Annual Report Template
Naval Air Station Whidbey Island
Municipal Separate Storm Sewer System (MS4)
Permit WAS026611

Reporting Period

- ☒ Year 1 Reporting Period: effective date of the permit – January 31, 2022
- ☐ Year 2 Reporting Period: February 1, 2022 – January 31, 2023
- ☐ Year 3 Reporting Period: February 1, 2023 – January 31, 2024
- ☐ Year 4 Reporting Period: February 1, 2024 – January 31, 2025
- ☐ Year 5 Reporting Period: February 1, 2025 – January 31, 2026
- ☐ Other _____

General Information

Contact Person Name and Title: Leanne McConnell, Water Program Manager

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Stormwater Website URL: https://www.cnic.navy.mil/regions/cnrnw/om/environmental_support.html

Signature and Certification

Certification: *"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

Signature: _____ Date: 21 MAR 22

Printed Name: E. M. Hanks

Signatory Title: Captain, US Navy, Commanding Officer

Section I. Permittee Responsibility (Part 1):
If you answer "NO" to any of these questions, please explain in the Comments section.

Year 1 Annual Report		
1.	YES ☐ NO ☒	Has the Permittee submitted to EPA for consideration any documents, plans, programs or program summaries that the Permittee believes to be equivalent to a required control measure or control measure? *If the answer is "YES", use the Comments section to briefly list the one or more documents, plans or programs you have requested be considered as an Equivalent Document, Plan or Program. Cite the relevant Permit provision for each.* (Part 1.5)
All Reporting Years		
2.	YES ☐ NO ☒	Have PFAS-containing AFFFs been used for any reason at Naval Air Station Whidbey Island during this reporting year? *If yes, please explain in the Comments section.* (Part 1.3.4)
3.	YES ☐ NO ☒	Do you, the Permittee, share Permit implementation responsibility with one or more Outside Entity for compliance with the Permit? *If yes, please explain in the Comments section*. (Part 1.4.1))
4.	YES ☐ NO ☒	If the answer to question 4 is "yes," is the agreement with Outside Entity(s) formalized in a written and binding agreement between parties? (Part 1.4.1)
5.	YES ☐ NO ☒	If the answer to question 5 is "yes," is the agreement with Outside Entity(s) described/cited in the Stormwater Management Program (SWMP) Document? (Part 1.4.1)
6.	YES ☒ NO ☐	Have you established and maintained relevant enforceable mechanisms to control pollutant discharges into and from the MS4 and to meet the requirements of this Permit? (Part 1.4.2)
7.	YES ☒ NO ☐	Are you maintaining system(s) to track SWMP data and information? (Part 1.4.4)

Permittee Responsibility and Equivalent Documents, Plans or Programs Comments:

4. No formal agreement is necessary based on the answer to question 3.
5. No formal agreement is necessary based on the answer to question 3.

Section II. Stormwater Management Program (SWMP) Control Measures (Part 2)
Please answer all questions and provide all requested descriptions of SWPPP activities.

Education and Outreach on Stormwater Impacts (Part 2.1)
If you answer "NO" to any of these questions, please explain in the Comments section.

8.	YES ☒ NO ☐	Have you listed and publicized means for the public and Permittee personnel to report spills and other illicit discharges? (Part 2.1.1.1)
9.	YES ☒ NO ☐	Have you informed target audiences of the environmental impacts associated with illegal discharges and improper disposal of waste and how to report them? (Part 2.1.1.1)
10.	YES ☒ NO ☐	Have you selected specific education and outreach topics to build general awareness and effect behavior change? *Please list these topics in the Comments section.* (Part 2.1.1.3)
11.	Narrative	*In the Comments section, please summarize your activities and accomplishments as part of the Southern Resident Killer Whale Outreach and Education efforts.* (Part 2.1.2)
12.	YES ☒ NO ☐	Have you conducted public education and outreach activities specifically on bacterial pollution problems? (Part 2.1.3)
13.	YES ☒ NO ☐	Have you assessed, or participated in efforts to assess, the understanding and adoption of intended behaviors by the target audiences for at least one of the topics? *In the Comments section,* p*lease summarize your efforts to assess the education and outreach activities conducted during the reporting period, and how this information is being utilized to improve the public education and outreach program efforts.* (Part 2.1.4) *Please also include one or more example of successful education/outreach.* (Part 2.1.4)

Education and Outreach Comments:

10. The specific topic chosen to build general awareness and effect behavioral change is appropriate spill prevention practices and spill response. Additional topics include proper management of street, parking lot, sidewalk, and building wash water, and pet waste management.

11. As required by part 2.1.1.3, Naval Facilities Engineering Systems Command (NAVFAC) Northwest (NW) has been working with National Marine Fisheries Service (NMFS) to develop and deliver a training program for target audiences. Discussions with NMFS started in July 2020 and notes were provided to NMFS detailing the permit requirements. After months of email exchange, coordination for the training switched hands within NFMS in June 2021. On 26 January 2022, NOAA hosted a virtual training for MS4 program managers and other Navy personnel who may impact stormwater management. The one hour training session hosted by NOAA covered the potential impacts of stormwater pollution on Southern Resident Killer Whales and BMPs known to help reduce pollutant loadings from stormwater. The training covered SRKW monitoring and mitigation strategies, their status under the Endangered Species Act, habitat, prey, chemical threats such as PCP, PCB, DDT, PBDEs, persistent organic pollutants, bioaccumulation of chemicals, and the decline of chinook and Coho salmon due to poor stormwater quality.

13. Multiple successful education/outreach examples and efforts to assess behavioral changes were identified in during Year 1 of the permit term.

- Through continuous education and outreach efforts, personnel have become more actively involved with the Naval Air Station Whidbey Island (NASWI) Public Works Department (PWD) Environmental Division. To prevent illicit discharges from building wash water, Hunt Properties contacted the NASWI Environmental Division to discuss the proper procedures for cleaning the siding in the residential community in accordance with the new MS4 permit. Hunt Properties delayed the project start date to adjust the process and meet compliance with the MS4 permit. This conversation was a direct result of MS4 introductory training provided to Hunt Properties. Please see Appendix 1 for more details of the training provided.
- Spill response continued to be a focus in 2021. A regional worst case discharge table top exercise was held last year monitored by the Coast Guard. This exercise was played out across several naval bases including Manchester, Whidbey Island, Everett, Bangor, and Bremerton. The Emergency Operations Center, Port Operations, Environmental, and other stakeholders were involved in the planning, coordination and execution of the drill. Spill response efforts are further exemplified through the Facility Response Team (FRT) monthly spill response training drills.

Public Involvement/Participation (Part 2.2)
If you answer "NO" to any of these questions, please explain in the Comments section.

14.	YES ☐ NO ☐ NA ☒	Have you complied with applicable federal notice requirements, as relevant? (Part 2.2.1)
15.	YES ☒ NO ☐	Have you conducted one or more meetings to coordinate among appropriate staff, managers and others who play a role in Permit implementation? *Briefly describe meeting(s), participants and topics in the Comments section.* (Part 2.2.2)
16.	Narrative	*In the Comments section, please describe any engagement with affected entities in setting priorities for the storm water program*. (Part 2.2.2)
17.	YES ☒ NO ☐	Have you sponsored at least twice during the Permit term volunteer activities designed to actively engage residents and/or employees to better understand stormwater pollution? *Please describe these events and activities in the Comments section.* (Part 2.2.4)

Public Involvement/Participation Comments:

15. Monthly stormwater meetings are held with key stormwater personnel at Naval Station Everett, Naval Air Station Whidbey Island, and Naval Base Kitsap. Consistent monthly meetings were started in February 2020 and have continued since. These monthly meetings are used to discuss any topic related to stormwater including the MS4 permit, MSGP, and CGP. The meetings provide a collaborative approach to stormwater management at the NW installations. The table on the next page, Summary of Monthly Stormwater Meetings, is a summary of meetings held since February 2021.NASWI PWD Environmental Division has internal meetings for ongoing environmental discussions across different media areas.

NAVFAC Design and Construction (D&C) and NASWI Facilities Engineering and Acquisition Division (FEAD) were introduced to the MS4 permit 03-2021 during the annual Construction Day (see Appendix 1 for details of the training). D&C, FEAD and PWD Environmental Division continuously engage in project meetings to stay abreast of developments and environmental requirements applicable to construction projects. Engagement between PWD Environmental Division and Utilities began before the MS4 permit was issued and maintenance efforts area addressed using a team approach.

16. During Year 1 of the MS4 permit, no implementation efforts were taken. In future years, as implementation efforts occur and stormwater priorities are set, engagement with potentially affected entities will be completed as appropriate.

17. Please see Appendix 2 for a full list of volunteer activities completed at NASWI in 2021.

Summary of Monthly Stormwater Meetings

Year	Month	Short summary of meeting topics
2021	February	Upcoming MS4 construction training, SAM letters of intent, IDDE, EAP sampling MSGP SWPPP
	March	Construction site contract language, EAP sampling, stormwater trainings available, education and outreach materials
	April	EAP sampling, IDDE, education materials
	May	SAM update, EAP sampling, future funding discussions
	June	Funding discussions, SWMPs, EAP sampling
	July	SWMPs, EAP sampling, MSGP sampling
	August	No meeting held due to scheduling conflicts
	September	SWMPs, EAP sampling status- weather update, education and pet waste materials
	October	SWMPs, annual report, spill response posters
	November	Meeting not held due to holidays, combined with December meeting on 12/1 instead.
	December	SAM effectiveness study, 6PPD, methods of outreach, SWMPs, Annual reports, construction language, EAP sampling results, Southern Resident Killer Whale (SRKW) Training update, MSGP annual report,
2022	January	SAM effectiveness study, 6PPD, SWMPs, annual report status including EAP reports, construction training, SRKW training, MSGP annual report

Illicit Discharge Detection and Elimination (Part 2.3)
If you answer "NO" to any of these questions, please explain in the Comments section.

18.	YES ☐ NO ☐ NA ☒	Have you developed updated maps of the MS4 within the Permit Area that include all of the features listed in Part 2.3.1 of the Permit? *For Annual Reporting Years 1 through 4, you may check NA if these maps have not yet been completed.* (Part 2.3.1)
19.	YES ☐ NO ☐ NA ☒	Do you effectively prohibit non-stormwater discharges into the MS4 (except those authorized in Part 1.3.4 of this Permit) through effectively robust policies and procedures? *For Annual Reporting Years 1 and 2, you may check NA if you have not yet implemented effective policies and procedures.* (Part 2.3.2)
20.	YES ☒ NO ☐ NA ☐	For any discharges of potable water, have you dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4? (Part 2.3.2.2.1)
21.	YES ☒ NO ☐ NA ☐	Have discharges from lawn watering and other irrigation runoff been minimized through public education and water conservation efforts? Part 2.3.2.2.2)
22.	YES ☐ NO ☐ NA ☒	For any discharges of swimming pool, spa and hot tub waters, have you dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and re-oxygenized if necessary, volumetrically and velocity controlled to prevent resuspension of sediments in the MS4, thermally controlled to prevent an increase in temperature of the receiving waters, and prohibited the discharge of pool cleaning wastewater and filter backwash? (Part 2.3.2.2.3)
23.	YES ☒ NO ☐ NA ☐	Have discharges from street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents been minimized through public education and water conservation efforts? (Part 2.3.2.2.4)
24.	YES ☐ NO ☒ NA ☐	For any discharges of accumulated stormwater from utility vaults, have you conducted sampling to verify that no pollutants cause or contribute to water quality impairments, AND visually verified prior to any discharge, that there are no visible sheens or solids in the discharge? (Part 2.3.2.2.5)
25.	YES ☐ NO ☒	For any discharges of accumulated stormwater from secondary containment structures, have you conducted sampling to verify that no pollutants cause or contribute to water quality impairments, AND visually verified prior to any discharge, that there are no visible sheens or solids in the discharge? (Part 2.3.2.2.6)
26.	YES ☒ NO ☐	Does the program described in the SWMP document include procedures for locating priority areas likely to have illicit discharges, including areas where complaints have been

		recorded and areas with storage of large quantities of materials that could result in spills and areas where storage, usage, releases or contamination of any pollutant in Table 2.4.4 is or has occurred? (Part 2.3.3.1)
27.	YES ☐ NO ☐ NA ☒	Do you conduct a dry weather analytical and field screening monitoring program to identify non-stormwater flows from stormwater outfalls? *For Annual Reporting Years 1 and 2, you may check NA if you have not yet begun dry weather field screenings. (Part 2.3.3.2.1)*
28.	YES ☐ NO ☐ NA ☒	For Annual Reporting Year 5 only, have you completed field screening of at least 75% of all MS4 outfalls located within the Permit Area? *For Annual Reporting Years 1 through, you may check NA unless you have completed screening of 75% of the MS4 outfalls in the Permit Area.* (Part 2.3.3.2.2)
29.	YES ☒ NO ☐	Are your screening methods/protocols consistent with *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, October 2004, or another methodology of comparable effectiveness? (Part 2.3.3.2.3)
30.	YES ☒ NO ☐	Do you have and implement procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges which are found by or reported to the Permittee? (Part 2.3.3.3)
31.	YES ☒ NO ☐	Do these procedures include the evaluation of whether the discharge must be immediately contained and the steps to be taken for containment of the discharge per the stipulations in Part 2.3.3.3? (Part 2.3.3.3)
32.	Narrative	*In the Comments section, please summarize all illicit discharge responses, including responses to spills and recurring discharges. Also summarize any investigations and referrals as detailed in Part 2.3.3.3.2.* (Parts 2.3.3.3.1, 2.3.3.3.2 and 2.3.3.3.3)
33.	YES ☒ NO ☐	Do you have and implement procedures for notification of affected parties, including immediate notification of the spills and illicit discharges and ongoing updates about abatement measures and possible impacts? (Part 2.3.3.4)
34.	Narrative	*In the Comments section, please summarize all notifications to downstream operators of MS4s, shellfish beds/fisheries, agricultural/livestock operations, drinking water systems (public or private) or other affected entity of spills or other non-stormwater discharges that may impact those systems.* (Part 2.3.3.4.1) *Please include in the description all outreach, discussions and/or information exchanges regarding the impacts of discharges and the status of illicit discharge elimination activities.* (Part 2.3.3.4.2)
35.	YES ☒ NO ☐	Do you have and implement procedures for tracing sources of illicit discharges, including visual inspections, opening manholes, using mobile cameras, collecting and analyzing water samples, and other procedures, as appropriate? (Part

		2.3.3.5)
36.	YES ☒ NO ☐	Do you have and implement procedures for eliminating illicit discharges, including scheduling and implementing remedial measures and other safeguards to ensure the discharge does not recur? (Part 2.3.3.6)
37.	YES ☒ NO ☐	Do these procedures include initiation of an investigation within 21 days of a report or discovery of an illicit connection to determine the source, nature and volume, and responsible party? (Part 2.3.3.6.1)
38.	YES ☒ NO ☐	Do these procedures include initiation of action to eliminate the illicit connection within 45 days of confirming the connection? (Part 2.3.3.6.1)
39.	YES ☒ NO ☐	Have all staff responsible for investigating, identifying and eliminating illicit discharges, spills, and illicit connections into the MS4 received program-specific training? (Part 2.3.4)
40.	Narrative	*In the Comments section, please describe any training provided during this reporting period, including new employee training and follow-up training*. (Part 2.3.4)
41.	Narrative	*In the Comments section, please include a general summary of the results of dry weather screening program activities conducted over the preceding reporting period, including number and type of illicit connections identified, dry weather screening efforts, and location and efforts to correct identified illicit discharges.* (Part 2.3.5)

Illicit Discharge Detection and Elimination Comments:

24. MS4 Permit Section 2.3.2.2.5 states, Following a one-time sampling of accumulated stormwater for any pollutant that might reasonably be expected to occur based on current or legacy activities, and verification that no pollutants occur at concentrations that would cause or contribute to water quality impairments, accumulated stormwater in utility vaults may be discharged to the MS4 following a visual inspection that verifies that no sheens or accumulated solids are present in the discharge. If at any time a spill in or into the vault occurs, this provision is suspended until additional sampling confirms that pollutants will not cause or contribute to water quality impairments. In accordance with this section a Vault Inspection Form is being implemented to document visual inspections prior to any discharge of stormwater accumulated in utility vaults. Currently, vaults that do require water to be pumped from them are visually inspected for oil. If there is an indication of oil, the water is pumped and sent to an Oil Water Separator. Additionally, ongoing trainings have highlighted this requirement and a plan to conduct sampling is being developed. Not all aspects of this requirement have been established, however efforts are being made to meet this permit requirement during 2022.

25. The MS4 Permit Section 2.3.2.2.6 states, "Following sampling of accumulated stormwater for any pollutant that might reasonably be expected to occur based on current or legacy activities, and verification that no pollutants occur at concentrations that would cause or contribute to water quality impairments, accumulated stormwater in secondary containment structures may be discharged to the MS4 following a visual inspection that verifies that no sheens or accumulated solids are present in the discharge. Stormwater sampling must be repeated after any incident in which pollutants have collected in the secondary containment structure and the same assessment procedures followed."

25. Continued. In accordance with this section, each time a secondary containment is drained a visual inspection is completed. Secondary containment valves are to remain secured at all times. After a rain event the tenant will conduct a visual inspection of the secondary containment, if no sheen or POL is present in the secondary containment the tenant will then drain the containment and re-secure the valve. If a sheen or POL are present in the secondary containment the tenant will determine if they can remove the sheen/POL with absorbent pads and dispose of them properly before draining the containment. If the tenant cannot remove the sheen/POL they will contact the Base Operating Support Contract (BOSC) contractor and the BOSC contractor will dispatch a vacuum truck and crew to clean out the containment. Not all aspects of this requirement have been established, however efforts are being made to meet this permit requirement during 2022.

32. For incidental spills that tenants can cleanup with spill response supplies, the spills are responded to, cleaned up, and notification is made to PWD Environmental Office. For spills that tenants cannot cleanup due to size/supplies/personnel/etc. the BOSC contractor will be contacted to respond. Emergency spills are when the NASWI Federal Fire Department (FFD) is notified to respond, once the FFD competes their initial assessment notification is made to the BOSC contractor to complete cleanup operations. Please see Appendix 3 for additional information. The processes for characterizing the nature of, and potential public or environmental threat posed by illicit discharges is included in the SWMP Plan.

34. No reportable spills during permit term, no notifications were required.

40. Please see training a list of training courses and summaries in Appendix 1.

41. As indicated in Question 27, dry weather screening activities did not occur during Year 1 of the permit. However, efforts have been taken to develop a robust program. In Year 1 funding for analytical and field screening supplies was secured and a portable spectrophotometer along with sampling supplies were purchased. Procedures have been developed within the SWMP Plan.

New Development, Redevelopment, and Construction Site Runoff Control (Part 2.4)
If you answer "NO" to any of these questions, please explain in the Comments section.

42.	YES ☒ NO ☐	Does the SWMP document describe, and are you implementing, a program to reduce pollutants in stormwater runoff to the MS4 from all construction, new development and redevelopment project site activities in the Permit Area, including roads? (Part 2.4)
43.	YES ☒ NO ☐ NA ☐	During this reporting year have you provided adequate oversight to "regulated construction activities" and "regulated industrial activities" to ensure that all regulated activities obtained coverage under the appropriate stormwater permits? *Only choose NA if there were none of these activities in the Permit Area during this reporting year.* (Part 2.4.1)
44.	YES ☒ NO ☐	Have you implemented an enforceable mechanism to address runoff from new development, redevelopment and construction site projects to include the minimum requirements, thresholds and definitions? (Part 2.4.2.1)
45.	YES ☒ NO ☐	Does the enforceable mechanism include all of the criteria listed in Part 2.4.2.2 of the Permit? (Part 2.4.2.2)
46.	YES ☐ NO ☒	Have you had any equivalent criteria approved by EPA for use in stormwater controls from new development, redevelopment, and construction site runoff? *If so, in the Comments section please describe how these have been utilized during this reporting year.* (Part 2.4.2.4)
47.	YES ☒ NO ☐	Have you implemented policies and procedures, including contract mechanisms, to ensure review of all stormwater site plans for proposed development activities? (Part 2.4.3.1)
48.	YES ☒ NO ☐ NA ☐	Do you inspect, prior to clearing and construction, all development sites that have a high potential for sediment transport as determined through plan reviews based on definitions and requirements of Appendix C of the Permit? *Only choose NA if there were none of these activities in the Permit Area during this reporting year.* (Part 2.4.3.2)
49.	YES ☒ NO ☐ NA ☐	Do you inspect all development sites during construction to verify proper installation and maintenance of required erosion and sediment controls? *Only choose NA if there were none of these activities in the Permit Area during this reporting year.* (Part 2.4.3.3)
50.	YES ☐ NO ☐ NA ☒	During this reporting year, did you take the necessary enforcement actions, as relevant, based on the results of these inspections? *If yes, please describe in the Comments section. Only choose NA if there were no construction activities in the Permit Area or you did not identify any failures to properly install or maintain the required controls.* (Part 2.4.3.3)
51.	Narrative	*In the Comments section please document what percentage of all permanent stormwater treatment and flow control*

		BMPs/facilities and catch basins in new developments were inspected every six months prior to 90% of the common plan of development being constructed during this reporting year. (Part 2.4.3.4)
52.	YES ☒ NO ☐ NA ☐	Do you inspect all development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities? *Only choose NA if there were none of these activities in the Permit Area during this reporting year.* (Part 2.4.3.5)
53.	YES ☐ NO ☒	Are all maintenance requirements assigned/entered into the electronic tracking system for stormwater treatment and flow control BMPs/facilities? (Part 2.4.3.5)
54.	YES ☒ NO ☐	Do you keep adequate records to document that all the requirements of Part 2.4.3 of the Permit have been fully implemented? (Part 2.4.3.6)
55.	YES ☒ NO ☐	Were at least 80% of scheduled inspections completed during this reporting year? (Part 2.4.3.6)
56.	YES ☒ NO ☐	Have you established and implemented an internal tracking system to respond to issues of non-compliance? (Part 2.4.3.7)
57.	Narrative	*Annual Reporting Year 1: In the Comments section, please describe the Early Action Projects (EAPs) you plan to implement during this permit term. Please also provide a summary of all EAP planning and implementation actions taken to date.* (Part 2.4.4)
58.	Narrative	*Annual Reporting Year 2-5: In the Comments section, please provide any updates to your Early Action Projects (EAPs) plan. Please also provide a summary of all EAP planning and implementation actions taken in this reporting year.* (Part 2.4.4)
59.	YES ☐ NO ☐ NA ☒	*Annual Reporting Year 4:* Have you submitted a written Stormwater Infrastructure Investment Plan to EPA that documents future investments and upgrades in Naval Air Station Whidbey Island's stormwater infrastructure designed to improve MS4 discharge quality, AND that meets all of the requirements of Part 2.4.4? (Part 2.4.4)
60.	Narrative	*In the Comments section, please describe any training provided during this reporting period, including new employee training and follow-up training*. (Part 2.4.5)
61.	Narrative	*In the Comments section, please include a general summary any corrective actions taken at construction sites, number of site plans reviewed, site inspections, and one or more example of follow-up actions.* (Part 2.4.6)

New Development, Redevelopment, and Construction Site Runoff Control Comments:

46. No equivalent criteria has been submitted to EPA for approval.

48. As SWMP requirements continue to be implemented, completion and tracking of inspection efforts are enhanced. During the permit term one construction project site inspection was completed. Please see Appendix D of the SWMP for a list of construction inspections. Requirement procedures are identified in the SWMP Plan.

49. As SWMP requirements continue to be implemented, completion and tracking of inspection efforts are enhanced. Contractors are responsible for completing inspection for construction projects that require permit coverage under the Construction General Permit. Please see Appendix D of the SWMP for a list of construction inspections and tracking efforts. Requirement procedures are identified in the SWMP Plan.

51. 100% There was one new development construction project active in 2021. The project was physically completed in June 2021.

52. As SWMP requirements continue to be implemented, completion and tracking of inspection efforts are being improved. During the permit term, one construction project site inspection was completed upon completion of construction. Please see Appendix D of the SWMP for a list of construction inspections. Procedures and the inspection form for this requirement are identified in the SWMP Plan.

53. Maintenance requirements for existing stormwater treatment and flow control BMPs/ facilities are being added into the electronic tracking system through the ongoing mapping project. Current and future construction projects are required to add maintenance for new stormwater treatment and flow control BMPs/facilities into the electronic system in accordance with the SWMP Plan and this permit.

57. Please see Appendix 5 for the EAP Report and EAP Sampling Results Report.

58. Permits became effective February, 1, 2021 and this report reflects Year 1.

60. In March 2021, construction training was provided during Construction Day as part of a regional training day. Approximately 25 Regional personnel attended the training and 50 were sent the presentation to review after the training day was completed. In January 2022, construction training was completed at NASWI for Construction Managers focusing on the requirements established in the SWMP Plan. Please see Appendix 1 for more details on the training.

61. No corrective actions were identified during inspections at construction sites. A summary of site plan, Environmental protection plans which can include site plan and SWPPP requirements, and site inspections can be found in Appendix D of the SWMP.

Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance (Part 2.5)

If you answer "NO" to any of these questions, please explain in the Comments section.

62.	YES ☒ NO ☐	Have you established maintenance standards that are protective of facility function for all permanent stormwater facilities used for onsite management, flow control and treatment? (Part 2.5.1.1)
63.	YES ☒ NO ☐	Were all required maintenance activities, as relevant, undertaken per the schedules in Part 2.5.1.2? (Part 2.5.1.2)
64.	YES ☒ NO ☐	Does your operation and maintenance program include an enforceable mechanism that clearly identifies the party/parties responsible for maintenance? (Part 2.5.1.3)
65.	YES ☒ NO ☐	During this reporting year have you conducted inspections of all stormwater treatment and flow control BMPS/facilities that discharge to the MS4 at least annually or per an alternative schedule as established in the SWMP based on maintenance records or other documented information? (Part 2.5.2)
66.	Narrative	*In the Comments section, please specify the number of inspections of permanent stormwater facilities conducted pursuant to Parts 2.5.2. Please also indicate what percentage of the overall number of permanent stormwater facilities these numbers represent.* (Part 2.5.2)
67.	YES ☒ NO ☐	During this reporting year, have you conducted spot checks of all permanent stormwater facilities, per the requirements of Part 2.5.3 after all major storm events? (Part 2.5.3)
68.	Narrative	*In the Comments section, please specify the number of catch basins and inlets that were inspected during this reporting year. Please also indicate what percentage of the overall number of catch basins and inlets, this represents.* (Part 2.5.4)
69.	Narrative	*In the Comments section, please specify the number of catch basins cleaned during this reporting year.* (Part 2.5.4)
70.	YES ☐ NO ☒	During this reporting year, did you undertake and complete all the necessary maintenance, as required by Part 2.5.6 of the Permit, and as described in the SWMP document? (Part 2.5.6) *Please briefly describe in the Comments section.*
71.	Narrative	*In the Comments section, please briefly describe the animal waste management activities, during this reporting year.* (Part 2.5.7)
72.	Narrative	*In the Comments section, please summarize all measures implemented to minimize or eliminate discharges of PFAS via the MS4.* (Part 2.5.8.1)
73.	YES ☒ NO ☐	Have you established specific protocols for minimizing the resuspension, conveyance and discharge of PFAS in the MS4, both during normal operations and during all maintenance and remediation activities? (Part 2.5.8.2)

74.	Narrative	*In the Comments section, please describe any training provided during this reporting period, including new employee training and follow-up training*. (Part 2.5.9)
75.	YES ☐ NO ☐ NA ☒	Have you developed and implemented SWPPPs for all heavy equipment maintenance and storage yards and all material storage facilities within the MS4 area that are not already regulated under the MSGP? *Only choose NA if there were none of these facilities in the Permit Area OR if this is the Annual Report for Year 1.* (Part 2.5.10)
76.	YES ☒ NO ☐	During this reporting year, have you kept records of all inspections, findings of inspections, follow up actions to correct problems, and all maintenance? (Part 2.5.11)

Pollution Prevention and Good Housekeeping for Municipal Operations and Maintenance Comments:

63. Inspections completed during Year 1 of the permit indicated maintenance activities were required. As organizational changes occur within the Navy, maintenance efforts are delayed. The 18 month mapping project will allow for more accurate planning efforts to occur as the organizational changes occur and will provide better opportunities for maintenance moving forward. Additionally, long term maintenance contracts were already established during Year 1 of the permit term and efforts are underway to incorporate the MS4 requirements not currently captured. Efforts for future contracts are ongoing and adequately reflect MS4 permit requirements.

65. All identified facilities were inspected during Year 1 of the permit term. An audit will be completed to validate and the inventory of permanent stormwater facilities.

66. During the permit term, 14 inspections (100% of facilities) were completed.

67. A major storm event is considered to be rainfall greater than the 24 hour, 10 year recurrence interval. Based on rainfalls maps with the SWMMWWW (2019) a major storm event is 1.75 to 2 inches of rain. No qualifying rain event was identified during Year 1 of the permit term.

68. Please see Appendix 6 for a summary of catch basin inspections and cleanings. A total of 96% catch basins were inspected in 2021.

69. Please see Appendix 6 for a summary of catch basin inspections and cleanings.

70. During Year 1 of the MS4 permit, many of the activities listed in Section 2.5.6 completed in a manner that minimized discharges of pollutants, in accordance with the MS4 permit language. Multiple policies and procedures to reduce stormwater impacts from key areas and activities identified in Section 2.5.6 of the permit were evaluated and will continue to be improved. The BOSC completes many of the required activities in accordance with the current contract, including cleaning of culverts that convey stormwater, runway/airfield cleaning and ditch maintenance. A full assessment of practices is underway to ensure maintenance procedures are in accordance with this permit requirement.

71. Morale, Welfare, and Recreation (MWR) and Hunt Properties manage the pet waste stations at Ault Field and Seaplane Base. At NASWI, there are approximately 51 pet waste stations installed which are managed and inspected by the respective owner. MWR owns approximately 13 and Hunt Properties owns the majority. In 2021 approximately 30,000 pet waste bags were purchased and used in the residential areas as needed.

72. Measures taken to minimize or eliminate discharges of PFAS include requiring large construction projects to have a plan for potential dewatering activities in areas likely or known to be impacted by PFAS, policies and procedures established within the SWMP Plan including a risk matrix to aid in decision making; additionally, a field test and demonstration of a Mobile PFAS Removal System to treat AFFF-impacted water is being conducted. Furthermore, AFFF is no longer used for training exercises and can only be used during a firefighting emergency.

74. Please see Appendix 1 for a list of stormwater trainings.

Part III. Monitoring, Recordkeeping and Reporting Requirements (Part 3)
If you answer "NO" to any of these questions, please explain in the Comments section.

77.	Narrative	*In the Comments section, please provide an evaluation of your compliance with the Permit conditions and progress towards achieving the control measures, during this reporting year.* (Part 3.1)
78.	☐ Option 1 ☒ Option 2	For Annual Reporting Year 1: Did you select monitoring Option 1 (Monitoring/Assessment Plan) or monitoring Option 2 (participation in the Stormwater Action Monitoring Program)? *For all reporting years: If you selected Option 1, please answer questions 79, 80, 81 and 82. If you selected Option 2, please answer question 83.*
79.	Narrative	*In the Comments section, please summarize the results of all monitoring and evaluation undertaken during this reporting year. Discuss results of all types of assessments per the monitoring plan approved by EPA pursuant to Parts 3.3.1 through 3.3.10 of the Permit. Provide your interpretation of these data and how you are using them to inform your stormwater management program.* (Part 3.3)
80.	YES ☐ NO ☐	During this reporting year, was all sample collection, preservation and analysis conducted according to test procedures approved under 40 CFR Part 136, or another method approved by EPA (with the exception of PFAS – see next question)? (Part 3.3.4)
81.	Narrative	*In the Comments section, please indicate that analytical method(s) used during the reporting year for PFAS.* (Part 3.3.4.4)
82.	YES ☐ NO ☐	During this reporting year, have you complied with all elements of your Quality Assurance Program Plan (QAPP) developed pursuant to the requirements of part 3.3.9 of the Permit? (Part 3.3.9)
83.	Narrative	*In the Comments section, please summarize your activities as a participant with the Stormwater Action Monitoring Program.*
84.	YES ☒ NO ☐	Are you complying with the record-keeping requirements of Part 3.6 of the Permit? (Part 3.6)
85.	YES ☒ NO ☐	During this reporting year have you ensured that an updated SWMP and all SWMP records are available to the public? (Part 3.7.2.2.2) *In the Comments section please discuss what records are available on your website, any requests you have received for records and your responses.*
86.	YES ☐ NO ☒	During this reporting year, have any boundary changes to your facilities resulted in either an increase or a decrease in the Permit Area? *If yes, please describe in the Comments section.* (Part 3.7.2.2.4)
87.	Narrative	*In the Comments section please provide an annotated list of any attachments to this Annual Report.* (Part 3.7.2.2.1)
88.	YES ☒ NO ☐	Are all monitoring data collected during this reporting year, as applicable, attached to this Annual Report? (Part 3.7.3)

Monitoring, Recordkeeping and Reporting Comments:

77. Compliance with the MS4 began before the official MS4 permit became effective in February 1, 2021. Efforts included incorporation of draft construction requirements, updating maps with stormwater structures, preparation for IDDE dry weather surveys, and development of maintenance standards. After the effective permit date, the efforts to meet compliance continue to improve.

MCM #1- NASWI is fully compliant with this MCM. Training and outreach efforts were established to meet permit compliance in 2021 and continue into 2022. In addition to outreach and trainings identified in Appendix 1, outreach materials were purchased including spill response magnets, posters, and no vehicle maintenance magnets. Pet waste management brochures were developed and printed for residents. Examples of these materials can be found in the SWMP Plan. Existing AEC/AEM training was updated to include MS4 permit requirements and multiple trainings were developed.

MCM#2 - NASWI is fully complaint with this MCM. Due to COVID-19 in person events were limited during the reporting year. However, a number of volunteer events were able to take place around Earth Day, April 2021. Efforts will continue to increase engagement in stormwater pollution prevention activities.

MCM #3- NASWI is implementing the final stages to meet compliance with this MCM. Procedures, in accordance with the MS4 permit, were developed and incorporated within the SWMP Plan. Materials to aid in dry weather surveys and investigations, including a portable spectrophotometer and testing supplies, were purchased in 2021. Additional activities taken include:
-A contract to update stormwater maps across the installation.
- Training target audiences on BMPs to prevent illicit discharges.
- A continuing water conservation program to minimize discharges from lawn watering and irrigation.
- Training to prevent discharges from street and sidewalk wash water and routine external building wash down.
- Development of procedures for allowable discharges from utility vaults and secondary containment.

MCM #4/5- NASWI is implementing the final stages to meet compliance with this MCM. Procedures and responsibilities were developed in accordance with the MS4 permit and incorporated within the SWMP Plan. Multiple trainings were held in during Year 1 of the permit to communicate permit requirements. Implementation efforts and accomplishments during the first permit year include:

- Training for project designers and construction management personnel
- Implementation and completion of all required site plan reviews and construction inspections
- Implementation and completion of corrective actions addressing inspection findings
- Completion of an EAP Plan to identify and prioritize projects to be completed during this permit term
- Detailed stormwater sampling and analysis to identify any contaminants of concern for priority action

77. Continued
MCM #6- NASWI is implementing the final stages to meet compliance with this MCM. In 2020 a Stormwater Utilities Engineer was hired to manage stormwater maintenance. Improvements with stormwater maintenance have been made since the effective date of the MS4 permit and will continue.Implementation efforts and accomplishments during the first permit year include:

- Inspection of catch basins in compliance with requirements
- Implementation of an audit to identify all stormwater structures requiring inspections
- Development of maintenance standards for stormwater structures
- Training for stormwater personnel on maintenance standards
- Ongoing development of stormwater maintenance tracking and reporting
- Pet waste assessments in housing and recreation areas
- Installation of additional pet waste stations in housing
- Procurement of additional pet waste stations for recreation areas.
- Education and outreach to residents on pet waste environmental impact

83. Through negotiations with the Stormwater Action Monitoring (SAM) Network, the Navy is considered an active participant through annual payment. The regional MS4 manager participates in SAM Stormwater Work Group meetings, and while not currently voting on project proposals the ability to in the future is available. The Navy's participation in SAM is outlined in the Cover Letter (see Appendix 7) provided by the Washington Department of Ecology SAM program.

87. Annotated List of Attachments
Appendix 1 Education and Outreach Tables
Appendix 2, Public Involvement -Volunteer Activity Table
Appendix 3, IDDE- Spill Report Table
Appendix 4, Construction- Construction Inspection Tracker,
Appendix 5, Construction - Early Action Projects Plan including Early Action Projects Sampling Results Report and monitoring results
Appendix 6, O&M- Catch Basin Inspections Table
Appendix 7, Monitoring and Record Keeping- Washington Dept. of Ecology letter, RE: Navy on joining Stormwater Action Monitoring Program, 15 June 2021

87. The EAP Sampling Results Report (Appendix 5) contains the monitoring data applicable to this reporting year. Additional monitoring was completed and submitted to the EPA in accordance with the Multi-Sector General Permit.

Part IV. Required Response to Exceedances of Water Quality Standards (Part 4)

89.	YES ☐ NO ☒	During this reporting year were any exceedances of water quality standards identified, per the terms of Part 4 of the Permit? (Part 4)
90.	Narrative	*If yes, please describe in the Comments section all measures that were taken to mitigate the water quality standards exceedance, including notifications, adaptive management measures undertaken, schedules for implementation, and a status of current conditions. Include details per the provisions in Part 4 of the Permit.*

Required Reponses to Violations of Water Quality Standards Comments:

Appendix 1 - Education & Outreach Tables
NASWI MS4 WAS026611 Annual Report - Permit Year 1
February 1, 2021 to January 31, 2022

Outreach Summary					
Date	**Outreach Item**	**Topics Covered**	**Audience(s)**	**Distribution Method and # of personnel**	**Additional Information**
Feb-21	Residential Newsletter	General awareness, stormwater impacts on Killer Whales, Stormwater MS4 Infographic (see attached)	Residents	Distributed electronically to 1449 households	
Feb-21	Stormwater Social Media Post	General stormwater awareness of MS4 permit, Stormwater MS4 Infographic (see attached)	All personnel	Distributed to 24,000 NAS Whidbey Island Facebook page resulting in 22 likes, 3 shares, estimated at least 1000 views.	
Apr-21	All Hands Email and posters	Stormwater awareness and reminder of policy stating no vehicle maintenance is allowed on base.	Personnel living in barracks	Distributed via email, estimated 250 people reviewed and 100 military personnel saw posters.	Multiple military personnel contacted Environmental Division to acknowledge policy as a result of the outreach effort.
Jul-21	2nd Residential Newsletter	Lawn overwatering awareness	Residents	Distributed electronically to 1449 households	
Ongoing	Stormwater Video and social media post (Region)	General stormwater awareness of MS4 permit, the impacts of stormwater runoff and tips for stormwater pollution prevention. The link for the video is included in the SWMP Plan.	All personnel	Distributed through social media with 708 views on Facebook. In addition, the video is posted to the website and has been played 363 times.	

Training Summary					
Date	**Training**	**Topics Covered**	**Audience(s)**	**Training Method and # of personnel**	**Additional Information**
ongoing	Area Environmental Coordinator (AEC) Training	Stormwater awareness, regulatory and permit background, potential ecological impacts of stormwater runoff, proper BMPs usage and maintenance, allowable and prohibited discharges, key elements of the industrial stormwater program, common sources of stormwater pollution, and spill response.	Civilian and Military workers	In person training, 220 AECs	
ongoing	Area Environmental Manager (AEM) Training	Stormwater awareness, regulatory and permit background, potential ecological impacts of stormwater runoff, proper BMPs usage and maintenance, allowable and prohibited discharges, key elements of the industrial stormwater program, common sources of stormwater pollution, and spill response.	Civilian and Military workers	In person training by AEC, estimated 200 AEMs	
Ongoing	Sediment and Stormwater Construction Training	Introduction to laws and regulations, environmental impacts of soil erosion, principals of erosion and sedimentation, vegetative stabilization, principals of stormwater runoff, construction site pollution prevention, sediment and stormwater plans.	Civilian and Military workers associated with construction, and construction contractors	Virtual training through ECATTS, 12 completed training in 2021. Since, 2009, 112 personnel have completed the training.	
Ongoing	Stormwater--Comprehensive Overview: Washington	General stormwater awareness, sources of pollution, laws and regulations, MS4 permits, environmental impacts of stormwater, controlling sediments and erosion control on construction sites, point and non-point source pollution sources, BMPs, LID, managing stormwater in industrial areas, and cross connections.	Civilian and Military workers	Virtual training through ECATTS, 70 completed training in 2021. Since, 2009, 343 personnel have completed the training.	

Training Summary					
Ongoing	Stormwater--Basic Information: Washington	General stormwater awareness, sources of pollution, laws and regulations, environmental impacts of stormwater, controlling sediments, point and non-point source pollution sources, BMPs, managing stormwater in industrial areas, and cross connections.	Civilian and Military workers	Virtual training through ECATTS, 1038 completed training in 2021. Since 2017, 3513 personnel (mainly military) have completed the training.	
2019	PPV Training	General stormwater awareness	Hunt Properties LLC and NAVFAC PPV Personnel	Approximately 15 attendees	Completed before MS4 permit effective date
Dec-20	Certified Stormwater Inspection Course	IDDE Awareness, stormwater inspections, general stormwater refresher topics	Stormwater program managers	Virtual training, completed by 6 stormwater managers within the NAVFAC NW Region	Completed before MS4 permit effective date
Feb-21	Hazardous Substance Incident Response Management (HSIRM) Training	Training covers spill response, incident response, and	Personnel responsible for spill response efforts	Completed by 29 attendees at NASWI.	
Mar-21	Construction Training	The training topics presented included stormwater awareness, introduction to the MS4 permit, the SWMP (what had been developed at the time), MS4 permit requirements, the Stormwater Management Manual for Western Washington, a refresher information about the Construction General Permit, and construction BMPs.	Design and Construction Personnel and FEAD	Virtual, 25 attended training, presentation was distributed to a total of 50 personnel.	
Jan-22	PPV Training	The training covered stormwater awareness, illicit discharge detection, spill response and prevention, water conservation and reducing overwatering of lawns, pet waste management, and conditionally allowable discharges.	Hunt Properties LLC and NAVFAC PPV Personnel	Virtual, 9 PPV members attended	
Jan-22	Construction Training	The training topics presented included stormwater awareness, introduction to the MS4 permit, the SWMP, MS4 permit requirements, the Stormwater Management Manual for Western Washington, a refresher information about the Construction General Permit, and construction BMPs.	FEAD Construction Managers	In person classroom training, 14 people in attendance.	
Jan-22	Impacts of Stormwater on Southern Resident Killer Whales	The training covered SRKW monitoring and mitigation strategies, their status under the Endangered Species Act, habitat, prey, chemical threats such as PCP, PCB, DDT, PBDEs, persistent organic pollutants, bioaccumulation of chemicals, and the decline of chinook and Coho salmon due to poor stormwater quality.	MS4 program managers, other personnel that influence the quality of stormwater discharges	Virtual training hosted by NOAA, 15 people in attendance from across the NAVFAC NW region	

Appendix 2 - Public Involvement - Volunteer Activity Table
NASWI MS4 WAS026611 Annual Report - Permit Year 1
Permit Year 1
February 1, 2021 to January 31, 2022

Public Involvement - Volunteer Activity Details

Date	Activity	Notes
Apr-21	The Environmental Education and Outreach Coordinator also organized the annual Earth Day tree planting ceremony with the help of MWR and NASWI Stormwater Engineer. He coordinated with Public Works Planning Division and NEPA coordinator to prepare appropriate planting locations for Doug Fir and five Garry oak saplings. He worked with volunteers to plant a tree with the base Commanding Officer, then planted the five Garry oaks donated by the Garry Oak Society.	Trees play a critical roles in controlling stormwater runoff by helping to reduce the amount of runoff entering the MS4 and protecting surface water. Trees help to reduce sediment and nutrient loadings. Reference: https://www.epa.gov/sites/default/files/2015-11/documents/stormwater2streettrees.pdf
Apr-21	On Earth Day, NASWI Environmental Education and Outreach Coordinator worked with the FRCNW Green Team to organize a tabling awareness effort and parking lot trash pickup for all FRCNW Divisions. He made a tabling display with posters, information, and handouts made with recycled paper. He spoke with sailors passing by in the FRCNW quarterdeck about NASWI's recycling, stormwater, and EMS requirements, as well as promoted the FOD pickup taking place from 15:00 to 15:30 in which the sailors were asked to help pick up harmful microplastics and cigarette butts (which are stormwater pollutants) in the vicinity and parking lots of their work areas.	Trash cleanup is a beneficial way to impact pollution prevention for stormwater runoff by preventing debris from entering waterways.
Apr-21	The Environmental Education and Outreach Coordinator worked with a local non-profit, Pacific Rim Institute for Environmental Stewardship, to organize two five-hour volunteer events held on Friday, April 23rd and Saturday April 24th. He engaged in promotion and recruitment of Navy volunteers, providing them with registration and information. Sixty Navy-affiliated volunteers attended between the two days, resulting in over two-hundred and fifty work hours for the non-profit.	The mission of the Pacific Rim Institute is "to equip people and communities to live sustainably and care for creation." For more information about the Pacific Rim Institute for Environmental Stewardship please visit: https://pacificriminstitute.org/who-we-are/

Appendix 3 - Illicit Discharge Detection and Elimination (IDDE) Spill Report Table
NASWI MS4 WAS026611 Annual Report - Permit Year 1
Permit Year 1
February 1, 2021 to January 31, 2022

Spill Reports

Product	Quantity	Reportable	Date	Cause
Jet-A	4 gallons	No	3-Feb-21	Operator error, AST overflow
Diesel	1 pint	No	9-Feb-21	Refueling overflow
Hydraulic Oil	3.5 gallons	No	18-Feb-21	Equipment failure
Jet-A	4 gallons	No	8-Mar-21	Aircraft engine leak
Oil	6 gallons	No	11-Mar-21	Equipment failure
Hydraulic Oil	<1 quart	No	19-Mar-21	Equipment failure
Hydraulic Oil	5 gallons	No	25-Mar-21	Equipment failure
Jet-A	5 gallons	No	15-Apr-21	Aircraft overfueling expansion
Jet-A	8 gallons	No	26-Apr-21	Operator error, spilled bucket
Gasoline	<1 quart	No	27-Apr-21	Customer spill
Oil	1 gallon	No	29-Apr-21	Knocked over bucket
Hydraulic Oil	1 gallon	No	30-Apr-21	Equipment failure
Oil	3 gallons	No	4-May-21	POV parking lot spill
Oil	4 gallons	No	5-May-21	Cracked bucket
JP-5	10 gallons	No	11-May-21	Valve failure at test cell
Jet-A	<2 gallons	No	2-Jun-21	Aircraft leak at start up
Jet-A	2 gallons	No	3-Jun-21	Aircraft leak at start up
Jet-A	2 gallons	No	14-Jun-21	Aircraft fuel sample spill
Jet-A	15 gallons	No	17-Jun-21	Aircraft engine leak
Trans Fluid	<1 gallon	No	28-Jun-21	Vehicle leak
Antifreeze	1 gallon	No	27-Jan-22	Security vehicle hit gate, radiator leak, BOSC responded

Appendix 4 - Construction - Construction Inspection Tracker
NASWI MS4 WAS026611 Annual Report - Permit Year 1
February 1, 2021 to January 31, 2022

Construction Inspection Tracker

Task Name	EPP Reviewed	Stormwater Site Plan Reviewed	Pre-Con Meeting		Pre-Inspection	Initial Site Inspection	6-month Inspection	Post- Inspection	Notes
ACTIVE PROJECTS									
P-8A Airfield Improvements	n/a				n/a				Construction not started yet. 15% Basis of Design Reviewed 9/13/21
Replace 4 Fuel USTs with ASTs, B2622/2623/2625/2626, NASWI	n/a				n/a				Construction not started yet. 50% Basis of Design Reviewed 10/6/21
Fuel Hydrant System	n/a				n/a				Construction not started yet. 65% Statement of Architectural-Engineering Services Reviewed 9/28/21
EA-18G FLEET REPLACEMENT SQUADRON (FRS) EXPANSION FACILITY	9/28/2021	9/28/2021			n/a				Construction Estimated start date January 2023
Install AN/FRN-49/ICLS Preparation Upgrade, NASWI	9/14/2021		9/1/2021		n/a				Construction not started
Replace PAPI Airfield Landing Aid, NASWI	10/13/2021		2/7/2022		n/a				Construction start on hold
Steam Line Repairs B2547	11/17/2021		11/1/2021 11/4/2021		n/a				Construction not started
Completed P256 Hangar	2019 (pre-permit issuance)				2019 (pre-permit issuance)			Mar-21	Project began prior to permit issuance and physical construction completed approximately in March 2021.

Summary:

Total Inspections Required	1
Total Inspections Completed	1
Percentage of Inspections Completed	100%

NASWI MS4 Annual Report Year 1
Appendix 5 Construction - Early Action Projects Plan Including
Early Action Projects Sampling Results Report and Monitoring Results

Naval Air Station Whidbey Island Early Action Projects Plan February 2022

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Naval Air Station Whidbey Island Early Action Projects Plan February 2022

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Prepared By

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Name: Nicole Iutzi-Kubista
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Executive Summary

In 2021 the Environmental Protection Agency issued a National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) permit to Naval Air Station Whidbey Island (NASWI). The MS4 permit covers NASWI Ault Field and Seaplane Base. Section 2.4.4 of the MS4 permit requires a list of Early Action Projects (EAPs) to be identified no later than the reporting deadline for year one of the permit, no later than March 31, 2022. This document lists the EAPs to be implemented within the permit term, by February 1, 2026. Due to the shortened length of time for project implementation, the projects are mainly maintenance or operational in nature.

Table of Contents

APPENDICES

List of Tables

List of Acronyms

AFFF……..aqueous film forming foam
BMP……...Best Management Practices
BOSC…….Base Operating Service Contract
CERCLA…...Comprehensive Environmental Response, Compensation, and Liability Act
DMR……...Discharge Monitoring Report
DO……Dissolved Oxygen
EAP……...Early Action Project
EPA…….....Environmental Protection Agency
ER……....Environmental Restoration Program
MS4……..Municipal Separate Storm Sewer System
MSGP……...Multi-Sector General Permit
NASWI……Naval Air Station Whidbey Island
NPDES…….....National Pollutant Discharge Elimination System
OWS……..Oil/water separators
PFAS……Per- and polyfluoroalkyl substances
PAH……Polycyclic Aromatic Hydrocarbon
SAM…….Stormwater Action Monitoring
SIIP……Stormwater Infrastructure Investment Plan
SWMPP..... Stormwater Management Program Plan
TMDL .....Total Maximum Daily Loads

1 Introduction

This plan serves as the list of EAPs required by Section 2.4.4 of the MS4 Permit and submitted with the first annual report for NASWI. The EAPs are required to be completed within the permit term, by midnight January 31, 2026.

2 Regulatory Authority

The MS4 permit Section 2.4.4 requires a list of EAPs to be identified no later than the reporting deadline for year one of the permit, no later than March 31, 2022. Within Section 2.4.4 requirements are established for EAPs and the Stormwater Infrastructure Investment Plan (SIIP) which is referred to as the Plan and/or Written Plan within the MS4 Permit.

The Permittee may satisfy this requirement in connection with corrective action project(s) required by compliance with the Multi-Sector General Permit (MSGP), if appropriate. Due to a shortened timeframe of implementation for EAPs, the balance of EAPs may consist of operational or maintenance activities rather than projects that require design and construction stages or major capital improvements.

3 Data Evaluation

The goal of the EAPs is to prioritize reduction and elimination of pollutants of concern listed in Table 2.4.4 of the MS4 permit and complete actions to address the pollutants of concern. A data review was completed to determine potential pollutants of concern to be included in the EAP sampling effort, which was completed in September 2021. Following the EAP sampling effort, a report of the findings was completed and is included in Appendix A of this report.

3.1 Resource Review

Monitoring data and recommendations from basin plans were reviewed from the following sources and as identified in Table 3.1. Information gathered from these sources helped to identify and determine analytes for the regional sampling effort discussed in Section 4.1 of this report. A summary of sources reviewed include:

- Washington Department of Ecology;
- Puget Sound Stormwater Action Monitoring program;
- Tribal, County, or other neighboring MS4 jurisdictions; and
- Basin Plan and/or the most recent Watershed Action Plans for the Puget Sound/Island County.

Table 3.1 Sources of data

Source	Plan/Report Title	Link to site
Stormwater Action Monitoring	Effectiveness Studies	https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/SAM-effectiveness-studies
Stormwater Action Monitoring	Status and Trends	https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/SAM-status-and-trends
US Geological Survey	Puget Sound National Water Quality Assessment Program	https://www.usgs.gov/centers/wa-water/science/puget-sound-basin-nawqa?qt-science_center_objects=0#qt-science_center_objects
Island County	Island County Water Resource Management Plan (focuses on groundwater management with some reference to stormwater/surface waters)	https://www.islandcountywa.gov/Health/DNR/Documents/Final%20Plan.pdf
Puget Sound Partnership	Watershed Recovery Chapter	https://www.psp.wa.gov/salmon-recovery-watersheds.php
Washington Department of Ecology	Western Washington NPDES Phase I Stormwater permit	https://apps.ecology.wa.gov/publications/documents/1503001.pdf

3.2 Land Use and Activity Data

Ault Field consists of industrial and municipal areas, and the industrial activities on Ault Field are regulated under the MSGP. Activities at Ault Field include aircraft maintenance activity, boiler plant activity, painting, sandblasting, vehicle washing, fuel storage and fueling activities, aircraft rinsing, paint storage, recycling, fire training, and administrative work in office buildings. Potential pollutants include: petroleum, oils and lubricants; steam condensate; cleaners; solvents; metals; aqueous film forming foam (AFFF); and paint.

Stormwater runoff from portions of Seaplane Base may infiltrate or enter the storm drain system. A small area with light industrial activity is located in the central portion of the

base and is covered by impervious surfaces. The few industrial activities at Seaplane Based are covered under the MSGP. Seaplane Base also contains multiple residential communities and recreation areas. Activities on Seaplane Base include fuel transfer, vehicle fueling, residential and light industrial activities (i.e. auto body shop, commissary, navy exchange, and office buildings), and roads. Potential pollutions include; petroleum, oils and lubricants, steam condensate, solvents and paint.

3.3 Designated Uses and Impairments

3.3.1 Fresh Waters

3.3.1.1 Clover Valley Watershed

The Clover Valley watershed is a low gradient system that drains to Dugualla Bay, a small bay at the northeastern end of Whidbey Island. The western limit of the watershed is a low, broad divide separating the Clover Valley drainage from Ault Field runoff that flows toward the Strait of Juan de Fuca. Clover Valley Creek originates east of Ault Field and drains the adjacent uplands and primary airfield infrastructure at Ault Field before entering lower Clover Valley Creek, which flows northeast to Clover Valley Lagoon. Clover Valley Lagoon is a former estuary and salt marsh that was separated from Dugualla Bay's marine waters by a levee to create agricultural land around 1918. A tide gate and pump station system eliminated tidal inundation and restricted fish access from Dugualla Bay. The tide gates are no longer operational and the water surface elevation in the lake is controlled by a pumping system operated by the Navy even though the lagoon and the dike are outside of the installation boundary.

There are no total maximum daily loads (TMDLs) or pollutants of concern listed for this watershed (Washington Department of Ecology, 2012). Clover Valley Creek is protected for core summer salmonid habitat; extraordinary primary contact recreation; water supply uses (domestic, industrial, agricultural, stock); and miscellaneous uses (wildlife habitat, harvesting, commerce/navigation, boating, and aesthetics).

3.3.2 Marine Waters

3.3.2.1 Strait of Juan de Fuca Watershed

The Strait of Juan de Fuca is a large body of water about 95 miles long that is the Salish Sea outlet to the Pacific Ocean. It extends east from the Pacific Ocean between Vancouver Island, British Columbia, and the Olympic Peninsula, Washington, to Haro Strait, San Juan Channel, Rosario Strait, and Puget Sound. The international boundary between the U.S. and Canada runs down the center of the Strait. At the southern boundary of NASWI Ault Field a Category 2 (defined as a water of concern) impairment for bacteria.

3.3.2.2 Crescent Harbor and Oak Harbor Watershed

Crescent Harbor and Oak Harbor empty into the Saratoga Passage of Puget Sound. Crescent Harbor Creek, which discharges into the Crescent Harbor Marsh and then Crescent Harbor, runs through a portion of NASWI Seaplane Base and has Category 5 (defined as a polluted water that requires a water improvement project) water impairments listed for dissolved oxygen and bacteria. Crescent Harbor Creek is also listed with two Category 2 (water of concern) impairments for pH and temperature. Portions of Oak

Harbor east of NASWI Seaplane Base have water impairments for bacteria (Washington Department of Ecology, 2012).

Crescent Harbor Creek is protected for salmonid spawning, rearing and migration; primary contact recreation; water supply uses (domestic, industrial, agricultural, stock); and miscellaneous uses (wildlife habitat, harvesting, commerce/navigation, boating and aesthetics).

3.4 Monitoring Data

Historical monitoring data was evaluated from the MSGP and Environmental Restoration Program efforts. This data, along with the review of documents listed in Section 3.1 above, was evaluated to determine analytes for analysis during the EAP sampling effort in September 2021. Table 3.2 below, lists the potential pollutants as listed Table 2.4.4 from the MS4 permit with a summary of possible sources.

Table 3.2 Potential pollutants listed in Table 2.4.4 of the MS4 permit and potential sources.

Parameter	Possible Sources
Magnesium	Magnesium salts and compounds and natural sources. (Teravskis, 2017)
Zinc	Moss control products, building siding, parking lots, vehicle tire wear, chain-link fence, roofing material, vehicle brake wear (WDOE, 2017), galvanized metals, wood preservatives (City of Pacific Grove, n.d) and industrial sources.
Copper	Vehicle brake wear, roofing materials, parking lots, treatment lumber, building siding, vehicle exhaust (WDOE, 2017) and industrial sources.
Lead	Lead-based paints, leaded gasoline, mining, and soils contaminated with lead (Jones-Lee & Lee, 2000)
Pyrene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Bis(2-ethylhexyl) phthalate	Production of PVC and vinyl chloride resins (added to plastics to make them flexible) (EPA, 2000)
Fluoranthene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Cadmium	Vehicle use and wear, brake wear (McKenzie et al., 2009) and industrial sources.
Butyl benzyl phthalate	Commonly used plasticizer found in a variety of consumer products (Carlson, 2010), plasticized PVC, motor vehicle components, paints or other coatings, caulks and sealants (Dale & Trim, 2017).
Benzo(b,k)fluoranthene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)

Parameter	Possible Sources
Chrysene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Phenanthrene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Dichlobenil	Used as an herbicide. (NCAP, 1997)
Benzo(g,h,i)perylene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Benzo(b)fluoranthene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Benzo(k)fluoranthene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Naphthalene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Benz(a)anthracene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Diethyl phthalate	Commonly used plasticizer found in a variety of consumer products (Carlson, 2010), plasticized PVC, motor vehicle components, paints or other coatings, caulks and sealants (Dale & Trim, 2017)
Per- and polyfluoroalkyl substances (PFAS)	Use of AFFF in emergency fire-fighting operations. (Street et al., 2020)
Pentachlorophenol	Used as an insectide, fungicide, and slimicide (Pohanish, 2015) and in wood preservation (Cheremisinoff & Rosenfield, 2010).
Benzo(a)pyrene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Indeno(1,2,3-cd)pyrene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
2-Methylnaphthalene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)

Parameter	Possible Sources
Fluorene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Acenaphthene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Mercury	Atmospheric deposition (City of Pacific Grove, n.d)
Dibenzo(a,h)anthracene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
1-Methylnaphthalene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Anthracene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Acenaphthylene	PAH –non-point sources including leaking motor oil, tire particles, incomplete combustion of fuel within engines – especially diesel-based, and crumbling asphalt. Natural sources include forest fires. (Crane et al., 2010)
Di-N-Octyl Phthalate	Commonly used plasticizer found in a variety of consumer products (Carlson, 2010), plasticized PVC, motor vehicle components, paints or other coatings, caulks and sealants (Dale & Trim, 2017)
Dibenzofuran	Combustion process (EPA, 2016)

Not all possible sources of the parameters listed in Table 3.2 are present at NASWI, however all parameters not already sampled were included in the sampling project discussed in Section 4.1 of this report. Another source of information used to evaluate stormwater quality and analytes to sample for was the historic Discharge Monitoring Reports (DMRs), monitoring efforts completed through the MSGP, and data provided by the Navy's Environmental Restoration team.

4 Early Action Projects

The projects listed in the following sections are anticipated actions to occur over the MS4 permit term. Operational changes within the Department of the Navy could alter the ability for any project listed below to occur. This includes the timeframe, scope, and overall ability for the project to occur.

4.1 Sampling Summary

In 2021, a regional effort was performed to address the potential pollutants of concern identified in the MS4 permit the pollutants identified by Table 3.2 in Section 3 of this report, historical and current activities, and land use data. This large sampling undertaking was one of the first EAPs to help determine the need for future projects, including further sampling to focus efforts for the SIIP.

The purpose of sampling was to determine the risk of potential pollutants, as identified in Table 2.4.4 of the MS4 permit, at Ault Field and Seaplane Base. This sampling effort will aide in developing the SIIP. Further sampling and investigation will occur to address analytes identified as being above MSGP benchmarks or Washington State Water Quality Standards. Details of this sampling effort can be found in Appendix A *Early Action Project Sampling Results Report.*

4.2 Operational

A general operational change is currently underway to enhance the review of construction project designs and to better include stormwater management techniques. The enhanced process requires stormwater managers to be more involved at the start of the construction project during the design phase to aide in implementing treatment and flow control techniques. The process will also allow for more robust stormwater management during the construction project. This change requires many internal agencies cooperation, continuous revisions to the current process and robust training efforts. For construction sites potentially impacted by PFAS, treatment and disposal is required to be implemented into the design phase of the project to ensure PFAS is managed to reduce risk to the environment.

An 18th month project to enhance the stormwater maps was started in 2021. The project will be an operational benefit to enhance stormwater maintenance, investigate and identify illicit discharges, and map potential priority areas likely to have illicit discharges.

At both Seaplane Base and Ault Field, pet waste management is being operationally enhanced. The Navy Lodge at Seaplane Base allows pets and has a pet waste bag station for patrons with pets. Additionally, pet owners will be asked to sign acknowledging the requirement and understanding why pet waste management is an important part of pollution prevention.

To address PFAS at Ault Field, multiple efforts are underway and future projects are being planned. A risk assessment for dewatering efforts with potential PFAS impacted water has been developed. Each project with dewatering needs is being evaluated on a case-by-case basis to determine potential environmental risk and mitigate concerns. A comprehensive study of the runoff from the airfield at Ault Field is in the early planning process. The study will evaluate the potential for reducing flow to Clover Valley Creek by shifting stormwater runoff from Clover Valley Creek to the Strait of Juan de Fuca. This study will evaluate water quality treatment needs, including potential PFAS treatment options for runoff collected from the airfield area, and benefits the reduction will have on Clover Valley Creek.

The Navy's Environmental Restoration (ER) Program is conducting a basewide assessment for PFAS at NASWI under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLA process is conducted in phases (as follows): Preliminary Assessment, Site Inspection, Remedial Investigation, Feasibility Study, Remedial Design, Remedial Action, Remedial Action Operation, and Long-Term Management. The duration is dependent on site-specific information and can last over 20 years. Execution of the CERCLA process for PFAS is especially challenging as the state of the science for these compounds advances, and policy and regulatory status evolves. The ER Program has completed the first two phases of CERCLA at NASWI, including the Preliminary Assessment and Site Inspection. In 2020, the ER program started the Remedial Investigation at three areas of interest at NASWI, and has additional investigations planned. The purpose of the Remedial Investigation is to delineate PFAS at a site and assess the potential risk to human health and the environment. If there is a significant risk is identified, then remedial alternatives (i.e., cleanup actions) are evaluated, selected, and conducted.

4.3 Maintenance

A more robust catch basin cleaning will be completed at NASWI. Currently the Base Operating Services Contact (BOSC) includes catch basin cleaning and inspections, and the contract will be updated with current maintenance standards included in the SWMP Plan. Modifications to the BOSC contract have been underway to include maintenance requirements as stated in the SWMP and MS4 permit.

A clean and assessment project for Ault Field is currently being evaluated and is projected to occur during the MS4 permit term. This project is slated to be completed over the next four years; however, unforeseen circumstances could result in the project timeline being shifted. The status of the projects will be monitored and, if not completed by year four of the permit, will be included in the SIIP.

4.4 Structural

Current structural projects anticipated over the next four years include repairs of multiple oil water separators (OWSs) on both Seaplane Base and Ault Field. These projects are slated for completion during the current MS4 permit term; however, unforeseen circumstances could result in changes to the current schedule. The status of the projects will be monitored and, if not completed by year four of the permit, will be included in the SIIP.

A field test and demonstration of a Mobile PFAS Removal System to treat AFFF-impacted water is being conducted at Ault Field. This field test and demonstration is scheduled to be on-site for six to eight weeks. A larger treatment system is being proposed for dewatering and stormwater at Ault Field. This larger project is slated to be completed over the next four years; however, unforeseen circumstances could result in the project timeline being shifted. The status of the projects will be monitored and, if not completed by year four of the permit, will be included in the SIIP.

In accordance with Section 2.4 of the MS4 permit and as part of the development of the SIIP, locations for potential structural stormwater controls will be evaluated. Potential locations will focus on areas where non-structural BMPs have not been sufficient to reduce

pollutant loadings. A feasibility evaluation for using low impact development techniques, and/or other controls to eliminate pollutant loadings to the Puget Sound. Additionally, an evaluation of exiting building locations where the disconnection of existing flows from rooftop downspouts into the MS4 will be completed to support the SIIP. This evaluation will take into consideration how the disconnection of existing flow could contribute to water quality improvements and what potential techniques included in the Stormwater Management Manual of Western Washington (2019) would be feasible.

5 Conclusion

The EAP sampling effort from September 2021 was the start of determining which potential pollutants of concern to address, if necessary. The results from the study will help drive structural projects in the future, as applicable, and shape the SIIP. Sample results flagged as indicated in Appendix A will be further investigated and results from the study may result in further EAPs. Additionally, corrective actions taken as a result of the MSGP should also be considered as EAPs and may be identified at a later date.

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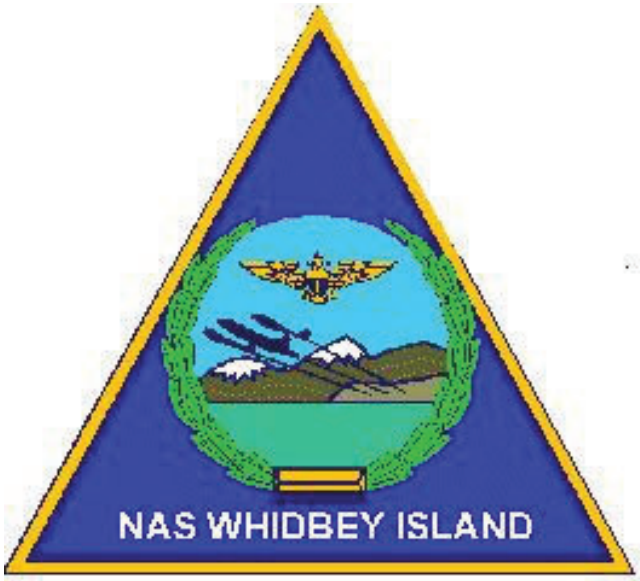
7 Appendix A – EAP Sampling Report

MS4 Early Action Projects
Sampling Results
February 2022



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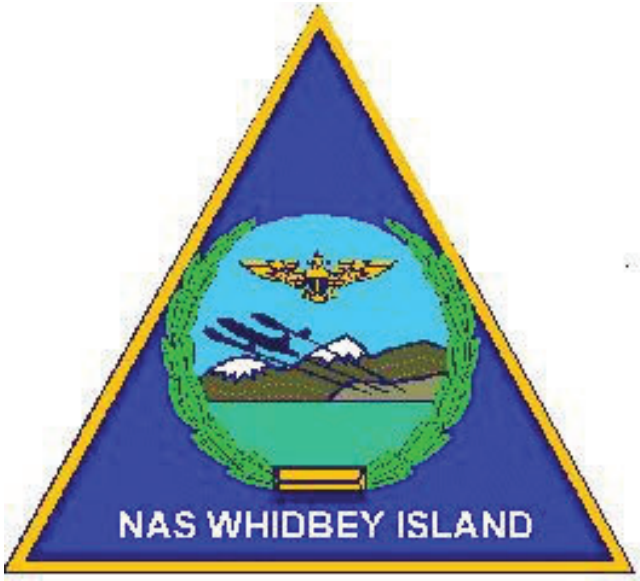
MS4 Early Action Projects
Sampling Results
February 2022



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List of Acronyms and Abbreviations

(A)	Acute
AOR	Area of Responsibility
EAP	Early Action Project
EPA	Environmental Protection Agency
(FW)	Freshwater
IC-ID	Illicit Connection and Illicit Discharge
ISGP	Industrial Sector General Permit
MSGP	Multi-Sector General Permit
MS4	Municipal Separate Storm Sewer Systems
N/A	Not Applicable
NAS	Naval Air Station
NAVFAC NW	Naval Facilities Engineering Command Northwest
NEX	Navy Exchange
SAPP	Sample and Analysis Project Plan
(SW)	Saltwater
TKN	Total Kjeldahl Nitrogen
ug/L	Microgram per liter
WAC	Washington Administrative Code

**Key terms used in this report defined on next page.*

Key Term Definitions:

Acute Health Issue	Severe and sudden health issue in onset.
Analytes	A substance whose chemical constituents were identified and measured by a laboratory and referred to as contaminant of concern for parameters monitored under MS4 Clean Water Act (CWA) regulation or priority pollutant under EPA Water Quality Criteria.
Chronic Health Issue	Health issue develops and worsens over extended time.
Benchmark (MSGP)	Refers to benchmark thresholds issued under the MSGP.
Criteria (EPA)	Refers to EPA's Water Quality Criteria – Aquatic Life Criteria Table. For this report, Washington State Freshwater and Marine Water "criteria" are referred to as "standards" (see below).
Outfall (EPA)	A point source as defined by 40 CFR 122.2 at the point where a MS4 discharges to waters of the U.S. and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S..

MS4 (EPA)	A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)...including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the U.S. (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works as defined at 40 CFR 122.2.
MSGP (EPA)	Authorizes the discharge of stormwater from industrial facilities.
Pollutant of Concern (EPA)	Any pollutant that has been identified as a cause of impairment in any waterbody to which the MS4 discharges as defined in the MS4 Permit Section 2.4, Table 2.4.4.
Standard (refers to WAC 173-201A water quality criteria)	WAC 173-201A, Washington State Water Quality "Standards" for Surface Water; refers to Freshwater and Marine Water criteria, which should not to be confused with EPA Water Quality "Criteria". For freshwater water quality criteria broken down by type of habitats. For marine water quality criteria broken down into fair, good, excellent and extraordinary. Standards are the basis for protecting Washington state surface water quality. Pollution limits in water quality permits are based on these standards.

1 Introduction

The purpose of this report is to describe the Early Action Project (EAP) sample procedures and report the laboratory analytical results for Naval Air Station (NAS) Whidbey Island. Nine Navy installations in the Pacific Northwest were included in this regional project. The purpose of the EAP sampling was to evaluate and identify the current state of stormwater discharges covered under the Municipal Separate Storm Sewer System (MS4) permit in order to identify and prioritize actions to promote storm water quality. Water quality results are compared to the 2021 Multi-Sector General Permit (MSGP) benchmarks, Washington Administrative Code (WAC) 173-201A Water Quality Standards for Surface Waters of the State of Washington, the Illicit Connection and Illicit Control (IC-ID) Field Screening and Source Tracing Guidance Manual (May 2020 Revision) recommended thresholds for further investigation, and Environmental Protection Agency (EPA) Recommended Water Quality Criteria. Once sample results were obtained from the respective labs, the data was analyzed in relationship to the Federal and State of Washington stormwater regulatory framework.

2 Sampling Procedure

This section lists sample locations and describes the sampling procedures for the EAP project. A list of downstream waterbodies is also included.

2.1 Sample Locations

The various Navy-owned installations in the area of responsibility (AOR) of Naval Facilities Engineering Systems Command Northwest (NAVFAC NW) were sampled to obtain a perspective of stormwater discharges. Installations included in this report are located within Island County which include NAS Whidbey Island, Ault Field and NAS Whidbey Island, Seaplane Base. Sample locations on each installation were specifically chosen to be representative of stormwater discharge quality. Table 2-1 is a lists of EAP sampling locations at NAS Whidbey Island by installation.

Table 2-1. EAP Sampling Locations

	Installation	Sample Location	Description
Naval Air Station Whidbey Island	Ault Field	Ranger St.	Discharges to Dugualla Bay, Monitored under MSGP
		Princeton St.	Discharges to Strait of Juan de Fuca
	Seaplane Base	Navy Exchange (NEX)	
		Cascade Court	
		Goldfinch St.	

2.2 Receiving Water Bodies

Stormwater benchmarks in the MSGP, surface water quality standards in WAC 173-201A, recommended thresholds from the IC-ID, and other documents were utilized for the analysis and are dependent upon the downstream waterbodies. Benchmarks and standards will vary significantly depending if the outfall flows into freshwater or saltwater. Table 2.2 below is a list of receiving waterbodies by installation. At Ault field, there are two different receiving waterbodies, Clover Valley Creek flows into Dugualla Bay and the Strait of Juan de Fuca. For those installations with outfalls that flow into both freshwater and saltwater bodies, both benchmarks were compared.

Table 2-2. Receiving Water Bodies

	Installation	Water Body	Freshwater or Saltwater
Naval Air Station Whidbey Island	Ault Field	Clover Valley Creek → Dugualla Bay & Strait of Juan de Fuca	Freshwater & Saltwater
	Seaplane Base	Crescent Harbor & Oak Harbor	Saltwater

2.3 Sample Procedure

Due to the extreme dry weather in the summer of 2021, samples were delayed until the first significant rainfall events near the end of the dry summer. Due to the timing of these sampling events, all analytes were expected to be above typical values. Additional samples will be collected in 2022 for any water quality results above Washington State surface water standards or the MSGP benchmarks.

The complete sampling procedure is defined in the Sampling and Analysis Project Plan (SAPP) for MS4 Early Action Projects. Included in the SAPP is the Quality Assurance Project Plan as well as the Standard Operating Procedures. Sampling was conducted by NAVFAC NW employees in September 2021. Appendix A contains information regarding the date of sampling and who the samples were collected by. Samples were packaged and shipped via FedEx to Pace Analytical and Spectra Laboratories.

2.4 EPA Analytical Method

Samples were tested through EPA's standard methods using Washington State certified labs under the Department of Ecology. EPA's standard methods establish laboratory analytical methods for measuring and analyzing pollutants. Appendix A contains a list all the analytes tested and respective analytical method.

3 Results

This section defines the process of the data analysis and the findings from stormwater discharges for the two Navy installations on Whidbey Island. The findings mainly focus on any lab results that are above Washington State's surface water standards and the MSGP benchmarks.

3.1 Data Analysis Procedure

3.1.1 Regulatory Guidance

Extensive data analysis was conducted on all lab results in order to properly identify any possible pollutants of concern. Benchmarks, standards, and thresholds were established off several regulatory documents. Those documents in ranking of significance are: 2021 Multi-Sector General Permit, Washington Administrative Code 173-201A, 2020 Industrial Sector General Permit (ISGP), Environmental Protection Agency's (EPA) Water Quality Criteria, and the Illicit Connection and Illicit Discharge Guidance Manual. It is important to note that the standards provided by the WAC water quality standards and EPA water quality criteria represents the water quality of the entire downstream water body rather than a specific stormwater discharge. A single discharge will be substantially diluted by the entire receiving water body.

Regulatory benchmarks and standards for various pollutants are dependent on the criteria of the downstream receiving water bodies. Freshwater and saltwater criteria often vary significantly. The MSGP permit benchmarks were mainly found in part eight of the permit with some guidance in parts one to seven and some state specific data in part nine. Within the WAC 173-201A surface water quality standards, the acute, aquatic life criteria for freshwater and marine (salt) water was utilized. The aquatic life criteria was compared to laboratory analytical data rather than human health criteria because the downstream receiving water bodies are not used for human consumption and the primary focus is the health of aquatic organisms. Within both the freshwater and marine water categories, there are subcategories of acute and chronic. Acute refers to a more sudden onset of health impairments after short term exposure while chronic refers to health issues that worsen over time due to long periods of exposure. For this study, the acute values were utilized as the stormwater outfalls are more representative of a point discharge. If no value was given for aquatic life, human health criteria was utilized as the standard. The water and organism column represented freshwater and the organisms only column represented

marine water. Because hardness testing of receiving water bodies was not included in this sampling effort, some freshwater standards for dissolved metals such as copper and zinc were unable to be calculated.

If no data was found in the 2021 MSGP or the WAC 173-201A, the other documents referenced above were utilized to find relevant benchmarks. For the analyte total Kjeldahl nitrogen (TKN), the IC-ID Guidance Manual was utilized to find the recommended threshold because no MSGP benchmark or WAC 173-201A surface water quality standards was found. It is important to understand that the IC-ID Guidance Manual is required to be used under the MSGP but is typically used for dry weather surveys. Therefore, there is not a direct correlation to this sampling event but is the more relevant data. Because this is the initial EAP sampling effort, many of the analytes that were included in this study are emerging pollutants. There are still many research groups actively analyzing the dangers of these various chemicals. Therefore, not all analytes have regulatory benchmarks or standards yet. During this initial EAP sampling effort, the best available data was used to evaluate sampling results.

3.1.2 Data Analysis Method

The lab results were tabulated and compared in a spreadsheet located in Appendix A. The table consists of the analytes and their qualifiers, benchmarks, criteria or standards, their sources, and any relevant comments in regards to the lab results or benchmarks and standards. Each installation's data was organized separately due to the dependence of freshwater or saltwater receiving water bodies. There are several installations within the AOR that discharge stormwater into a freshwater creek or river that eventually output into marine waters. Both standards for freshwater and marine water were listed in the table to provide a complete review.

Pollutant concentrations below the benchmark or standard, less than detectable limits, or with no applicable benchmark or standard were highlighted green. In some cases the laboratory analysis method was not sensitive enough to make a clear determination, so these results are highlighted yellow. Any contaminant with analytical concentrations above MSGP benchmarks, WAC 173-201A surface water quality standards, or IC-ID recommended thresholds were highlighted with red and summarized below.

3.2 Findings

This section provides a brief description of laboratory water quality results by analyte compared to MSGP benchmarks, Washington State's surface water quality standards in WAC 173-201A, and the IC-ID recommended thresholds. Not all the sampling locations fall within MSGP coverage areas; however, the MSGP was used as a means to evaluate the results from this sampling effort. For a complete list of analytes tested, and standard and benchmark values, refer to Appendix A. It is important to note that some metals were tested in their dissolved state as well as their total amount which determines how they compare to the benchmarks or standards as displayed in Appendix A.

3.2.1 Naval Air Station Whidbey Island, Ault Field

The two outfalls sampled at Ault Field were Ranger Street and Princeton Street. At the Ranger street outfall, both copper and zinc in their total and dissolved state recorded concentrations above MSGP benchmarks and WAC 173-201A surface water quality standards. Because stormwater from Ault Field initially drains into Clover Valley Creek before entering into Dugualla Bay and separately another outfall flows into the Strait of Juan de Fuca, both freshwater and marine water benchmarks were compared. The only pollutant of concern at the Princeton Street outfall is nitrate as it is above the MSGP benchmark. The total copper value at Princeton St. was below the MSGP benchmark.

Table 3-1. Pollutants of Concern – Ault Field

Analyte	Units	Lab Result	MSGP Benchmark	WAC 173-201A Standard
NASWI – Ault Field – Ranger Street				
Copper	ug/L	13.1	5.19 (FW) 4.8 (SW)	N/A
Copper, Dissolved	ug/L	10.1	N/A	4.8 (SW) (A)
Zinc	ug/L	290	120 (FW) 90 (SW)	N/A
Zinc, Dissolved	ug/L	329	N/A	90 (SW) (A)
NASWI – Ault Field – Princeton Street				
Nitrate	ug/L	1020	680	N/A

3.2.2 Naval Air Station Whidbey Island, Seaplane Base

The NEX, Cascade Court, and Goldfinch Street were the three sampling locations at Seaplane Base. All three locations had concentrations of total copper above the MSGP benchmark and concentrations of dissolved copper above WAC 173-201A surface water quality standards. Seaplane Base also recorded zinc, both in its total amount and dissolved state, that are above their MSGP benchmark and WAC 173-201A surface water quality standards. At the NEX, Total Kjedahl Nitrogen (TKN) was reported to be above the IC-ID recommended threshold. Nitrate concentrations at the Cascade Court outfall is above the MSGP benchmark. Additionally, at Goldfinch Street, total copper and dissolved copper are above MSGP benchmarks. Total zinc is above the MSGP saltwater benchmark.

Table 3-2. Pollutants of Concern – Seaplane Base

Analyte	Units	Lab Result	MSGP Benchmark (SW)	WAC 173-201A Standard (SW)	IC-ID Recommended Threshold
NASWI – Seaplane Base – NEX					
Copper	ug/L	60.2	4.8	N/A	N/A
Copper, Dissolved	ug/L	52.7	N/A	4.8	N/A
Zinc	ug/L	266	90	N/A	N/A
Zinc, Dissolved	ug/L	278	N/A	90	N/A
Total Kjeldahl Nitrogen (TKN)	ug/L	8,700	N/A	N/A	3,000
NASWI – Seaplane Base – Cascade Court					
Copper	ug/L	107	4.8	N/A	N/A
Copper, Dissolved	ug/L	107	N/A	4.8	N/A
Nitrate	ug/L	800	680	N/A	N/A
NASWI – Seaplane Base – Goldfinch Street					
Copper	ug/L	138	4.8	N/A	N/A
Copper, Dissolved	ug/L	107	N/A	4.8	N/A
Zinc	ug/L	94.7	90	N/A	N/A

4 References

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All weblinks last accessed on: 28 January 2022.

Appendix A – EAP Sampling Results

NASWI - EAP Sampling Results 2021

Installation:	PCDB #:	Description of Sample Result Locations	Water body of Drainage	Freshwater or Saltwater	Sample Date	Sample Collection Time	Sampler	Analysis By:
NASWI - Ault Field	161	01, 03, & 05 - Ranger St., discharges to Dugualla Bay (1-DB)	Clover Valley Creek --> Dugualla Bay & Strait of Juan de Fuca	Freshwater --> Saltwater	17-Sep-21	9:04	Nicole/Matt	Pace: Kelly Mercer Spectra: Angela Kaelin
		02, 04, & 06 - Princeton Street (2-SF)	Clover Valley Creek --> Dugualla Bay & Strait of Juan de Fuca	Freshwater --> Saltwater	17-Sep-21	8:15	Nicole/Matt	Pace: Kelly Mercer Spectra: Angela Kaelin
NASWI - Seaplane Base	162	01 & 04 - NEX	Crescent Harbor & Oak Harbor	Saltwater	17-Sep-21	11:00	Nicole/Matt	Pace: Kelly Mercer Spectra: Angela Kaelin
		02 & 05 - Cascade Court	Crescent Harbor & Oak Harbor	Saltwater	17-Sep-21	10:08	Nicole/Matt	Pace: Kelly Mercer Spectra: Angela Kaelin
		03 & 06 - Goldfinch Street	Crescent Harbor & Oak Harbor	Saltwater	17-Sep-21	11:35	Nicole/Matt	Pace: Kelly Mercer Spectra: Angela Kaelin

NASWI - Ault Field (PCDB -161)	
Sample Received Date (Pace):	18-Sep-21
Analytical Report Date (Pace):	1-Oct-21
Sample Received Date (Spectra):	20-Sep-21
Analytical Report Date (Spectra):	1-Nov-21

Qualifier Descriptions:		
	B	The same analyte is found in the associated blank.
	J	The identification of the analyte is acceptable; the reported value is an estimate.
	J4	The associated batch QC was outside the established quality control range for accuracy.
	U	Below Detectable Limits: Indicates that the analyte was not detected.
	*3	ISTD response or retention time outside acceptable limits

Satisfy Requirements	Human Health
Possible Elevated Levels	SW - Organisms Only (O)
Pollutant of Concern	FW - Water and Organisms (WO)

Analyte	Result	Units	Qualifier	Batch #	Analysis Date	Analysis Time	Result Comments	Benchmark Value	Source	Benchmark Comparison Comments	EPA Method
Pace Sample Result - 01: Ranger St.											
Total Nitrogen	1070	ug/l		WG1748190	9/29/2021	14:54					Calculated Result
Suspended Solids	10800	ug/l		WG1744933	9/22/2021	23:36		100,000	MSGP		2540 D-2011
Oil & Grease (Hexane Extr)	< 2500	ug/l	U	WG1743438	9/21/2021	15:30		10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
TPH - Oil & Grease	< 2500	ug/l	U	WG1743917	9/22/2021	0:02	Total Oil & Grease is non-detect. Extract was not processed through silica gel.	10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
Kjeldahl Nitrogen, TKN	802	ug/l		WG1748190	9/29/2021	14:54		3,000	ICID		351.2
Phosphorus, Total	84.7	ug/l	B J	WG1746192	9/29/2021	2:25	The same analyte is found in the associated blank. Estimate.	2,000	MSGP		365.4
COD	25800	ug/l		WG1748268	9/30/2021	13:07		120,000	MSGP		410.4
Nitrate	268	ug/l		WG1742520	9/19/2021	3:56		680	MSGP		9056A
Nitrite	50	ug/l	U	WG1742520	9/19/2021	3:56		680	MSGP		9056A
Gasoline Range Organics - NWTPH	37	ug/l	B J	WG1747762	9/30/2021	3:21	The same analyte is found in the associated blank. Estimate.				NWTPHGX
(S) a, a, a - Trifluorotoluene (FID)	93.6	ug/l		WG1747762	9/30/2021	3:21	Level of Quantification Range of 78.0-120. Estimate.				NWTPHGX
Benzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:37		FW-0.44; SW-1.6	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Ethlybenzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:37		FW-200; SW-270	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Toluene	0.445	ug/l	J	WG1746600	9/26/2021	18:37	Estimate.	FW-180; SW-410	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Xylenes, Total	< 1.5	ug/l	U	WG1746600	9/26/2021	18:37					8260D
1,4 - Dioxane	< 50	ug/l	U	WG1746600	9/26/2021	18:37					8260D
(S) Toluene - d*	102	ug/l		WG1746600	9/26/2021	18:37	Level of Quantification Range of 89.0-112. Estimate.				8260D
(S) 4 - Bromofluorobenzene	91.4	ug/l		WG1746600	9/26/2021	18:37	Level of Quantification Range of 85.0-114. Estimate.				8260D
(S) 1,2 - Dichloroethane - d4	93.6	ug/l		WG1746600	9/26/2021	18:37	Level of Quantification Range of 81.0-118. Estimate.				8260D
Acenaphthene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW&SW - 110	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Acenaphthylene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		No Benchmark	WAC		625.1
Anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-3,100; SW-4,600	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(b)fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(k)fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(g,h,i)perylene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		No Benchmark	WAC		625.1
Benzo(a)pyrene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.0014; SW-0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Chrysene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-1.4; SW-2.1	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenz(a,h)anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.0014; SW-0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW&SW-16	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluorene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-420;SW-610	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Indeno(1,2,3-cd)pyrene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Naphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15					625.1
Phenanthrene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15		No Benchmark	WAC		625.1
Benzylbutyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	3:15					625.1
Bis(2-ethylhexyl)phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-0.23;SW-0.25	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Diethyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	3:15		FW-4,200;SW-5,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Di-n-octyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	3:15		No Benchmark			625.1
Pyrene	< 0.5	ug/l	J4 U	WG1745394	9/24/2021	3:15	QC outside the established quality control range for accuracy.	FW-310;SW-460	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Pentachlorophenol	< 5	ug/l	U	WG1745394	9/24/2021	3:15		SW-13	WAC	FW Benchmark is pH dependent(Not measured in study)	625.1
Phenol	< 5	ug/l	U	WG1745394	9/24/2021	3:15		FW-18,000;SW-200,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenzofuran	< 5	ug/l	U	WG1745394	9/24/2021	3:15					625.1
1-Methylnaphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15					625.1
2-Methylnaphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	3:15					625.1
(S) Nitrobenzene-d5	49	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 44.0-120. Estimate.				625.1
(S) 2-Fluorobiphenyl	52.5	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 44.0-119. Estimate.				625.1
(S) p-Terphenyl-d14	55.4	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 50.0-134. Estimate.				625.1
(S) Phenol-d5	19.3	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 10.0-67.0. Estimate.				625.1
(S) 2-Fluorophenol	27.9	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 19.0-119. Estiamte.				625.1
(S) 2,4,6-Tribromophenol	54.6	ug/l		WG1745394	9/24/2021	3:15	Level of Quantification Range of 43.0-140. Estimate.				625.1
Pace Sample Result - 03: Ranger St.											
Hardness (calculated) as $CaCO_3$	17200	ug/l		WG1744980	9/25/2021	14:30					Calculated Result
Mercury	< 0.1	ug/l	U	WG1744999	9/24/2021	8:21		FW-1.4; SW-1.8	WAC		245.1
Cadmium	< 0.5	ug/l	U	WG1744980	9/25/2021	14:30		FW-1.8; SW-33	MSGP		200.8
Calcium	4380	ug/l		WG1744980	9/25/2021	14:30					200.8
Copper	13.1	ug/l		WG1744980	9/25/2021	14:30		FW-5.19; SW-4.8	MSGP		200.8
Copper,Dissolved	10.1	ug/l		WG1744916	9/24/2021	17:57		SW - 4.8	WAC	Acute value. SW - 3.1 (chronic value). No value for freshwater.	200.8
Lead	2.04	ug/l		WG1744980	9/25/2021	14:30		FW-82; SW-210	MSGP		200.8
Magnesium	1530	ug/l		WG1744980	9/25/2021	14:30		No Benchmark	MSGP	64ug/L in MSGP 2015, Removed om MSGP 2019	200.8
Zinc	290	ug/l		WG1744980	9/25/2021	14:30		FW-120; SW-90	MSGP		200.8
Zinc, Dissolved	329	ug/l		WG1744916	9/24/2021	17:57		SW- 90	WAC	Acute value. SW - 81 (chronic value). No value for freshwater.	200.8
Spectra Sample Result - 05: Ranger St.											
Dichlobenil	< 0.098	ug/l	*3	212003-02	10/13/2021	2:50	ISTD response or retention time outside acceptable limits. ND.				525.2
Pace Sample Result - 02: Princeton St.							-				
Total Nitrogen	2350	ug/l		WG1748190	9/29/2021	14:55					Calculated Result
Suspended Solids	8200	ug/l		WG1744933	9/22/2021	23:36		100,000	MSGP		2540 D-2011
Oil & Grease (Hexane Extr)	< 2500	ug/l	U	WG1743438	9/21/2021	15:30		10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
TPH - Oil & Grease	< 2500	ug/l	U	WG1743917	9/22/2021	0:02	Total Oil & Grease is non-detect. Extract was not processed through silica gel.	10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
Kjeldahl Nitrogen, TKN	1270	ug/l		WG1748190	9/29/2021	14:55		3,000	ICID		351.2
Phosphorus, Total	117	ug/l	B	WG1746192	9/29/2021	2:29	The same analyte is found in the associated blank.	2,000	MSGP		365.4
COD	13700	ug/l	J	WG1748268	9/30/2021	13:08		120,000	MSGP		410.4
Nitrate	1020	ug/l		WG1742520	9/19/2021	2:23		680	MSGP		9056A
Nitrite	62	ug/l	J	WG1742520	9/19/2021	2:23		680	MSGP		9056A
Gasoline Range Organics - NWTPH	<50	ug/l	U	WG1747762	9/30/2021	3:43	The same analyte is found in the associated blank. Estimate.				NWTPHGX
(S) a, a, a - Trifluorotoluene (FID)	94.3	ug/l		WG1747762	9/30/2021	3:43	Level of Quantification Range of 78.0-120				NWTPHGX
Benzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:57		FW-0.44; SW-1.6	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Ethlybenzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:57		FW-200; SW-270	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Toluene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:57	Estimate.	FW-180; SW-410	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Xylenes, Total	< 1.5	ug/l	U	WG1746600	9/26/2021	18:57					8260D
1,4 - Dioxane	< 50	ug/l	U	WG1746600	9/26/2021	18:57					8260D
(S) Toluene - d*	99.2	ug/l		WG1746600	9/26/2021	18:57	Level of Quantification Range of 89.0-112. Estimate.				8260D
(S) 4 - Bromofluorobenzene	89.9	ug/l		WG1746600	9/26/2021	18:57	Level of Quantification Range of 85.0-114. Estimate.				8260D
(S) 1,2 - Dichloroethane - d4	95.2	ug/l		WG1746600	9/26/2021	18:57	Level of Quantification Range of 81.0-118. Estimate.				8260D

Acenaphthene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW&SW - 110	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Acenaphthylene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		No Benchmark	WAC		625.1
Anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-3,100; SW-4,600	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(b)fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(k)fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(g,h,i)perylene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		No Benchmark	WAC		625.1
Benzo(a)pyrene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.0014; SW-0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Chrysene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-1.4; SW-2.1	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenz(a,h)anthracene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.0014; SW-0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluoranthene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW&SW-16	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluorene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-420;SW-610	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Indeno(1,2,3-cd)pyrene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.014; SW-0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Naphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32					625.1
Phenanthrene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32		No Benchmark	WAC		625.1
Benzylbutyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	2:32					625.1
Bis(2-ethylhexyl)phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-0.23;SW-0.25	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Diethyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	2:32		FW-4,200;SW-5,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Di-n-octyl phthalate	< 1.5	ug/l	U	WG1745394	9/24/2021	2:32		No Benchmark			625.1
Pyrene	< 0.5	ug/l	J4 U	WG1745394	9/24/2021	2:32	QC outside the established quality control range for accuracy.	FW-310;SW-460	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Pentachlorophenol	< 5	ug/l	U	WG1745394	9/24/2021	2:32		SW-13	WAC	FW Benchmark is pH dependent(Not measured in study)	625.1
Phenol	< 5	ug/l	U	WG1745394	9/24/2021	2:32		FW-18,000;SW-200,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenzofuran	< 5	ug/l	U	WG1745394	9/24/2021	2:32					625.1
1-Methylnaphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32					625.1
2-Methylnaphthalene	< 0.5	ug/l	U	WG1745394	9/24/2021	2:32					625.1
(S) Nitrobenzene-d5	55	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 44.0-120. Estimate.				625.1
(S) 2-Fluorobiphenyl	58.4	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 44.0-119. Estimate.				625.1
(S) p-Terphenyl-d14	50.1	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 50.0-134. Estimate.				625.1
(S) Phenol-d5	23.3	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 10.0-67.0. Estimate.				625.1
(S) 2-Fluorophenol	34.1	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 19.0-119. Estiamte.				625.1
(S) 2,4,6-Tribromophenol	52.6	ug/l		WG1745394	9/24/2021	2:32	Level of Quantification Range of 43.0-140. Estimate.				625.1
Pace Sample Result - 04: Princeton St.											
Hardness (calculated) as $CaCO_3$	22600	ug/l		WG1744980	9/25/2021	14:34					Calculated Result
Mercury	< 0.1	ug/l	U	WG1744999	9/24/2021	18:01		FW-1.4; SW-1.8	WAC		245.1
Cadmium	< 0.5	ug/l	U	WG1744980	9/25/2021	14:34		FW-1.8; SW-33	MSGP		200.8
Calcium	7170	ug/l		WG1744980	9/25/2021	14:34					200.8
Copper	4.79	ug/l		WG1744980	9/25/2021	14:34		FW-5.19; SW-4.8	MSGP		200.8
Copper,Dissolved	3.63	ug/l		WG1744916	9/24/2021	18:01		SW - 4.8	WAC	Acute value. SW - 3.1 (chronic value). No value for freshwater.	200.8
Lead	0.756	ug/l	J	WG1744980	9/25/2021	14:34	Estimate.	FW-82; SW-210	MSGP		200.8
Magnesium	1150	ug/l		WG1744980	9/25/2021	14:34		No Benchmark	MSGP	64ug/L in MSGP 2015, Removed om MSGP 2019	200.8
Zinc	19.6	ug/l	J	WG1744980	9/25/2021	14:34	Estimate.	FW-120; SW-90	MSGP		200.8
Zinc, Dissolved	11.6	ug/l	J	WG1744916	9/24/2021	18:01	Estimate.	SW - 90	WAC	Acute value. SW - 81 (chronic value). No value given for freshwater.	200.8
Spectra Sample Result - 06: Princeton St.											
Dichlobenil	< 0.098	ug/l		212003-01	10/13/2021	3:32	ND.				525.2

NASWI - Seaplane Base (PCDB -162)	
Sample Received Date (Pace):	18-Sep-21
Analytical Report Date (Pace):	1-Oct-21
Sample Received Date (Spectra):	20-Sep-21
Analytical Report Date (Spectra):	4-Nov-21

Qualifier Descriptions:

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.
*3	ITSD response or retention time outside acceptable limits.

Satisfy Requirements	Human Health
Possible Elevated Levels	SW - Organisms Only (O)
Pollutant of Concern	FW - Water and Organisms (WO)

Analyte	Result	Units	Qualifier	Batch #	Analysis Date	Analysis Time	Comments	Benchmark Value	Source	Benchmark Comparison Comments	EPA Method
Pace Sample Result - 01: NEX											
Oil & Grease (Hexane Extr)	< 2500	ug/l	U	WG1743438	9/21/2021	15:30		10,000	MSGP	MSGP Part B.D.5. Table B.D-3	1664A
TPH - Oil & Grease	< 2500	ug/l	U	WG1743917	9/22/2021	0:02	Total Oil&Grease is non-detect. Extract was not processed through silica gel.	10,000	MSGP	MSGP Part B.D.5. Table B.D-3	1664A
Copper,Dissolved	52.7	ug/l		WG1744916	9/24/2021	17:48		4.8	WAC	Acute value. SW - 3.1 (chronic value)	200.8
Zinc,Dissolved	278	ug/l		WG1744916	9/24/2021	17:48		90	WAC	Acute value. SW - 81 (chronic value)	200.8
Cadmium	< 0.5	ug/l	U	WG1744980	9/25/2021	14:20		33	MSGP		200.8
Calcium	5150	ug/l		WG1744980	9/25/2021	14:20					200.8
Copper	60.2	ug/l		WG1744980	9/25/2021	14:20		4.8	MSGP		200.8
Lead	0.889	ug/l	J	WG1744980	9/25/2021	14:20	Estimate.	210	MSGP		200.8
Magnesium	1780	ug/l		WG1744980	9/25/2021	14:20		No Benchmark	MSGP	64ug/L in MSGP 2015, Removed om MSGP 2019	200.8
Zinc	266	ug/l		WG1744980	9/25/2021	14:20		90	MSGP		200.8
Mercury	< 0.1	ug/l	U	WG1744999	9/24/2021	8:05		1.8	MSGP		245.1
Suspended Solids	4900	ug/l		WG1744933	9/22/2021	23:36		100,000	MSGP		2540 D-2011
Kjeldahl Nitrogen, TKN	8700	ug/l		WG1748190	9/29/2021	14:50		3,000	ICID		351.2
Phosphorus,Total	1370	ug/l		WG1746192	9/29/2021	2:16		2,000	MSGP		365.4
COD	50400	ug/l		WG1748268	9/30/2021	13:03		120,000	MSGP		410.4
Acenaphthene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		110	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Acenaphthylene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		No Benchmark	WAC		625.1
Anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		4,600	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(b)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(k)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(g,h,i)perylene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		No Benchmark	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Chrysene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		2.1	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenz(a,h)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		16	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluorene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		610			625.1
Indeno(1,2,3-cd)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Naphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41					625.1
Phenanthrene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		No Benchmark	WAC		625.1
Benzylbutyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	20:41					625.1
Bis(2-ethylhexyl)phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	20:41		0.25	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Diethyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	20:41		5,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Di-n-octyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	20:41		No Benchmark			625.1
Pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41		460	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Pentachlorophenol	< 5.55	ug/l	U	WG1745005	9/23/2021	20:41		13	WAC	FW Benchmark is pH dependent(Not measured in study)	625.1
Phenol	< 5.55	ug/l	U	WG1745005	9/23/2021	20:41		200,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenzofuran	< 5.55	ug/l	U	WG1745005	9/23/2021	20:41					625.1
1-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41					625.1
2-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	20:41					625.1
Benzene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:35		1.6	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Ethylbenzene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:35		270	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Toluene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:35		410	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Xylenes, Total	< 1.5	ug/l	U	WG1746600	9/26/2021	17:35					8260D
1,4-Dioxane	< 50	ug/l	U	WG1746600	9/26/2021	17:35					8260D
Nitrate	450	ug/l		WG1742520	9/19/2021	5:28		680	MSGP		9056A
Nitrite	68.6	ug/l	J	WG1742520	9/19/2021	5:28	Estimate.	680	MSGP		9056A
Total Nitrogen	9220	ug/l		WG1748190	9/29/2021	14:50					Calculate Result
Gasoline Range Organics-NWTPH	48	ug/l	B J	WG1747762	9/30/2021	2:16	The same analyte is found in the associated blank. Estimate.				NWTPHGX
Hardness (calculated) as $CaCO_3$	20200	ug/l		WG1744980	9/25/2021	14:20					Calculate Result
Spectra Sample Result - 04: NEX											
Dichlobenil	< 0.099	ug/l	*3	212005-01	9/21/2021	3:53	ITSD response or retention time outside acceptable limits. ND.				525.2
Pace Sample Result - 02: Cascade Court											
Oil & Grease (Hexane Extr)	< 2500	ug/l	U	WG1743438	9/21/2021	15:30		10,000	MSGP	MSGP Part B.D.5. Table B.D-3	1664A
TPH - Oil & Grease	< 2500	ug/l	U	WG1743917	9/22/2021	0:02	Total Oil&Grease is non-detect. Extract was not processed through silica gel.	10,000	MSGP	MSGP Part B.D.5. Table B.D-3	1664A
Copper,Dissolved	107	ug/l		WG1744916	9/24/2021	17:51		4.8	WAC	Acute value. SW - 3.1 (chronic value)	200.8
Zinc,Dissolved	19.2	ug/l	J	WG1744916	9/24/2021	17:51	Estimate.	90	WAC	Acute value. SW - 81 (chronic value)	200.8
Cadmium	< 0.5	ug/l	U	WG1744980	9/25/2021	14;23		33	MSGP		200.8
Calcium	8770	ug/l		WG1744980	9/25/2021	14;23					200.8
Copper	107	ug/l		WG1744980	9/25/2021	14;23		4.8	MSGP		200.8
Lead	0.74	ug/l	J	WG1744980	9/25/2021	14;23	Estimate.	210	MSGP		200.8
Magnesium	2560	ug/l		WG1744980	9/25/2021	14;23		No Benchmark	MSGP	64ug/L in MSGP 2015, Removed om MSGP 2019	200.8
Zinc	25	ug/l		WG1744980	9/25/2021	14;23		90	MSGP		200.8
Mercury	< 0.1	ug/l	U	WG1744999	9/24/2021	8:17		1.8	MSGP		245.1
Suspended Solids	2500	ug/l		WG1744933	9/22/2021	23:36		100,000	MSGP		2540 D-2011
Kjeldahl Nitrogen, TKN	1340	ug/l		WG1748190	9/29/2021	14:53		3,000	ICID		351.2
Phosphorus,Total	123	ug/l	B	WG1746192	9/29/2021	2:18	The same analyte is found in the associated blank.	2,000	MSGP		365.4
COD	50900	ug/l		WG1748268	9/30/2021	13:04		120,000	MSGP		410.4
Acenaphthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		110	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Acenaphthylene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		No Benchmark	WAC		625.1
Anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		4,600	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.021	WAC	Human Health Criteria for Consumption for Organism Only; No Benchmark for Aquatic Life	625.1
Benzo(b)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(k)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(g,h,i)perylene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		No Benchmark	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Chrysene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		2.1	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenz(a,h)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.0021			625.1
Fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		16	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluorene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		610			625.1
Indeno(1,2,3-cd)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Naphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45					625.1
Phenanthrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		No Benchmark	WAC		625.1
Benzylbutyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:45					625.1
Bis(2-ethylhexyl)phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:45		0.25	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Diethyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:45		5,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Di-n-octyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:45		No Benchmark			625.1
Pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45		460	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Pentachlorophenol	< 5.55	ug/l	U	WG1745005	9/23/2021	21:45		13	WAC	FW Benchmark is pH dependent(Not measured in study)	625.1
Phenol	< 5.55	ug/l	U	WG1745005	9/23/2021	21:45		200,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1

Dibenzofuran	< 5.55	ug/l	U	WG1745005	9/23/2021	21:45					625.1
1-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45					625.1
2-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:45					625.1
Benzene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:56		1.6	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Ethylbenzene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:56		270	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Toluene	< 0.5	ug/l	U	WG1746600	9/26/2021	17:56		410	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Xylenes, Total	< 1.5	ug/l	U	WG1746600	9/26/2021	17:56					8260D
1,4-Dioxane	< 50	ug/l	U	WG1746600	9/26/2021	17:56					8260D
Nitrate	800	ug/l		WG1742520	9/19/2021	4:35		680	MSGP		9056A
Nitrite	< 50	ug/l	U	WG1742520	9/19/2021	4:35		680	MSGP		9056A
Total Nitrogen	2140	ug/l		WG1748190	9/29/2021	14:53					Calculate Result
Gasoline Range Organics-NWTPH	41.3	ug/l	B J	WG1747762	9/30/2021	2:38	The same analyte is found in the associated blank. Estimate.				NWTPHGX
Hardness (calculated) as $CaCO_3$	32500	ug/l		WG1744980	9/25/2021	14:23					Calculate Result
Spectra Sample Result - 05: Cascade Court											
Dichlobenil	< 0.098	ug/l	*3	212005-03	9/21/2021	3:54	ITSD response or retention time outside acceptable limits. ND.				525.2
Pace Sample Result - 05: Goldfinch St.											
Oil & Grease (Hexane Extr)	< 2500	ug/l	U	WG1743438				10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
TPH - Oil & Grease	< 2500	ug/l	U	WG1743917			Total Oil&Grease is non-detect. Extract was not processed through silica gel.	10,000	MSGP	MSGP Part 8.D.5. Table 8.D-3	1664A
Copper,Dissolved	107	ug/l		WG1744916	9/24/2021	17:54		4.8	WAC	Acute value. SW - 3.1 (chronic value)	200.8
Zinc,Dissolved	84.7	ug/l		WG1744916	9/24/2021	17:54		90	WAC	Acute value. SW - 81 (chronic value)	200.8
Cadmium	< 0.5	ug/l	U	WG1744980	9/25/2021	14:27		33	MSGP		200.8
Calcium	11600	ug/l		WG1744980	9/25/2021	14:27					200.8
Copper	138	ug/l		WG1744980	9/25/2021	14:27		4.8	MSGP		200.8
Lead	< 0.5	ug/l	U	WG1744980	9/25/2021	14:27		210	MSGP		200.8
Magnesium	2370	ug/l		WG1744980	9/25/2021	14:27		No Benchmark	MSGP	64ug/L in MSGP 2015, Removed om MSGP 2019	200.8
Zinc	94.7	ug/l		WG1744980	9/25/2021	14:27		90	MSGP		200.8
Mercury	0.1	ug/l	U	WG1744999	9/24/2021	8:19		1.8	MSGP		245.1
Suspended Solids	4800	ug/l		WG1744933	9/22/2021	23:36		100,000	MSGP		2540 D-2011
Kjeldahl Nitrogen, TKN	1080	ug/l		WG1745827	9/24/22021	23:49		3,000	ICID		351.2
Phosphorus,Total	114	ug/l	B	WG1746192	9/29/2021	2:20	The same analyte is found in the associated blank.	2,000	MSGP		365.4
COD	37400	ug/l		WG1748268	9/30/2021	13:05		120,000	MSGP		410.4
Acenaphthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		110	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Acenaphthylene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		No Benchmark	WAC		625.1
Anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		4,600	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.021	WAC	Human Health Criteria for Consumption for Organism Only; No Benchmark for Aquatic Life	625.1
Benzo(b)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(k)fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(g,h,i)perylene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		No Benchmark	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Benzo(a)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.0021	WAC		625.1
Chrysene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		2.1	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenz(a,h)anthracene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.0021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluoranthene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		16	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Fluorene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		610			625.1
Indeno(1,2,3-cd)pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		0.021	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Naphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23					625.1
Phenanthrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		No Benchmark	WAC		625.1
Benzylbutyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:23					625.1
Bis(2-ethylhexyl)phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:23		0.25	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Diethyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:23		5,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Di-n-octyl phthalate	< 1.67	ug/l	U	WG1745005	9/23/2021	21:23		No Benchmark			625.1
Pyrene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23		460	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Pentachlorophenol	< 5.55	ug/l	U	WG1745005	9/23/2021	21:23		13	WAC	FW Benchmark is pH dependent(Not measured in study)	625.1
Phenol	< 5.55	ug/l	U	WG1745005	9/23/2021	21:23		200,000	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	625.1
Dibenzofuran	< 5.55	ug/l	U	WG1745005	9/23/2021	21:23					625.1
1-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23					625.1
2-Methylnaphthalene	< 0.555	ug/l	U	WG1745005	9/23/2021	21:23					625.1
Benzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:16		1.6	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Ethylbenzene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:16		270	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Toluene	< 0.5	ug/l	U	WG1746600	9/26/2021	18:16		410	WAC	Human Health Criteria for Consumption; No Benchmark for Aquatic Life	8260D
Xylenes, Total	< 1.5	ug/l	U	WG1746600	9/26/2021	18:16					8260D
1,4-Dioxane	< 50	ug/l	U	WG1746600	9/26/2021	18:16					8260D
Nitrate	378	ug/l		WG1742520	9/19/2021	4:49		680	MSGP		9056A
Nitrite	< 50	ug/l	U	WG1742520	9/19/2021	4:49		680	MSGP		9056A
Total Nitrogen	1460	ug/l		WG1745827	9/24/2021	23:49					Calculate Result
Gasoline Range Organics-NWTPH	36.9	ug/l	B J	WG1747762	9/30/2021	2:59	The same analyte is found in the associated blank. Estimate.				NWTPHGX
Hardness (calculated) as $CaCO_3$	38800	ug/l		WG1744980	9/25/2021	14:27					Calculate Result
Spectra Sample Result - 06: Goldfinch St.											
Dichlobenil	< 0.098	ug/l	*3	212005-02	9/21/2021	3:55	ITSD response or retention time outside acceptable limits.ND.				525.2

Appendix 6 - Operation & Maintenance (O&M) Catch Basin Inspection Table
NASWI MS4 WAS026611 Annual Report - Permit Year 1
February 1, 2021 to January 31, 2022

Catch Basin Inspections			
Month	**Number of Inspections Completed**	**Corrective Actions**	
		Identified	**Completed**
Feb-21	178	N/A	N/A
Mar-21	173	N/A	N/A
Apr-21	181	N/A	N/A
May-21	173	N/A	N/A
Jun-21	172	N/A	N/A
Jul-21	165	N/A	N/A
Aug-21	177	N/A	N/A
Sep-21		N/A	N/A
Oct-21	176	N/A	N/A
Nov-21	177	N/A	N/A
Dec-21	173	Pine needles accumulating on 1 catch basin	Cleaning completed
Jan-22	179	Need cleaning - 4 Need sock replaced?	In progress
	% of catch basins inspections		96%

NASWI MS4 Annual Report Year 1
Appendix 7 WA DOE Navy Joining Stormwater Action Monitoring Program Letter

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

June 15, 2021

Nicole Iutzi-Kubista, EV1
NAVFAC Northwest
1101 Tautog Circle RM 204
Silverdale, WA 98315-1101
Sent by email only: nicole.m.iutzi-kubista.civ@us.navy.mil

RE: Navy on joining Stormwater Action Monitoring Program

Dear Nicole Iutzi-Kubista:

The Stormwater Action Monitoring (SAM) program is administered by the Washington State Department of Ecology (Ecology) on behalf of the municipal separate storm sewer system (MS4) permittees in Western Washington, including the Washington State Department of Transportation (WSDOT). The Stormwater Work Group (SWG) is a formal stakeholder committee that oversees Ecology's administration of SAM and identifies priorities for SAM studies. All SWG members represent caucus groups that meet to discuss upcoming and ongoing topics on SWG's agenda as well as broader stormwater management and science.

EPA's MS4 permits for Naval Base Kitsap (WAS026646), Naval Station Everett (WAS026620), and Naval Air Station Whidbey Island (WAS026611) provided the Navy with the option to participate in the SAM network as a way to satisfy the Navy's MS4 permit requirements for monitoring. Any MS4 Permittee can join SAM; the level of financial contribution is set at a fixed annual amount based on the population served by the MS4 for the Effectiveness Studies and Source Identification projects and the Status and Trends monitoring of receiving waters. Ecology will invoice the Navy annually in May during their permit term 2021 – 2025. The invoice total of $15,318 covers all three permitted locations for both the Effectiveness Studies and Status and Trends Monitoring SAM program components for the period of August –August, starting in 2022. The first invoice will be pro-rated for 2021, covering February –August 2021, as the Navy is joining SAM mid-way through their permit year. On May 19th, 2021, the SWG approved this approach for Navy participation in SAM. Ecology writes an annual report that reflects on the prior year's accomplishments, describes studies completed that year, and provides an update for ongoing projects. We will send this annual report with the invoice each year.

Every two to three years SAM solicits proposals for new stormwater studies from the greater regional stormwater scientific and practitioner community. Successful proposals are funded by SAM and managed by Ecology. Proposals are reviewed and refined by SWG committees in a process organized by SAM staff. Project proponents present their revised proposals at a stakeholder workshop that is followed by MS4 permittee voting on the proposals to inform SWG approval of funding and timing of successful projects. The Navy's financial contribution to the SAM program provides the Navy the opportunity to vote on new projects for SAM funding in each round of project selection as a participating MS4 permittee; this voting is encouraged but it is not a requirement for participation in SAM. The only participation requirement is paying the annual invoice.

Ecology welcomes the Navy's participation in SAM. If you have any further questions please contact Brandi Lubliner, SAM Coordinator, brandi.lubliner@ecy.wa.gov. The 2021 SAM invoice and the 2020 SAM Annual Report are enclosed. Learn more about SAM at ecology.wa.gov/SAM.

Sincerely,

Jeff Killelea, Manager
Program Development Services Section
Water Quality Program

Enclosures (2)

cc: Matt Jabloner,US Navy, matthew.l.jabloner.civ@us.navy.mil
Brandi Lubliner, Ecology, brwa461@ecy.wa.gov