Wastewater Management Department
Industrial Pretreatment Program
Riverside Park Water Reclamation Facility
4401 North Aubrey L. White Parkway
Spokane, WA 99205

FACT SHEET
FOR WASTEWATER DISCHARGE PERMIT #SIU-3728-01

Effective Date: June 1, 2024
Expiration Date: May 31, 2029

A. INDUSTRIAL USER INFORMATION

Goodrich Corporation
11135 W Westbow Boulevard
Spokane WA 99224-9475

Two sewer connections: Hayford and Westbow

B. DESCRIPTION OF FACILITY OPERATIONS

Goodrich Corporation (Goodrich) is primarily engaged in the manufacturing of carbon aircraft brake discs, SIC 3728 (Aircraft Parts and Auxiliary Equipment not Elsewhere Classified) and NAICS Code 336413 (Other Aircraft Parts and Auxiliary Equipment Manufacturing).

Goodrich began construction on the facility in 1998 and has undergone additional building phases over the years. Goodrich currently employs 211 personnel and operates seven days per week. Hours of operation are 24 hours per day, split into two shifts with variable start times.

Goodrich is classified as a Significant Industrial User due to their average discharge being greater than twenty five thousand gallons per day of process wastewater to the POTW (Publicly Owned Treatment Works). In addition, uncontrolled peak flows to Hayford or Westbow have the potential to negatively impact the collection system.

The facility receives oxidized polyacrylonitrile fiber (OPF) and manufactures it into carbon aircraft brake discs through proprietary processes integrating textile, furnace, machining, and finishing steps. The fiber is combined to form the brake preforms, which occurs in the textile building process. These preforms are put into the Single Step Carbonization (SSC) furnaces for processing, and then into Chemical Vapor Deposition (CVD) furnaces for densification. Both kinds of furnaces are jacketed and water cooled by an open circulating cooling water system. Heat from the SSC and CVD processes is dissipated to the circulating non-contact cooling water system, and then to the evaporation cooling towers.

Steam is produced in the natural gas boilers in the utility building. Furnace vacuum for the CVD process is produced using steam eductors or hybrid vacuum system. Steam comes into direct contact with off gases from the CVD process and is removed using various process separation techniques. When the steam is condensed, such as in boiler blowdown, the

condensate contains hydrocarbons. Water is separated and returned to the deaerator as boiler water feed. Prior to discharge, hydrocarbons are removed from the condensate via the Granular Activated Carbon (GAC) system.

As is common for circulating cooling water and boiler condensate system, blowdown of process water is controlled by conductivity. At high conductivity conditions, process water is discharged to the sewer and make-up water is added to the system. Ion exchange softening is applied to City water to supply boiler make-up. A portion of the cooling tower make-up is supplied by facility groundwater collection sumps and pumped directly to the cooling tower reservoirs. The remaining cooling tower make-up is direct from the City water supply header.

After CVD processes, the product is machined, then an acidic or neutral solution is applied to prevent oxidation. This is done by hand or robotically. The robotic application systems create steam cleaning condensate that is collected in buckets, then drummed off as hazardous waste for later disposal. An alarm system makes an audible alarm and stops production should the waste container become too full. This wastestream does not have any way of accessing a drain even if overflow were to occur. After coating, the discs enter the ovens for final curing. The off gassing from the ovens is sent through a packed bed air scrubber. If needed a small amount of Sodium Hydroxide can be added to adjust the pH to within permit discharge limits before discharging directly to the sewer. Finally, the product is inspected, packed, and shipped to customers.

C. SAMPLE POINT DESCRIPTION/ FACILITY FLOW INFORMATION

Table 1: Sample Points and Expected Flows

SAMPLE POINT	EXPECTED FLOW PER OPERATIONAL DAY (GPD)	DESCRIPTION
Hayford	Average Flow 90,200 gpd Max Flow 152,000 gpd	The main effluent discharge point. Located downstream of the off spec tank, manhole on the northeast corner of the property, includes all sanitary and process flows. End of pipe.
Westbow		The backup discharge point. The manhole is located between the Administration and Utility Buildings. End of pipe.

Notes for Table 1: These numbers are the water usage minus estimated evaporation. Max daily flow from the previous permit cycle was 110,891 gpd.

All domestic and process wastewater exits the facility to the west between the Administration and Utility buildings. The manhole located in the grass is designated as the

Westbow point of compliance (POC). At this point the sewer line turns slightly such that the side sewer travels north-west connecting with the POTW under Westbow Boulevard.

The system conveying wastewater to Hayford intersects the Westbow side sewer. (See drawing in Attachment B) A private pump station consists of lead and lag pumps rated to pump up to 450 gpm each, which lift the combined sanitary and process wastewater through a valve vault that tees the two lines into one sanitary sewer force main. The valve vault is equipped with redundant pH meters that will transmit initial pH information as an early warning system prior to the wastewater reaching the pH meter responsible for diverting out of range wastewater into the off spec tank. A Variable Frequency Drive (VFD) will control how much wastewater goes into the off spec tank. At the average flow rate of 59 gpm, the 10,000 gallon off spec tank provides 2.8 hours of storage. If flow rate going to Hayford is above the permitted limit, a portion of the flow can be diverted to the tank by the VFD. In the event of a pH excursion, all wastewater would be diverted to the tank. The off spec tank is not equipped with any mixing or pH neutralization capabilities. Goodrich has discussed options of how to handle a case like this and possibilities include having the waste pumped out and hauled, manually neutralizing the contents, or manually transferring the waste to the inlet of the GAC pretreatment system. In the event the tank needs to be drained, a valve is manually opened that gravity drains the wastewater to an existing manhole between the utility building and the furnace building, routing the wastewater back to the beginning of the system. If the off spec tank should fill, the overflow routes through the same manhole. At no point will flow from the off spec tank drain directly to the Hayford force main.

A pipe routing question that was addressed in the requested Engineering Report Addendum clarified that the short length of pipe between the inlet to the off spec tank and the drain can be isolated so that the contents of that pipe and the off spec tank can gravity drain to sewer to prevent issue with odor or freezing from wastewater left in the line.

D. PROCESS / FLOW INFORMATION

Process wastewater is generated from:

- SSC furnaces: cooling water, routed to cooling towers outside, eventually to sewer.
- SCC sumps in basement: removed as waste, not pumped to the sewer.
- Reverse Osmosis system: drain goes to cooling water system, eventually to sewer.
- CVD Steam Condensate: routed from boiler blowdown to GAC system to sewer.
- Oven air scrubber: packed bed scrubber, neutralized then to sewer.
- Sumps in Furnace deck basement: only pumped to blowdown treatment if free of oil contamination, otherwise removed as waste.
- Micropolishing water: rinse used in conjunction with polishing compound in Quality Assurance lab to observe microscopic carbon structure.
- Black body oven cooling water: non-contact cooling water combined with cooling tower blowdown.

- Hot water heating relief valves (comfort heating in Textile/Machine Shop)

The total amount of process wastewater generated from the above operations is 32,400 gallons per day, based on 7 operational days per week. Sanitary is estimated at 2,100 gallons per day and evaporation accounts for the loss of 172,607 gallons per day*.

Table 2: Process wastewater generated

Process	**Average Discharge from previous fact sheet**	**Average Discharge from 2022***
Normal cooling system blowdown	34,629 gallons per day	22,483 gallons per day
In-Line filter blowdown	2,328 gallons per day	13,787 gallons per day
Slip Stream filter blowdown	231 gallons per day	213 gallons per day
Lakos filter blowdown	299 gallons per day	298 gallons per day
Boiler blowdown treatment	7,257 gallons per day	6,444 gallons per day
Soft water blowdown	1,189 gallons per day	1,189 gallons per day
Oxy scrubber blowdown	432 gallons per day	432 gallons per day
LUWA climate control blowdown	218 gallons per day	218 gallons per day
Micropolishing water	2-11 gallons per day	2-11 gallons per day

Notes for Table 2:
*Estimated flow sourced from 2022 water balance provided with the permit application, gallons per year was divided by 365 to achieve gallons per day (gpd). (Attachment A)

E. FLOW MEASURING DEVICE

The flow from Goodrich going to Westbow is currently monitored by a Sigma Open Channel flow meter (Model #950 S/N D95) in the manhole between the Utility and Administration Buildings. Flow going to Hayford Road is monitored using an inline magnetic flow meter.

During the upcoming plant building expansion, Goodrich is required to install and maintain an effluent flow meter downstream from the new wet well to directly monitor flows going to Westbow, separate from the wastestream being monitored at Hayford.

F. PRETREATMENT UNIT OPERATIONS

The boiler blowdown treatment system treats for oils, as well as providing pH neutralization. The wastewater is routed to the T-852 collection tank which feeds through the 10um BDT bag filters (which get hauled off), then into the pH neutralization tank dosed with Sulfuric Acid, then through the GAC tanks before being discharged. This system was designed to treat up to 20 gallons per minute (gpm). In addition to boiler blowdown, this system also treats about 20 gpd from the furnace basement sump which includes non-contact cooling water, annual trench washing/inspection, and HVAC effluent. If any oil sheen is present in the sump, it is drummed up for disposal off site.

A dedicated oil water separator exists for each of the three identical phases of the CVD system. Water returns to the process, no discharge to sewer. The waste oil is stored in a labeled metal tank until it gets transferred to hazardous waste storage.

Treatment is also applied in the scrubber for the finishing ovens, which is pH neutralized with caustic (as needed) before draining to sewer.

G. POLLUTION PREVENTION / BEST MANAGEMENT PRACTICES

Goodrich has implemented the following pollution prevention practice(s) and/or best management practice(s): use of spill containment, waste reduction (scrubber oil), re-machining used brake disks for smaller aircraft, greenhouse gas reduction, recycling unused fibers, new labeling and training, awareness and education, no dumping signs, shop-vacs have been labeled to designate the types of waste/debris they are allowed to be used for, and a selection of waste drums are sent for testing each year to verify the character of the waste has not changed.

The best management practices in the permit must also be followed.

H. RATIONALE FOR MONITORING LOCATIONS / SAMPLING POINTS

In previous wastewater discharge permits held by Goodrich, Outfall 002 after the GAC was considered the end of process. Goodrich is not performing a categorical process, so this monitoring point is not necessary. City staff removed the sticker labeling this location as a point of compliance in 2024.

Hayford and Westbow monitoring points will each continuously monitor for pH and flow any time wastewater is discharged through that point. Hayford is the primary discharge point, so most of the sampling will be done at the manhole on the northeast corner of the property where the pressurized sewer drops back to gravity. Goodrich intends to keep Westbow as a backup discharge point should the plant experience a critical failure. Since Westbow is intended to be a backup, City sampling will only occur if Westbow is discharging when Hayford is being sampled. Flow limits will separately govern Westbow and Hayford discharge points regardless of the flow at the other discharge point. Westbow sewer transmits wastewater through City pipes to the Hayford lift station which eventually joins up with the Hayford Road discharge near manhole number 8003724CD.

I. RATIONALE FOR MONITORING FREQUENCY REQUIREMENTS

Since Goodrich has demonstrated perfect compliance over the last permit cycle, monitoring performed by the City of Spokane will be reduced to the minimum frequency of sampling biannually at the end of pipe points of compliance where wastewater is actively flowing.

Goodrich is required to continuously self-monitor for flow and pH. Continuous flow monitoring is required to determine total discharge flows to RPWRF and peak instantaneous flows entering the collection system. Continuous means uninterrupted except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance. The time interval for the associated data logger must be no greater than 2 minutes.

J. RATIONALE FOR REPORTING REQUIREMENTS

1. Signatory Requirements (SCC 8.03A.0305(A))

All discharge permit applications and user reports must be signed and certified by an authorized representative as defined in SCC 8.03A.0103. Goodrich has designated the following individual as authorized facility representative, and the Electronic Signature Agreement is on file with the City to allow electronic reporting.

Table 3: Authorized Representative

Name	Title
Nichol Savko	Director of Operations

2. Discharge Monitoring Report (SCC 8.03A.0403)

The City of Spokane requires monthly reporting from Significant Industrial Users in the form of discharge monitoring reports. This report will include those pollutants for which the industry self-monitors. For Goodrich, this will include flow and pH. If the industry monitors any regulated pollutant at the appropriate sampling location more frequently than required, the results of the monitoring shall be included in the report. (40 CFR §403.12(g)(6)).

K. RATIONALE FOR SPECIAL CONDITIONS

1. Slug Potential Evaluation

The City of Spokane conducted a slug potential evaluation of Goodrich on March 13, 2024.

The City of Spokane RPWRF has determined that Goodrich is required to maintain and implement a slug discharge control plan (SDCP). The plan was originally submitted to the City in March 2014. The plan updated in June 2018, was reviewed in July, and supplementary documents referenced in the SDCP were submitted and reviewed in August to ensure it contained all of the minimum federal requirements as listed in 40 CFR 403.8 (f)(2)(vi). Since no substantial changes have occurred at the facility, and the

2019 revision adequately covers concerns for spills or slug discharges, a plan revision will be required with the next permit renewal in 2029.

2. Operation and Maintenance Manual

In those cases where the facility includes mechanical components, a detailed Operation and Maintenance (O&M) manual must be prepared before completing the construction, or as part of a new or renewed permit. The purpose of the manual is to present technical guidance and regulatory requirements to the operator to enhance operation under both normal and emergency conditions.
[WAC 173-240-080]

Due to upcoming construction, the updated O&M Manual must be submitted within 90 days of the completion of the new Westbow monitoring location. A letter or email notification will be sent to the City on completion of the monitoring point to determine the due date of the updated O&M.

3. AKART

Washington State requires all dischargers to treat wastewater using all known, available, and reasonable methods of prevention, control, and treatment (AKART). AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

In the 2010 Engineering Report Goodrich summarized their AKART evaluation, determining the Granular Activated Carbon (GAC) system would be the best technology to improve boiler operation and ensure compliance with wastewater regulations. The GAC system neutralizes pH, adsorbs organic compounds and filters out particulate, with the added benefit of cooling the wastewater to an acceptable temperature to discharge. The Discharge Modifications Engineering Report provided with the 2018 permit application discussed other alternatives to the off spec tank, however more expensive technologies did not provide additional protection against pH or flow violations. The 2023 Engineering Report did not repeat this previously submitted information and no additional treatment has been installed.

L. RATIONALE FOR WASTEWATER DISCHARGE LIMITATIONS

Goodrich will be required to meet the applicable limits in the table below at Hayford and Westbow monitoring points.

Table 4: Comparison of compliance data to applicable limits

Parameter	Average Concentrations from Linko CTS 2019-2023	Maximum Allowable Discharge Limit[1]
Arsenic, total	0.0412 mg/L	0.12 mg/L
Cadmium, total	ND, <0.0021 mg/L	0.093 mg/L
Chromium, total	0.0074 mg/L	<5.0 mg/L
Copper, total	0.0756 mg/L	0.74 mg/L
Lead, total	ND, <0.0378 mg/L	0.32 mg/L
Mercury, total	0.0002 mg/L	0.012 mg/L
Molybdenum, total	0.0172 mg/L	0.66 mg/L
Nickel, total	0.0124 mg/L	1.74 mg/L
Selenium, total	ND, <0.0673 mg/L	0.40 mg/L
Silver, total	ND, <0.0067 mg/L	0.46 mg/L
Zinc, total	0.2924 mg/L	2.59 mg/L
Cyanide, total	0.0386 mg/L	1.01 mg/L
Benzene	ND, <0.0023 mg/L	<0.5 mg/L
pH [2]	N/A	Between 5.0-12.0

Notes for Table 4:

1. Maximum Allowable Discharge Limit is defined as the maximum concentration or loading of a pollutant allowed to be discharged at any time, determined from the analysis of any discrete or composited sample collected, independent of the industrial flow rate and the duration of the sampling event.
2. The City of Spokane POTW has pH limits of 5.0-12.0, which will be enforced.

Table 5: Discharge Flow Limits[1]

Parameter	**Hayford**	**Westbow**
Instantaneous flow, gallons per minute (gpm)	500 gpm	250 gpm
Peak instantaneous flow, allowable for 10 minutes	750 gpm for 10 min	300 gpm for 10 min

Total flow monthly average[2], Gallons Per Day (GPD)	190,000 gpd
Total flow daily maximum	275,000 gpd

Notes for Table 5:

1. The Total Daily Maximum Flow limit is per user request. Due to the limited capacity in the pipe, the 20% buffer was not added to the requested flow. The Maximum Instantaneous Flow limit has been approved by a City of Spokane Sewer Engineer.
2. Monthly average is defined as the arithmetic mean of the effluent sample results collected during a calendar month or specified thirty day period. In this case the sum of the total flows from Westbow and Hayford must not exceed the gallons per day (GPD) listed above. Both the monthly average and daily maximum will be summed in this way.

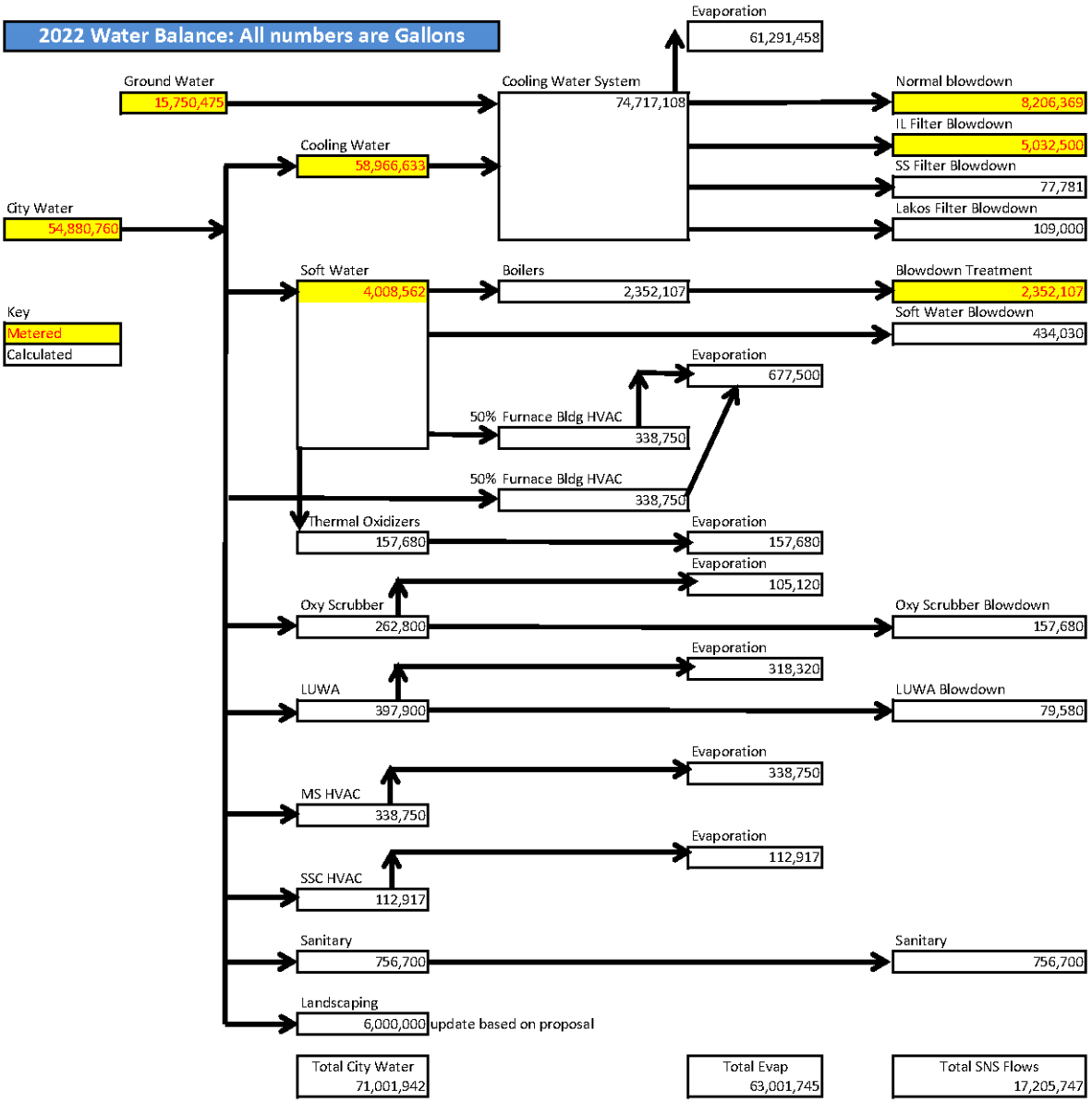
M. RATIONALE FOR SAMPLE TYPE

Goodrich must continuously monitor for flow and pH as required by the accompanying permit. Continuous means uninterrupted except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance. The time interval for the associated data logger must be no greater than 2 minutes.

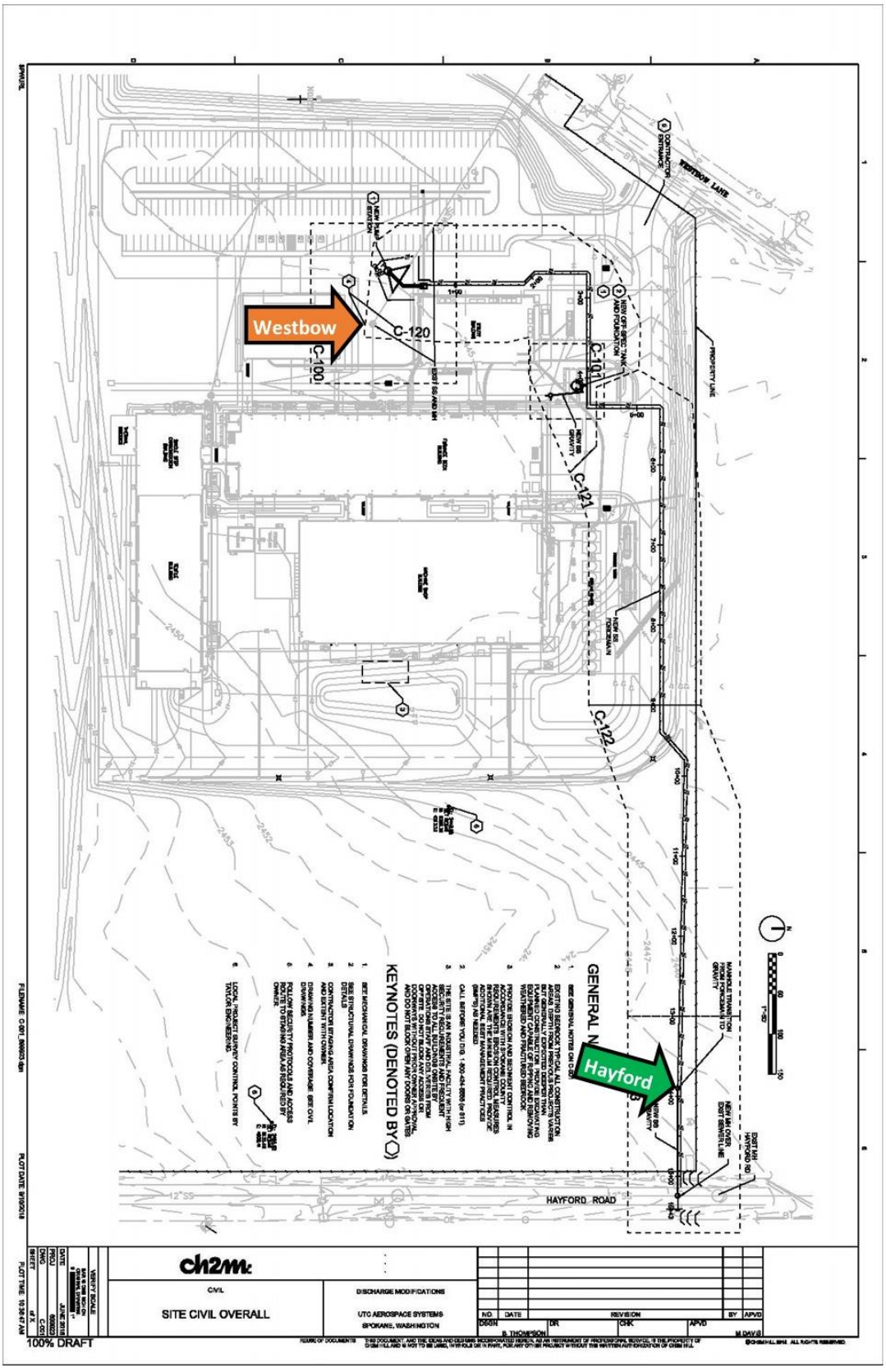
Since Goodrich operates 24 hours a day, those samples that can be collected via a 24 hour composite sampler, will be. Westbow and Hayford both qualify as the end of pipe point of compliance. Grab samples are used when storing or compositing a sample would alter the concentration or characteristics of pollutants being measured. Grab samples must be used for pH, cyanide, oil and grease, and volatile organic compounds [40 CFR 403.12(g)(3)].

If discharge is occurring at both points on the day sampling is taking place, both points will be sampled for the parameters stipulated in the permit. Since Westbow is expected to be used for emergencies in this permit cycle, only grabs and grab-composites will be used as specified by 40 CFR 136.

ATTACHMENT A – 2022 Water Balance



ATTACHMENT B – Maps



Goodrich

3/14/2024

APPENDIX A: COMMENTS ON PERMIT AND FACT SHEET