		State of Washington Department of Ecology WASTEWATER TREATMENT PLANT COMPLIANCE INSPECTION REPORT			Northwest Regional Office PO Box 330316 Shoreline, WA 98113 ph: (206) 594-0000 (rev. 5-28-21)	
Section A: General Information						
Report Version	PERMIT #	mm/dd/yy	Inspection Type	Inspector Code	Facility Type	
<input checked="" type="checkbox"/> New <input type="checkbox"/> Changed <input type="checkbox"/> Deleted	ST0007353	04/04/2023	I	S	<input checked="" type="checkbox"/> 2 Industrial	
Remarks						
Inspection work days 2.0	Facility Self-Monitoring 5.0	Photos Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	BI N	QA N	
Lead Ecology Inspector(s) Maia Hoffman						
Section B: Facility Data						
Name, Location, and Phone of Facility Inspected Naval Undersea Warfare Center Division, Keyport (NUWC Keyport) 610 Dowell Street, Building 206 Keyport, WA 98345			Entry Time 9:00 am		Permit Effective Date 7/1/2018	
			Exit Time 2:10 pm		Permit Expiration Date 6/30/2023	
Name(s)/Title(s) of On-Site Representative(s) Kenny Eiford, Industrial Wastewater Program Manager Terry Hiatt, Branch Head Environmental Compliance Dale Hunt, Hazardous Waste Program Manager			Additional Ecology Staff On-Site Monika Kannadaguli			
Name and Title of Responsible Official Kevin Daugherty, Division Head Infrastructure Services			Other Facility Data			
Contacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
Section C: Areas Evaluated During Inspection (Check only those areas evaluated)						
<input checked="" type="checkbox"/> Permit	<input checked="" type="checkbox"/> Flow Measurement	<input checked="" type="checkbox"/> Operations & Maintenance	<input type="checkbox"/> CSO/SSO (Sewer Overflow)			
<input checked="" type="checkbox"/> Records/Reports	<input type="checkbox"/> Effluent ○ Receiving Water	<input type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> Pollution Prevention			
<input checked="" type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input checked="" type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia			
<input checked="" type="checkbox"/> Self-Monitoring Program	<input type="checkbox"/> Laboratory	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Other			

Section D: Summary of Findings/Comments

I. INTRODUCTION

Ecology inspectors, Maia Hoffman and Monika Kannadaguli, visited NUWC Keyport on April 4, 2023. The purpose of the visit was to conduct a compliance evaluation of the site's wastewater discharge permit (ST0007353) and to prepare for the permit renewal process starting in summer 2023. Matt Pickering, Kitsap County Public Works Lead Utility Analyst, participated in the entirety of the site visit. We were escorted around the base by Kenny Eiford. Terry Hiatt and Dale Hunt were present for the entirety of the site visit as well. We met at the Keyport Pass & ID Visitor Center. The badging process took about 10 minutes, and we entered the base at 9:10 am.

The inspection was announced to and coordinated with Kenny Eiford.

II. RESULTS AND DISCUSSION

The main intent of the site visit was to prepare for permit renewal in summer 2023. The current permit expires on 6/30/2023. M. Hoffman has been the site permit manager since December 2019, however this was the first time visiting the base. We toured the major wastewater generating processes/areas as well as the industrial wastewater treatment plant. The compliance evaluation primarily consisted of record reviews. An outline of the record review is documented in this inspection report.

A copy of the permit and fact sheet can be found online, <https://apps.ecology.wa.gov/paris/PermitVersionDocuments.aspx?PermitId=761255>.
Industrial Processes and Wastewater Pretreatment:

1. Industrial Wastewater Treatment Plant:

We started the site tour at the industrial wastewater treatment plant (IWTP) at Building (B.) 825. The IWTP treats metal-bearing and acidic wastewater generated from the metal finishing shop, deburring machines, battery washdown, and the torpedo shell repair shop. The discharge from the IWTP is authorized as discharge point SP001.

Gary Sullivan, IWTP Operator, provided a tour of the IWTP. A tank yard outside the IWTP houses the wastewater treatment and storage tanks; 2-40,000 gallon acid waste collection tanks, 2-7,000 gallon caustic waste collection tanks, and a 50,000 intermediate storage tank. Depending on the wastestream, wastewater is routed to either the acid waste or caustic waste collection tank. At this time, primarily only the acid waste system is used for treating metal-bearing acidic wastewater. The collection tanks also accumulate rainwater from the containment area and directly into the tanks. G. Sullivan stated that rainwater makes up a large portion of the wastewater treated at the IWTP. The caustic waste system was used when the Otto fuel reclamation system (OFRS) discharged separated water from the fuel. However, the OFRS process is changing and no longer discharges to the IWTP, this will be further explained later in the report.

When sufficient volume has been discharged to the IWTP collection tanks, then batch treatment occurs. Typically a batch treatment is initiated when there is 35,000 gallons of wastewater accumulated in the storage tank. Acidic wastewater collected in tank T5 is transferred to tank T8 for hex chrome reduction to the trivalent form. Wastewater is then routed to the intermediate storage tank. Wastewater in the intermediate storage tank is pH adjusted to 8-9 standard units to precipitate out any metals. Polymers, to aid in suspended solid separation, are added to the wastewater in a flash mix tank and flocculator. Finally, wastewater goes into a 6,300 gallon clarifier. The clarified wastewater overflows and is routed to a clarifier overflow tank, then through sand filters, and finally to 2-20,000 gallon clean water storage tanks. Treated wastewater is sampled and confirmed to meet permit limits prior to discharging to the sewer. G. Sullivan stated that he waits to get confirmation from K. Eiford prior to initiating a discharge of each treated batch of wastewater.

Settled sludge from the clarifier is further processed in a sludge filter press and is disposed of as a hazardous waste. Supernatant from the filter press is routed back to the intermediate storage tank for reprocessing.

The use of the IWTP has been greatly reduced over the past several years. Between a reduction in work during COVID, the change in the management of OFRS wastewater, and reallocating metal finishing to other naval bases or contracting out, the IWTP has only been discharging one to two batches of wastewater per year. Discharge monitoring records show that the IWTP (sample point SP001 in the permit) discharged once in 2022 (November), twice in 2021 (March and June), and twice in 2020 (March and May). M. Hoffman inquired if such intermittent operation was challenging, but G. Sullivan said there have been no issues with treatment operations.

G. Sullivan maintains a pH log book documenting the pH of batch discharges as well as the monthly pH grab at SP002. G. Sullivan also maintains a log book for daily tank levels to keep track of capacity.

The outdoor storage tanks are level alarmed. If the tanks are reaching a high level, audible and visual alarms will start at the IWTP. These alarms are also wired to the incident command station at NBK-Bangor if an emergency event were to occur after hours.

Buoyancy Subsystem Wash Water and OFRS:

B. 514 houses both the buoyancy subsystem (BSS) wash water station and the Otto Fuel Reclamation System (OFRS) wastewater treatment process.

The BSS wash water is a new, proposed industrial wastewater discharge point in the permit renewal. The process is already occurring but currently the wash water is hauled off site for non-hazardous disposal. Lisa Medcalf, B. 514 Environmental Manager, provided an overview of the BSS mechanics and washing process. A BSS is used to float torpedo hulls when tested in open water. When the deployed BSS is returned from open water testing, the system must be washed prior to reuse. Combustion products from the reaction that causes the bag to inflate and mild corrosion of the bronze relief valve within the BSS cause low levels of metals in the wash water. Additionally, minimal amounts of sea water and soap are in the wash water. Washing occurs in two small sonic cleaners and a sink for larger parts. Wash water flows through a settling tank and then into an intermediate bulk container (IBC). When BSS washing is going to occur, L. Medcalf stated that she coordinates with D. Hunt for immediate pick up of the accumulated wastewater. L. Medcalf maintains a log book of the volume of wash water accumulated during each day washing occurs, which is only a few times per year. Keyport is switching to a different BSS which will not require cleaning between uses, so this wastestream will eventually go away.

When direct to sewer discharge of the BSS wash water is authorized, the IBC will likely be hauled to the nearest manhole and gravity drain directly into the sewer. K. Eiford provided the SDS for the detergent used as well as a bioassay and metals

sampling analysis showing the wastewater is non-toxic.

NUWC Keyport is in the process of installing a new OFRS wastewater treatment system. The current permit was modified in 2021 to authorize discharge of wastewater separated from Otto fuel (added new discharge point SP003), however installation of the new system has not been completed. Adam Bettger, B. 514 Building Manager, provided an overview and tour of the existing system as well as what has been installed of the new system.

The OFRS is designed to extract reusable Otto Fuel II from torpedoes after they have been run and returned for maintenance. The system pumps a mixture of seawater and Otto Fuel II from the weapon. Currently this mixture is pumped into a separation tank where the water and fuel gravity separate. The reclaimed fuel is drained to a storage tank. At this time, the separated water is hauled off site. Previously this wastewater was pumped to the IWTP for further treatment prior to discharge to the sewer. NUWC Keyport is installing a new OFRS wastewater treatment system which will ultimately discharge direct to sewer. The new system utilizes a larger settling tank. The wastewater will then be pumped through a series of two activated carbon filter columns into the final processing tank. The wastewater will be tested for the pollutant of concern, propylene glycol dinitrate, prior to batch discharge. A. Bettger stated the new system should be in place and operational by June 2023. At the time of inspection it was unknown how the effluent flow of this discharge would be measured. This will need to be identified in the permit renewal.

Torpedo shell repair (Alodine touch up):

Torpedo shell repair utilizes a small scale aluminum preparation process and Alodine touch up pens. Aluminum parts are prepped with Bonderite C-IC 33 to clean the aluminum, the part is then rinsed with a small amount of water. The water drains into a 5 gallon jug. Parts are then touched up with an Alodine touch up pen, which does not require rinsing. G. Sullivan described the process and said there was a plan to phase out use of Bonderite M-CR 1132 pens and switch to Bonderite M-CR 871 pens. Bonderite M-CR 871 does not contain hexavalent chromium. Wastewater collected in the 5-gallon jug is hauled to the IWTP for treatment prior to discharge to the sewer. Although this process is described as Alodine touch up wastewater, the wastewater has a negligible to nonexistent hexavalent chromium concentration because the Alodine is not rinsed off the parts. The majority of the wastewater is from the aluminum prep rinse water. G. Sullivan said it takes about a year to fill up the 5-gallon jug.

Hydrotesting (B. 98):

Outside B. 98 is a 2,500 gallon potable water makeup tank. The tank feeds two indoor, hydrotest tanks used to test torpedo sealing surfaces. In the process of fully filling the hydrotest tanks with water so no air remains, approximately 150 gallons of water drains to the sewer each day. Additionally, the 2,500 gallon tank is drained to the sewer twice per year.

Inside B. 98 is a salt water test tank for testing flow meters in a saline environment. Oliver Topp, Saltwater Tank Engineer, explained the process. Instant Ocean aquarium sea salt is added to a 1,100 gallon water tank to reach the desired salinity level. This salt water is then used to test the rubber lining of the flowmeters. Once per year the salt water tank must be drained to the sewer. O. Topp will notify K. Eiford, Kitsap County is then notified that this discharge will occur. The discharge is not to exceed a rate of 100 gallons per minute.

Metal plating shop:

The metal plating shop is in B. 1058. Tyson Anicello, Metal Finishing Specialist, and Andrew Podgorski, Metal Finishing Chemical Engineer, provided a tour and explanation of the processes that occur at the metal plating shop. The plating shop is capable of Type II and Type III anodizing, dyeing, sealing, stripping, cleaning, plating, and polishing metal parts. Primary operations conducted include cleaning, anodizing, and sodium dichromate sealing. A minimal amount of metal plating occurs. Metal plating is conducted in small batches with rinsing occurring over a sink. The metal finishing operations conducted is dependent on the customer needs. All process and rinse baths are staged on containment, additionally the building and basement serve as containment. Due to the limited amount of metal finishing jobs conducted at the base, some process baths can be maintained for years without having to dump and refresh. Baths are maintained by chemical additions. Similarly, rinse tanks can be maintained for several years depending on use. All rinse tanks are dead rinses, meaning fresh water is not continuously circulated in with continuous discharge. When a discharge from a process or rinse tank must occur, all wastewater drains to a 1,000 gallon tank in the basement. When the basement tank reaches a certain level, wastewater is automatically pumped to an outdoor 10,000 gallon tank. The transfer of wastewater from the plating shop 10,000 gallon tank to the IWTP storage tanks must be manually activated. This is to ensure that the IWTP has sufficient capacity to receive this wastewater. All sinks in the metal plating shop are piped to the 1,000 gallon tank.

T. Anicello showed us the electronic tracking system with records for when different process or rinse tanks additions and discharges.

M. Hoffman inquired about PFAS present in processes that contain hexavalent chromium (includes Alodine, sodium dichromate, and anodize strip.) PFAS may be present to control hexavalent chromium emissions from these operations. T. Anicello stated since the Keyport metal plating shop does not do any electroplating, which is known to cause more air

emissions, he did not believe PFAS was present in the chemicals used on site.

Water jet cutter:

The water jet cutter is located in B. 38. The permit authorizes this discharge as a minor industrial discharge in permit condition S11. There is a flow threshold, but no effluent limits or monitoring requirements. We met with Jonathan Graham, Supervisor, and John Russell, Water Jet Manager.

The water jet cutter uses water and 80 grit garnet to cut aluminum and steel. J. Graham said aluminum makes up about 90% of the material cut. Wastewater from the water jet cutter contains minimal metals and spent grit. The wastewater passes through a laminar flow filter to settle out solids, then through a 5 micron filter into a clean water tank. The treated wastewater is then discharged directly to the sewer from the clean water tank. Accumulated solids are manually removed and disposed of off-site. J. Russell showed us a maintenance schedule, which he said would be adjusted based on usage of the machine.

The permit does not currently require any monitoring. There is an influent flow meter to the system, but since not a permit requirement, the daily usage is not tracked. J. Graham estimated that the machine is used about 20-30 hours per week.

M. Hoffman inquired about any total suspended solids sampling that may have been done on this discharge. For water jet cutters, the total suspended solids in the effluent is indicative of concentration of grit and metal particles. A properly operated settling and filtration sequence is expected to reduce levels of total suspended solids, and therefore metals, in the effluent. The permit requirements for this discharge are of interest. The operation at Keyport mirrors one that occurs at NBK-Bangor, although NBK-Bangor has three water jet cutters, however, NBK-Bangor must monitor and meet effluent limits for their water jet cutters. K. Eiford provided total suspended solids monitoring results for sampling that occurred in September 2020. The total suspended solids of the effluent in September 2020 was 12 mg/L.

M. Hoffman will review both the NBK-Bangor water jet cutter permit requirements and the operations at NUWC Keyport to determine if any changes in permit language need to be made in the renewal.

Salt water tank maintenance (B. 478):

Additional salt water testing of equipment occurs at B. 478. A large, 10,000 gallon tank is stage outside to contain the salt water. The permit already authorizes the discharge of the salt water tank as a minor industrial user. The only requirement is that the discharge rate not exceed 100 gallons per minute. Paul McGee and Raven Williams, Engineers, answered questions about the operation. P. McGee said the tank is discharged once or twice a year typically when the salinity level needs to be changed. The tank feeds an 8,000 gallon test tank (looks like a swimming pool) to test underwater vehicles.

The discharge line from the outdoor tank is about a foot off the ground. It was found during the last draining that, due to the location of the drain line, the bottom of the tank is never drained out. Significant amounts of algae were growing at the bottom of the tank and starting to impact test operations indoors. In January 2023, K. Eiford requested a nonroutine discharge for the cleaning water of the tank. The bottom of the tank is pressure washed with hot water and a vac truck sucks the water out of the tank. The Navy would like to add this additional maintenance step to the existing discharge authorization since it will occur about every other year to control algae growth. K. Eiford grabbed a sample of the discharge in January 2023 for BOD₅, TSS, and pH for characterization purposes. P. McGee also mentioned that he was working with the safety department to see if a drain line closer to the bottom of the tank and/or a hatch into the tank could be added to either eliminate, minimize, or assist in the cleaning operation.

Oil water separator at B. 1086:

An upgraded vehicle wash pad is being constructed outside B. 1086. The wash pad drains all wastewater through trench drains to a settling tank and then an oil water separator prior to direct discharge to sewer. K. Eiford estimated the construction would be complete by August 2023.

The permit requires monthly inspection of oil water separators. M. Hoffman recommended K. Eiford ensure records are being maintained on the inspection and maintenance events. In particular, if an inspection or maintenance record indicates a problem and does not have a corrective action stated to follow up with the contractors who conduct the work. K. Eiford said a contract for all oil water separator and grease interceptor maintenance was shared between NUWC Keyport and NBK-Bangor.

SP002 sampling vault and discharge location:

All wastewater from the base, domestic and industrial, is discharged to the Kitsap County sewer system at the manhole outside B. 94. The discharge point is equipped with a vault that houses Kitsap County composite sampling equipment. The first manhole contains a Parshall flume and ultrasonic meter for flow measurement. A second downstream manhole is used for oil and grease grab sampling. M. Pickering coordinates with G. Sullivan every month to conduct SP002 sampling. Kitsap County collects the samples and splits with the Navy.

The Navy has raised some concerns that the flow meter is not accurate. M. Pickering did not know when the meter was installed or last calibrated. Ecology does not implement a total discharge flow limit at SP002, so has not required calibration of this flow meter.

Hazmat storage facility:

We ended our tour at the hazmat storage facility (B. 1006). The hazmat facility was the only stationary location on the base that had a PFAS-containing AFFF fire suppression system. The system was replaced, including all piping. The plan was to put in a less toxic PFAS-containing AFFF, but that plan was altered. The current system only contains water. However, NUWC Keyport had already ordered the less toxic AFFF and now is holding that in storage in the hazmat facility until a disposal option can be identified. There are no connections to the sanitary sewer from the hazmat facility.

T. Hiatt mentioned that the Navy was conducting a study to identify PFAS contamination around the entire base. The report should be available by May 2023.

Record Review:

K. Eiford provided the requested analytical reports to support discharge monitoring reports.

- Report for data reported on the February 2023 DMR for SP002
- Report for data reported on the 3rd Quarter (Oct-Dec) 2022 DMR for SP002
- Report for data reported on the November 2022 DMR for SP001

The analytical reports were compared to the DMRs. No issues were noted with monitoring and reporting.



One recommendation for reporting results for SP001: add a note to the DMR including the date when sampling occurred. As written above, a batch discharge from the IWTP does not occur until after sampling and approval is granted from the environmental office. Therefore, sampling and discharge do not occur on the same day.

K. Eiford also provided the total toxic organic management plan used at the site. The toxic organic management plan is part of the slug/spill discharge control plan and was last updated in March 2023. In lieu of monitoring for TTOs at SP002, NUWC Keyport follows a TTO plan to ensure no concentrated organics are entering the wastewater, therefore are not expected to be present in detectable concentrations in the effluent. The appropriate TTO certification statement is uploaded with each DMR when necessary.

III. CONCLUSION

As stated above, the intent of this site visit was to prepare for the permit renewal process starting in June 2023. Ecology did not observe any compliance concerns during the site visit. Environmental staff are very knowledgeable about the operations conducted on site that generate wastewater.

The permit renewal application is due on 5/1/2023.

Name(s) and Signatures of Inspector(s)	Agency/Office/Telephone	Date
Maia Hoffman 	WA Dept. of Ecology, NWRO, (425) 507-5681	April 11, 2023
Name and Signature of Management QA Reviewer	Agency/Office/Telephone	Date
Monika Kannadaguli 	WA Dept. of Ecology, NWRO, (206) 594-0000	April 14, 2023

ANNOUNCED Inspection

INSTRUCTIONS**Section A: General Information**

Report Version: N for 1st version, C for Changed or amended, or D for Delete

NPDES Permit No.: Enter the facility's NPDES or State permit number.

Inspection Date: Insert the date entry was made into the facility. Use the month/day/year format (e.g., 06/30/04 = June 30, 2004).

Inspection Type: Use one of the codes listed below to describe the type of inspection:

A Performance Audit	L Enforcement Case Support	2 IU Sampling Inspection
B Compliance Biomonitoring	M Multimedia	3 IU Non-Sampling Inspection
C Compliance Evaluation (non-sampling)	P Pretreatment Compliance Inspection	4 IU Toxics Inspection
D Diagnostic	R Reconnaissance	5 IU Sampling Inspection with Pretreatment
E Corps of Engineers Inspection	S Compliance Sampling	6 IU Non-Sampling Inspection with pretreatment
F Pretreatment Follow-up	U IU Inspection with Pretreatment Audit	7 IU Toxics with Pretreatment
G Pretreatment Audit	X Toxics Inspection	
I Industrial User (IU) Inspection	Z Sludge	

Inspector Code: Use one of the codes listed below to describe the *lead agency* in the inspection:

C - Contractor or Other Inspectors (Specify in Remarks Columns)	N - NEIC Inspectors
E - Corps of Engineers	R - EPA Regional Inspector
J - Joint EPA/State Inspectors - EPA Lead	S - State Inspector
	T - Joint State/EPA Inspectors - State Lead

Facility Type: Use one of the choices below to describe the facility.

1 - Municipal. Publicly Owned Treatment Works (POTWs) with 1987 Standard Industrial Code (SIC) 4952.

2 - Industrial. Other than municipal, agricultural, and Federal facilities.

3 - Agricultural. Facilities classified with 1987 SIC 0111 to 0971.

4 - Federal. Facilities identified as Federal by the EPA Regional Office

Remarks: These columns are reserved for remarks.

Inspection Work Days.: Estimate the total work effort (to the nearest 0.1 work day), up to 99.9 days, that were used to complete the inspection. This estimate includes the accumulative effort of all participating inspectors; any effort for laboratory analyses, testing, travel time and preparation time. This estimate does not require detailed documentation.

Facility Evaluation Rating: Use information gathered during the inspection (regardless of inspection type) to evaluate the quality of the facility self-monitoring program. Grade the program using a scale of 1 to 5 with a score of 5 being used for very reliable self-monitoring programs, 3 being satisfactory, and 1 being used for very unreliable programs.

Biomonitoring Information. Enter D for static testing. Enter F for flow through testing. Enter N for no biomonitoring.

Quality Assurance Data Inspection. Enter Q if the inspection was conducted as follow-up on quality assurance sample results. Enter N otherwise.

Photos Taken: Yes or No

Samples Taken: Yes or No

Lead Ecology Inspector: Enter lead inspector's name

Section B: Facility Data

This section is self-explanatory except for: "Other Facility Data," which may include new information not in the permit or PCS (e.g., new outfalls, names of receiving waters, new ownership, and other updates to the record), e-mail addresses...; and "Ecology Staff On-Site", which may include staff names, titles, phone numbers, or e-mail addresses.

Section C: Areas Evaluated During Inspection

Check only those areas evaluated by marking the appropriate box. Use Section D and additional sheets as necessary.

Section D: Summary of Findings/Comments

Support the findings, as necessary, in a narrative report. Use the headings given on the report form (staffing, back-up power) as appropriate. Reference a list of attachments, such as completed checklists, photos, lab reports, etc. Use extra sheets as necessary.

[BLANK PAGE]