

EXHIBIT C

Scope of Work and Schedule

This Scope of Work (SOW) implements the Cleanup Action Plan (CAP), Exhibit B to the Agreed Order to address soil and groundwater contamination at the Occidental Chemical Corporation Site (Site) in Pierce County, Washington. Occidental Chemical Corporation (OCC or Occidental), Mariana Properties, Inc., and Glenn Springs Holdings, the potentially liable persons (PLPs), will implement this SOW to perform Site cleanup and shall furnish all personnel, materials, and services necessary for, or incidental to, performing the cleanup action selected for the Site. All work completed for this SOW must meet the requirements of the Model Toxics Control Act (MTCA) Cleanup Regulations, Chapter 173-340 Washington Administrative Code (WAC) as referenced by the Dangerous Waste Regulations Chapter 173-303 WAC.

Implementation of the Cleanup Action Plan, including reports, plans, specifications, and documentation of actions must conform to the requirements of WAC 173-340-400. All aspects of construction must be performed under the oversight of a professional engineer registered in the State of Washington or a qualified technician under the direct supervision of a professional engineer registered in the State of Washington.

The SOW contains the following tasks, to be accomplished in accordance with the schedule below:

Task 1: Early Action Source Treatments and Cover

a. Early Action Source Treatments.

This portion of the remedy includes a series of early actions that will remove shallow contamination from groundwater and soil by dewatering the groundwater in soils about 10 feet below surface using shallow extraction wells. Once dewatered, the dewatered soils will be treated using soil vapor extraction (SVE) to remove 60,000 pounds of total chlorinated volatile organic compound mass, which is the performance standard for this work. If performance standards are not met within a specific time frame, additional treatment will be implemented.

The SVE system may include vertical and horizontal pipes, gravel beds, and/or trenches and will be developed and specified during the design phase. Groundwater from the dewatering system and vapors from the SVE system will be treated using the on-Site groundwater treatment plant. Continued periodic monitoring must occur to verify that the system is achieving the performance standards identified in the CAP.

A separate engineering design report (EDR) will be developed for the Early-Action Source Treatments. The EDR will be adequate to obtain the necessary permits or meet the substantive provisions of laws for which there is a permit exemption in MTCA for Site remediation. The EDR will comply with the requirements of WAC 173-340-400(4)(a).

The EDR will provide engineering concepts and design criteria for the baseline SVE system and for potential future enhancements to the system. These future enhancements, which will be implemented if the 60,000 pound performance standard is not met within a specific time frame, may include additional dewatering activities, additional SVE wells, and air sparging elements.

Following completion of the EDR and approval by Ecology, Construction Plans and Specifications will be completed and submitted to Ecology for review and approval. The Construction Plans and Specifications will comply with WAC 173-340-400(4)(b).

An Operations and Maintenance Plan (OMP) will be developed in accordance with WAC 173-340-400(4)(c) for the Early Action Source Treatments. The OMP will be completed prior to start-up of the system. The OMP shall identify the person(s) responsible for each task outlined in the OMP and relevant contact information.

The Compliance Monitoring Plan (CMP) for the Early Action Source Treatment element will be developed prior to installation of the Early Action Source Treatments. The CMP will include performance monitoring. The CMP will also include a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP). Each plan will meet the requirements of WAC 173-340-410. Raw data shall be submitted to Ecology within 30 days following receipt of the data from the analytical laboratory.

Performance monitoring for the Early Action Source Treatments will include protocols for evaluating the effectiveness of the cleanup and discontinuation criteria. If the rate of mass removal does not meet the levels specified in the CAP, Ecology will require OCC to implement the system enhancements that are included in the EDR. These enhancements may include additional dewatering activities, additional SVE wells, and air sparging elements.

OCC will prepare and submit to Ecology Compliance Monitoring Reports after implementing the Early Action Source Treatments in accordance with the schedule in the approved CMP.

If it is clear by the end of the first three years of operation that the overall 60,000 pound performance objective will not be met within a five-year timeframe, even with the enhancements identified in the EDR for this work, OCC will assess the system operation and data collected from the operation of the system to determine the reason for the lack of sufficient progress and will initiate a focused feasibility study to evaluate practicable contingency actions. A Supplemental EDR will then be developed for the selected contingency action(s) necessary to achieve the overall performance objective within the five-year timeframe.

Calculated soil-vapor screening levels are proposed in section 4.4 of the Cleanup Action Plan for continued monitoring. OCC will monitor soil vapor as part of compliance monitoring. OCC is required to continue monitoring soil vapor as long as screening levels are exceeded. If the soil vapor data are above screening levels at the first periodic review OCC will initiate a focused feasibility study to evaluate practicable contingency actions to address or reduce soil vapor at the Earley Business Center.

To address the vapor intrusion at the OCC office building it will either be removed or mitigated within three years of completion of the early action source treatment if soil vapor readings exceed screening criteria.

b. Cover

A cover will be constructed over the Site property to prevent potential direct contact with shallow soil contamination. The sloped area between the vertical barrier wall along the Hylebos Waterway and the upland will be backfilled and will also be covered. This cover can consist of a membrane liner, reinforced concrete, asphalt, clay soil, or a combination of these materials. The specifications for the cover will be developed during the design phase and document in the EDR.

An Operations and Maintenance Plan (OMP) will also be developed in accordance with WAC 173-340-400(4)(c) for the cover. The OMP will be completed prior to installation of the system. The OMP shall also describe and provide for continued implementation of the institutional controls for the Site as developed in the EDR. The OMP shall identify the person(s) responsible for each task outlined in the OMP and relevant contact information.

Task 2: Develop and Design the Long-term Treatments

a. Volatile Organic Compound (VOC) Source Area Mass Reduction by Strategic Groundwater Pumping (MSP)

Shallow and deep groundwater with high concentrations of VOC will be extracted to remove mass from the existing plume of contamination that has travelled beyond the Site property boundary. The design of the system at this stage will focus on reversing the limits of the plume to bring contamination back towards the Site while removing mass. The extracted groundwater will be conveyed to a new groundwater treatment plant to be built in a new location on the Site.

The locations of the initial groundwater extraction wells for mass removal will be finalized in an approved EDR. If necessary due to difficulties in extracting or treating groundwater from these initial locations, strategic groundwater pumping will continue by moving specified mass reduction extraction wells to specific secondary locations identified as contingency wells in the approved EDR. The EDR will specify secondary locations planned to avoid problem areas where high pH and high dissolved silica concentrations cause problems with pumping and/or treating groundwater. When OCC is unable to continue at the specific locations for the initial wells and the replacement wells, the remedy will transition to the next phase of hydraulic containment as approved in the EDR.

The EDR will be adequate to obtain the necessary permits or meet the substantive provisions of laws for which there is a permit exemption in MTCA for Site remediation

The EDR will comply with the requirements of WAC 173-340-400(4)(a). The report will provide engineering concepts and design criteria for the MSP. The EDR will also include a section describing the institutional controls for the Site and a Soil and Groundwater Management Plan.

Following completion of the final EDR and approval by Ecology, Construction Plans and

Specifications will be completed and submitted to Ecology for review and approval. The Construction Plans and Specifications will comply with WAC 173-340-400(4)(b).

b. Hydraulic Containment

The hydraulic containment element of the cleanup action will control Site groundwater within the specified hydraulic control boundaries. These hydraulic control boundaries, which are described in the CAP, enclose areas with highest concentrations of CVOC at different depths. The hydraulic containment system must impose an inward hydraulic gradient and at least one foot of water level drawdown within these control boundaries. These requirements must be maintained irrespective of treatment plant requirements or aquifer conditions within the control boundaries, including high pH and high dissolved silica concentrations. The design for Hydraulic Containment will include an approved EDR.

If the containment system does not meet the performance standards specified in the CAP and EDR, Ecology will require OCC to evaluate contingency remedial actions necessary to achieve an equivalent level of containment. Ecology will select a contingency action and OCC will prepare a contingency work plan for Ecology's review and approval. After Ecology's approval, OCC will implement the selected contingency action.

If it becomes technically infeasible to maintain these hydraulic control boundaries as evidenced by the compliance monitoring program, either Ecology or Occidental may initiate the adaptive management strategies process detailed in the CAP. If additional design is needed to maintain the hydraulic control boundaries, an equivalent level of containment must be achieved and maintained using an alternative technology or approach. A supplemental EDR will be submitted to Ecology for review and approval.

c. OMP

An OMP will also be developed in accordance with WAC 173-340-400(4)(c) for the MSP and Hydraulic Containment System. The OMP will be completed prior to installation of the system. The OMP shall also describe and provide for continued implementation of the institutional controls for the Site as developed in the EDR. The OMP shall identify the person(s) responsible for each task outlined in the OMP and relevant contact information.

d. CMP

The CMP will be developed prior to installation of the MSP and Hydraulic Containment System. The CMP will include protection monitoring, performance monitoring, and confirmational monitoring plans. The CMP will also include a SAP and a QAPP. Each plan will meet the requirements of WAC 173-340-410. Raw data shall be submitted to Ecology within 30 days following receipt of the data from the analytical laboratory.

Performance monitoring in the CMP for the MSP and Hydraulic Containment System will include protocols for evaluating the effectiveness of the cleanup and discontinuation criteria for each treatment element. Performance monitoring for the MSP and Hydraulic Containment System

will include data and information describing expected individual well performance, including groundwater extraction rate, groundwater elevation, anticipated mass removal rate, and estimated water quality for each extraction well.

The CMP will also describe plume stability analyses to be conducted based on water quality data from the groundwater monitoring system. Protocols will be defined for evaluating whether the MSP and Hydraulic Containment System are achieving the overall objective of preventing plume expansion and plume migration.

The CMP will reference the approved groundwater studies that provide a baseline of existing conditions before the treatments start providing a reference point for the performance monitoring.

e. Groundwater Treatment Plant

The existing groundwater treatment plant will be used for treating groundwater and soil vapor from dewatering and vapor extraction activities associated with the early-action source treatments element.

A new groundwater treatment plant will be designed, and the design submitted in a separate EDR provided as part of the National Pollutant Discharge Elimination System (NPDES) permit application process. The design will include a study to evaluate the expected types and concentrations of constituents that will be in the groundwater expected to be treated by the new treatment plant. Occidental will provide the study to Ecology as part of a NPDES permit application process.

An OMP will also be developed in accordance with WAC 173-340-400(4)(c) for the treatment plant. The OMP will be completed prior to installation of the system. The OMP shall identify the person(s) responsible for each task outlined in the OMP and relevant contact information.

Task 3: Vertical Barrier Wall

A vertical barrier adjacent to the Hylebos Waterway will be constructed to achieve containment of shallow groundwater containing high pH and other sources of contamination. The vertical barrier wall will be approximately 2,200 feet long and approximately 75 feet deep. Methods for protecting the wall from corrosion will be identified during the design phase. The design will address sea level rise and any identified impacts from climate change expected or predicted during the lifespan of the barrier wall.

The design for the barrier wall will be included in the EDR required in Task 2. Occidental will plan for the procurement of the required permits and build into the schedule the time needed to apply and get approval for construction.

An OMP will also be developed in accordance with WAC 173-340-400(4)(c) for the Vertical Barrier Wall. The OMP will be completed prior to installation of the system. The OMP shall also describe and provide for continued implementation of the institutional controls for the Site as developed in the EDR. The OMP shall identify the person(s) responsible for each task outlined in the OMP and relevant contact information.

A CMP will be developed prior to installation of the vertical barrier wall based on the design and will meet the requirements of WAC 173-340-410. The CMP will include protection monitoring, performance monitoring, and confirmational monitoring plans. The CMP will also include monitoring activities and methods for periodically assessing wall integrity.

Task 4: Environmental Covenants

Land use restrictions are required to be recorded in the form of Environmental Covenants for protection of human health. Restrictions are based on site conditions, risks, and protection of the remedy at completion of the remedy construction. In consultation with OCC and neighboring property owners Ecology will prepare the Environmental Covenants consistent with WAC 173-340-440, RCW 64.70, and any policies or procedures specified by Ecology. The Environmental Covenants will restrict future activities and uses of the Facility.

The Environmental Covenants will be recorded with Pierce County once agreement is reached and construction is complete.

Task 5: Periodic Reviews

WAC 173-340-420 requires periodic review at critical points throughout a long cleanup period, but at minimum every 5 years. Ecology will publish a notice of the periodic review results in the Site Register to provide an opportunity for public comment.

A periodic review consists of an evaluation by Ecology of site conditions and monitoring data after remedy construction to assure human health and the environment are being protected. These reviews are in addition to the on-going oversight and reports that will be submitted to Ecology by OCC throughout the project.

Ecology will provide OCC the results of the periodic review at completion. Review criteria consists of evaluating the effectiveness of ongoing or completed cleanup actions, engineered controls, and institutional controls, as well as new information about hazardous substances, current and projected site and resource uses, the availability and practicability of more permanent remedies, and the availability of improved analytical techniques to evaluate compliance with cleanup levels. (WAC 173-340-420(4))

Task 6: Construction Completion Report

The EDRs will be used to develop a detailed project schedule that identifies the sequence of actions and identifies critical paths for implementation. The project schedule will be used to track progress and will be submitted to Ecology as part of project reports.

The cleanup action to be implemented at the Site includes construction of the Early Action Source Treatments and Cover, Vertical Barrier Wall, MSP and Hydraulic Containment System, and implementation of plans for institutional controls, operation and maintenance, and compliance monitoring. For each required EDR there is a requirement to submit the plans and specifications when the specific construction is completed.

Once the remedy construction is complete OCC is required to submit a Construction Completion Report in accordance with WAC 173-340-400(6)(b). This report summarizes all of the construction under the CAP into one document.

Task 7: Cleanup Completion Report

OCC will prepare a Cleanup Completion Report upon meeting the Site-wide cleanup standards for groundwater and soil vapor, including summary of all project elements from inception to meeting performance goals. The Cleanup Completion Report will be submitted with graphical representations of the work performed. The report will also provide documented evidence that institutional controls have been implemented.

SCHEDULE

Each of the documents required below are subject to Ecology’s review and approval. Ecology will approve, approve with conditions, or disapprove of such documents. If Ecology disapproves of a document, Ecology will provide comments to OCC and the parties will establish a mutually agreed upon date for OCC’s resubmittal of the document, not to exceed forty-five (45) days after OCC’s receipt of Ecology’s comments. OCC will then submit a revised document that addresses Ecology’s comments. The project schedule is meant to accommodate adaptively managing the technologies as information and data inform the processes. OCC and Ecology will coordinate if and when adjustments to the schedule are appropriate.

Performance or Deliverable	Schedule
Task One	
Engineering Design Report (EDR) for Early-Action Source Treatments to Address Potential Sources of Vapor Intrusion—including construction plans and specifications, and separate operation and maintenance plan (OMP), and compliance monitoring plan (CMP)	<p>Draft EDR, OMP, and CMP: submit within 180 calendar days of final signature of Agreed Order</p> <p>Final EDR: submit within 30 calendar days of receipt of Ecology’s final comments</p> <p>Final OMP: submit within 30 calendar days of receipt of Ecology’s final comments</p> <p>Final CMP: submit within 90 days of receipt of Ecology’s final comments</p>
Begin construction of the Early Action Source Treatments	Within 30 calendar days of approved Final EDR—contingent on obtaining necessary permitting
Construction Completion Report for the Early-Action Source Treatments	Submit within 90 calendar days of achieving the 60,000-pound removal objective
If necessary, Focused Feasibility Study (FFS) to evaluate practicable contingency actions if after 3 years of operation the monitoring data indicate that the 60,000-pound objective will not be met in 5 years.	<p>Draft FFS: submit within 90 calendar days of Ecology’s determination</p> <p>Final FFS: submit within 30 calendar days of receipt of Ecology’s final comments on the draft FFS</p>
Upon determination by Ecology, Supplemental EDR for Early-Action Source Treatments if 60,000-pound objective will not be met in 5 years—	Draft Supplemental EDR, OMP, and CMP: submit within 90 calendar days of receiving Ecology’s

Performance or Deliverable	Schedule
including construction plans and specifications, and separate OMP, and CMP	<p>selection of contingency remedial action based on the Final FFS and criteria outline in the CAP</p> <p>Final Supplemental EDR: submit within 30 calendar days of receipt of Ecology’s final comments on the draft Supplemental EDR</p> <p>Final Supplemental OMP: submit within 30 calendar days of receipt of Ecology’s final comments</p> <p>Final Supplemental CMP: submit within 30 calendar days of receipt of Ecology’s final comments</p>
EDR for Physical Direct Contact Exposure Barrier (PDCEB)—including construction plans and specifications, and separate OMP, and CMP	<p>Draft EDR, OMP, CMP: submit within 505 calendar days of final signature of Agreed Order</p> <p>Final EDR: submit within 30 calendar days of receipt of Ecology’s final comments on the draft EDR</p> <p>Final OMP: submit within 30 calendar days of receipt of Ecology’s final comments</p> <p>Final CMP: submit within 30 calendar days of receipt of Ecology’s final comments</p>
Begin construction of the PDCEB	Within 30 calendar days of approved Final EDR, —contingent on obtaining necessary permitting
Construction Completion Report for the PDCEB	Submit within 90 calendar days of completing the construction of the PDCEB
Task 2	
EDR for Groundwater Extraction System— including construction plans and specifications, and separate OMP, and CMP	<p>Draft EDR, OMP, and CMP: submit within 600 calendar days of final signature of Agreed Order</p> <p>Final EDR: submit within 45 calendar days of receipt of Ecology’s final comments on the draft EDR</p> <p>Final OMP: submit within 45 calendar days of receipt of Ecology’s final comments</p> <p>Final CMP: submit within 45 calendar days of receipt of Ecology’s final comments</p>
Begin construction of the Groundwater Extraction System	Within 30 calendar days of approved Final EDR

Performance or Deliverable	Schedule
Construction Completion Report for the Groundwater Extraction System and Treatment Plant	Submit within 90 calendar days of completing construction of the groundwater extraction system and treatment plant
Concurrent with the Groundwater Extraction System EDR, provide a separate EDR for the Groundwater Treatment system and NPDES Permit Application	<p>Within 600 days of final signature of Agreed Order submit the Draft EDR and NPDES permit application to Ecology.</p> <p>Final EDR: submit within 45 calendar days of receipt of Ecology’s final comments on the draft EDR</p> <p>Final OMP: submit within 45 calendar days of receipt of Ecology’s final comments</p> <p>Final CMP: submit within 45 calendar days of receipt of Ecology’s final comments</p>
Begin construction of the Groundwater Extraction System	Within 30 calendar days of approved Final EDR
Task 3	
EDR for Vertical Barrier Wall—including construction plans and specifications, and separate OMP and CMP	<p>Draft EDR, OMP, and CMP: submit within 835 calendar days of final signature of Agreed Order</p> <p>Final EDR: submit within 45 calendar days of Ecology’s final comments on the draft EDR</p> <p>Final OMP: submit within 45 calendar days of Ecology’s final comments</p> <p>Final CMP: submit within 45 calendar days of Ecology’s final comments</p>
Begin construction of Vertical Barrier Wall	Within 30 calendar days of approved Final EDR—contingent on obtaining necessary permitting and marine construction window
Construction Completion Report for the Vertical Barrier Wall	Submit within 90 calendar days of completing construction of the Vertical Barrier Wall
Task 4	
Agreement on Environmental Covenant (EC)(s) prepared by Ecology.	<p>At completion of all remedial construction and in consultation with OCC and affected landowners, Ecology will develop appropriate land use restrictions for draft Environmental Covenants.</p> <p>Final EC: OCC will review and submit comments to Ecology within 30 calendar days of receipt of the draft EC(s)</p>
Task 5	

Performance or Deliverable	Schedule
Periodic Reviews	Minimum every 5 years from the anniversary date of the construction completion. OCC will provide supplemental information such as post-remedy construction conditions and monitoring data, as needed for Ecology to apply the review criteria in WAC 173-340-420(4).
Task 6	
Remedy Construction Complete Report (RCCR)	<p>Within 60 days of completion of construction of all elements of the remedy submit a comprehensive RCCR</p> <p>Final RCCR: submit within 30 calendar days of receipt of Ecology's comments</p>
Task 7	
Cleanup Completion Report (CCR)	<p>Draft CCR: submit within 90 calendar days of receiving Ecology's letter concurring Site-wide cleanup standards are met for groundwater and soil vapor</p> <p>Final CCR: submit within 30 calendar days of receipt of Ecology's final comments on the draft CCR</p>

End of Scope of Work.