



Response to Comments

Remedial Investigation and Feasibility Study

Gas Works Park Cleanup Site Sediment Unit Seattle, WA

Toxics Cleanup Program

Washington State Department of Ecology

Northwest Regional Office

Shoreline, Washington

January 2023



Publication Information

This document is available on the Department of Ecology's website at:

<https://apps.ecology.wa.gov/cleanupsearch/site/2876>

Cover photo credit

- Aerial view of Gas Works Park (Ecology)

Related Information

- Clean-up site ID: 2876
- Facility site ID: 139

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¹ www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400
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Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

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DEPARTMENT OF
ECOLOGY
State of Washington

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Public Outreach Summary

The Gas Works Park site is located in Seattle, Washington on Lake Union. It consists of approximately 21 upland acres (Upland Unit) and approximately 56 in-water acres (Sediment Unit). The Gas Works Park Sediment Unit is continuing Washington State's [formal cleanup process](#)² as directed under the Model Toxics Control Act ([MTCA](#)³).

The environmental report (remedial investigation and feasibility study) was prepared by the City of Seattle (City) and Puget Sound Energy (PSE) with Ecology oversight. It describes the areas requiring remediation, identifies and evaluates a range of cleanup action alternatives, and identifies a preferred alternative to address contamination.

The legal agreement (agreed order amendment) between Ecology, the City and PSE, requires development of a preliminary cleanup action plan based on the findings of the environmental report.

The Department of Ecology's public involvement activities related to this 30-day comment period (October 24 – November 22, 2022) included:

- **Fact Sheet:**
 - US mail distribution of a postcard providing information about the cleanup documents, the public comment period, online public meeting to approximately 3,870 addresses including neighboring businesses and other interested parties.
 - Email distribution of the fact sheet to 60 people, including interested individuals, local/county/state/federal agencies, neighborhood associations, and interested community groups.
 - The fact sheet was also available digitally through Ecology's [cleanup site webpage](#)⁴.
- **Legal Notice:**
 - Publication of one paid display ad in *The Seattle Times*, dated Friday, October 21, 2022.
- **Site Register:**
 - Publication of 4 notices in Ecology's Toxics Cleanup Site Register:
 - Comment Period Notice:
 - October 20, 2022
 - November 3, 2022
 - November 17, 2022
 - Response Summary Notice:
 - January 12, 2022
 - Visit [Ecology's Site Register website](#)⁵ to download PDFs.

² <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process>

³ <https://ecology.wa.gov/mtca>

⁴ <https://apps.ecology.wa.gov/cleanupsearch/site/2876>

⁵ <https://apps.ecology.wa.gov/publications/UIPages/PublicationList.aspx?IndexTypeName=Program&NameValue=Toxics+Cleanup&DocumentTypeName=Newsletter>

- **Media Notification:**
 - Ecology sent a media notice on Monday, October 24, 2022, to Seattle area media outlets.
- **Media Coverage:**
 - *The Seattle Times* ran a story in print and [online](#)⁶ on Saturday, November 12, 2022 about the Gas Works Park Sediment Unit cleanup, public outreach, and next steps.
- **Social Media:**
 - **Blog:** On Friday, October 21, 2021, Ecology’s Northwest Regional Office posted a story on [Ecology’s blog](#)⁷, which has approximately 1,200 email subscribers.
 - **Twitter:** Ecology – Northwest Region @ecyseattle posted a [tweet](#)⁸ on Monday, October 24, 2022 connecting readers to the comment period including the cleanup site webpage.
- **Online Public Meeting**
 - Ecology hosted an [online public meeting](#)⁹ Wednesday, November 2, 2022 at 6:30 p.m. through the Zoom meeting application. Interpretation was available in Spanish, Chinese, and Tagalog. Ecology and City of Seattle/Puget Sound Energy environmental consultants presented details on the Gas Works Park Sediment Unit environmental report and answered questions.
- **Websites:**
 - Ecology announced the public comment period, Ecology’s public meeting, posted the fact sheet (including translations in Spanish, Chinese, and Tagalog), and made the review documents available on Ecology’s [Gas Works Park webpage](#)¹⁰ and Ecology’s [Public Inputs & Events webpage](#)¹¹.
- **Document Repositories:**
 - Copies of the review documents and fact sheets (including translations) were available for review at Seattle Public Library’s Fremont Branch.
 - Outreach materials also directed the public to contact Ian Fawley, Outreach Planner, for document review assistance.

⁶ https://www.seattletimes.com/seattle-news/environment/gas-works-park-enters-new-phase-of-cleanup-shoreline-and-lake-bed-to-be-dredged-capped/?utm_source=referral&utm_medium=mobile-app&utm_campaign=ios

⁷ <https://ecology.wa.gov/Blog/Posts/October-2022/Cleaning-up-In-water-cleanup-moving-forward-at-Sea>

⁸ <https://twitter.com/ecyseattle/status/1584578069838594048>

⁹ <https://apps.ecology.wa.gov/cleanupsearch/document/117866>

¹⁰ <https://apps.ecology.wa.gov/cleanupsearch/site/2876>

¹¹ <https://ecology.wa.gov/Events/Search/Listing>

Comment Summary

From October 24 – November 22, 2022, Ecology invited public comments on an environmental report (remedial investigation and feasibility study) and a legal agreement (agreed order amendment) for the Gas Works Park Sediment Unit.

Ecology received comments from six commenters during the 30-day comment period.

Table 1: List of Commenters

	First Name	Last Name	Agency/Organization/Business	Submitted By
1	Benjamin	Schroeter		Individual
2	Jen	B		Individual
3	Jerry	Ninteman		Individual
4	Cheryl	Groff		Individual
5	Shayne	Cothorn	Washington State Department of Natural Resources	Agency
6	Barbara	Orchard Aragon	Arcadis on behalf of Chevron EMC	Business

Next Steps

Ecology has reviewed and considered the public comments received on the documents. Based on Ecology's evaluation of the comments, only an edit to the environmental report's Figure 5-15 to include surface sediment screening data was necessary in the documents, and they are being finalized.

In 2023, Ecology plans to issue a cleanup action plan for public review. From 2023 – 2027, engineering design and permitting will continue, including additional investigations and evaluations to refine the cleanup action and enable detailed design work. Construction is planned to begin in 2027.

See graphic below and visit Ecology's [cleanup process webpage](https://ecology.wa.gov/cleanup-process)¹² to learn more about Washington's formal cleanup process.

¹² <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process>

¹⁵ <https://apps.ecology.wa.gov/publications/SummaryPages/1909166.html>

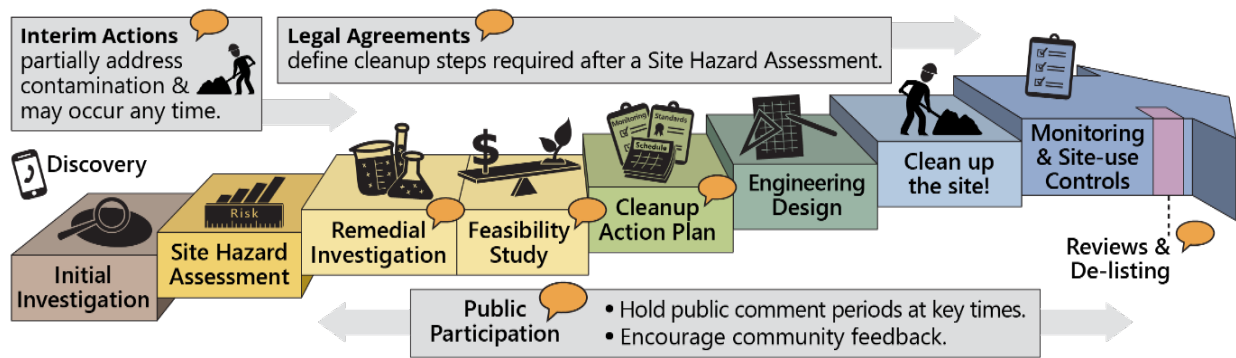


Figure 1: Washington's formal cleanup process ([download a text explanation](#)¹⁵)

Comments and Responses

The public comments are presented below, along with Ecology's responses. Appendix A, page 19, contains the comments in their original format.

Comment from: Benjamin Schroeter

[See original formatted comment with attachment in Appendix A.]

I am all for continued remediation and better caps but don't expect The City of Seattle to cooperate much. The City has always ignored the restrictive covenant they agreed to in 2005, proposing or allowing illegal permits (contrary to the covenant) for massive events on a yearly basis that dislodge polycyclic aromatic hydrocarbons and endanger attendees of these events. And they do this knowingly. If anyone from Ecology needs further evidence of the City's actions (and inactions,) please feel free to contact me.

Response:

The Gas Works Park upland property is subject to a Restrictive Covenant (<https://apps.ecology.wa.gov/cleanupsearch/document/83386>) that prohibits activities that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the remedial action without prior written approval from Ecology. The soil containment cap is comprised of a geotextile or geomembrane separation layer, overlain with 1 to 2 feet of clean soil and vegetation. Ecology is not aware of annual events violating the requirements of the Restrictive Covenant.

The planned in-water sediment cap will also be subject to similar restrictions. The existing Restrictive Covenant will likely be replaced with a new Restrictive Covenant to address both the upland and in-water remedial actions.

Comment from: Jen B

Per the linked article, I implore the decision-makers and all stakeholders to use bioremediation at the Gas Works site - in short, trees that are used to clean contaminated soil often die from the toxins. Microbes could keep those trees healthy—offering a low-cost, low-energy way to clean hazardous sites across the U.S.

https://www.fastcompany.com/90652426/trees-inoculated-with-probiotics-could-clean-up-americas-contaminated-land?mkt_tok=NTI3LUFIUi0yNjUAAAF-JPgOM8jExgWR6XzilywrHoFV0WRzSTZFOfFSmkvNYapbgxzdZGqWhMzeF2D7w6eaYeQSMli30uRieB0EEqNwqES_c7R1lMyUKB09bA

Response:

The upland portion of the Gas Works Park Site has already been remediated and further evaluation of remediation technologies is not necessary.

The remaining areas of the Site to be remediated are the sediment offshore of the uplands, shoreline bank soil, and a limited area of groundwater. The Remedial Investigation/Feasibility Study evaluated a wide range of technologies for effectiveness, implementability, and relative cost to address site-specific contaminants and conditions. Phytoremediation was not identified through the technology screening process as a viable technology for remaining areas of the Site

Comment from: Jerry Ninteman

Thank you for the opportunity to submit these comments on the October 3, 2022 Public Review Draft Remedial Investigation and Feasibility Study for the Gas Works Park Site. I am a long-time resident of the Wallingford neighborhood and frequent park visitor, and therefore have a special interest in seeing that cleanup actions at the site are conducted in the best interests of park users and the surrounding neighborhood.

I have a single overriding comment regarding the document having to do with consistency of the preferred remedial alternative with the end use of the park following completion of cleanup activities. I have long envisioned a swimming area off the south/southeast shoreline to the east of the Prow to allow children and adults to enjoy the water on a hot summer day in full view of the beautiful Seattle skyline. It is not clear from the document if a swimming area/beach was considered in evaluating and selecting the preferred remedy or if the remedy will emplace any restrictions on allowing a swimming area/beach to be established following completion of the remedy. Please clarify these concerns in the revised document and/or in your response to comments.

For example, the conceptual site model and risk evaluation presented in Section 7 of the document focus on current exposure pathways and receptors but do not appear to address other potential exposure pathways and receptors that might be present or could be present following completion of cleanup activities. The document emphasizes current exposure along the shoreline in the context of beach play and wading (see Section 7.5 and Figure 5-15) but

does not identify swimming or swimmers as a pathway or receptor. This may be the case under current conditions where obtrusive signage warns park users against participating in such an activity, but it is my hope that these signs will be removed following cleanup (if so, this should be noted in the description of alternatives). Does the feasibility study consider that these areas will be, or could be, used for open water swimming or does it assume that this will continue to be a restricted activity within these areas following cleanup? Does the feasibility study require slight modifications to incorporate swimming as a potential activity? Potential modifications could include expanding the Direct Contact Wading Exposure Area into deeper water (currently ends at a water depth of 5 ft during summer low water conditions) and including swimmers in the conceptual site model presented on Figure 7-6.

I do not believe that any of my comments will result in the need to make significant changes to the preferred remedy (Alternative 6); limited dredging and 3 ft of capping should provide a high level of protection to park users participating in beach play, wading, and swimming activities off the Gas Works Park shoreline. My final comment/request is for the Parks Department to explore the possibility of incorporating the design of a swimming beach into the dredge and capping plans along a portion of the shoreline east of the Prow. What a wonderful opportunity this cleanup project presents to establish what could become the premier swimming beach in all of Seattle, enhance the overall Gas Works Park experience, and to get the public fully on board with the cleanup.

I look forward to your response to my comments.

Note: Figure 5-15 appears to be missing surface sediment screening data.

Response:

Regarding use of the park for swimming, the Remedial Investigation/Feasibility Study identified exposure pathways related to sediment contamination including beach play and wading (potential exposure pathways for swimmers), net fishing, and bioaccumulation. Exposure to the water in Lake Union is not a concern. The cleanup alternatives evaluated in the Feasibility Study address the identified exposure pathways and are protective for uses of the shoreline including swimming.

Pertaining to your comment/request to Seattle Parks and Recreation, this is a land use issue that is beyond Ecology's cleanup authority, and we encourage you to contact David Graves of Seattle Parks and Recreation at David.Graves@seattle.gov to discuss future planning for the park.

Lastly, we will revise Figure 5-15 to include surface sediment screening data.

Comment from: Cheryl Groff

[See original formatted comment and attachment in Appendix A.]

Response to the Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site

(PDF attached)

Response to the Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site

As daily visitors to Gas Works Park and resident owners of a houseboat moored in Gas Works Park Marina we fully support this initiative and are grateful for this on-going commitment to monitor and further remediate the GWPS. We value this city park highly for the quality outdoor experiences it provides people of all ages, as well as Waterway #19 as one of the last riparian habitats on Lake Union critical to a variety of wildlife.

The Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site is comprehensive. And we appreciate that the authors acknowledge the "diversity of ownership and uses and (that) the required coordination adds a level of complexity to the implementation of remedies." P 10-4

We also note the report states that "Docks and dock infrastructure at the Gas Works Park Marina may affect implementability of some remediation technologies. The area is accessible to construction equipment from Lake Union but would require access agreements with the Gas Works Park Marina and WDNR." P 10-10

Question: At what stage can residents of GWPM expect to be contacted regarding access agreements? Prior to signing the Access Agreement, it would be critical for us to know the following regarding our Sediment Management Area (SMA 7):

- 1) What specific remediation technologies are to be applied and in what sequence**
- 2) How much time will be required to complete each technology & the entire project**
- 3) What project expectations or contractor requirements may impact residents' ability to live in their homes**
- 4) Will health or environmental hazards be heightened during implementation**
And no doubt other considerations will emerge as we learn more about the initiative and the implementation processes.

The report also states that, "Over-water and Underwater Structures — Permanent structures that may impede dredging include the docks and pilings (as well as their supporting underwater cables and wires) within Waterways 19 and 20, Gas Works Park Marina, and Harbor Patrol and the bulkhead associated with the Prow. To prevent undermining or otherwise weakening the Prow structure, dredging would be restricted in the area immediately in front of the bulkhead.

The areas characterized by docks, piles, cable supports, etc. will restrict the access and feasibility of some mechanical dredging equipment, such as cable-arm methods. **Furthermore, dredging in these areas could risk the undermining or weakening existing structures. " P 11-7**

Question: If the remediation technologies do undermine or weaken existing structures how will this be determined and corrected? Will the contractors undertaking the work for the Department of Ecology be responsible to repair the damage? At whose expense and oversight?

Response:

In response to the first question, the residents of the Gasworks Park Marina can expect to be contacted during the design phase of the project, when details on the construction approach and schedule are developed. See anticipated timeline below.

PSE and the City will coordinate with the Gasworks Park Marina during planning for pre-remedial design field investigations and during planning for construction implementation. Planning for construction implementation will include specific details on equipment, sequence, and approach, and will strive to minimize potential disruption to residents. During construction activities the contractor will be required to take appropriate measures to protect human health and the environment.

At present, the anticipated timeline of activities is as follows:

Mid 2023

- Develop a Cleanup Action Plan (CAP) based on the information in the Remedial Investigation and Feasibility Study report (RI/FS). The CAP will describe Ecology's selected cleanup action for the Gas Works Park Sediment Unit - likely the preferred alternative identified in the RI/FS
- Issue the draft CAP for public review. The CAP will be part of a legal agreement between Ecology, PSE, and the City. The legal agreement will require PSE and the City to design and construct the cleanup action described in the CAP.

Late 2023/early 2024

- Begin pre-remedial design investigation work. Additional information is needed to design the cleanup action. PSE and the City will coordinate with affected property owners, including the Gasworks Park Marina, during planning for these activities.

2024 -2027

- Obtain the necessary permissions to complete design and construct the cleanup action - permits, approvals, use authorizations, access agreements (including the Gasworks Park Marina), etc.
- Prepare an engineering design report and construction plans and specifications.

- Select contractor and coordinate construction implementation. PSE and the City will coordinate with affected property owners, including the Gasworks Park Marina, during planning for construction implementation.

2027 - 2029

- Construction. To protect aquatic life, in-water construction activities can only occur between October 1st and April 15th. Therefore, the in-water activities are expected to occur between October 1, 2027, and April 15, 2028, and between October 1, 2028, and April 15, 2029.

In response to the second question, the pre-remedial design investigation work will refine the planned remedial technologies (e.g., footprints, cap thicknesses and composition) and evaluate potential impacts to existing structures. If a potential impact to a structure is identified, the remedial technology and construction approach could be modified to avoid the impact, or, if that is not feasible, the structure may need to be modified to allow implementation of the necessary remedial technology. Since PSE and the City will be responsible for constructing the cleanup action (including any required structure modifications) under a legal agreement with Ecology, they will retain the construction contractor and incur all costs.

Comment from: Washington State Department of Natural Resources (Shayne Cothorn)

[See original formatted comment letter in Appendix A.]

See letter attached.

[DNR Logo]

**DEPARTMENT OF
NATURAL RESOURCES**

Aquatic Resources Division

PO 47027

Olympia, WA 98504-7027

360-902-1100

ARD@DNR.WA.GOV

www.DNR.WA.Gov

November 21, 2022

Lucy McInervey, Site Manager
WA Department of Ecology
PO Box 330316
Shoreline, WA 98133-9716

Subject: Gas Works Park Site Remedial Investigation and Feasibility Study

Dear Ms. McNervy:

The Washington State Department of Natural Resources (DNR) appreciates the opportunity to comment on the draft Remedial Investigation and Feasibility Report (RI/FS) and Agreed Order for the cleanup of the in-water Sediment Unit of the Gas Works Park Site (GWPS) in Seattle.

DNR bases these comments on principles of stewardship and proprietary management derived from legislative defined goals to protect State-owned Aquatic Lands (SOAL) and preserve them for the public's benefit. We appreciate both the project proponent and Ecology's willingness to work together with DNR during the development of this RI/FS to ensure statements related to ownership are correct and that this document properly characterizes the State's interests as they relate to the management of SOAL. We further appreciate Ecology's consideration of these and any future comments related to remediation on this site.

DNR would like to express its support of these efforts and acknowledge the significant progress made towards cleanup on this site. The in-depth characterization of sediment conditions and transport models provide confidence to support the various remedies proposed for different sediment management areas within the GWPS site.

DNR recognizes that the GWPS is a sediment cleanup unit (SCU) within the larger region of compromised sediments of Lake Union. We further understand that additional remedial work will need to occur at other sites throughout Lake Union to bring sediments as a whole up to MTCA/SMS standards. This cleanup is a large step towards that goal.

DNR appreciates the confirmation you provided in your September 16, 2022 correspondence noting that this cleanup will not preclude options for further cleanup of remaining contaminated sediments such as the orphaned contaminants that remain within the Northlake Shipyard management area (NLSY). DNR anticipates the NLSY area will receive additional assessment as a separate MTCA-led effort given the large investment proposed in this RI/FS for the adjacent GWPS.

DNR supports the remedy selected and looks forward to reviewing details provided in the Cleanup Action Plan and Engineering Designs that follow. DNR will help facilitate access for cleanup actions.

Sincerely,

Shayne Cothorn
Site Manager
DNR Aquatic Resources Division
Washington State Department of Natural Resources

Response

We acknowledge DNR's support of the preferred cleanup action alternative and look forward to working with you towards completion of the GWPS SCU-1 cleanup.

Comment from: Arcadis on behalf of Chevron Environmental Management Company (Barbara Orchard Aragon)

[See original formatted comment letter in Appendix A.]

Memo

[Arcadis Logo]

SUBJECT

Comments on Gas Works Park RI/FS Regarding DNAPL

TO

Lucille McInerney, Washington State
Department of Ecology

DATE

November 22, 2022

PROJECT NUMBER

30078450

COPIES TO

Nathan Blomgren, Chevron
Lynn Manolopoulos, Davis Wright Tremaine

NAME

Barbara Orchard Aragon, Arcadis
206-726-4723, Barbara.OrchardAragon@arcadis.com

On behalf of Chevron Environmental Management Company (Chevron), Arcadis U.S., Inc. (Arcadis) is submitting this comment memo on the Gas Works Park (GWP) site Remedial Investigation (RI) and Feasibility Study (FS) provided by the Washington Department of Ecology (Ecology) for public review. At this time, Chevron is providing only focused comments regarding the characterization and interpretation of dense non-aqueous phase liquid (DNAPL) sources as detailed below.

- The 2022 draft GWP RI/FS (Section 5.3.3 DNAPL Distribution and Appendix 5F) identifies a type of DNAPL characterized as "Lower-PAH DNAPL with petroleum" and asserts that this DNAPL type is from a different source because it has "chemical evidence of petroleum". The description and interpretations provided in the RI/FS that claim there is another source of DNAPL originating from overwater petroleum releases are inaccurate based on our review of the GWP RI/FS data, which indicate that NAPL and tar in upland soil and sediments in the western portion of the investigation area appear to originate from the western portion of the GWP site/former ATCO site. The RI/FS should be revised to correct these statements related to sources and types of DNAPL, including, but not limited to, in Section 5.3.3 and Appendix 5F. This comment is based on the following evaluations of the data presented in the RI/FS:
 - GWP site tar and DNAPL samples have polycyclic aromatic hydrocarbon (PAH) concentrations an order of magnitude higher (e.g., estimated 10% for more weathered samples to greater than 15%) compared with petroleum products (i.e., approximately 1% for typical #2 fuel oil). GWP site DNAPL sample alkylated PAH distributions demonstrate pyrogenic signature based on the distribution of alkylated PAHs.

- Based on the analytical data (Table 5B) collected from surface soil, groundwater, and sediment close to South Yard and Harbor Patrol (NAPL areas depicted as area 1, 2, 3 and 5B), most of the samples were dominated by 4-6 ring PAHs. These samples also had elevated high molecular weight PAH concentrations in some areas. Limited diagnostic ratios analysis showed that these samples likely have a pyrogenic origin.
- There are relatively lower PAH concentrations in some upland DNAPL samples (MW-18 and MW-9 duplicate), indicating weathering of DNAPL within some of the GWP site upland DNAPL. This is an example of DNAPL containing relatively lower PAH concentrations than its original manufactured gas plant (MGP) source, which is indicative of weathering of DNAPL or various sources and ages of MGP releases (as PAH concentrations are still significantly greater than typical petroleum products, and these were located within the GWP upland site), rather than a petroleum product as claimed in the RI/FS.
- Based on the limited supplemental PAH data (eight samples) provided in Appendix 5F, sediment sample PAH distributions are characteristic of a pyrogenic source, and the petroleum hydrocarbons identified in a few samples may be from refined MGP petroleum tar given the predominance of PAH peaks. The data for these eight samples indicate:
 - o Six sediment samples are characterized as pyrogenic based on PAH distributions.
 - o Two sediment samples are predominantly benzene, ethylbenzene, and naphthalene.
 - o Three sediment samples have unresolved complex mixture curves on their total ion chromatograms, consistent with the presence of petroleum hydrocarbons. Two of these samples are in the western offshore area of the GWP site, and one is located nearshore adjacent to the Harbor Patrol/GWP site. Petroleum hydrocarbons in these samples are likely associated with refined MGP petroleum tar given the predominance of PAH peaks.
 - o Note that the supplemental dataset used to support claims of the “Lower PAH DNAPL with petroleum” is based on a limited alkylated PAH dataset and lacks total petroleum hydrocarbon data, and Appendix 5F does not include the complete Zymax laboratory report, including biomarker chromatograms and PAH distribution bar charts.
- In addition, it is noted that low molecular weight PAHs can also be from MGP processes (carbureted water gas and oil gas) that use crude oil or other petroleum products as a source material.
- Finally, the evidence indicates that the DNAPL and tar areas (1 to 5) within the western portion of the GWP site sediment area are primarily due to DNAPL and tar releases from GWP activities (upland and/or overwater), and these DNAPL areas appear to be more connected than indicated on the RI/FS Figures (Appendix 5F figures and Figure 5-26B).

References

GeoEngineers, 2022. Public Review Draft Remedial Investigation and Feasibility Study, Gas Works Park Site, Seattle, Washington.

Response

Ecology understands that Arcadis has alternative interpretations of the remedial investigation data. However, the interpretations presented in Section 5.3.3 and Appendix 5F are reasonable and no changes will be made to the Remedial Investigation/Feasibility Study report.

Appendices

Appendix A. Public comments in original format

Benjamin Schroeter

I am all for continued remediation and better caps but don't expect The City of Seattle to cooperate much. The City has always ignored the restrictive covenant they agreed to in 2005, proposing or allowing illegal permits (contrary to the covenant) for massive events on a yearly basis that dislodge polycyclic aromatic hydrocarbons and endanger attendees of these events. And they do this knowingly. If anyone from Ecology needs further evidence of the City's actions (and inactions,) please feel free to contact me.

Benjamin S. Schroeter (pro se)

FILED

09 JUN 12 PM 3:23

KING COUNTY
SUPERIOR COURT CLERK
SEATTLE, WA.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR KING COUNTY

09 - 2 - 22521 - 4 SEA

Benjamin S Schroeter,)
)
Plaintiff/Petitioner)
)
vs.)
)
City of Seattle; One Reel Productions, a)
)
Washington nonprofit corporation)
)
Defendants/Respondents)

Cause No.:

SEPA APPEAL; PETITION FOR WRITS OF
REVIEW AND MANDAMUS AND PETITION
FOR DECLARATORY JUDGMENT AND
INJUNCTIVE RELIEF

CHRISTOPHER A. WASHINGTON

I. INTRODUCTION

1. Plaintiff/petitioner Benjamin S. Schroeter brings this action to obtain judicial review of the City of Seattle Parks Department's ("Parks") continued issuance of Special Event Permits for large events both public and private in Gas Works Park without first conducting the required SEPA environmental review to determine potential impacts and hazards said events may cause as is required by State Environmental Policy Act, Ch. 43.21 RCW.

2. Currently Parks is in process of issuing a permit to One Reel Productions for a large event on July 4th (The Chase Family 4th) that is currently in the "application" process; application number SO9JY129. Although it is only in the application process, this event has been rubber stamped with approval by the Parks Special Events office and will be permitted as it has every year for some time. For this event petitioner seeks an injunction precluding the issuance of any permits since SEPA has not been performed.

3. Some of these events in and around Gas Works Park, (a partially-remediated toxic waste site,) are of such size and scope that clearly the city is required to perform a SEPA environmental review to establish if said events:

Ben Schroeter (pro se)

- a. Are produced safely and do not dislodge or stir up any of the existing toxics below ground that may contaminate park patrons and their pets; neighborhood residents; and the park itself.
- b. May impact park patrons' and neighborhood residents' health, safety, and comfort from loud associated noise.
- c. May impact park patrons' and neighborhood residents' health, safety, and comfort from associated traffic.
- d. May impact park patrons and neighborhood residents' health, safety, and comfort from generated pollution or waste (human or otherwise.)
- e. May impact park patrons and neighborhood residents' access to public and private areas.
- f. May impact wildlife and protected species that share the park and the waters surrounding the park.

4. No environmental review, or SEPA work has ever been done for any Special Events Permits issued for Gas Works Park despite the fact that Parks' knowledge that these large permitted events will likely cause temporary (if not permanent) significant negative impacts to the park and surrounding residents.

5. Petitioner requests alternative relief pursuant to a statutory writ of review, Ch. 7.16 RCW; a constitutional writ of review; a statutory writ of mandamus, a constitutional writ of mandamus; the Declaratory Judgment Act, Ch. 7.24 RCW; and/or SEPA.

II. PARTIES AND DECISION

6. The petitioner is Benjamin S. Schroeter, a lifelong Seattle resident and user of Gas Works Park. Petitioner is also a holder of a Washington State fishing license and uses the park and surrounding waters for year round fishing activities.

7. Defendants/respondents are the City of Seattle and One Reel Productions.

8. *Schroeter has standing by the City's failure to conduct environmental review for One Reel's proposed use of the park.* The decisions at issue here prejudice Schroeter by interfering with his use and enjoyment of the park. Since no environmental review is being done, nor is any monitoring for the possible release of dangerous chemicals being undertaken, there is currently no way to determine if the park is safe from contaminants or if the fish in Lake Union have been killed by fireworks debris.

9. Protection of the environment are among those interests that the City must consider in performing its duties and in applying the requirements of SEPA. Judgment in favor of Schroeter would substantially eliminate or redress the prejudice caused or likely to be caused by the City's decisions because such a judgment would require adequate environmental review to be concluded before any work is done or approvals for the events are granted.

Ben Schroeter (pro se)

1
2 **III. STATEMENT OF FACTS**

3 10. Gas Works Park is one of the City of Seattle's most famous and acclaimed parks. It is approximately 20.5 acres
4 and sits prominently on the shores of Lake Union. Originally, it was the site of a Native American fishing village. In the early
5 1900s, it was owned privately to produce gas from coal, among other uses. In 1962, the City of Seattle purchased the site from
6 the Washington Natural Gas Company. Efforts in the 1970s and 1980s were made to remediate contaminated areas of the park.

7 11. In 1971, the Gas Works Park master plan was adopted. In 1973, Gas Works Park was opened to the public.

8 12. The park (or sections thereof) have been closed to the public several times over the years for continuing cleanup of
9 the toxic wastes that permeate the site and the City entered into a Consent Decree with the Department of Ecology in 1999 (and
10 then revised the agreement in 2005.) Despite the clean bill of health for public use, there are still toxic contaminants existing in a
11 remediated form in the ground in the park. These contaminants could be disturbed by activities during construction and staging of
12 events during the massive 4th of July event. There are also unremediated areas in the park that are fenced off to the public.

13 13. In 2002, the Washington State Governor's Council on Historic Preservation voted unanimously that Gas Works
14 Park be on the State Register of Historic Places. Thousands of people use Gas Works Park each year. The park contains a
15 playground, numerous bike and walking paths, picnic areas, and areas to view the beautiful landscapes of Lake Union and the
16 surrounding city.

17 14. Plans to use Gas Works Park for One Reel's "Summer Nights" concert series was announced at a public meeting in
18 Wallingford on December 22, 2005 followed by a city press release on approximately as December 23, 2005. At that time, it was
19 announced that Gas Works Park would be the new permanent home for the concert series.

20 15. In February of 2006 a suit against Parks and One Reel was filed in King County Superior Court by Friends of Gas
21 Works Park; this action was seeking similar relief to the relief sought here: that Parks' had failed to do any SEPA work for this
22 activity.

23 16. On June 27th 2006 a motion for summary judgment hearing requested by Parks' was heard in the courtroom of
24 Chief Civil Judge Dean S. Lum. Judge Lum denied Parks' motion and stated quite clearly that he believed that the issue of
25 producing such a large event on top of a toxic waste site should entertain SEPA review before proceeding and that if the case
26 went forward that he was inclined to rule in favor of Friends. Friends then dismissed the complaint in a settlement after the city
27 agreed to conduct environmental review prior to issuing any permits for the concert series.

28 Ben Schroeter (pro se)

1 17. Yet the very next year Parks issued a permit to a production company for a "secret" birthday bash for Seattle
2 business mogul Stuart Sloan. Through the process of the issuance of the permit(s) Parks' misrepresented the size and scope of
3 the event to local residents who became concerned with all the building and heavy machinery in the park. In the end, the
4 footprint for the event was similar in size and scope as the proposed Summer Nights concerts and quite obviously was the exact
5 type of activity that Judge Lum indicated should have a SEPA review.

6 18. Petitioner Schroeter could not fathom how Parks could have misunderstood Judge Lum's words at the 6/27/06
7 hearing and launched a Public Records Request seeking documents related to events at Gas Works Park. The production of
8 documents was hindered and delayed by the city with Schroeter eventually having to sue the city. Many documents were
9 withheld for over a year and that case was recently settled and a penalty was paid by the city to the petitioner.

10 19. Public records produced by the city showed that special privileges were extended to certain corporate permit
11 holders (such as One Reel) that were denied to smaller applicants including, but not limited to, allowing large machinery on the
12 grass (the grass being part of the "cap" along with 12 to 18 inches of soil that cover the toxic stew below) and allowing untrained
13 persons to access closed unremediated areas. These requirements that are normally in place are intended to protect the cap and
14 are for the safety of all park visitors.

15 20. Petitioner Schroeter visited the "set-up" of the 2008 4th of July event on 07/03/08 and photographed large chunks
16 of the sod and grass cap that had been ripped away by heavy machinery. Schroeter then fled the park as he did not want to be
17 exposed to toxic chemicals that may have wafted out of the perforated cap.

18 21. Petitioner has made repeated requests that Parks' follow the law and do SEPA work, but Parks' continues to assert
19 that they are exempt from the law.

20 22. To date, no environmental review has been conducted by the City of Seattle for large events that use Gas Works
21 Park. To date, no environmental checklist has been submitted by One Reel or the Parks Department to the City of Seattle as the
22 basis for any environmental review.

23 23. Only one lane arterials exist to access Gas Works Park currently. Gas Works has public parking for approximately
24 121 cars of which a large portion of that will be taken over by the permit holder as a staging ground for large events. Thus, it is
25 clear that an immense amount of parking will spill onto surrounding streets during large events. Parking and traffic congestion
26 significantly impacts the surrounding neighborhood on the 4th of July to the point that Seattle Police must provide hundreds of
27
28

Ben Schroeter (pro se)

1 officers to direct traffic throughout the Wallingford neighborhood and beyond and they even close streets and arterials such as the
2 Aurora Bridge.

3 24. This year, with the cancellation of the Ivar's fireworks show downtown over Elliot Bay, the police are estimating
4 that as many as 50,000 more people may descend upon the surrounding Lake Union neighborhoods. At a Parks' Special Events
5 Committee hearing on May 13th 2009 Seattle Police staff expressed extreme concern over the lack of any planning by Parks and
6 One Reel to consider the impacts of the additional burdens that will come with more people in attendance for this event. The
7 primary concerns raised were:

8 a. That the park will become overcrowded and there must be controls to monitor crowd size and prevent entry
9 when it gets full.

10 b. That there will be serious problems with the "overflow" crowds not allowed entry that will have no toilet
11 facilities (as One Reel only provides them inside.) This scenario will likely lead to event attendees urinating
12 and defecating wherever they can find a place, (likely on local homeowners properties.)

13 c. That the unknown amount of extra attendees will bring traffic in some areas to a virtual standstill until long
14 after midnight.

15 25. To date, no mitigation measures or mitigation plan for the significant impacts to be caused by the event in Gas
16 Works Park has been adopted or required by the City.

17 **IV. STATEMENT OF ERRORS COMMITTED**

18 26. Petitioner contends that the following errors were committed by the City of Seattle:

19 Based upon the above, the City has not met, among others, the following requirements of SEPA:

20 i. The purpose of SEPA is "to provide consideration of environmental factors at the earliest possible
21 stage to allow decisions to be based on complete disclosure of environmental consequences." King County v.
22 Boundary Review Board, 122 Wn.2d 648, 664 (1993). See also WAC 197-11-055(1) ("the SEPA process
23 shall be integrated with the agency activities at the earliest possible time to ensure that planning decisions
24 reflect environmental values . . .").

25 ii. SEPA requires environmental review for any "new and continuing activities (including projects and
26 programs) entirely or partly financed, assisted, conducted, regulated, licensed, or approved by agencies."
27 WAC 197-11-704(1).
28

Ben Schroeter (pro se)

1 iii. SEPA prohibits a government agency from taking action concerning a proposal that would have an
2 adverse environmental impact or limit the choice of reasonable alternatives before environmental review is
3 conducted and a threshold determination is made. WAC 197-11-070.

4 iv. SEPA requires prompt and early environmental review of a proposal even where portions of that
5 proposal may be categorically exempt. WAC 197-11-305. An agency or applicant may only proceed with
6 exempt portions of a proposal where it can be shown that WAC 197-11-070 is met. Id.

7 v. If a proposal will cause significant probable environmental impacts, as is the case here, an EIS must
8 be prepared. The "point of an EIS is to not evaluate agency decisions after they are made, but rather to
9 provide environmental information to assist with making those decisions." *King County*, supra, 122 Wn.2d at
10 666. See also WAC 197-11-400(10) ("EISs shall serve as the means of assessing the environmental impact of
11 proposed agency action, rather than justifying decisions already made.").

12 vi. SEPA requires evaluation of alternatives in an EIS. See RCW 43.21C.031(1); WAC 197-11-
13 030(2)(g). "There must be a reasonably detailed analysis of a reasonable number and range of alternatives."
14 *Weyerhaeuser v. Pierce County*, 124 Wn.2d 26, 41 (1994). An EIS also must evaluate probable significant
15 adverse environmental impacts. RCW 43.21C.031(1); WAC 197-11-794.

16 vii. A decision based upon an inadequate or no environmental review is illegal under SEPA.

17 viii. All of the above Department of Ecology regulations have been adopted by the City in its municipal
18 code. Seattle Municipal Code 25.05.010, .020, .030, .055, .070, .305, .400, .704, and .794.

19 **V. PETITION FOR CONSTITUTIONAL WRIT OF REVIEW**

20 A. *Petitioner hereby incorporated all allegations and claims stated above.*

21 B. The fundamental rights of Petitioner to be free of arbitrary, capricious, and illegal actions warrant the exercise of
22 this Court's inherent authority to review the decisions described above. For the reasons demonstrated in §§ II-IV above,
23 the decisions are arbitrary, capricious, and illegal and should be vacated by this Court.

24 **VI. PETITION FOR STATUTORY WRIT OF REVIEW**

25 Pursuant to Ch. 17.16 RCW, Petitioner requests issuance of a statutory writ of review and alleges as follows in support
26 of such request:

27 A. Petitioner incorporates by reference all of the allegations and claims stated above.

28 Ben Schroeter (pro se)

1 B. Petitioner has no appeal nor any plain, speedy, and adequate remedy at law within the meaning of RCW 7.16.040.

2 The Court should issue a statutory writ of review to review the exercise of those functions and to determine whether the
3 City has exceeded its jurisdiction or acted illegally, or whether there is any other basis under RCW 7.16.120 to set aside
4 the action at issue herein.

5 **VII. PETITION FOR DECLARATORY JUDGMENT**

6 A. Petitioner incorporates by this reference all of the allegations and claims stated above.

7 B. Petitioner requests the Court, pursuant to RCW 7.24, et seq., to declare and affirm that any decisions by the City
8 approving or enabling these events to go forward in Gas Works Park were based upon an inadequate environmental
9 review and are inadequate and invalid under SEPA. Therefore, the Court should declare that and any decisions
10 approving large scale events in the park are vacated until full and adequate environmental review for the events are
11 conducted by the City.

12 C. Petitioner also request the Court to declare that any future decision or application to allow use of Gas Works Park
13 for large scale events must be based upon full compliance with all of SEPA's requirements.

14 **VIII. PETITION FOR STATUTORY WRIT OF MANDAMUS**

15 Pursuant to Ch. 7.16 RCW, Petitioner requests issuance of a statutory writ of mandamus and alleges as follows in
16 support of its request:

17 A. Petitioner hereby incorporates all allegations and claims stated above.

18 B. Petitioner has no appeal nor any plain, speedy, and adequate remedy at law to address the City of Seattle's acts and
19 omissions within the meaning of RCW 7.16.160 and, thus, requests this Court to grant a statutory writ of mandamus
20 compelling the City to conduct complete and adequate environmental review pursuant to SEPA for all decisions
21 allowing use of any part of Gas Works Park for large scale events by One Reel or any other production company.

22 C. The City is an inferior entity that has failed to perform its duties as required by law.

23 **IX. PETITION FOR CONSTITUTIONAL WRIT OF MANDAMUS**

24 Pursuant to Article VI of the Washington State Constitution, Petitioner requests issuance of a constitutional writ of
25 mandamus and alleges as follows in support of its request:

26 A. Petitioner hereby incorporates all allegations and claims stated above.

27
28 *Ben Schroeter (pro se)*

1 B. If the Court determines, for any reason, that a statutory writ of mandamus is not available to Petitioner to enable it to
2 obtain the relief requested, then Petitioner asks the Court to exercise its inherent authority to review the decisions and
3 actions of the City that are at issue in this matter and to compel the City to conduct complete and adequate
4 environmental review pursuant to SEPA for all decisions allowing use of any part of Gas Works Park for large scale
5 events by One Reel or any other production company.

6 C. The fundamental rights of Petitioner to be free of arbitrary, capricious, and illegal actions warrant the exercise of this
7 Court's inherent authority to review the decisions, acts and omissions of the City and issue the requested writ of
8 mandamus.

9 X. SEPA

10 A. Petitioner incorporates by reference all of the allegations and claims stated above.

11 B. RCW 43.21C.075 provides a basis for challenging whether a government action is in compliance with the
12 substantive and procedural requirements of SEPA. Here, the City has violated SEPA by failing to require or conduct
13 any environmental review before allowing One Reel's proposal to go forward without conducting any environmental
14 review and without considering the need to deny or mitigate One Reel's proposal pursuant to the City's substantive
15 authority under SEPA.

16 XI. PRAYER FOR RELIEF

17 Having presented Petitions for Statutory and Constitutional Writs of Review, Statutory and Constitutional Writs of
18 Mandamus, and Declaratory Judgment, Petitioner requests the following relief:

- 19 1. That this Court review the decisions brought before it by way of this petition;
- 20 2. That the Court command the City of Seattle to prepare an index of the record proposed to be submitted to enable the
21 Court to review the matter, and to work cooperatively with petitioner to determine what records are necessary and
22 appropriate to complete such judicial review;
- 23 3. That this Court determine and declare that any decision approving or enabling One Reel's 4th of July event to go
24 forward in Gas Works Park is unlawful and invalid pursuant to the requirements of SEPA and therefore is vacated;
- 25 4. That this Court command and compel the City to abstain from any further decisions by the City approving or
26 enabling the large scale events to take place in Gas Works Park until full and adequate environmental review compliant
27 with all requirements of SEPA is completed;

28 Ben Schroeter (pro se)

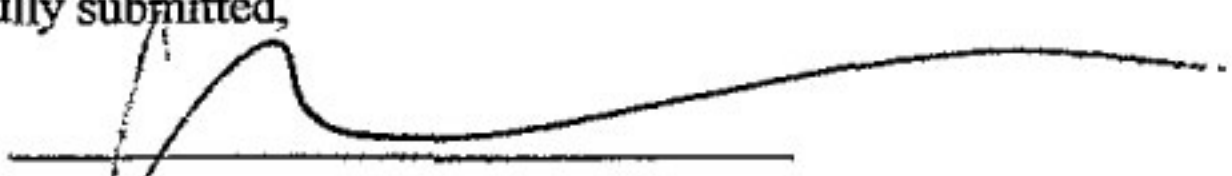
1 6. For leave to amend this petition as may be necessary and appropriate;

2 7. For an award of Petitioner's costs and disbursements incurred in bringing this action and an award of petitioner's
3 statutory attorney's fee; and

4 8. For such other relief as the Court deems just and necessary.

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7 Dated this 17th day of June, 2009.

8 Respectfully submitted,

9 By: 

10 Benjamin S. Schroeter (pro se)

11 2349 NE 127th ST.

12 Seattle Washington 98125

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28 Ben Schroeter (pro se)

Jen B

Per the linked article, I implore the decision-makers and all stakeholders to use bioremediation at the Gas Works site - in short, trees that are used to clean contaminated soil often die from the toxins. Microbes could keep those trees healthy—offering a low-cost, low-energy way to clean hazardous sites across the U.S.

https://www.fastcompany.com/90652426/trees-inoculated-with-probiotics-could-clean-up-americas-contaminated-land?mkt_tok=NTI3LUFlU0YnNjUAAAF-JPgOM8jExgWR6XzjlywrHofV0WRzSTZFOFSmkvNYapbgczdZGqWbMzeF2D7w6eaYeQSMI30uRieB0EEqNwqES_c7R1IMyUKB09bA

Jerry Ninteman

Thank you for the opportunity to submit these comments on the October 3, 2022 Public Review Draft Remedial Investigation and Feasibility Study for the Gas Works Park Site. I am a long-time resident of the Wallingford neighborhood and frequent park visitor, and therefore have a special interest in seeing that cleanup actions at the site are conducted in the best interests of park users and the surrounding neighborhood.

I have a single overriding comment regarding the document having to do with consistency of the preferred remedial alternative with the end use of the park following completion of cleanup activities. I have long envisioned a swimming area off the south/southeast shoreline to the east of the Prow to allow children and adults to enjoy the water on a hot summer day in full view of the beautiful Seattle skyline. It is not clear from the document if a swimming area/beach was considered in evaluating and selecting the preferred remedy or if the remedy will emplace any restrictions on allowing a swimming area/beach to be established following completion of the remedy. Please clarify these concerns in the revised document and/or in your response to comments.

For example, the conceptual site model and risk evaluation presented in Section 7 of the document focus on current exposure pathways and receptors but do not appear to address other potential exposure pathways and receptors that might be present or could be present following completion of cleanup activities. The document emphasizes current exposure along the shoreline in the context of beach play and wading (see Section 7.5 and Figure 5-15) but does not identify swimming or swimmers as a pathway or receptor. This may be the case under current conditions where obtrusive signage warns park users against participating in such an activity, but it is my hope that these signs will be removed following cleanup (if so, this should be noted in the description of alternatives). Does the feasibility study consider that these areas will be, or could be, used for open water swimming or does it assume that this will continue to be a restricted activity within these areas following cleanup? Does the feasibility study require slight modifications to incorporate swimming as a potential activity? Potential modifications could include expanding the Direct Contact Wading Exposure Area into deeper water (currently ends at a water depth of 5 ft during summer low water conditions) and including swimmers in the conceptual site model presented on Figure 7-6.

I do not believe that any of my comments will result in the need to make significant changes to the preferred remedy (Alternative 6); limited dredging and 3 ft of capping should provide a high level of protection to park users participating in beach play, wading, and swimming activities off the Gas Works Park shoreline. My final comment/request is for the Parks Department to explore the possibility of incorporating the design of a swimming beach into the dredge and capping plans along a portion of the shoreline east of the Prow. What a wonderful opportunity this cleanup project presents to establish what could become the premier swimming beach in all of Seattle, enhance the overall Gas Works Park experience, and to get the public fully on board with the cleanup.

I look forward to your response to my comments.

Note: Figure 5-15 appears to be missing surface sediment screening data.

Cheryl Groff

Response to the Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site
(PDF attached)

Response to the Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site

As daily visitors to Gas Works Park and resident owners of a houseboat moored in Gas Works Park Marina we fully support this initiative and are grateful for this on-going commitment to monitor and further remediate the GWPS. We value this city park highly for the quality outdoor experiences it provides people of all ages, as well as Waterway #19 as one of the last riparian habitats on Lake Union critical to a variety of wildlife.

The Draft Remedial Investigation & Feasibility Study for the Gas Works Park Site is comprehensive. And we appreciate that the authors acknowledge the “diversity of ownership and uses and (that) the required coordination adds a level of complexity to the implementation of remedies.” P 10-4

We also note the report states that “Docks and dock infrastructure at the Gas Works Park Marina may affect implementability of some remediation technologies. The area is accessible to construction equipment from Lake Union but would require access agreements with the Gas Works Park Marina and WDNR.” P 10-10

Question: At what stage can residents of GWPM expect to be contacted regarding access agreements? Prior to signing the Access Agreement, it would be critical for us to know the following regarding our Sediment Management Area (SMA 7):

- 1) What specific remediation technologies are to be applied and in what sequence**
- 2) How much time will be required to complete each technology & the entire project**
- 3) What project expectations or contractor requirements may impact residents’ ability to live in their homes**
- 4) Will health or environmental hazards be heightened during implementation**

And no doubt other considerations will emerge as we learn more about the initiative and the implementation processes.

The report also states that, “Over-water and Underwater Structures – Permanent structures that may impede dredging include the docks and pilings (as well as their supporting underwater cables and wires) within Waterways 19 and 20, Gas Works Park Marina, and Harbor Patrol and the bulkhead associated with the Prow. To prevent undermining or otherwise weakening the Prow structure, dredging would be restricted in the area immediately in front of the bulkhead. The areas characterized by docks, piles, cable supports, etc. will restrict the access and feasibility of some mechanical dredging equipment, such as cable-arm methods. **Furthermore, dredging in these areas could risk the undermining or weakening existing structures.**” P 11-7

Question: If the remediation technologies do undermine or weaken existing structures how will this be determined and corrected? Will the contractors undertaking the work for the Department of Ecology be responsible to repair the damage? At whose expense and oversight?

Shayne Cothern

See letter attached.



**DEPARTMENT OF
NATURAL RESOURCES**

Aquatic Resources Division

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November 21, 2022

Lucy McNervy, Site Manager
WA Department of Ecology
PO Box 330316
Shoreline, WA 98133-9716

Subject: Gas Works Park Site Remedial Investigation and Feasibility Study

Dear Ms. McNervy:

The Washington State Department of Natural Resources (DNR) appreciates the opportunity to comment on the draft Remedial Investigation and Feasibility Report (RI/FS) and Agreed Order for the cleanup of the in-water Sediment Unit of the Gas Works Park Site (GWPS) in Seattle.

DNR bases these comments on principles of stewardship and proprietary management derived from legislative defined goals to protect State-Owned Aquatic Lands (SOAL) and preserve them for the public's benefit. We appreciate both the project proponent and Ecology's willingness to work together with DNR during the development of this RI/FS to ensure statements related to ownership are correct and that this document properly characterizes the State's interests as they relate to the management of SOAL. We further appreciate Ecology's consideration of these and any future comments related to remediation on this site.

DNR would like to express its support of these efforts and acknowledge the significant progress made towards cleanup on this site. The in-depth characterization of sediment conditions and transport models provide confidence to support the various remedies proposed for different sediment management areas within the GWPS site.

DNR recognizes that the GWPS is a sediment cleanup unit (SCU) within the larger region of compromised sediments of Lake Union. We further understand that additional remedial work will need to occur at other sites throughout Lake Union to bring sediments as a whole up to MTCA/SMS standards. This cleanup is a large step towards that goal.

DNR appreciates the confirmation you provided in your September 16, 2022 correspondence noting that this cleanup will not preclude options for further cleanup of remaining contaminated sediments such as the orphaned contaminants that remain within the Northlake Shipyard management area (NLSY). DNR anticipates the NLSY area will receive additional assessment as a separate MTCA-led effort given the large investment proposed in this RI/FS for the adjacent GWPS.

DNR supports the remedy selected and looks forward to reviewing details provided in the Cleanup Action Plan and Engineering Designs that follow. DNR will help facilitate access for cleanup actions.



**DEPARTMENT OF
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Sincerely,

Shayne Cothern
Site Manager
DNR Aquatic Resources Division
Washington State Department of Natural Resources

SUBJECT

Comments on Gas Works Park RI/FS Regarding DNAPL

TOLucille McInerney, Washington State
Department of Ecology**DATE**

November 22, 2022

PROJECT NUMBER

30078450

COPIES TONathan Blomgren, Chevron
Lynn Manolopoulos, Davis Wright Tremaine**NAME**Barbara Orchard Aragon, Arcadis
206-726-4723, Barbara.OrchardAragon@arcadis.com

On behalf of Chevron Environmental Management Company (Chevron), Arcadis U.S., Inc. (Arcadis) is submitting this comment memo on the Gas Works Park (GWP) site Remedial Investigation (RI) and Feasibility Study (FS) provided by the Washington Department of Ecology (Ecology) for public review. At this time, Chevron is providing only focused comments regarding the characterization and interpretation of dense non-aqueous phase liquid (DNAPL) sources as detailed below.

- The 2022 draft GWP RI/FS (Section 5.3.3 DNAPL Distribution and Appendix 5F) identifies a type of DNAPL characterized as “Lower-PAH DNAPL with petroleum” and asserts that this DNAPL type is from a different source because it has “chemical evidence of petroleum”. The description and interpretations provided in the RI/FS that claim there is another source of DNAPL originating from overwater petroleum releases are inaccurate based on our review of the GWP RI/FS data, which indicate that NAPL and tar in upland soil and sediments in the western portion of the investigation area appear to originate from the western portion of the GWP site/former ATCO site. The RI/FS should be revised to correct these statements related to sources and types of DNAPL, including, but not limited to, in Section 5.3.3 and Appendix 5F. This comment is based on the following evaluations of the data presented in the RI/FS:
 - GWP site tar and DNAPL samples have polycyclic aromatic hydrocarbon (PAH) concentrations an order of magnitude higher (e.g., estimated 10% for more weathered samples to greater than 15%) compared with petroleum products (i.e., approximately 1% for typical #2 fuel oil). GWP site DNAPL sample alkylated PAH distributions demonstrate pyrogenic signature based on the distribution of alkylated PAHs.
 - Based on the analytical data (Table 5B) collected from surface soil, groundwater, and sediment close to South Yard and Harbor Patrol (NAPL areas depicted as area 1, 2 ,3 and 5B), most of the samples were dominated by 4-6 ring PAHs. These samples also had elevated high molecular weight PAH concentrations in some areas. Limited diagnostic ratios analysis showed that these samples likely have a pyrogenic origin.
 - There are relatively lower PAH concentrations in some upland DNAPL samples (MW-18 and MW-9 duplicate), indicating weathering of DNAPL within some of the GWP site upland DNAPL. This is an example of DNAPL containing relatively lower PAH concentrations than its original manufactured gas plant (MGP) source, which is indicative of weathering of DNAPL or various sources and ages of MGP releases (as PAH concentrations are still significantly greater than typical petroleum products, and these were located within the GWP upland site), rather than a petroleum product as claimed in the RI/FS.

- Based on the limited supplemental PAH data (eight samples) provided in Appendix 5F, sediment sample PAH distributions are characteristic of a pyrogenic source, and the petroleum hydrocarbons identified in a few samples may be from refined MGP petroleum tar given the predominance of PAH peaks. The data for these eight samples indicate:
 - o Six sediment samples are characterized as pyrogenic based on PAH distributions.
 - o Two sediment samples are predominantly benzene, ethylbenzene, and naphthalene.
 - o Three sediment samples have unresolved complex mixture curves on their total ion chromatograms, consistent with the presence of petroleum hydrocarbons. Two of these samples are in the western offshore area of the GWP site, and one is located nearshore adjacent to the Harbor Patrol/GWP site. Petroleum hydrocarbons in these samples are likely associated with refined MGP petroleum tar given the predominance of PAH peaks.
 - o Note that the supplemental dataset used to support claims of the “Lower PAH DNAPL with petroleum” is based on a limited alkylated PAH dataset and lacks total petroleum hydrocarbon data, and Appendix 5F does not include the complete Zymax laboratory report, including biomarker chromatograms and PAH distribution bar charts.
- In addition, it is noted that low molecular weight PAHs can also be from MGP processes (carbureted water gas and oil gas) that use crude oil or other petroleum products as a source material.
- Finally, the evidence indicates that the DNAPL and tar areas (1 to 5) within the western portion of the GWP site sediment area are primarily due to DNAPL and tar releases from GWP activities (upland and/or overwater), and these DNAPL areas appear to be more connected than indicated on the RI/FS Figures (Appendix 5F figures and Figure 5-26B).

References

GeoEngineers, 2022. Public Review Draft Remedial Investigation and Feasibility Study, Gas Works Park Site, Seattle, Washington.