DEPARTMENT OF
ECOLOGY
State of Washington

IAA No. C2200183

INTERAGENCY AGREEMENT (IAA)

BETWEEN

THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY

AND

CITY OF ISSAQUAH

THIS INTERAGENCY AGREEMENT ("Agreement" or "IAA") is made and entered into by and between the state of Washington, Department of Ecology, hereinafter referred to as "ECOLOGY," and the City of Issaquah hereinafter referred to as the "CITY" and "CONTRACTOR," pursuant to the authority granted by Chapter 39.34 of the Revised Code Washington, Interlocal Cooperation Act.

THE PURPOSE OF THIS AGREEMENT is for the CITY to conduct additional groundwater modeling for the Lower Issaquah Valley using the public domain code **(**Modflow).

WHEREAS, ECOLOGY has legal authority (RCW 39.34 and 70.105D) and the CITY has legal authority (RCW 35.21.730) that allows each party to undertake the actions in this agreement.

THEREFORE, IT IS MUTUALLY AGREED THAT:

1. SCOPE OF WORK

CITY shall furnish the necessary personnel, equipment, material and/or service(s) and otherwise do all things necessary for or incidental to the performance of the work set forth in Appendix A, *Statement of Work, Deliverables and Budget,* attached hereto and incorporated herein.

2. PERIOD OF PERFORMANCE

The period of performance of this IAA will commence on the signature date of Ecology, and be completed by **06/30/2023**, unless the Agreement is terminated sooner as provided herein. Amendments extending the period of performance, if any, shall be at the sole discretion of ECOLOGY.

3. COMPENSATION

Compensation for the work provided in accordance with this IAA has been established under the terms of RCW 39.34.130 and RCW 39.26.180(3). This is a performance-based agreement, under which payment is based on the successful completion of expected deliverables.

State funds will be utilized for this agreement.

The parties have determined that the cost of accomplishing the work identified herein will not exceed $400,000.00, including any indirect charges. Payment for satisfactory performance of the work shall not exceed this amount unless the parties mutually agree via an amendment to a higher amount. Compensation for services shall be based on the terms and tasks set forth in Appendix A, *Statement of Work, Deliverables and Budget*. ECOLOGY will not make payment until it has reviewed and accepted the work.

ECOLOGY may, at its sole discretion, terminate or suspend this Contract, or withhold payments claimed by the CONTRACTOR for services rendered, if the CONTRACTOR fails to satisfactorily comply with any term or condition of this Agreement.

4. BILLING AND PAYMENT PROCEDURE

Payment requests shall be submitted on state form, Invoice Voucher A19-1A. Invoice voucher shall reference the Agreement (IAA) number and clearly identify those items that relate to performance under this Agreement. Invoices shall describe and document to ECOLOGY's satisfaction a description of the work performed, the progress of the work, and related costs. Attach supporting documentation to the invoice.

Send invoices to:

State of Washington
Department of Ecology
Toxics Cleanup Program
Attn: Angela Harkins
PO Box 47600
Olympia, WA 98504-7600

Payment requests may be submitted on a quarterly basis. Upon expiration of this Agreement, any claim for payment not already made shall be submitted to ECOLOGY within 30 days after the expiration date or the end of the fiscal year, whichever is earlier.

Payment will be made within thirty (30) days of submission of a properly completed invoice (form A19-1A) with supportive documentation. All expenses invoiced shall be supported with copies of invoices paid.

Payment will be issued through Washington State's Office of Financial Management's Statewide Payee Desk. To receive payment, CONTRACTOR must register as a statewide vendor by submitting a statewide vendor registration form and an IRS W-9 form at website, https://ofm.wa.gov/it-systems/statewide-vendorpayee-services. For questions about the vendor registration process, contact Statewide Payee Help Desk at (360) 407-8180 or email PayeeRegistration@ofm.wa.gov.

5. ALTERATIONS AND AMENDMENTS

This Agreement may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

6. ASSIGNMENT

The work to be provided under this Agreement, and any claim arising thereunder, is not assignable or delegable by either party in whole or in part, without the express prior written consent of the other party, which consent shall not be unreasonably withheld.

7. ASSURANCES

Parties to this Agreement agree that all activity pursuant to this agreement will be in accordance with all the applicable current federal, state, and local laws, rules, and regulations.

8. CONFORMANCE

If any provision of this Agreement violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

9. DISPUTES

Parties to this Agreement shall employ every effort to resolve a dispute themselves without resorting to litigation. In the event that a dispute arises under this Agreement that cannot be resolved among the parties, it shall be determined by a Dispute Board in the following manner. Each party to this Agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, agreement terms, and applicable statutes and rules, and then make a determination of the dispute. The determination of the Dispute Board shall be final and binding on the parties hereto, unless restricted by law. The cost of resolution will be borne by each party paying its own cost. As an alternative to this process, if state agencies, either of the parties may request intervention by the Governor, as provided by RCW 43.17.330, in which event the Governor's process will control. The parties may mutually agree to a different dispute resolution process.

10. FUNDING AVAILABILITY

ECOLOGY's ability to make payments is contingent on availability of funding. In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date and prior to completion or expiration date of this Agreement, ECOLOGY, at its sole discretion, may elect to terminate the Agreement, in whole or part, for convenience or to renegotiate the Agreement subject to new funding limitations and conditions. ECOLOGY may also elect to suspend performance of the Agreement until ECOLOGY determines the funding insufficiency is resolved. ECOLOGY may exercise any of these options with no notification restrictions, although ECOLOGY will make a reasonable attempt to provide notice.

In the event of termination or suspension, ECOLOGY will reimburse eligible costs incurred by the CONTRACTOR through the effective date of termination or suspension. Reimbursed costs must be agreed to by ECOLOGY and the CONTRACTOR. In no event shall ECOLOGY's reimbursement exceed ECOLOGY's total responsibility under the agreement and any amendments.

11. GOVERNING LAW AND VENUE

This Agreement is entered into pursuant to and under the authority granted by the laws of the state of Washington and any applicable federal laws. The provisions of this Agreement shall be construed to conform to those laws. This Agreement shall be construed and interpreted in accordance with the laws of the state of Washington, and the venue of any action brought hereunder shall be the Superior Court for Thurston County.

12. INDEPENDENT CAPACITY

The employees or agents of each party who are engaged in the performance of this Agreement shall continue to be employees or agents of that party and shall not be considered for any purpose to be employees or agents of the other party.

13. ORDER OF PRECEDENCE

In the event of an inconsistency in the terms of this Agreement, or between its terms and any applicable statute or rule, the inconsistency shall be resolved by giving precedence in the following order:

a. Applicable federal and state of Washington statutes, regulations, and rules.

b. Mutually agreed upon written amendments to this Agreement.

c. This Agreement, number C2200183.

d. Appendix A, *Statement of Work, Deliverables and Budget*.

e. Any other provisions or term of this Agreement, including materials incorporated by reference or otherwise incorporated.

14. RECORDS MAINTENANCE

The parties to this Agreement shall each maintain books, records, documents, and other evidence that sufficiently and properly reflect all direct and indirect costs expended by either party in the performance of the service(s) described herein. These materials shall be subject to inspection, review, or audit by personnel of both parties, other personnel duly authorized by either party, the Office of the State Auditor, and federal officials so authorized by law. All books, records, documents, and other materials relevant to this Agreement must be retained for six years after expiration of this Agreement. The Office of the State Auditor, federal auditors, and any persons duly authorized by the parties shall have full access and the right to examine any of these materials during this period. Each party will utilize reasonable security procedures and protections for all materials related to this Agreement. All materials are subject to state public disclosure laws.

15. RESPONSIBILITIES OF THE PARTIES

Each party of this Agreement hereby assumes responsibility for claims and/or damages to persons and/or property resulting from any act or omissions on the part of itself, its employees, its officers, and its agents. Neither party will be considered the agent of the other party to this Agreement.

16. RIGHTS IN DATA

Unless otherwise provided, data which originates from this Agreement shall be "work made for hire" as defined by the United States Copyright Act, Title 17 U.S.C. section 101 and shall be owned by state of Washington, ECOLOGY. Data shall include, but not be limited to, reports, documents, pamphlets,

advertisements, books magazines, surveys, studies, computer programs, films, tapes, and/or sound reproductions. Ownership includes the right to copyright, patent, and register these items, and the ability to transfer these rights.

17. SEVERABILITY

If any provision of this Agreement or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of this Agreement which can be given effect without the invalid provision, if such remainder conforms to the requirements of applicable law and the fundamental purpose of this Agreement, and to this end the provisions of this Agreement are declared to be severable.

18. SUBCONTRACTORS

CONTRACTOR agrees to take complete responsibility for all actions of any Subcontractor used under this Agreement for the performance. When federal funding is involved there will be additional contractor and subcontractor requirements and reporting.

Prior to performance, all subcontractors who will be performing services under this Agreement must be identified, including their name, the nature of services to be performed, address, telephone, WA State Department of Revenue Registration Tax number (UBI), federal tax identification number (TIN), and anticipated dollar value of each subcontract. Provide such information to ECOLOGY's Agreement manager.

19. SUSPENSION FOR CONVENIENCE

ECOLOGY may suspend this Agreement or any portion thereof for a temporary period by providing written notice to the CONTRACTOR a minimum of seven (7) calendar days before the suspension date. CONTRACTOR shall resume performance on the first business day following the suspension period unless another day is specified in writing by ECOLOGY prior to the expiration of the suspension period.

20. TERMINATION FOR CAUSE

If for any cause, either party does not fulfill in a timely and proper manner its obligations under this Agreement, or if either party violates any of these terms and conditions, the aggrieved party will give the other party written notice of such failure or violation. The responsible party will be given the opportunity to correct the violation or failure within fifteen (15) business days. If failure or violation is not corrected, this Agreement may be terminated immediately by written notice of the aggrieved party to the other.

21. TERMINATION FOR CONVENIENCE

Either party may terminate this Agreement without cause upon thirty (30) calendar day prior written notification to the other party. If this Agreement is so terminated, the parties shall be liable only for performance rendered or costs incurred in accordance with the terms of this Agreement prior to the effective date of termination.

22. WAIVER

A failure by either party to exercise its rights under this Agreement shall not preclude that party from subsequent exercise of such rights and shall not constitute a waiver of any other rights under this Agreement unless stated to be such in a written amendment to this Agreement signed by an authorized representative of the parties.

23. AGREEMENT MANAGEMENT

The representative for each of the parties shall be responsible for and shall be the contact person for all communications, notifications, and billings questions regarding the performance of this Agreement. The parties agree that if there is a change in representatives, they will promptly notify the other party in writing of such change, such changes do not need an amendment.

The ECOLOGY Representative is:

Name: Priscilla Tomlinson
Address: PO Box 330316
Shoreline, WA 98133-9716
Phone: (425) 649-7135
Email: ptom461@ecy.wa.gov

The CITY Representative is:

Name: Bob York
Address: 1775-12th Avenue Northwest
Issaquah, WA 98027
Phone: (425) 837-3426
Email: roberty@issaquahwa.gov

24. ALL WRITINGS CONTAINED HEREIN

This Agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the parties hereto.

The signatories to this Agreement represent that they have the authority to bind their respective organizations to this Agreement.

IN WITNESS WHEREOF, the parties below, having read this Agreement in its entirety, including all attachments, do agree in each and every particular as indicated by their signatures below.

State of Washington
Department of Ecology

By: Heather R Bartlett Date: 2022.04.13 17:08:20 -07'00'

Signature Date

Heather R. Bartlett

Deputy Director

City of Issaquah

By: DocuSigned by: Mary Lou Pauly 4/6/2022
CEFF9F882CD7488...

Signature Date

Mary Lou Pauly

Mayor

APPENDIX A

STATEMENT OF WORK, DELIVERABLES AND BUDGET

BACKGROUND

A 3-dimensional numerical groundwater model was previously developed by Sammamish Plateau Water District (SPWD) using a proprietary finite element code (DYNFLOW) for transport of per- and polyfluoroalkyl substances (PFAS) in the Lower Issaquah Valley (LIV). The City converted the DYNFLOW model to a public domain numerical model (MODFLOW-USG, the MODFLOW model) as part of the City's Critical Aquifer Recharge Area (CARA) update. Under previous interagency agreement (IAA) #C2000069, the City conducted 2-dimensional numerical modeling to improve our understanding of vertical transport within the LIV aquifer system.

PURPOSE

Under this IAA, the City will use the results of the 2-dimensional model to refine the MODFLOW model and identify data gaps. The City will install wells and collect aquifer data to address key data gaps. Using the new data, the City will further refine the MODFLOW model and use it to evaluate PFAS transport in the LIV aquifer system.

The City will complete the following tasks:

- Task 1: Regional Conceptual Hydrogeological Model, Three-Dimensional Numerical Model, Data Gaps, and Hydrogeological Characterization Work Plan.
- Task 2: Regional Well Installation and Aquifer Data Collection.
- Task 3: PFAS Transport Modeling and Reporting.

Descriptions of work to be performed under each individual task are provided below.

TASK 1: REGIONAL CONCEPTUAL HYDROGEOLOGICAL MODEL, THREE-DIMENSIONAL NUMERICAL MODEL, DATA GAPS, AND HYDROGEOLOGICAL CHARACTERIZATION WORK PLAN

The basis for the MODFLOW model is a conceptual understanding of regional groundwater flow in the LIV, termed the regional conceptual hydrogeological model (HG model). The MODFLOW model is mathematic-based and it provides numerical estimates of groundwater flow patterns and PFAS concentrations at specific locations. In contrast, the HG model is conceptual in nature and it communicates our general understanding of the hydrogeology of the LIV.

The original development of the MODFLOW model during the CARA update was guided by our understanding of regional hydrogeology at that time. Aquifer data and PFAS concentration data collected since the CARA update will be used to improve the HG model, which in turn will be used to refine the MODFLOW model. Initial testing with the refined MODFLOW model will identify data gaps, which will drive the development of a work plan to collect additional hydrogeological data.

Sub-Task 1A: Refine Regional Conceptual Hydrogeological Model

The Issaquah Valley PFAS Partnership's (PFAS Partnership's) understanding of the aquifer system on the west side of the LIV valley in the vicinity of the PFAS plume has improved considerably over the past three (3) years. The PFAS Partnership includes the Department of Ecology, Eastside Fire & Rescue, and City of Issaquah. The HG model will be refined based on the data collected by the PFAS Partnership and the results of the 2-dimensional modeling conducted previously by the City. Refinements to the HG model are necessary to design the grid and layering geometry and boundary conditions of the MODFLOW model.

The refinements will address geologic complexity, groundwater pumping patterns, and the distribution of recharge in the east, south, and north portions of the LIV.

Specific work elements for refining the HG model based on existing data will include:

- Data compilation and processing, including:
  - Boring logs,
  - Cross-sections,
  - Water levels, and
  - Stream characteristics;
- Description of the hydrostratigraphy of the LIV;
- Delineation of the plumes for up to three PFAS compounds in three dimensions;
- Determination of the characteristics of main regional features for the HG model, including:
  - Stream and surface water interactions,
  - Stream and groundwater interactions,
  - Precipitation, and
  - Groundwater recharge); and
- One (1) two-hour meeting with the PFAS Partnership to coordinate understanding of the HG model.

Sub-Task 1B: Develop and Perform Preliminary Calibration of MODFLOW Model

The MODFLOW model will be refined by incorporating finer scale layering geometry and boundary conditions that will enable accurate simulation of PFAS fate and transport throughout the aquifer system. This initial model refinement will be based on existing information only. Specific work elements will include:

- Update the layering in the 3-dimensional MODFLOW model based on Sub-Task 1A. This will include:
  - The addition of layers to better represent the geology and vertical hydraulic gradients in the aquifer system;
  - Refinement of the boundary conditions (including stream interactions); and
  - Refinement of hydraulic properties.
- Develop an initial model calibration database containing the following informational categories:
  - Calibration sites,
  - Historical water levels,
  - Historical pumping rates at water supply wells,
  - Precipitation,
  - River data, and
  - Water quality data.
- Preliminary steady-state and transient flow model calibration; and
- One (1) two-hour meeting with the PFAS Partnership to share the results of the Sub-Task 1B.

Sub-Task 1C: Evaluate and Prioritize Data Gaps in MODFLOW Model

This sub-task will identify key data gaps based on the results of Sub-Task 1B. Model-related data gaps will be identified based on initial sensitivity and model-error analyses of the MODFLOW model, supported by collaboration with the PFAS Partnership. These data gaps will inform the data priorities for Task 2. Specific work elements will include:

- Sensitivity analysis to identify parameters that have the most influence on contaminant fate and transport in MODFLOW model;
- Model error analysis to show which geographic areas (both vertical and horizontal) have the most influence on the overall “goodness of fit” of the model;

- Consideration of the use of a model-independent parameter estimation package called PEST to assist with the sensitivity and model error analysis and identification of model-related data gaps;
- List of data gaps that would, if filled, improve model performance;
- Prioritization of the data gaps to support development of a path forward for investigations;
- Model quality assurance/quality control (QA/QC); and
- Up to three (3) two-hour meetings with the PFAS Partnership to coordinate identification of data gaps.

Model scenarios and sensitivity analyses will be used to identify and prioritize data gaps, such as:

- New regional monitoring well locations,
- Aquifer testing,
- Water-level monitoring, and/or
- Collection of water elevations along Issaquah Creek (likely using transducers).

Sub-Task 1D: Prepare Hydrogeological Characterization Work Plan Addendum

An addendum to the existing 2018 PFAS Characterization Study Work Plan and Quality Assurance Project Plan (2018 Work Plan) will be prepared to guide the work in Tasks 2 and 3. The addendum will be called the Hydrogeological Characterization Work Plan Addendum. The scope of potential sampling will include the entire LIV. The Hydrogeological Characterization Work Plan Addendum will meet the substantive requirements of WAC 173-340-820 Sampling and Analysis Plans and will specify the following:

- Locations and depths of wells to be installed in Task 2;
- Aquifer data to be collected in Task 2;
- Standard operating procedures for work to be performed (field methods);
- Quality control measures; and
- Other project information as appropriate.

A separate Health and Safety Plan (HASP) will be prepared to meet the requirements of WAC 173-340-810 Worker Safety and Health and Part 1910 of Title 29 of the Code of Federal Regulations. The Inadvertent Discovery Plan (IDP) in the existing 2018 Work Plan will be updated to include consultation with tribes and the Department of Archeology and Historical Preservation on new sampling locations.

Task 1 Deliverables:

1. Monthly progress reports to be provided to Ecology for review will accompany invoices for each month when a formal deliverable as outlined below is not available for basis of payment. The progress report and invoice covering the previous month will be delivered by the 15th of each month.
2. City is to provide written meeting minutes to Ecology for review via email for each meeting attended within five (5) business days upon completion of meeting.
    a. The minutes will list key information presented at the meeting and key agreements reached during the meeting, such as but not limited to:
        i. Modeling parameter values, and/or
        ii. Scenarios agreed upon.
3. Technical memo summarizing the regional conceptual HG model is due to Ecology for review forty-five (45) days following execution of agreement.
4. Technical memo summarizing the calibration of the MODFLOW model is due to Ecology for review ninety (90) days following execution of agreement.
5. Draft Hydrogeological Characterization Work Plan Addendum for monitoring well installation and aquifer testing is due to Ecology for review ninety (90) days following execution of agreement. The work plan addendum will include identification of key data gaps.

6. Final Hydrogeological Characterization Work Plan Addendum, addressing Ecology comments on the draft version, is due to Ecology thirty (30) days after receipt of final comments from Ecology.

TASK 2: REGIONAL WELL INSTALLATION AND AQUIFER DATA COLLECTION

Work to be performed under this task will include pre-field coordination, including support for site access and permitting.

It is assumed that the City will install and develop five (5) groundwater monitoring wells to an approximate depth of one-hundred (100) feet, however this task (Task 2) will be revised following both the completion of sub-task 1C and a negotiation with both Ecology and another recipient working on this project under a separate agreement. The scope of work for this Task (2) will be revised following the completion of these negotiations through a formal amendment process. It is expected that the following scope items will be added to this task through the amendment:

- Location of groundwater monitoring wells to be installed,
- Investigation derived waste characterization and off-site disposal,
- Media to be sampled,
- Number of samples to be collected,
- Depth of each installed well, and/or
- Potential additional aquifer data collection in-lieu of well installation.

Regional groundwater monitoring wells will be installed by the City. Groundwater sampling of these wells will be performed by another recipient under a separate agreement. The City may perform aquifer testing to support the modeling of PFAS transport potentially including:

- Pumping tests,
- Water-level monitoring,
- Collection of stream/aquifer data, and/or
- Water quality monitoring as determined in Task 1.

A geological and hydrogeologic analysis will be conducted for drilled soils and logged on field log forms for later boring log preparation, including:

- Field work includes logging:
  - Soil type,
  - Color,
  - Moisture content,
  - Presence of contamination,
  - Presence of waste, and
  - Grain size distribution.
- Select soil samples collected from drilled borings may be submitted for laboratory analysis:
  - Moisture content,
  - Grain size, and
  - Atterberg limits (if needed based on grain size results),

Task 2 Deliverables:

1. Monthly progress reports to be provided to Ecology for review will accompany invoices if a formal deliverable as outlined below is not available for basis of payment.
2. Well installation completion report including draft boring logs and well construction details; due to Ecology thirty (30) days following completion of groundwater well drilling.

3. If water quality (e.g., cations/anions) or physical parameter tests (e.g., grain size) are conducted, analytical laboratory reports will be provided to Ecology within thirty (30) business days of receipt (or as part of the well installation completion report).

TASK 3: PFAS TRANSPORT MODELING AND REPORTING

The MODFLOW model will be refined based on the results of field work conducted by the City under Task 2 and quarterly groundwater monitoring conducted by another recipient under a separate agreement. PFAS transport within the LIV will be modeled under multiple regional pumping scenarios and multiple assumptions regarding source cleanup schedules. This task does not include evaluating remedial technologies at individual source areas, but the MODFLOW model will be constructed to allow such evaluations in the future. The final report will describe the MODFLOW model, the pumping scenarios considered, the cleanup schedules considered, and the results.

Sub-Task 3A: Refine HG and MODFLOW Models
The regional conceptual HG model (Task 1A) will be refined based on the aquifer data collected by the City in Task 2 and additional data collected by another recipient under a separate agreement. The MODFLOW model (Task 1B) will be refined based on the same data and the improved understanding of the HG model. This sub-task will result in a version of the MODFLOW model that can be used to evaluate pumping strategies, remedial objectives and compliance strategies for PFAS in the LIV aquifer system.
Work to be performed will include:

- Data compilation and processing for HG and MODFLOW model refinements based on additional data collected during Task 2 and data collected by a separate party;
- HG model update;
- MODFLOW model refinement, including layering, based on additional data and updated HG model;
- Refinement of steady-state and transient flow MODFLOW calibration;
- Adjustment of MODFLOW grid for fate and transport simulations, including potential local grid refinements;
- Fate and transport calibration for up to three PFAS compounds. Fate and transport calibration will be mostly qualitative and focus on comparison of PFAS plumes over time; and
- Sensitivity analysis will be performed as follows:
    - The sensitivity analysis of the calibration of the MODFLOW model (flow only) will be performed using the steady-state model by varying up to five (5) parameters.
    - The sensitivity analysis of the fate and transport model (i.e., fate and transport PFAS simulation with MT3DMS using the transient MODFLOW model solution) will be evaluated by performing up to five (5) sensitivity runs with combinations of parameters such as:
        - Hydraulic conductivity,
        - Porosity,
        - Sorption, and
        - Dispersivity).

Sub-Task 3B: Agreement On and Evaluation of Regional Pumping Scenarios
The City will coordinate with Sammamish Plateau Water District (SPWD) on a mutual "vision" for future groundwater pumping in the LIV aquifer system for the purpose of water supply. The City will evaluate the agreed-upon future pumping scenarios using the MODFLOW model. Both the City and SPWD have, or intend to, change their groundwater pumping profiles, either permanently or for extended periods. These changes in pumping patterns may have important influences on the future distribution of PFAS in the LIV and on remedial objectives and strategies. Following agreement on the future pumping scenarios, the City

will use the MODFLOW model to evaluate impacts of pumping scenarios on PFAS fate and transport in the LIV. Work to be performed under this sub-task will include:

- Compilation of information on potential future water supply pumping;
- Coordination between the City and SPWD, via phone conferences, on future pumping requirements;
- Up to three (3) 2-hour meetings with the SPWD and/or the PFAS Partnership to define future pumping scenarios;
- Description of potential future pumping scenarios including which water supply wells are pumped, at which times for specific durations;
- Implementation of future scenarios in the MODFLOW model (up to four scenarios) and model simulations; and
- Review and summary of model results.

Sub-Task 3C: Reporting
A draft report documenting the results of the modeling, including recommendations as appropriate, will be completed for review. Upon receipt of comments, they will be incorporated into the final modeling report.

Task 3 Deliverables:

1. Monthly progress reports to be provided to Ecology for review will accompany invoices if a formal deliverable as outlined below is not available for basis of payment.
2. Technical Memo to the PFAS Partnership summarizing pumping scenario evaluations is due to Ecology for review within fifteen (15) business days of completing the coordination with SPWD.
3. City is to provide written meeting minutes to Ecology for review via email for each meeting attended within (5) business days upon completion of meeting.
    a. The minutes will include
        i. Key information presented, and
        ii. Key agreements reached.
4. Draft report on the MODFLOW modeling of pumping scenarios is due to Ecology thirty (30) days following completion of modeling; and
5. Final report on the MODFLOW modeling of pumping scenarios, addressing Ecology comments on the draft version, is due to Ecology thirty (30) days following receipt of final Ecology comments.

Budget

Item	Description	Amount
Task 1	Regional Conceptual Hydrogeological Model, Three-dimensional Numerical Model, Data Gaps, and Hydrogeological Characterization Work Plan	$110,000.00
Task 2	Regional Well Installation and Aquifer Data Collection	$160,000.00
Task 3	PFAS Transport Modeling and Reporting	$130,000.00
	Total Ecology Cost	**$400,000.00**

*Note – task budgets may be moved between tasks without formal amendment process