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## **GMVUAC opens meeting up for questions regarding Ravensdale Reserve Silica project**

On the radar of Greater Maple Valley Unincorporated Area Council (GMVUAC) for a number of years, representatives from Reserve Silica in Ravensdale were invited to come to the GMVUAC meeting on Monday, June 5, to make a presentation on progress regarding the reclamation/rehabilitation and clean-up of the Reserve Silica project. Also present at the meeting were representatives from the State Department of Ecology (DOE) and Seattle-King County Department of Public Health (DPH), who are monitoring the project.

Originally, the area, which is located off Ravensdale/Black Diamond Rd. and SE Ravensdale Way, was being mined for the type of silica used in making glass and filling up golf course bunkers. When the mine closed, reclamation/rehabilitation work began over 35 years ago. Interest in the area was sparked when members of the GMVUAC learned that discussions have been taking place now and again regarding possible residential development of the area of the old silica mine once clean-up is accomplished.

First presentation of the evening came from Aspect Consulting geologists Dave Cook and Carla Brock. Describing the site clean-up process, Cook stated that an evaluation was being conducted in accordance with the State Model Toxics Control Act (MTCA), which was established as law in 1989 regarding clean-up of industrial contaminated sites.

This is a multistep process: 1. evaluate the site and its history; 2. identify the history of the sources of any contamination found and if those sources contaminated the ground or groundwater; 3. if contaminants are found, conduct a feasibility study to determine options to clean up the site; 4. establish an action plan; 5. conduct post-cleanup such as any property covenants needed, pits needing to be filled, etc.; and 6. complete cleanup, closeout the work, and delist the site.

A preliminary site evaluation was done and while they were working on the evaluation, DOE came to the project a year and a half ago to do a hazard assessment.

Reports and documents collected from over a 45-year period were collected and studied as well as reviewed for information/data compiling. As the documents were studied, it was acknowledged that there were some gaps in the information that needed to be addressed.

As part of the evaluation, a history of the sources of contamination was looked at raising questions of whether ground (e.g., soils) or groundwater were contaminated. If contaminants were found, the next step would be to figure out what the options were to clean up the site. An action plan would then be put together that DOE would review prior to clean-up. After clean-up was accomplished with pits filled and all other identified items taken care of, the Ravensdale

project would be closed and taken off the list of clean-up projects.

Two areas (totaling approximately 13 acres) were identified as having been filled with cement kiln dust (CKD) in the late 70s/80s. More recently, another large area of the old sand mine is currently being filled with inert waste/soil, which is being permitted by DPH. It was also interesting to note that there were mineral seams and coal associated with the area, as well as long-ago abandoned underground coal mines about 150 feet deep.

Brock spoke to the current fill area, which has been using imported soil and inert waste for backfill. As noted, there were no environmental concerns identified from the active fill area in the remedial investigation report.

However, there were three data gaps identified regarding environmental concerns that were monitored. First was the possibility of high acid- (pH) and/or arsenic-contaminated groundwater migrating onto the plant site parcel by Ravensdale Lake. Second was the storage and use of petroleum products on the plant site. Third was the presence and impact of reportedly imported slag used in the road bed of the lower haul road.

While looking for the environmental concerns, five wells were dug – three on the plant site looking for arsenic and petroleum, and two down slopes from the plant for arsenic-contaminated groundwater. Arsenic was found in the two down slope wells, but was of a fairly low concentration. On the other hand, no arsenic was detected in the three wells on the plant site. It was also determined that the pH levels were not within a range of concern.

Regarding petroleum and petroleum-related compounds, as was expected, there was some, however, it was at low levels in the shallow soil tests with none showing up in the groundwater. There was also nothing found in the shallow groundwater near the lake.

Then taking a look at the slag found on the haul road, it was found that although it is present, it was not leaching any arsenic or lead in the water. Brock stated that based on the results of the tests, there were no risks to human health or the environment from petroleum or arsenic, and no migration of arsenic-laden water onto the site.

Regarding the slag mixed with gravels in the lower haul road bed, it was found that arsenic and lead were detected above the natural background soil levels in the road bed gravel and shallow silty sand fill beneath the roadbed. According to their leaching tests, the metals were immobile and not leaching under natural conditions.

Summing up their findings, Cook and Brock stated that there was no indication in their scope of work that there was any risk to human health or the environment outside of the easement and clean-up area.

The second presentation of the evening was made by Frank Shuri of Golder Associates under contract to the responsible party, Holcim (US) Inc. He addressed what has been taking place at the fill site regarding the CKD deposited at the site. He pointed out that CKD is a by-product of Portland cement that uses limestone, clay, and shale to make cement for concrete, construction and more. CKD is the dust removed by air pollution control equipment and is a fine-grained solid material. When water comes in contact with the dust, the water contains higher pH. The placement of CKD onto the Ravensdale site was permitted by DOE. Years ago, the dust was allowed to be used in fill, as knowledge was limited regarding pH. Historically the dust had a wide amount of uses such as to neutralize acidic waste as well as used for road base, filling, and more.

Shuri stated that the lower disposal area (LDA) had a high pH seepage caused by

groundwater coming from the hillside. Holcim began addressing this beginning in 2002 through monitoring ground/surface water 4 times a year. Today, with better historical data, monitoring is done twice a year. Other actions taken beginning in 2007 included upgrading the cover on the LDA, installing seep collection test trenches, cover inspection and maintenance. Then in 2010, the Dale strip pit (DSP) cover was upgraded along with a number of hydro-geological investigations/trace tests to understand where groundwater goes and how it can be controlled. Also established were easements and drop inlets, monitored interceptor trench discharge, and fenced areas with high pH surface water.

Describing the LDA cover, Shuri stated that the area was graded for a uniform slope so water could run off. Then there was the placement of a clay cap, which was a low permeable soil. The whole area was then covered with top soil and grass. He also stated that trenches were put in areas with high pH seepage before continuing to describe all the other work done from fenced areas to infiltration ponds to interceptor trench and more in order to contain the high pH seepage coming through.

According to Shuri, planned activities for 2017 include design/installation of a CO<sub>2</sub> treatment system to lower the pH and reduce arsenic levels, which will carbonize water to lower the pH to a safer level below 8.5. Phase 2 of the interceptor trench and a borehole drilling program are planned, with drilling to the bedrock to test feasibility later this summer, and then moving into the design phase for extending the groundwater trench.

Following Shuri's presentation, questions were taken from the audience with one wanting to know when the contamination would taper off with the answer being that no one knows. DPH also let everyone know that, while they issued annual fill permits for the site, the area would need to be monitored for decades. Another answer stated that the contamination issues and their fixes needed to happen more quickly – not taking 100 or even 10 years. Another question came as to how the various departments were enforcing the permits that have been issued. No real answer came forth. In fact, when pressed, DOE stated the Remedial Investigation report being developed by Aspect Consulting is "independent" (voluntary).

A citizen questioned the pH at the site stating that although it was thought it would neutralize itself back in the 1980's, three decades later it has not. It was also pointed out that monitoring at the site has not been long enough to know how long it would take to neutralize. No response was forthcoming. Another concern was with the landfill pit, as there is a difference between the scientific and statutory definitions of "inert." Could have cement called inert on the waste side of a program, whereas the water quality side would say otherwise. The only response mentioned future capping of the landfill areas when full, reducing the influence of future rainwater percolation.

At the same time, it was pointed out that there was slag the concrete being disposed at the site along with cement dust. According to Brock, it was documented that there were three times when non-inert non-compliant soil was deposited, however, clean-ups were conducted when found that non-compliant waste was dumped.

Follow a few more questions regarding the dumping of non-inert materials and answers, another question was asked regarding if there had been any testing of animals or insects for toxins, which was answered with a no. Another question was how deep were the wells dug for testing and whether contaminants were making it into the lake/aquifer/local wells. According to Brock, the wells near the lake were placed 25 feet deep with the groundwater being 5 feet deep.

Meanwhile, nothing was sampled at much deeper levels, such as 200-ft where both existing and, potentially, future water wells could be dug should any residential development be in the offing. Brock indicated they were dealing with a shallow aquifer, not deeper aquifers.

Amongst the continued questioning of wells/arsenic/pH, the shallow aquifer, groundwater migrating through bedrock, came an interesting comment that potential redevelopment drives cleanup. DOE stated the Remedial Investigation/Feasibility Study (RI/FS) process starts when someone wants to do something with the property.

Temporarily the questioning went back to how long it will take for the infiltration ponds to be clean and the pH to be alright according to regulations. The answer came back that with CO2 treatment introduced, it could be down to acceptable levels in a year or two

When asked about tests for other hazardous materials associated with CKD, including chromium, dioxins, and more, the answer came back that no testing was done as they are not that common. That did not appear to satisfy the questioner. Still another set of questions regarding the potential for housing development on the site were asked even though representatives of King County's Department of Permitting and Environmental Review (DPER) were not available to speak to the questions. However, information given by a representative of the King County Executive's office revealed that the site, which had been addressed from a land development standpoint in the County's comprehensive plan on a regular basis, has now moved to a 4-year cycle, when major updates to the plan are considered, with the amount of development rights being limited at this point.

Ultimately, it will be up to DOE to decide when the site meets all clean-up requirements. DOE has not received the remedial investigation report from Aspect Consulting, but, when it does, will post it on its website, possibly, in the next few weeks at: <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4728>

The GMVUAC will have State DOE representative Jerome Cruz and County DPER representative Randy Sandin at its July 10 meeting (one week later than normal, due to the July 4 holiday) to discuss the Landsburg Mine site. The DPER official, who could not attend the June 5<sup>th</sup> GMVUAC meeting, also is experienced in the Reserve Silica site and will try to help fill in some of the gaps identified in questions posed to County officials.

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