

State of Washington Department of Ecology
Northwest Regional Office
WATER COMPLIANCE INSPECTION REPORT

substitute for OMB No. 2040-0057 and EPA form 3560-3 (Rev. 9-94) (Last file update 12-95.)

Section A: National Data System Coding (i.e., PCS)

Transaction Code 1 N 2 5	State Waste Discharge Permit # 3 ST0007436 11	mo/day/yr 12 3/18/2019 17	Inspection Type 18 3	Inspector 19 S	Fac Type 20 2
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Remarks

Inspection work days 67 1 69	Facility Self-Monitoring Evaluation Rating 70 5	BI 71 N	QA 72 N	Reserved 73 _____ 74 _____ 75 _____ 80
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Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) Synrad 4600 Campus Place Mukilteo, WA 98275	Entry Time/Date 10 am 3/18/2019	Permit Effective Date 7/1/2012
	Exit Time / Date 11 am 3/18/2019	Permit Expiration Date 6/29/2017

Name(s) of On-Site Representative(s)/Title(s)/Phone Fredrik Haggett, Plant Manager, 425.609.5096 Ken Packwood, Sr. Facility Mechanic, 425.609.5105	Other Facility Data
Name, Address of Responsible Official/Title Fredrik Haggett, Plant Manager, 4600 Campus Place Mukilteo, WA 98275 Phone Number 425.609.5096 Fax _____ Contacted? <input checked="" type="checkbox"/> Yes <input 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 type="checkbox"/> Operations&Maint.	<input type="checkbox"/> CSO/SSO (Sewer Overflow)
<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Self-Monitoring Program	<input type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> Pollution Prevention
<input type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input checked="" type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia
<input type="checkbox"/> Effluent/Receiving water	<input type="checkbox"/> Laboratory	<input type="checkbox"/> Storm Water	<input type="checkbox"/> other

Section D: Summary of Findings/Comments

Biniam Zelelow, Department of Ecology (Ecology) Water Quality Inspector, and Greg Galloway, Alderwood Water and Wastewater District (AWWD) Environmental Compliance Inspector, conducted a compliance inspection of Synrad on March 18, 2019. Synrad holds a state waste discharge permit which was issued on June 29, 2012 and bears an expiration date of June 29, 2017. This permit allows Synrad to discharge pretreated wastewater into AWWD's sanitary sewer collection system for final treatment at Picnic Point Wastewater Treatment Facility. Picnic Point WWTF is a 4-MGD membrane bioreactor plant which discharges to the Puget Sound.

Synrad applied for renewal of this permit in January 2017. The permit was administratively extended for 5 years after the expiration date. Ecology intends to reauthorize this permit because this inspection determined that there have not been any changes at this facility that may result in material change in the quantity and type of wastewater disposal.

The site visit was led by Mr. Fred Haggett, Synrad Plant Manager, and Mr. Ken Packwood, Sr. Facility Mechanic.

Synrad manufactures carbon dioxide lasers in sealed aluminum tubes, as aluminum is inexpensive and makes an ideal chamber for the laser gas achieving high gas purity. Energy is transferred into the gas via radio frequency (RF) as opposed to direct current (DC). The lasers are used in electronics, textiles, packaging, 3D printing and other applications. Laser products replace knives, dyes, and inks traditionally used for cutting and marking. Everyday applications of laser products from Synrad include phone labels, textile cutting (replacing the use of sharp blades with beams of light), Coca Cola labels, Tabasco labels, etc. Mr. Packwood stated that the Coca Cola bottling plant in Bellevue owns 4 laser label makers manufactured by Synrad.

Most of the manufacturing, testing, carbon dioxide gas mixture introduction into the tubes is dry process and hence no wastewater is generated in all production areas of the facility. Wastewater is generated in cleaning the pre-fabricated aluminum tubes. The requirement for a quality laser product is for the sealed aluminum tubes to be

free of any contamination. For cleaning the aluminum sealed tubes, a designated washing room is used. Cleaning is performed using ultrasonic cleaners, which use a diluted (2%) neutral pH cleaning detergent with trade name Valtron EF5401 and DI water, and two 30-gallon DI water rinse tanks. Water from the ultrasonic cleaners is checked for pH and drained into the floor drain, if the pH meets permit limits or neutralized otherwise. The aluminum tubes are then rinsed in the two deionized water rinse tanks. The two tanks are emptied to a 55-gallon holding tank. A third 30-gallon tank uses ethyl alcohol, which is primarily used as a drying agent to absorb the water from the DI water rinse tanks. The facility uses 180 proof ethanol for this purpose. A hydrometer is used to check the alcohol percentage and if the level drops to 140 proof, the rinse tank is emptied into the 55-gallon holding tank. The 55-gallon holding tank is equipped with a recirculating valve for mixing. After the mixing, pH is checked and adjusted accordingly using phosphoric acid or sodium hydroxide. The wastewater is then gravity drained to the sanitary sewer system. The facility takes samples for compliance from a port downstream of the holding tank. The permit requires monthly monitoring for lead, copper, and oil & grease. Discharge volume and pH are measured with each batch of discharge.

Review of DMRs submitted by the facility shows that all parameters are well within the permit limits consistently. The permittee is currently submitting DMRs on paper. Ecology requires all permittees to submit DMRs electronically. Instructions for creating a Secure Access Washington (SAW) account and an electronic signature account to securely access permit information will be separately sent to the permittee.

Closed Cup Flash Point Test Required

Synrad's permit special condition S5.B.1 prohibits the discharge of **any pollutant that can create a fire or explosion hazard in the POTW**, including but not limited to waste streams with a closed cup flash point of 140 degrees F.

A review of the SDS for ethanol (Fisher Scientific and Air Gas) shows that the upper and lower explosive (flammable) limits for ethanol are 19% and 3.3%, respectively, and its closed cup flash point is 57 degrees F (for pure ethanol). If 30 gallons (assuming full Rinse Tank 3) of the ethyl alcohol rinse solution at 140 proof are added to the 55 gallon holding tank, this would make a 38% ethanol by volume at the point of discharge to the POTW.

There are two things to consider here. The point of generation of the waste and the point of discharge. For Synrad's wastewater discharge permit, the important point is the point of discharge but for state dangerous waste designation, the point of generation is the designation point. Representatives of Ecology's Hazardous Waste/Toxics Reduction Program indicated that Synrad will not be required to designate Rinse Tank 3 as state dangerous waste at this time, citing that ethanol is treatable at the WWTP.

However, since there is some potential of fire hazard from ethanol waste in the wastewater collection system, specially given the fact that the sewer main connecting to Synrad's side sewer and lateral is ductile iron, it will be prudent to determine the flash point of the mixed waste at the point of discharge to the sanitary sewer to protect worker safety during routine maintenance. Ecology recommends Synrad to do the flash point test at three concentrations of the mixed waste:

- 1) typical waste discharged from the holding tank,
- 2) at 24% ethyl alcohol in the holding tank, and,
- 3) at a lower percent ethanol (such as 15%).

If any of the results show closed cup flash point of higher than 140 deg F, then that would be the required discharge percentage of ethanol from the holding tank. Submit the results to Ecology and AWWD by April 30, 2019. The sample taken must be a representative sample. The flash point test method required is as detailed in 40 CFR 261.21 and WAC 173-303-090(5).

Synrad may have to meter in the waste from Tank 3 into the holding tank depending on the flash point results.

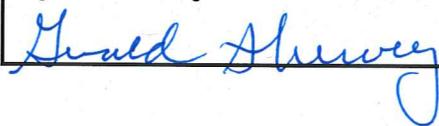
40 CFR 403.3 (q) defines a POTW as follows:

"The term Publicly Owned Treatment Works or POTW means a treatment works as defined by section 212 of the Act, which is owned by a State or municipality (as defined by section 502(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works."

40 CFR 26.21 and WAC 173-303-090 (5) define characteristic ignitability as follows:

"A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(i) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60 degrees C (140 degrees F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D93-06, or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D3278-96 (2004)e1 as incorporated by reference at WAC 173-303-110 (3)(h)(v) and (vi);"

Name(s) and Signatures of Inspector(s) Biniam Zelelow 	Agency/Office/Telephone WA Dept. of Ecology/NWRO/(425)649-7217 3190 160th SE, Bellevue, WA 98008-5452	Date 3/22/2019
Signature of Management Q A Reviewer 	Agency/Office/Phone and Fax Numbers WA Dept. of Ecology/NWRO/(425)649-7293 fax (425)649-7098	Date 4-4-2019

ANNOUNCED Inspection

INSTRUCTIONS
Section A: National Data System Coding (i.e., PCS)

Column 1: Transaction Code. Use N, C, or D for New Change or Delete. All inspections will be new unless there is an error in the data entered.

Columns 3-11: NPDES Permit No. Enter the facility's NPDES permit number. (*Use the Remarks columns to record State permit number, if necessary.*)

Columns 12-17: Inspection Date. Insert the date entry was made into the facility. Use the year/month/day format (e.g., 94/06/30 = June 30, 1994).

Column 18: 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	

Column 19: Inspector Code. Use one of the codes listed below to describe the *lead agency* in the inspection.

C - Contractor or Other Inspectors (<i>Specify in Remarks Columns</i>)	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

Column 20: Facility Type. Use of one of the codes 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

Columns 21-66: Remarks. These columns are reserved for remarks at the discretion of the Region.

Columns 67-69: 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 and submit a QA reviewed report of findings. This estimate includes the accumulative effort of all participating inspectors; any effort for laboratory analyses, testing, and remote sensing; and the billed payroll time for travel and pre and post inspection preparation. This estimate does not require detailed documentation.

Column 70: 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.

Column 71: Biomonitoring Information. Enter D for static testing. Enter F for flow through testing. Enter N for no biomonitoring.

Column 72: Quality Assurance Data Inspection. Enter Q if the inspection was conducted as follow-up on quality assurance sample results. Enter N otherwise.

Columns 73-80: These columns are reserved for regionally defined information.

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).

Section C: Areas Evaluated During Inspection

Check only those areas evaluated by marking the appropriate box. Use Section D and additional sheets as necessary. Support the findings, as necessary, in a brief narrative report. Use the headings given on the report form (e.g., Permit, Records/Reports) when discussing the areas evaluated during the inspection. The heading marked "Multimedia" may indicate media such as CAA, RCRA, and TSCA. The heading marked "Other" may indicate activities such as SPCC, BMPs, and concerns that are not covered elsewhere.

Section D: Summary of Findings/Comments

Briefly summarize the inspection findings. This summary should abstract the pertinent inspection findings, not replace the narrative report. Reference a list of attachments, such as completed checklists taken from the NPDES Compliance Inspection Manuals and pretreatment guidance documents, including effluent data when sampling has been done. Use extra sheets as necessary.