced off and not accessible to the public. It was determined that the main potential pathway for pollution is from groundwater that comes out of the former mine. However, there has been no contamination detected in groundwater at the Site to date. The RI/FS report provided possible reasons for this.

Given these conditions, the preferred approach is to cap the wastes in the northern trench area and add contingent safety precautions. The approach also includes regularly monitoring groundwater with a contingency plan in place to contain, treat, and safely dispose of contaminated groundwater in case of a possible future detection of contaminated groundwater at the Site.

Q: Why has groundwater contamination not been detected at this site?

A: In the 1996 Remedial Investigation, four possible reasons were proposed. They include:

1) Wastes disposed in the trench are no longer present, either because they were consumed in the fires that were known to have occurred, or they already discharged to Cedar River through the mined-out Rogers Seam.
2) The chemicals from the wastes were absorbed in place by the leftover coal in the abandoned mine, effectively immobilizing them.
3) Some of the drums were either empty when disposed of or filled with relatively non-reactive or harmless substances. Much of the 200,000 gallons of oily wastewater would have had very low concentrations of chemicals, based on the description from invoice records.
4) Wastes are still contained within intact drums and have not yet been released.

Q: Why hasn't contamination been detected outside of the area of disposal, given that the wastes are known to be within the northern trench?

A: Available records and maps show that the disposals only took place in the northern portion of the trench. The 1996 RI/FS gave a number of potential scenarios which may help explain the lack of chemicals in groundwater at the Site (see previous question).

Soil sampling conducted in and outside of the northern areas of the trench and at the portal areas showed no contamination. This and other data from the RI/FS would indicate that the contamination is confined to the northern trench area and possibly the portion of the mine beneath this zone.

Q: Why did the 1995-1996 investigations not go deeper into the mine? Was the RI/FS sufficient?

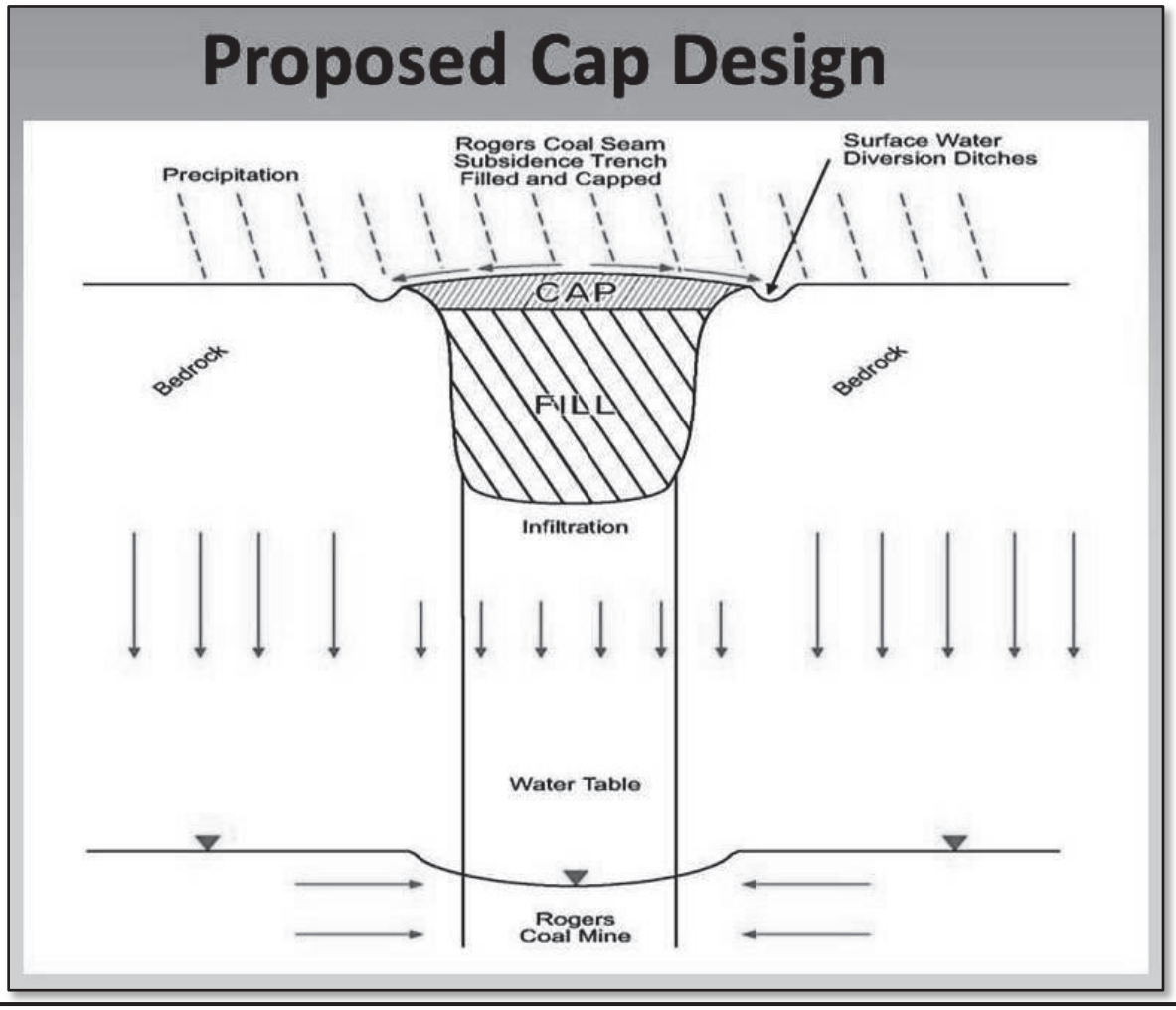
A: The former mine is over 700 feet deep and about 20 feet across. The trench is steep walled and up to 70 feet deep, making it difficult to access. The mine workings may contain empty spaces and consist of collapsed rubble from bedrock and extracted coal remnants, making it a dangerous space to work in.

The 1996 RI/FS report acknowledged that there is waste in the northern trench. Ecology determined that the RI/FS was sufficient after its review, and after considering public comments on the document. In 2006, a well was drilled which penetrated the deepest portion of the mine to determine whether contaminants were migrating at its south end (the direction where Rock Creek and the downstream Clark Springs is located). This deep well has been regularly sampled and monitored and shows no sign of contamination.

Q: What is the proposed clean up at the Site in the Draft Cleanup Action Plan?

A: Essentially, the cleanup will consist of the following:

- Filling in the northern portion of the mine trench where the wastes are located.
- Capping the northern portion with a low permeability soil cap.
- Applying institutional controls on land and groundwater use.
- Installing infrastructure for contingent groundwater capture and treatment should contamination be detected at Site wells.
- Monitoring groundwater indefinitely.



Further components of the Draft Cleanup Action Plan include:

- Additional sentinel wells installed as an early warning for detecting groundwater contamination from the mine if it occurs in the future.
- Frequent monitoring of groundwater based on computer modeling of travel times of the fastest moving potential contaminants.
- A Contingent Groundwater Treatment System Plan with infrastructure facilities at the north and south portal areas that will be readily available to contain, safely treat, and dispose of contaminated groundwater should it be detected at the Site.
- Financial assurances and controls to fund long-term groundwater compliance monitoring, maintenance of the cap, surface water drainage system, and contingencies indefinitely with Ecology oversight.

Q: Why can't you just dig out the wastes in the former mine?

A: This was one of the cleanup alternatives evaluated in the RI/FS (Alternative 9). Although this is theoretically a permanent solution, it was not selected for the following reasons:

- The mine is not easily accessible due to its dimensions, depths and orientation.
- Excavation and disposal would likely be much more dangerous to site workers. The dangers include:
  - Difficult and dangerous excavations with the potential for the sidewalls and ground to sink or collapse,
  - Chemical exposure and release of contents from rusted and deteriorated drums, potentially spreading to the environment, and
  - Increased risks from accidents at the site and traffic accidents in the community.
- Remediation workers would also be more likely to be exposed to waste constituents, than from the other alternatives that were evaluated.
- It is technically very difficult and impracticable to completely remove all the waste materials in the former mine. The mine debris combined with groundwater tends to flow like a slurry. Attempting to remove wastes in the mine would create a constant flow of mine debris to the excavation, rendering it impracticable to extend the excavation deeper into the mine workings.
- It would be very difficult to confirm that wastes have been completely removed from the former mine. As a result of the inability to confirm total waste removal, another alternative involving a cap on the waste area would still have to be installed in order to be protective. Any amount of residual contamination left behind would still be a potential source of contamination to groundwater from the mine. Therefore, since capping and groundwater monitoring will still have to be done after excavations, there would be little added benefit to this approach.

Q: Is the Clark Springs water supply at risk from the Landsburg Mine Site?

A: There is no known threat to the Clark Springs water supply from the Site based on over 20 years of investigations and monitoring. No groundwater contamination that can be traced to the wastes exists at the Site. The cleanup plan adopts a precautionary approach by assuming that wastes might impact groundwater in the future.

Q: What happens if there is any detection of groundwater contamination? How will you protect human health and the environment?

A: If groundwater contaminants are detected above state cleanup levels at the Site, groundwater will be pumped from Site wells to prevent it from leaving the Site. The water will be stored on the Site, treated at the Contingent Groundwater Treatment System infrastructure areas, and then disposed into the sanitary sewer system.

Groundwater extraction is protective of human health and the environment because it prevents contaminated water from coming in contact with people and the environment outside of the Site. The Contingency Plan contains procedures for more frequent monitoring and investigation.

Q: What is the Contingent Groundwater Treatment System infrastructure and where is it located?

A: Infrastructure consists of a gravel pad, an electrical connection with transformer and fencing, an access gravel drive, a fenced treatment area, and buried three inch pipeline for treatment discharge. The infrastructure will be constructed at two locations. One will be near the former north portal of the mine, also known as portal number 2. The other will be near the south portal (portal number 3), at the south end of the former mine at the Site.

Q: How often are the monitoring wells at the Site tested?

A: Presently, the wells are being sampled twice a year - in the spring (typically high groundwater levels) and fall (typically low groundwater levels).

Q: Where are all the wells located and how deep are they?

A: Presently, there are 11 wells at the Site ranging in depths from 13 to 700 feet. Upon completion of the construction phase of the cleanup, there will be 15 wells at depths ranging from 13 to 700 feet.

Q: Why won't private wells be sampled?

A: This was already done on a quarterly basis from 1994 to 1995 for 13 selected private wells and the City of Kent Clark Springs facility. Results from the sampling did not show any contaminants that can be traced to the wastes. Prior to that, in 1990, the surface waters from mine portals (Rogers #2 and #3 which are at the north and south ends of the former mine), nine private wells, and the Clark Springs well were sampled and analyzed (Geraghty and Miller, 1990; Washington State Department of Health WDOH, 1992). There were no contaminants above drinking water standards. The WDOH report concluded that, at the time of sampling, the quality of drinking water in the area had not been adversely affected by mine disposal activities.

Q: Where can I find copies of the Consent Decree and exhibits including the Draft Cleanup Action Plan?

A: Documents are located at Maple Valley Public Library and at the Department of Ecology Northwest Regional Office Central Records located at 3190 160th Ave. SE, Bellevue, WA 98008.

For Ecology, please contact Sally Perkins to schedule an appointment:
Email: sally.perkins@ecy.wa.gov
Phone: (425) 649-7190

Appointment hours are available on Tuesday, Wednesday or Thursday at 08:00 a.m. –12:00 p.m. and 1:00 p.m. – 4:30 p.m.

Or you may also download the documents by going to Ecology's website for the Landsburg Mine Site at: https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=60

Q: How can I be involved with the Landsburg Mine Site Cleanup process?

A: To be involved you can:

1) Sign up to be on the Landsburg Mine Site mailing list.
2) Attend Ecology's public meetings.
3) Provide feedback during this public comment period and future comment periods.
4) Visit the Landsburg Mine website at: https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=60

If you need this publication in an alternative format, call (425) 649-7117. Persons with hearing loss, call 711 for Washington State Relay Services. Persons with speech disability call (877) 833-6341.

DEPARTMENT OF
ECOLOGY
State of Washington
3190 160th Ave SE
Bellevue, WA 98008

Landsburg Mine Site
King County

Ecology Seeks Comments on Proposed Cleanup Documents

Public Comment Period:
October 11 – November 11, 2013

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Landsburg Mine Public Meeting

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