Timeline of Activities at the Bremerton MGP

Year	Action	Description	
2010	Time Critical Removal Action (TCRA)	Cascade issued Administrative Order for Pollution Incident (Order) by US Coast Guard (USCG) to implement response action at the Site under the oversight of USCG. Cascade developed Incident Action and TCRA Work Plan. The removal action satisfied the following objectives of the Incident Action and TCRA Work Plan: The pipe was located and traced to the shoreline. The pipe was plugged as close as practicable to the shoreline, at the location specified in the Incident Action and TCRA Work Plan. All pipe sections downgradient of the new plug were removed together with all overburden sediments. All excavations were filled to grade with clean beach material. The organoclay mat was placed over the area of impacted sediments specified in the Incident Action and TCRA Work Plan. More details of activities can be found at https://response.epa.gov/bremertongasworks	
2011	Inspections & EPA Requests/Meetings	To ensure that control measures on the beach have not changed weekly inspections of the beach were conducted	
2012	Inspections & EPA Requests/Meetings	EPA place the Bremerton Gasworks Site on the National Priorities List (NPL) (https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1002907) Cascade continued to work with the EPA on the Draft Settlement Agreement and Order of Consent (AOC) and the Statement of Work (SOW).	
2013	Time Critical Removal Action (TCRA) CNG & EPA sign AOC	In May, Cascade and EPA signed an Administrative Order on Consent ("AOC"), in which Cascade Natural Gas agreed to perform a removal assessment remedial investigation and feasibility study and any early actions identified during the removal assessment. On June 27, Cascade submitted the Final Bremerton Gasworks Removal Evaluation Work Plan (RE WP) to the EPA, EPA approved the plan on July 2, 2013. July, Cascade, with EPA oversight, sampled the beach sediment for PAHs and investigated the existing manholes and pipes leading from the Site. Work was done in accordance with the approve RE WP. July 25, 2013, the Cascade team meet with EPA to discuss the result of the beach sampling. The areas of concern were discussed in great length and options that would be protective until the RI/FS was final. 2013 TCRA actions were agreed to based on sample results and other site conditions. October, TCRA actions completed included: • Removing solid hydrocarbon material identified in the western beach area	

 Scoping Memorandum Beach inspection were completed quarterly to monitor performance of the 2010 and 2013 TCRA. January, draft documents were prepared and submitted to EPA as a first set of deliverables to sup Draft Scoping Memorandum. 	
 March, site catch basin was replace and connected to City storm drain as part of the 2013 TCRA. Draft portions of the upcoming Scoping Memorandum and a preliminary investigation approach w submitted to EPA on 4/16/2014. A meeting between EPA and Cascade to discuss these elements v on 4/21/2014. A preliminary description and rationale for the Initial Study Area was submitted to 4/30/3014. EPA provided comments on 5/20/2014. Excess soil from the site catch basin replacement (part of the 2013 TCRA) was hauled off to Cemer disposal on 4/3/2014. The draft Removal Action Report was submitted to EPA on 4/28/2014. EPA comments were receiv 4/28/2014. The final Removal Action Report was submitted to EPA on 5/14/2014. EPA approved the in a letter dated May 29, 2014. Monthly status calls were conducted with EPA. The draft Scoping Memorandum and site database were submitted for EPA review on 8/2/14. A public meeting was conducted on 9/9/14. The former containment area on the site was inspected on 9/25/14, following a significant rain even 9/24/14 (defined in the Removal Action Report as greater than 0.5-inches of rain in a 24-hour periconfirm the effectiveness of the Removal Action at preventing water accumulation in the contain No standing water was observed in the tank containment area on 9/25/14. Cascade received EPA's comments on the Draft Scoping Memorandum on 10/27/14. A call was contained and the contained area on 9/25/14. Cascade submitted a response to comments and a redline Draft Final Scoping Memorandum to EP review on 11/20/14. In a letter dated December 9, 2014 Cascade requested an extension of the due date for submittal final scoping memorandum until 21 days after Cascade Receives EPA's comments on the Draft Final Memorandum. EPA approved the request in letter dated December 9, 2014. 	vere vas held EPA on c for ed on ne report ent on od), to nent area. nducted A for of the

		 Draft outlines for the Remedial Investigation/Feasibility Study (RI/FS) work Plan and Sampling and Analysis Plans for the marine and upland portions of the Site were submitted to EPA for review on 12/17/14.
2015	Final Scoping Memorandum Draft Remedial Investigation and Feasibility Study Work Plan (RI/FS)	 Monthly status calls were conducted with EPA throughout the year. An additional call was conducted on 2/10/15 to discuss elements of the Draft RI/FS Work Plan. Cascade met with EPA on 1/23/15 to discuss elements of the Draft RI/FS Work Plan related to the risk assessment, and had a follow-up discussion in a conference call on 2/24/15. Inspection of the beach to monitor performance of the 2010 and 2013 Time Critical Removal Actions was conducted quarterly during the year. Based on the inspection, the TCRAs are performing as designed. No sheen was observed around the TCRA cap areas on the beach. EPA provided Cascade with comments on the draft final Scoping Memorandum on 2/12/15. The Final Scoping Memorandum was submitted to EPA on 3/5/15. Cascade requested an extension on the due date for the Draft RI/FS Work Plan in a letter dated 2/23/15. EPA approved the request in a letter dated 2/24/2015. EPA approved the Draft RI/FS Work Plan outline on 3/18/15. The Draft RI/FS Work Plan was submitted to EPA on 4/17/2015. A meeting with stakeholders to discuss the Draft RI/FS Work Plan was conducted on 6/2/15. EPA and their consultant CH2MHill, met with Cascade and their consultants, Anchor QEA and Aspect Consulting, on 11/5/15 to provide CH2MHill with an overview of the project to date. The meeting included a site walk. On 12/29/15, Cascade provided comments to the Washington Department of Health, with a copy to EPA, on its draft "Letter Health Consultation - Bremerton Gasworks Superfund Site: Time-Critical Removal Action of Sediments 2010 and 2013," dated April 27, 2015, which was received by Cascade on 12/2/2015.
2016	Draft RI/FS Work Plan	 Regular monthly status calls were conducted with EPA. Inspection of the beach to monitor performance of the 2010 and 2013 Time Critical Removal Actions was conducted quarterly during the year. Based on the inspection, the TCRAs are performing as designed. No sheen was observed around the TCRA cap areas on the beach. On 2/1/16, Cascade received comments from EPA on the Draft Remedial Investigation/Feasibility Study (RI/FS) Work Plan. On 2/8/16 and 2/16/16, Cascade participated in conference calls with EPA and their consultant CH2MHill to discuss the EPA comments on the Draft RI/FS Work Plan and to coordinate the time and agenda for a meeting for further discussion. On 2/22/16, EPA and their consultant CH2MHill met with Cascade and their consultants, Anchor QEA and Aspect Consulting, to discuss EPA's comments on the Draft RI/FS Work Plan. During that meeting, EPA

		 suggested evaluating incremental sampling methodology (ISM) as an approach for incorporation into the scope of work for the RI/FS. On 3/1/16, EPA and their consultant CH2MHill met with Cascade to discuss the potential for integrating an ISM approach into the scope of work for the RI/FS. On 3/22/16, Cascade facilitated a conference call with EPA and their consultant CH2MHill to further discuss integration of ISM into the scope of work for the RI/FS and the schedule for a future meeting. Cascade requested a schedule extension for completion of the Final RI/FS Work Plan in a 3/22/16 letter, which was approved by EPA in a 3/25/16 letter, to allow for development of an ISM proposal describing its approach and rationale. Under the approved schedule extension, the Final RI/FS Work Plan must be submitted to EPA within 30 calendar days after Cascade receives EPA's written comments on the final ISM proposal. On 5/11/2016, EPA and their consultant CH2MHill met with Cascade and their consultants, Anchor QEA and Aspect Consulting, and representatives of the Suquamish Tribe, to discuss revisions to the Draft RI/FS Work Plan and the approaches to be incorporated into the draft final version of the document. Key portions of the draft final RI/FS Work Plan, including text, figures and tables with significant revisions, and responses to EPA's comments were submitted to EPA on 6/17/2016. EPA provided comments on the upland investigation portion of the revised draft RI/FS Work Plan on 8/12/2016. On 8/18/2016, EPA and its consultant CH2M met with Cascade and its consultants, Anchor QEA and Aspect Consulting, to discuss these comments. Draft meeting notes documenting the 8/18/2016 meeting was submitted to EPA for review on 8/23/2016. EPA provided comments on the marine investigation portion of the revised draft RI/FS Work Plan on 9/15/2016. On 9/30/2016, EPA and its consultant CH2M met with Cascade and its consultants, Anchor QEA and Aspect Consulting, and repre
2017	Final RI/FS Work Plan	 Regular monthly status calls were conducted with EPA. Inspection of the beach to monitor performance of the 2010 and 2013 Time Critical Removal Actions was conducted quarterly during the year. Based on the inspection, the TCRAs are performing as designed. No sheen was observed around the TCRA cap areas on the beach.

RI/FS Data	The final draft of the RI/FS Work Plan was submitted electronically to EPA on 2/28/2017.
Collection	 Documents providing responses to EPA's collective comments on the draft RI/FS Work Plan (dated 6/17/2016) were submitted to EPA on 3/13/2017.
	 Field coordination, planning, and project status calls with EPA and its consultant CH2M were conducted weekly during active field work between 7/1/2017 and 9/30/2017.
	The completed field activities for RI/FS data collection during 2017 consist of the following:
	 The geophysical survey of the Upland Area was conducted the week of 7/17/2017. The draft geophysical survey report was provided to EPA on 8/4/2017.
	 Surface sediment sampling in the Marine Area was conducted during the week of 7/17/2017.
	 The acoustic doppler current profile survey in the Marine Area was conducted on 7/23/2017.
	 The subsurface sediment core sampling in the Marine Area was conducted during the week of 7/31/2017.
	 The Source Characterization, including exploratory trenching, test pits, and borings, was conducted during the weeks of 8/7/2017 and 8/14/2017.
	 The second surface water sampling event was conducted on 9/14/17
	 The Preliminary Deep Borings and Wells portion of the Outside Source Areas Investigation was conducted during the week of 8/14/2017.
	 Excess soil generated during Source Characterization drilling and trenching was transported off-site for disposal on 9/20/2017. Waste profile and disposal site information was provided to EPA, and EPA certified that the disposal facility was acceptable to receive CERCLA waste, on 9/18/2017.
	 Portions of the Source Areas Investigation, consisting of the advancement of deep borings along transects to determine groundwater monitoring well locations and construction details, was conducted during the weeks of 9/18/2017 and 9/25/2017.
	 Surface water sampling was conducted on 11/1/2017.
	 A geotechnical field inspection to support drilling access to the shoreline was conducted on 11/16/2017.

		 Installation and development of the Source Areas Investigation monitoring wells during the Weeks of 11/27/2017, 12/13/2017 and 12/25/2017
		 Excess soil generated during Source Areas Investigation drilling and well installation was transported off-site for disposal on 12/13/2017.
		 Cascade and it consultants, Aspect Consulting and Anchor QEA, met with EPA, its consultant CH2M, and representatives of the Suquamish Tribe on 11/7/2017 to discuss the RI/FS data collected to date and the scope of work for planned RI/FS data collection activities.
		 Based on the 11/7/2017 meeting, Anchor QEA produced a technical memorandum (final dated 11/19-17) for the submittal of archived samples, which EPA approved on 11/20/17. Samples BGW-ISA-SS101, BGW-ISA-SS109, and BGW-ISA-115 were submitted for polychlorinated biphenyl congeners and dioxins/furans. In addition, BGW-ISA-SS10 and BGW-SS13 were submitted for dioxins/furans testing.
		 The draft Memorandum regarding Bremerton Gas Works – Remedial Investigation/Feasibility Study Sample Triggers for the Marine Area was submitted to EPA on 11/16/2017. EPA provided conditional approval of the memo, with changes, on 11/17/2017. The final memo, which was retitled at EPA's request to RI/FS Proposal for Dioxin/Furan and PCB Congener Analysis in Surface Sediment Archive Samples, was submitted to EPA on 11/19/2017.
		 The draft Memorandum regarding Bremerton Gas Works – Proposed Source Investigation Monitoring Wells was submitted to EPA on 11/16/2017. EPA granted conditional approval of the memo, with changes, on 11/17/2017 and the final memo was submitted to EPA on 11/22/2017.
2018	RI/FS Data	Regular monthly status calls were conducted with EPA.
	Collection	Quarterly progress report No. 19 was submitted to EPA on January 14, 2018.
	Outline of Draft Risk Assessment Technical	 Inspection of the beach and the former containment area on the Sesko Property to monitor performance of the 2010 and 2013 Time Critical Removal Actions (TCRAs) was conducted on 2/6/2018. Based on the inspection, the TCRAs are performing as designed. No sheen was observed around the TCRA cap areas on the beach. No water accumulation was observed in the former containment area.
		 Engineered plan sheets, describing the grading, erosion control and stabilization measures to provide drill rig access to the northernmost portion of the Sesko Property for well installation, were provided to EPA on 2/12/2018.

Memorandum (RATM)

Draft BGW-Proposed Outside Source Areas Sampling Plan

- The draft outline for the Risk Assessment Technical Memorandum was submitted to EPA on 3/12/2018.
- The draft Memorandum regarding DRAFT *Bremerton Gas Works Proposed Outside Source Areas Sampling Plan* for the Upland Area was submitted to EPA on 3/14/2018 and included pre-validated groundwater data from the January 2018 sampling event. EPA approved the groundwater sampling portion of the draft Memorandum on 3/23/2018.
- The Memorandum regarding RI/FS Proposal for Additional Surface Sediment Sampling within the Initial Study Area for the Marine Area was submitted to EPA on 3/19/2018. The memo was revised following the 3/21/2018 meeting and resubmitted to EPA on 3/28/2018. EPA approved the memo, with one addition pertaining to sampling for volatile organic compounds (VOCs) based on field screening, on 3/29/2018.
- Cascade and it consultants, Aspect Consulting and Anchor QEA, met with EPA, its consultant CH2M
 Jacobs, on 3/21/2018 to discuss the RI/FS data collected to date and the scope of work for additional
 RI/FS data collection activities.
- Cascade and its consultants, Aspect Consulting and Anchor QEA, met with EPA, its consultant CH2M
 Jacobs, and project stakeholders on 3/22/2018 to discuss the status of the RI and present the results of
 investigation activities completed to date.
- The completed field activities for RI/FS data collection during this reporting period consist of the following:
 - o Installation of dedicated pumps and collection of groundwater samples from all existing monitoring wells between 1/15/2018 and 1/18/2018.
 - Samples of investigation-derived waste (IDW) liquid generated during RI activities, including well purge water and drilling decontamination water, were collected on 2/20/2018 to support waste profiling and disposal.
- Draft meeting notes documenting the 3/21/2018 meeting were submitted to EPA on 4/4/2018.
- Cascade and its consultants, Aspect Consulting and Anchor QEA, met with EPA, its consultant CH2M Jacobs on 5/21/2018 to discuss the RI/FS data collected to date, the scope of work for additional RI/FS data collection activities, and the potential for completing a removal action.
- Draft meeting notes documenting the 5/21/2018 meeting were submitted to EPA on 6/25/2018.

 Quarterly progress report No. 20 was submitted to EPA on April 15, 2018.
 Inspection of the beach and the former containment area on the Sesko Property to monitor performance of the 2010 and 2013 Time Critical Removal Actions (TCRAs) was conducted on 4/17/2018. Based on the inspection, the TCRAs are performing as designed. No sheen was observed around the TCRA cap areas on the beach. No water accumulation was observed in the former containment area.
 EPA provided comments on the draft outline for the Risk Assessment Technical Memorandum on 4/23/2018.
 The Memorandum regarding Revised Bremerton Gas Works – Proposed Outside Source Areas Sampling Plan for the Upland Area was submitted to EPA on 4/3/2018. In an email dated 5/22/2018, EPA directed Cascade to put on hold the planned portions of Shallow Soil Characterization that consist of incremental sampling methodology (ISM), as proposed in the 4/3/2018 Memorandum, pending further Source Area Investigation work.
• The draft Memorandum regarding Supplemental Source Investigation and Initial Outside Source Area Sampling Plan for the Upland Area was submitted to EPA on 6/13/2018. EPA approved the memo, with one modification to the surface soil characterization sampling approach, on 6/21/2018.
 The draft Memorandum regarding RI/FS Proposal for Additional Subsurface Sediment Sampling within the Initial Study Area for the Marine Area was submitted to EPA on 6/26/2018.
 The completed field activities for RI/FS data collection during this reporting period consist of the following:
 Supplemental surface sediment samples were collected from the Marine Area on 4/19/2018.
 Investigation-derived waste, including soil cuttings, drilling decontamination water and well purge water, generated during RI field activities in the first quarter of 2018 was transported off- site for disposal on 4/17/2018 and 4/18/2018.
 Installation and development of the Outside Source Areas Investigation cross- and upgradient groundwater monitoring wells was completed between 4/23/2018 and 4/30/2018.

- Grading work was completed on 5/1/2018 and 5/2/2018 to facilitate access by the drill rig to the northernmost portion of the Sesko Property for well installation. A composite soil sample from the soil stockpile generated by these grading activities was collected on 5/8/2018 to profile the soil for off-site disposal.
- o Installation and development of the two groundwater monitoring wells at the northernmost point of the Ravine Fill Area was completed between 5/22/2018 and 5/24/2018.
- Installation of dedicated pumps in monitoring wells installed during the first half of 2018 and collection of groundwater samples from all existing monitoring wells was completed between 6/4/2018 and 6/6/2018.
- o A samples of investigation-derived waste (IDW) soil generated during RI activities, was collected on 6/5/2018 to support waste profiling and disposal.
- Cascade and its consultants, Aspect Consulting and Anchor QEA, met with EPA and its consultant CH2M
 Jacobs on 9/5/2018 to discuss the results of investigation activities; present soil, groundwater, and
 sediment data to date; and determine next steps for the RI/FS process.
- A revised analytical approach for the September and December 2018 groundwater monitoring and sampling events was submitted to EPA by Aspect, on behalf of Cascade, and approved by EPA on 9/6/2018.
- Quarterly progress report No. 22 was submitted to EPA on 7/13/2018.
- Inspection of the beach and the former containment area on the Sesko Property to monitor
 performance of the 2010 and 2013 Time Critical Removal Actions (TCRAs) was conducted on
 7/13/2018. Based on the inspection, the TCRAs are performing as designed. No sheen was observed
 around the TCRA cap areas on the beach. No water accumulation was observed in the former
 containment area.
- The final EPA-approved Memorandum regarding *Supplemental Source Investigation and Initial Outside Source Area Sampling Plan* for the Upland Area was submitted to EPA on 7/11/2018.

Supplemental
Source
Investigation and
Initial Outside
Source Area
Sampling Plan
Memo

RI/FS Proposal for Additional Subsurface Sediment Sampling within the Initial Study Area Memo

- The final EPA-approved Memorandum regarding *RI/FS Proposal for Additional Subsurface Sediment Sampling within the Initial Study Area* for the Marine Area was submitted to EPA on 7/9/2018 and approved on 7/9/2018.
- The step-out exploration approach for the area surrounding SB-45 was proposed by Aspect, on behalf of Cascade, and approved by EPA on 8/14/2018.
- Preliminary materials related to preparation of the Risk Assessment Technical Memorandum were provided to EPA on 9/14/2018 (tables and figures) and 9/18/18 (revised Table of Contents).
- Draft meeting notes documenting the 9/5/2018 meeting were submitted to EPA on 9/19/2018.
- The completed field activities for RI/FS data collection during this reporting period consist of the following:
 - o Additional subsurface sediment samples were collected from borings in the upper intertidal area between the Ravine Fill Area and the 2010 TCRA cap between 7/11/2018 and 7/13/2018.
 - O The borings described in the Supplemental Source Investigation and Initial Outside Source Area Sampling Plan were completed and soil samples collected as planned on 7/12/2018 and between 7/16/2018 and 7/20/2018. An additional boring to determine the southerly extent of source material was completed to the south of MW-14 on 7/12/2018.
 - The bluff sampling described in the Supplemental Source Investigation and Initial Outside
 Source Area Sampling Plan was completed and soil samples collected as planned on 7/24/2018.
 - Investigation-derived waste, including soil cuttings, drilling decontamination water and well purge water, generated during RI field activities in the second quarter of 2018 was transported off-site for disposal on 7/24/2018.
 - O Drilling, well installation, and development of the SB-45 area step-out borings and wells were completed and sampled as planned between 8/22/2018 and 8/24/2018.
 - Signage to control public access was installed along the shoreline of the Sesko Property on 8/13/2018.

- Installation of dedicated pumps in monitoring wells MW-17 and MW-18 and collection of groundwater samples from all existing monitoring wells was completed between 9/11/2018 and 9/14/2018.
- A monthly project status call with EPA and its consultant Jacobs was conducted on 11/7/2018. During the 11/7/2018 call, EPA concurred with two proposed modifications to analytical testing, as follows:
 - Follow-up analysis will be completed on a subset of the shoreline bluff soil samples collected in July 2018, where relatively high concentrations of metals were detected, by the Toxicity Characteristic Leaching Procedure (TCLP) method.
 - o Groundwater samples collected during the December 2018 sampling event will be analyzed for both free cyanide and weak acid dissociable cyanide.
- Cascade and its consultants, Aspect Consulting and Anchor QEA, met with EPA and its consultant Jacobs and the Suquamish Tribe on 10/3/2018, 10/30/2018 and 12/6/2018 to discuss the approach to preparing, and details of, the Risk Assessment Technical Memorandum.
- Quarterly progress report No. 22 was submitted to EPA on 10/15/2018.
- A memorandum regarding Solid Phase Micro Extraction Results for Sediment PAHs and Risk Application was submitted to EPA on 10/18/2018.
- Inspection of the beach and the former containment area on the Sesko Property to monitor
 performance of the 2010 and 2013 Time Critical Removal Actions (TCRAs) was conducted on
 10/19/2018. Based on the inspection, the TCRAs are performing as designed. No sheen was observed
 around the TCRA cap areas on the beach. No water accumulation was observed in the former
 containment area.
- ▶ EPA provided comments on the draft meeting notes documenting the 9/5/2018 meeting on 11/7/2018.
- A memorandum regarding Added and Modified Laboratory Method for Soil and Groundwater Sampling was submitted to EPA on 12/5/2018. EPA provided comments on this memorandum on 12/18/2018.
- The completed field activities for RI/FS data collection during this reporting period consist of the following:

	0	Quarterly groundwater monitoring and sampling was conducted between 12/4/2018 and
		12/7/2018.

- Note Cascade was often assisted with the above list of activities with the help of third parties.
- **EPA Fees** all fees assessed to Cascade Natural Gas from the Environmental Protection Agency costs in accordance with the Agreed Order of Consent.
- Interim Remediation all third-party costs for investigative and remedial work.
- **Legal** all third party legal costs.
- **Insurance Proceeds** insurance checks paid to Cascade Natural Gas from insurance carriers for reimbursement of deferred costs deemed defense costs by the insurance carriers.