



Industrial User Facility Inspection Report

U.S. EPA, Region 8

Name of industry and location:

Headframe Spirits
341 Anaconda Road
Butte, MT 59701

Control Authority / NPDES Permit No.

City and County of Butte-Silver Bow
NPDES Permit No. MT-0022012

IU – NPDES ID

MTPU00123

Date of visit:

August 15, 2023

Approximate Time of visit:

1415 – 1615

Name(s) / Affiliation / email of inspector(s):U.S. EPA:

Al Garcia, garcia.al@epa.gov

City and County of Butte-Silver Bow:

- Eric Gonder, egonder@bsb.mt.gov
- Bill Andrene, bandrene@bsb.mt.gov
- John Osterman, josterman@bsb.mt.gov
- Christina Eggensperger, ceggensperger@waterenvtech.com

General Facility Information:Representatives at Inspection:

- John McKee – Chief Technology Officer, john@headframespirits.com
- Greg Barnett, Plant Manager
- Kari Smith, Director of Operations

Type of Business Operations:

- Contract Distillery production and fabrication/manufacturing of continuous flow distillation units

Facility Information:

- 16-20 employees
- Two shifts
- Days of Operation: five days per week, Monday through Friday

Inspection Description:

Al Garcia from the U.S. Environmental Protection Agency (EPA), Eric Gonder, Bill Andrene, John Osterman from the City and County of Butte-Silver Bow (BSB) and Christina Eggensperger from WET Consulting conducted an oversight significant industrial user (SIU) inspection of the Headframe Spirits Manufacturing facility (the facility) located on 341 Anaconda Road, Butte, MT 59701. The SIU inspection was conducted as part of the EPA Pretreatment audit of BSB's Publicly Owned Treatment Works (POTW) Pretreatment Program and is intended to provide a general overview of the facility to ensure the Pretreatment records reviewed by the

EPA address current conditions at the facility. The EPA oversight SIU inspection consisted of an evaluation of the wastestreams generated from the unit operations and processes at the facility, including potential for spills and slug discharges. The facility discharges to the sewer collection system leading to BSB's POTW.

Upon arriving at the facility on August 15, 2023 at approximately 2:15 p.m., Al Garcia of the EPA presented credentials to the facility representatives and explained the purpose of the inspection. During the opening interview, the facility representatives provided an overview of the operations and processes at the facility, wastestreams generated and management of these wastestreams. The opening interview was followed by a facility tour to visually inspect the unit operations. The EPA conducted a closing conference to discuss potential findings and recommendations identified during the inspection.

Process Description:

The Headframe Spirits manufacturing facility located on 341 Anaconda Road; Butte MT 59701 is a distillery operation that produces whiskey to distributors under contract. In addition, the facility manufactures and fabricates continuous flow distillation units.

Distillation Operations –

Approximately 50,000 lbs of malt are received every three days from a local malt production facility via bulk tanker truck and is transferred into a 60,000 lb. grain silo. The malt is transferred via an auger and 6-inch pipe to a mill. The facility estimates it mills about 18,000 lbs of malt daily in three separate batches throughout the production day. The milled malt is transferred to a 2,500-gallon mash tun where it is mixed with water to produce a mash. The mash tun is rinsed after every mash process using a garden hose in three cycles and produces about 300 gallons of wastewater. The wastewater is collected in a trench drain that runs along the process floor to the discharge point to the sanitary sewer.

After the mash is produced, it is transferred to a liquid/solid separator (LSS), which serves as a mechanical lauter process to separate the mash from the residual grain. The LSS uses a rotating filter to separate the mash or wort from the residual grains. The LSS filter is cleaned using rinsewater brushes and about a quart pitcher of caustic. The caustic is transferred from the 55-gallon caustic barrel in the chemical storage area, located on the fabrication warehouse. The facility currently stores two 55-gallon barrels of caustic, about six to eight 55-gallon barrels of silicone-based defoamer, and enzymes. The pitcher of caustic is manually transported to the LSS. The separated solids from the LSS are pumped to a 60,000 lb grain silo and the mash is sent to the quench tank. The quench tank is cleaned three times/day using a Clean-In-Place (CIP) system. The CIP system uses about 50-gallons of a caustic solution (two quarts of caustic) per cycle and generates about 300 gallons per day. The wastewater is sent to the trench drain leading to the sanitary sewer. The liquid is pumped through chillers and stored in one of the eight fermenters (6,300-gallon capacity). The fermenters are located outside the production facility and are stacked two-high in a four-by-four configuration. The fermenters are cleaned on rotating cycle at an estimated frequency of one fermenter every two weeks, according to the facility. The fermenters are cleaned in a two-step process: (1) CIP process – wastewater sent to the 3,000-gallon beer well, (2) steam hose sanitization for 1-hour – wastewater sent to beer well.

The fermented beer is pumped to a 3,000-gallon beer well to feed the continuous flow distillation unit at 5-10 gpm. The alcohol content of the beer is removed in the distillation process by vaporizing the liquid at about 200° C and recondensing the alcohol is a series of continuous flowing stills. The alcohol is collected in a 300-gallon tank and then pumped to a 6,300-gallon storage tank, located outside the production facility. The distillation operation occurs over two shifts each production day. The waste non-alcoholic beer or fluid is discharged from the distillation columns and piped to the wastewater collection trench and continuously discharged to the sanitary sewer.

The alcohol is pumped from the 6,300-gallon storage tank to the barrel filling operation, located next to the distillation unit. The barrels are filled, capped and transported to the whiskey warehouse. The facility produces about 8-20 barrels per day.

Continuous-Flow Still Fabrication –

The facility has a fabrication shop on the “domestic” side of the warehouse. As mentioned previously, the chemical storage is located on the wall separating the distillation and the fabrication operations within the warehouse. The facility fabricates stainless steel using band saws, stamping, cutting and lathe machines manually operated by an operator. The use of coolants and lubricants appears to be minimal. The fabrication shop is serviced by a sewer line connected to an oil/water separator.

The warehouse also contains a prototype continuous flow distillation unit where testing or training occurs for distillers. Production rates and management of distillation wastewater was not discussed during this facility inspection.

Wastewater Management –

The wastewater from the cleaning operations in the beer production and distillation operations are conveyed to the sanitary sewer in the trench collection drain in the production floor. The trench collection drain combines with the discharge pipe from the distillation unit in the northeast corner of the current production floor. The discharge pipe conveys wastewater north from the discharge location and the facility has a manhole in which a sampling port is installed. According to the facility, the sampling apparatus can collect aliquots in two-hour intervals to a container located in the boiler building.

EPA Classification of the Industrial User

The facility operates brewery and distillation operations to produce whiskey and in addition, fabricates continuous-flow distillation units for purchase. Butte-Silver Bow has determined that the wastestream generated in the brewery and distillation operations are subject to its local limits and has permitted the facility as an SIU, subject to the Pretreatment Regulation found in Butte-Silver Bow’s ordinance and 40 C.F.R. Part 403.

The permit issued to Headframe Spirits by Butte-Silver Bow requires the following in Part II.A.1: “A representative sample of the discharge at Outfall # 01 shall be collected and analyzed for the parameters required according to the sampling frequency specified below. All representative samples must be collected using flow proportional composite sampling techniques.” In addition, Part IV.B of the Headframe Spirits permit contains a compliance schedule that requires the facility to meet certain compliance milestones to attain compliance with Butte-Silver Bow’s local limits. The compliance schedule was amended on April 23, 2023 to include the following milestones:

- Action Item #8 - Installation of flowmeter on effluent waste stream, immediately prior to discharge into BSB collection system by **July 15, 2023**.
- Action Item #9 - Headframe Spirits to implement pH adjustment prior to discharging to the BSB collection system; pH must be above 5.0 standard units by **August 25, 2023**.

Based on the EPA’s evaluation of the facility’s discharge measurement/sampling equipment/port on the wastewater discharge pipe, the facility is not in compliance with the installation of the flow-measuring equipment or flowmeter required in Action Item #8 of the compliance schedule.

In addition, as discussed during the facility inspection, the EPA is concerned with the significant pH violations that have occurred from the facility since the permit was issued on July 15, 2022. Based on the EPA’s review of certified compliance reports from the facility, the facility has consistently discharged wastewater to Butte-Silver Bow’s collections system at pH levels near or at 3.0 std units.

Summary of Findings

Headframe Spirits
NPDES ID# MTPU00123
August 15, 2023

Pretreatment Inspection Findings	Follow up Action Items
1. The Pretreatment Regulations at 40 C.F.R. § 403.8(f)(2)(vi) and incorporated in Butte-Silver Bow's municipal ordinance at 13.04.683(8) requires the following elements of Headframe Spirit's slug discharge control plan: i. Description of discharge practices. ii. Description of stored chemicals. iii. Procedures for immediately notifying the POTW of slug discharges, including any discharge that would violate a prohibition as identified in this chapter with procedures for follow-up written notification within five days. iv. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plans site runoff, worker training, building and containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response. Based on the EPA's observations from the facility inspection, the slug discharge plan needs to include chemical handling and transfer procedures to prevent adverse impact from accidental spills (e.g., transfer of caustic from the chemical storage area to the mash tun, LSS, quench tank, fermenters and other brewing or distillation equipment)	<u>Pretreatment Requirement</u> 40 C.F.R. § 403.8(f)(2)(vi) Butte-Silver Bow municipal ordinance, §13.04.683(8) <u>Corrective Actions</u> Update the current slug discharge control plan to include procedures to prevent accidental spills from handling and transfer of chemicals.
2. Part II.A.1 of the Headframe Spirits permit requires the facility to collect representative samples using flow proportional composite sampling techniques." In addition, Part IV.B of the Headframe Spirits permit contains a compliance schedule that was amended on April 23, 2023 to include the following milestone: <u>Action Item #8</u> - Installation of flowmeter on effluent waste stream, immediately prior to discharge into BSB collection system by July 15, 2023.	<u>Pretreatment Requirement</u> Headframe Spirits permit, Parts II.A.1 and IV.B <u>Corrective Actions</u> Immediately comply with the Action Item #8 of the amended compliance schedule to install a flow meter immediately prior to discharge into BSB's collection system and collect representative samples using flow-proportional composites.

Based on the EPA's observations during the facility inspection, the facility is not in compliance with the compliance schedule milestone #8.	
3. The Pretreatment Regulations at 40 C.F.R. § 403.5(b)(2) and incorporated in Butte-Silver Bow's municipal ordinance at 13.04.650 (B) prohibit pH discharges lower than 5.0 std units: "Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than 5.0, unless the works is specifically designed to accommodate such Discharges." Based on the EPA's review of the certified compliance reports submitted to Butte-Silver Bow by Headframe Spirits, the facility has consistently discharged wastewater to Butte-Silver Bow's collection system at or near pH 3.0. The facility's non-compliance history with the pH prohibition is a significant concern because of the corrosive structural damage potential to collection system. Based on the EPA's evaluation of the BSB collection system, it is not designed to accommodate wastewater discharges below 5.0 std. units.	<u>Pretreatment Requirement</u> 40 C.F.R. § 403.5(b)(2) Butte-Silver Bow municipal ordinance, §13.04.650(B) <u>Corrective Actions</u> Provide pH treatment or other measures to ensure the regulated wastewater discharged complies with the pH prohibition of no discharges with pH lower than 5.0 std. units.

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
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Supervisor Signature/Name	Address/Phone Number	Date
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