RESPONSIVENESS SUMMARY

Draft Cleanup Action Plan/Consent Decree

Reynolds Metals Aluminum Smelter Site

Public Comment Period – January 19, 2016-March 18, 2016

Prepared by
Washington State Department of Ecology
Industrial Section
Solid Waste Management Program
300 Desmond Drive
Lacey, Washington 98503

August 2018

Introduction

This document addresses questions and comments received by the Department of Ecology (Ecology) during the public comment period on the Cleanup Action Plan (CAP), Consent Decree (CD), and State Environmental Protection Act (SEPA) Determination for site cleanup at the former Reynolds Metals Aluminum Smelter in Longview, Washington. The CD requires site cleanup and the CAP specifies cleanup standards and how to do the cleanup. The SEPA determination is based on the possible environmental impacts that may result because of the cleanup. As the SEPA lead agency, Ecology determined that the proposed cleanup actions will not have a probable significant adverse impact on the environment and therefore an environmental impact statement (EIS) is not required.

Ecology published notice of an opportunity to comment on the CAP, CD and SEPA determination in *The* (Longview) *Daily News* on January 12, 2016. In the notice, Ecology invited public review of the Draft CAP, SEPA and CD and provided a 60-day public comment period. Ecology held a public open house at the Cowlitz County PUD on February 2, 2016. Ecology held a second public open house, followed by a public meeting and a formal public hearing on these actions at the Kelso Red Lion Hotel on March 9, 2016. The deadline for submittal of written comments was March 18, 2016.

Comments received from the Yakama Nation during the public comment period resulted in additional research and discussion among several parties. The CD, CAP, and Compliance Monitoring and Contingency Response Plan (CMCRP) have been revised in response to the comments. To view the revised CD, CAP, and CMCRP, please go to Ecology's site webpage at https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=11796.

A total of 142 comments were received by Ecology during the comment period. We compiled and grouped the comments in this responsiveness summary where appropriate to save time and space. Comments appear in italicized text, followed by Ecology's response in regular text.

Comments and Responses

Comment:

Several commenters wanted an additional permeable reactive barrier (PRB) wall to be installed in the northeast corner of the Reynold's property.

Ecology Response:

The installation of a PRB in the northeast corner of the Reynolds property is not justified. The Consolidated Diking Improvement District (CDID) ditch is approximately 375 feet north of Fill Deposit A - Site Unit 7 (SU7) and two monitoring wells, G4-S and G4-D, are approximately 250

feet north of SU7. Long term groundwater monitoring for fluoride at monitoring wells G4-S and G4-D has shown very low concentrations (below cleanup levels) and extensive sampling of the surface water in the CDID ditch in the northeast corner of the site has not shown any exceedance of cleanup levels for the chemicals of concern at the site. Monitoring has shown that fluoride and PAHs have limited mobility and are not impacting down-gradient groundwater or surface water quality.

At this site, natural attenuation processes limit the migration of fluoride both laterally and vertically. Geochemical processes cause fluoride to separate out as fluorite and fluorapatite, reducing migration. After surface deposits are capped with low permeability soil, it is even less likely that contaminants will migrate in the groundwater and reach the CDID ditch.

Following cleanup construction, the only site unit in the east groundwater area of the site in contact with groundwater will be SU7. Years of groundwater monitoring has not shown any contamination migrating towards the CDID ditch, and monitoring wells are in place to continue to check that contaminants in the site unit are not migrating to CDID surface water. The cap on SU7 will further limit infiltration of precipitation making it even more unlikely that migration will occur in this area of the site. The responsible parties will also be monitoring the groundwater in the northeast corner of the site on a long term basis.

In addition to the monitoring required under the terms of the CD, the City of Longview and Millennium are developing an agreement to provide for additional monitoring of groundwater at up to three onsite wells. This may include production well #4 and the G4S and G4D wells in the northeast corner of the site.

If groundwater monitoring by the City or the responsible parties indicates migration of contaminants, contingent actions will be triggered by the CAP and CD.

Comment:

Many commenters want this site cleaned up completely (ZERO IMPACT) and not just to Alternative 4 conditions.

Ecology Response:

Under the Model Toxics Control Act, Chapter 70.105D RCW, an owner or operator of a facility is liable for all remedial action costs, including Ecology oversight costs, and for all natural resource damages resulting from the releases or threatened releases of hazardous substances. Washington's cleanup rules require that all cleanups must protect human health and the environment. Ecology is required to select a remedy that is permanent to the maximum extent practicable and is capable of being designed, constructed and implemented in a reliable and cost effective manner. The costs of Alternatives 5 and 6 were found to be disproportionate to the amount of environmental benefit achieved compared to Alternative 4. Ecology determined that Alternative 4 was the most cost effective and permanent to the maximum extent practicable.

Ecology implements the Model Toxics Control Act (MTCA), and this law requires that all cleanups protect human health and the environment. This law gives the department authority to take remedial actions or to order persons to conduct remedial actions when a release of hazardous substances has occurred. At the former Reynolds Metals Aluminum Smelter site, Northwest Alloys, Inc. and Millennium Bulk Terminals-Longview, LLC, are Potentially Liable Persons (PLPs) under MTCA and will be required to complete remedial action and long term monitoring and maintenance at this site when the CD is entered into the court. Ecology is required to set cleanup levels according to the current and potential future land and resource uses for the site, which in this case is industrial use. Ecology cannot order a PLP to cleanup a site to its original state; i.e. "ZERO IMPACT", if that condition is beyond what MTCA regulations require.

Comment:

Many commenters said Ecology must ensure that Alcoa provides comprehensive, court-enforceable financial assurances for cleanup, post-cleanup monitoring, and any newly discovered pollution.

Ecology Response:

The cleanup of the Reynolds Metals Aluminum Smelter site is a priority for Ecology. The responsible parties and Ecology have negotiated a draft CAP which specifies cleanup standards and describes how to do the cleanup, as well as a CD which is a legally enforceable document by the courts requiring site cleanup. The CD requires that the responsible parties maintain financial assurance for the cleanup and long term monitoring and maintenance to make sure the cleanup actions remain effective.

The CD, once it is entered into the court, will require the liable parties to provide financial assurance to ensure that money is available to monitor and maintain the cleanup for the long term. The financial assurance requirements will be binding and enforceable by the court. If the parties fail to comply with the requirements, Ecology can ask the court to enforce the CD.

If additional contamination is found during cleanup activities or at a later date, the responsible parties will be required to investigate and clean it up as necessary. Contingency funds are built-into the financial assurance estimate in case additional pollution is discovered during cleanup construction or at a later date. Ecology reviews cleanup costs and financial assurance amounts annually to check that the amount of coverage is sufficient.

Comment:

Several commenters want this site cleaned up so only environmentally friendly and health conscious businesses will be allowed.

Ecology Response:

MTCA specifies Ecology's powers and duties to require cleanup. Ecology can require responsible parties to conduct remedial actions for releases or threatened releases of hazardous substances. However, Ecology cannot go beyond the authority established in the law or require actions that are not consistent with the rules.

Ecology must apply industrial clean-up standards at properties zoned for industrial use. County authorities decide zoning. A property cleaned up to industrial standards cannot be converted to non-industrial uses without approval from Ecology and an opportunity for public review and comment.

Ecology must also follow the remedy selection process and criteria specified in MTCA. This process includes a disproportionate cost analysis that compares the costs and environmental benefits of cleanup alternatives. The analysis for this site concluded that the additional costs incurred for Alternatives 5 and 6 do not add proportionate environmental benefits. Therefore, these alternatives were not considered cost effective and permanent to the maximum extent practicable. While some commenters believe that alternatives that would enable a wider range of redevelopment (i.e., non-industrial) should be favored, the MTCA rules do not include this type of preference.

Comment:

Several commenters want leak detectable covers instead of low permeable caps.

Ecology Response:

Municipal solid waste and other types of landfills are typically designed to include a liner underneath the waste to catch rainwater and leachate during operation of the landfill, and then they are capped when the landfill closes. These landfills take in organic materials during their operation that can break down into liquids called leachate, and the lower liner stops the leachate from reaching groundwater. These landfills often include a leak detection system to detect leachate if it migrates past the liner.

There are no organic materials in the Reynolds Metals landfills or in the surface deposits that can break down and form leachate such as that found in municipal solid waste landfills. Ecology is requiring that NW Alloys and Millennium install a low permeability cover over the surface deposits to help prevent rainfall from reaching the contaminated material, but not a lower liner.

It appears that the existing groundwater contamination is not migrating even without a top cover or lower liner. The calcium in the soil is chemically reacting with fluoride to keep the contamination in the groundwater from migrating. The requirement to install a top cover is to help prevent additional groundwater contamination. There are requirements in the CAP to routinely inspect and maintain the covers to ensure that they are preventing infiltration of rainwater through the landfills.

Comment:

Several commenters want to see the waste taken offsite.

Ecology Response:

MTCA rules establish cleanup standards and requirements to protect the state's citizens and environment. Cleanup standards are comprised of "cleanup levels" and "points of compliance". The cleanup levels establish the concentration of a particular hazardous substance that is protective of human health and the environment, and the points of compliance designate the locations where cleanup levels must be met. MTCA does not require that all risk be eliminated, but contamination remaining onsite must no longer pose an unacceptable threat to human health or the environment. While all cleanup actions must be protective, the MTCA rules require costs to be considered. When choosing amongst remedial alternatives, MTCA doesn't require more expensive remedies unless the benefits are commensurate with costs.

Cleanup standards are based on the use of a property. Ecology is required to apply industrial cleanup standards at industrial properties such as the former Reynolds Metals site. Industrial properties cleaned up to industrial standards cannot be converted to nonindustrial uses without Ecology's approval and the opportunity for public review and comment. Also, industrial properties cleaned up to industrial standards must not pose a threat to human health or the environment in adjacent nonindustrial areas when hazardous substances remain at the property after cleanup. Ecology must ensure that human health and the environment are protected but does not have authority to require the removal of 100% of site contaminants if lower cost alternatives will address the risk.

As was determined during the remedial investigation/feasibility study, the costs of removing all contaminated soil from this site are disproportionate to the additional environmental benefits that would be achieved when compared to Alternative 4. Ecology must choose the less expensive alternative when environmental benefits are similar.

Comment:

Several commenters want monitoring performed by independent parties instead of by the responsible parties.

Ecology Response:

The CAP and CD require that all remediation work performed at the site be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered by the State of Washington, except as otherwise provided for in RCW 18.43.130. The contractors hired by NW Alloys and/or Millennium to do the cleanup work will have to meet this requirement. The contractors will also need to have 40 hour hazardous materials training and meet other applicable health and safety requirements.

The groundwater and surface water monitoring must be performed by a qualified professional hired by the responsible parties. Ecology will review monitoring reports produced as a result of this work to ensure that human health and the environment continue to be protected. Ecology will oversee the cleanup work to ensure that applicable state and federal laws and regulations are complied with. Ecology will conduct regular site visits and be in regular contact with the responsible parties to ensure that cleanup activities are being properly performed. Under the terms of the CD, Ecology also retains the right to conduct independent monitoring if warranted.

Comment:

Several commenters expressed concern that the taxpayers would end up paying for this cleanup.

Ecology Response:

The responsible parties at the Reynolds Site will be obligated to complete the required consolidation of surface deposits, construction of low permeability caps, installation of the Permeable Reactive Barrier walls, and perform long term monitoring and maintenance when the consent decree is entered into the court. Under the CD, the Reynolds Metals responsible parties are required to maintain financial assurance to cover the costs of these activities and it will be enforceable by the court. Ecology will review the financial assurance annually to ensure that there is sufficient coverage at all times. There is funding built into the financial assurance estimate for contingencies like the discovery of unknown contamination. Therefore, it is not anticipated that taxpayers will be asked to pay for this cleanup.

Comment:

Several commenters were concerned that seismic activity could result in levee failure which could lead to groundwater or surface water contamination, and want to know if this was considered.

Ecology Response:

Many areas in the State of Washington are designated as being in a seismic impact zone by the United States Geological Survey (USGS), and Longview is included in that designation. Seismic zones are defined as areas where there is at least a 10 percent probability that horizontal seismic accelerations equal to or greater than 0.1 g (acceleration of gravity at the earth's surface) will occur within a 250-year period.

A slope stability and deformation analysis will be performed for the landfills and surface deposits at this site as part of the engineering design to verify that the low permeability caps will remain protective following a seismic event. The CAP also requires supplemental surveys and, if applicable, corrective measures after extreme events such as earthquakes.

The Consolidated Diking Improvement Districts (CDIDs) were established to protect communities such as Longview from flooding. The efforts include both protection from external flooding from rivers as well as internal flooding from storm drainage runoff. Periodic inspections and re-certification of the levees by CDID staff and the Army Corps of Engineers ensures this protection is maintained over the long term.

Comment:

One commenter asked if hydrogeologic studies have been done to ascertain how a mudflow from Mount St. Helens would affect the site.

Ecology Response:

Site-specific hydrogeologic studies focused on how a mudflow from Mount St. Helens would affect the site have not been performed. However, historical events that affected conditions at the Site were reviewed, including the period during the 1980 eruption of Mount St. Helens. That eruption resulted in a mud-flow depositing approximately 40 million cubic yards of material in the Columbia River near the Site, but no flooding impacts occurred at the Site. Water levels in the Columbia River remained roughly the same before and after the eruption, and there were no long-term changes that were expected to impact hydrogeologic conditions at the Site.

At the former Reynolds Metals site, the Consolidated Diking Improvement District (CDID) flood control levee provides flood protection to the site from both the Columbia River and the Cowlitz River. The levee also protects the Site and Longview from elevated current velocities in the Columbia River during flood events. The levee is approximately 32 feet above sea level and protects the landfills and fill deposits on site from scour or erosion during flood events with recurrence intervals of greater than 500 years. If the river were to overtop the levee and fill deposits and landfills at the Site became saturated for a relatively short time period during a major flood, scouring would not be expected. Since the natural geochemistry at this site is effectively controlling migration of fluoride, any short term wetting of the deposits during periods of elevated groundwater or flood water should not pose significant risk of contaminant migration.

As noted above, the CAP includes provisions for additional surveys, monitoring and any associated corrective actions to be implemented after extreme events including flooding or seismic events.

Comment:

Several commenters asked if Ecology has considered the effects of climate change and sea level rise?

Ecology response:

Ecology considers potential effects such as climate change and sea level rise when evaluating permanence, protectiveness and long-term effectiveness of cleanup alternatives. Climate change could potentially affect the Site by increasing or decreasing rainfall, changing river flow patterns or by increasing sea levels and associated Columbia River levels. However, at this Site the potential for such changes does not affect Ecology's selection of a cleanup alternative.

Changes in rainfall would not be expected to impact the protectiveness of the selected cleanup action. The natural geochemistry at this site is already controlling migration of fluoride. The consolidation and capping of the deposits with low permeability caps will reduce infiltration relative to existing conditions, even if rainfall were to increase significantly.

Given existing development in the greater Longview/Kelso area, changes in river levels or river flows due to climate change or sea level rise would be addressed through regional flood control measures. Existing regional flood control systems are currently in place that protect the public safety of many of the residents of Longview and Kelso.

There are multiple dams and storage basins on the Columbia River which work together to regulate the flow of the river. The existing CDID levee near the Former Reynolds Metals Plant was constructed to be above the 100-year and 500-year flood elevations for the Columbia River. The CDID follows an operations and maintenance plan to manage stormwater and flooding emergencies. Annual inspections are performed to ensure structural integrity and conformance with federal standards, and the dike and levee system is federally re-certified every 10 years. To the extent that modifications to the system are required to address climate change impacts, implementation of these changes would be triggered through this re-certification process.

Comment:

One commenter asked if Ecology knows yet which Site Units will require an environmental covenant? Does the Black Mud Pond (BMP) already have a restricted deed filed with the county?

Ecology Response:

The site units (SUs) that will be subject to an environmental covenant following cleanup construction activities are SU1, SU2, SU6, and SU7 and the associated East and West Groundwater Areas. The Closed BMP Facility located in the northwest corner of the Site has an existing deed notice recorded at the Cowlitz County Auditor's Office.

Comment:

One commenter asked if any of the Site Units are lined.

Ecology Response:

The Closed BMP Facility was constructed in 1972 with a clay bottom liner and earthen dikes above ground. The BMP was closed in 1992 under the Dangerous Waste Regulations, Chapter 173-303 WAC, with a five foot thick multi-layer engineered cover. The other Site Units were constructed using on-site soils without additional liner materials.

Comment:

One commenter asked how deep the fluoride is in groundwater?

Ecology Response:

Fluoride has been detected at elevated concentrations only within the shallow groundwater of the Upper Alluvium. The Upper Alluvium is a thick layer of silt and clay soils extending to depths of about 200 feet below the Site. Fluoride exceeding the Maximum Contaminant Level (MCL) has been detected in a well screened 23 to 33 feet below ground surface, but not at deeper depths. Fluoride levels have never exceeded the MCL in groundwater located within the groundwater of the Lower Alluvium. The thick layer of silt and clay soils over the Upper Alluvium, the upward groundwater gradients between the Lower Alluvium and the Upper Alluvium, and the natural properties of the Site soils all limit potential downward mobility of fluoride.

Comment:

One commenter asked how deep the monitoring wells are? Is there a range?

Ecology Response:

The groundwater monitoring wells used to investigate the site during the RI/FS are screened across a range of depths. The well network includes both wells screened in the shallow water table, and wells screened at deeper depths. The deepest monitoring well within the RI/FS well network is screened between 28 and 38 feet below ground surface. Fluoride concentrations have not exceeded the MCL in that well.

Comment:

One commenter asked if there will be a berm or some structure to keep the material in the site units together? With all of our rain in this area and over years and years, it seems these site units will eventually erode away.

Ecology Response:

The caps over the two on-site consolidation areas will be engineered and designed to minimize erosion by constructing them with a gently sloping surface. Where necessary for stability, berms will be constructed beneath the sloped surface. The caps will also have an upper anti-erosion layer, consisting of soil with grass or alternately a graded gravel layer. The caps will be regularly inspected, surveyed for subsidence, and repaired when necessary.

Comment:

The $1,644,000 set aside for long-term monitoring and O&M seems a small amount considering all of the variables that could happen through the years. Right now Millennium and especially Kristen Gaines have been in compliance and performed well as far as managing the property. What if Millennium is no longer the tenant and/or Alcoa sells the property? There would be a new tenant or owner. We've seen what happened with Chinook Ventures and the disaster they created when they were left to self-monitor this property. I suppose Ecology could hire professionals to perform all the monitoring, but that costs money. Also, will this dollar amount be able to cover all repairs, replacement and damages through the years? For how many years? Is there another alternative if this money runs out?

Ecology Response:

The CD requires that the liable parties, including potential future owners of the Site, maintain financial assurance consistent with Ecology requirements. This amount is meant to cover anticipated maintenance and monitoring activities including reasonable contingencies. Ecology reviews the amount of financial assurance on an annual basis to check that it is sufficient to cover these costs. There is no set time limit for this financial assurance.

Comment:

One commenter asked what the timeline of the cleanup will be from start to finish.

Ecology Response:

The dredging and backfilling of Columbia River sediments was completed in November 2016. The contaminated sediment was taken to an offsite location near The Dalles, Oregon.

The engineering design for the upland cleanup will be submitted for Ecology review and approval in 2018. The upland cleanup activities are scheduled to commence in 2018 with initial soil removals in localized areas including SU 13. Construction in areas requiring federal permits will be initiated after receipt of those permits and will take approximately two years. This work is scheduled for late 2018-2019. Groundwater monitoring is anticipated to take many years before cleanup levels are met.

This is a large and complex site. The science, planning, engineering, permitting and legal work behind the cleanup takes time to do properly.

Comment:

One commenter notified the Department of Ecology that a number of proposed alternative actions and site units are located within the Columbia River Levee Right of Way. As such, all work within this area (SU1, SU2, SU10, and several monitoring wells) will require encroachment review by CDID No.1 and the Portland District US Army Corps of Engineers (USACE). Under the new Section 408 levee encroachment review rules, it is estimated that this process could take upwards of 6 months and will involve both a comprehensive technical and environmental review.

Ecology Response:

Ecology is aware of the requirement for an encroachment review by the CDID No.1 and the Portland District US Army Corps of Engineers. This review will be done as part of the engineering design and permitting process for the cleanup action. Any comments from these entities will be reflected in the designs contained in the draft and final Engineering Design Reports.

Comment:

One commenter wants Ecology to demand removal of contaminated river sediment during the 2016/2017 fish window even if permits haven't been issued.

Ecology Response:

Ecology does not have the authority to demand removal of the contaminated sediments without first obtaining the necessary federal permits, unless leaving the sediments in place constitutes an emergency. Ecology amended the RI/FS agreed order in 2014 to expedite removal of the river sediment. Permitting took longer than initially expected but once NW Alloys and Millennium received the USACE permit, the work was completed in November 2016.

Comment:

The Yakama Nation does not believe the proposed surface water cleanup level of 4 mg/L for fluoride is sufficiently protective of aquatic species in the Columbia River.

Ecology Response:

Because neither the US Environmental Protection Agency nor Washington State has promulgated surface water quality criteria for the protection of aquatic life from fluoride, the state drinking water maximum contaminant level (MCL) of 4 mg/L for fluoride was initially chosen as the surface water cleanup level for discharges from the CDID ditches via the pump station. This cleanup level was believed to be sufficiently protective of aquatic life in the Columbia River during the infrequent and short duration discharges from the DCID ditches. The conceptual site model also did not indicate surface water discharges along the shoreline.

Based on the Yakama Nation comment, Ecology has reviewed additional information related to fluoride toxicity, pore water monitoring, bioassays, etc. and the Compliance Monitoring and Contingency Response Plan and CAP have subsequently been updated to reflect additional protective measures. One update to the plan includes setting a narrative surface water cleanup level of no adverse effects on the protection and propagation of fish and other aquatic life using bioassays to make this demonstration. A screening level of 1.8 mg/L fluoride was also set for pore water along the Columbia River shoreline and surface water in the CDID ditch.

Comment:

The Yakama Nation does not think surface water monitoring in the Columbia River by itself is protective of aquatic species.

Ecology Response:

The Compliance Monitoring and Contingency Response Plan has been revised to include porewater monitoring and contingent sediment bioassays along the Columbia River shoreline adjacent to the former Reynolds Metals Plant to ensure adequate protection of aquatic species. Ecology believes this approach better protects fish and other aquatic species from potential exposure to harmful concentrations of fluoride.