

**PERMIT FACT SHEET  
JBS SWIFT BEEF COMPANY**

**PERMITTEE INFORMATION**

Name and Address:

JBS Swift Beef Company  
823 N. 6<sup>th</sup> Avenue  
P.O. Box 1450  
Greeley, CO 80632-1450

Description of Operation:

SIC 3111. Brine curing and dewatering of cattle hides.

Wastewater Generating Processes

5,500 to 6,000 cattle hides per day are placed into concrete raceways that contain 100 % saturated brine water for approximately 18 hours.

In addition the following chemicals are added as disinfectants and degreasers:

- Birko Corporation, XLERATOR, Camphor based, 30 gallons per day
- Birko Corporation, Synchlorozene, Trichloroisocyanuric acid based, 300 pounds per day
- Birko Corporation Hi Cap 771, Degreaser/ surfactant, 12 gallons per day

During the curing process approximately 2 gallons of water is displaced from each hide. Wastewater is also generated from hides as they are dewatered and palletized. A majority of this excess wastewater is discharged to the Swift Lone Tree Wastewater Treatment Plant. A lesser amount (up to 6000 gallons per day) is transferred to the pretreatment equalization system for metering, and sampling of the discharge to the Greeley Publicly Owned Treatment Works. The cured hides are then shipped to a leather tanning and finishing facility in another part of the country or the world.

Sewer Connection

The 15 inch sewer in the manhole 07-00.030 on JBS Swift Beef Company main processing plant property at 800 N. 8<sup>th</sup> Avenue

Outfall Description

The sampling line from the brine pretreatment equalization system on the southeast corner of the main processing plant property at 800 N. 8<sup>th</sup> Avenue prior to discharge into manhole 07-00.030.

Categorical Determination:

Not applicable

Production Rates:

Cattle hides: 5,500 to 6,000 per day

**PERMITTEE DISCHARGE SUMMARY**

<u>Pollutant</u>	<u>Daily Avg</u>	
Flow	3,500 gpd	
BOD	10,440 mg/L	305 lbs/day
TSS	2,820 mg/L	82.3 lbs/day
pH	6.50	
O & G	190 mg/L	5.55 lbs/day
Ammonia N	160 mg/L	4.7 lbs/day
Chloride	185,280 mg/L	5304 lbs/day
Total Dissolved Solids	340,000 mg/L	9925 lbs/day
Arsenic, Total	0.015 mg/L	0.00042 lbs/day
Cadmium, Total	<0.002 mg/l	<0.00006 lbs/day
Chromium, Total	0.02 mg/L	0.0006 lbs/day
Chromium, Hexavalent	<0.005 mg/l	<0.00014 lbs/day
Copper, Total	0.21 mg/l	0.0060 lbs/day
Cyanide, Total	0.045 mg/L	0.0013 lbs/day
Lead, Total	0.083 mg/l	0.0015 lbs/day
Mercury, Total	<0.0002 mg/l	0 lbs/day
Molybdenum, Total	<0.020 mg/L	<00006 lbs/day
Nickel, Total	<0.010 mg/l	0.00032 lbs/day
Selenium, Total	<0.011 mg/L	0.00023 lbs/day
Silver, Total	<0.005 mg/l	0.00021 lbs/day
Zinc, Total	1.21 mg/l	0.029 lbs/day

## PERMIT LIMIT BASIS

### Specific Limitations:

Wastewater discharged into the sanitary sewer system shall not exceed the following effluent limitations:

### Outfall 01

<u>Parameters</u>	<u>Maximum 2-Day Limit</u>
Chloride, Total	7120 lbs/day

<u>Parameters</u>	<u>Maximum Daily Limit</u>
Flow, gpd	6100
Arsenic, Total	0.002 lbs/day
Cadmium, Total	0.006 lbs/day
Chromium, Total	0.057 lbs/day
Chromium, Hexavalent	0.048 lbs/day
Copper, Total	0.057 lbs/day
Cyanide, Total	0.002 lbs/day
Lead, Total	0.032 lbs/day
Mercury, Total	0.002 lbs/day
Molybdenum, Total	0.021 lbs/day
Nickel, Total	0.073 lbs/day
Selenium, Total	0.007 lbs/day
Silver, Total	0.011 lbs/day
Zinc, Total	0.280 lbs/day

<u>Parameters</u>	<u>Instantaneous Allowable Discharge</u>
pH	5.5 to 11.5
Flow	5 gpm

### Prohibited Discharges

Unless specifically provided elsewhere in this permit, the permittee shall not introduce or cause to be introduced into the POTW the Prohibited Discharge Standards of Section 14.11.070 of the Greeley Pretreatment Ordinance. The Prohibited Discharge standards are found in Appendix A of the permit.

The Priority Pollutants that have no locally developed limitations, listed in Part 8 of the Permit, and referenced in 307 (a) of the Clean Water Act of 1977. If priority pollutants are determined to be present, the permittee shall take steps to eliminate those pollutants from the wastestream unless those concentrations can

be demonstrated, to the City's satisfaction, as nonsignificant. Nonsignificant concentrations are those which will not interfere with treatment of City wastewaters, will not pass through to the receiving stream, or will not reduce the recycling value of treated biosolids.

#### Permit Application Documents:

The permit application was submitted on October 11, 2011. The application is located in the JBS Swift & Company file.

#### Literature References:

EPA's Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program was used in developing local limits.

#### Enforcement Summary

An annual summary of violations and enforcement activities is located in the JBS Swift & Company file.

#### Facility Layout and Process Flow Diagrams

An updated facility layout and process flow diagram is located in the JBS Swift & Company file

#### Pretreatment System Description

The brine wastewater is passed through a hydro sieve and filtered with a 100 micron bag filter. Filtration is required to remove hair, chunks of flesh and oil and grease from the wastewater. After filtration the wastewater is pumped to the pretreatment equalization system located west of the facility on the JBS Swift Beef plant property. The equalization system consists of two 4000 gallon tanks, valve controllers that control the rate of release proportionate to the Greeley WPCF influent flow, a magnetic flow meter, a flow chart recorder, and an automatic refrigerated sampler.

The pretreatment system shall be operated as follows:

1. The wastewater discharge shall be filtered or sieved to remove floatable grease to prevent flow obstructions in the public sanitary sewer system.
2. The wastewater discharge shall be filtered or sieved to separate and/or remove dirt, hair, flesh, and BOD and TSS demanding pollutants associated with cattle hides that may cause flow obstructions in the public sanitary sewer system.

## PERMIT CONDITION DEVELOPMENT RATIONALE

### Flow

The flow is measured using a magnetic flow meter. The flow rate can be operated to be proportional to the Greeley WPCF influent flow rate to prevent overloading of the brine waste during low flow conditions at the WPCF. The maximum flow rate can not exceed 5 gallons per minute during a 24 hour period. Since current the daily flow rate is low enough to allow for sufficient dilution, the diurnal proportion system is not used at this time. Sewer billing is based upon wastewater flow. The permittee's wastewater flow meter shall be maintained in proper working order. JBS Swift Beef Company shall continue to perform and document the weekly "fill and draw" timed volume discharge rate check procedure. In addition, on an annual basis, JBS Swift Beef Company must have an independent contractor perform and document a magnetic flowmeter calibration that checks:

- The physical and functional condition of the flow meter. The accuracy of the flow meter with a simulated millivolt calibration versus rate and current measurement at 0%, 25%, 50 %, 75%, and 100% of scale.

JBS Swift Beef Company has two flow meters that are alternated annually. The meter not in use is sent to the manufacturer for annual calibration.

### pH

The pH is sampled as a grab since the value may change with storage or compositing. Sampling shall occur over continuous workdays to account for daily changes in process operations

### Biochemical Oxygen Demand

Blood, chunks of flesh, and oil and grease in the wastewater are sources of BOD. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams's possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent. The BOD is not limited at this time because of the uncertainty of the BOD loading in the discharge. BOD data will be used for billing charges. Sampling shall occur over continuous workdays to account for daily changes in process operations

### Total Suspended Solids

Hair, chunks of flesh, and oil and grease in the wastewater are sources of TSS. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams's possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent. The TSS is not limited at this time because of the uncertainty of the TSS loading in the discharge. TSS data will be used for billing charges. Sampling shall occur over continuous workdays to account for daily changes in process operations

### Ammonia as N

Blood, and chunks of flesh in the wastewater are sources of Ammonia as N. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams's possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent. The Ammonia as N is not limited at this time because of the uncertainty of the Ammonia as N loading in the discharge. The Ammonia as N data will be used for billing charges.

### Oil and Grease

The oil and grease results serve as an indicator of how well the bag filtration system is operating. Oil and grease is collected by a grab sample.

### Chlorides

Brine water is the source of chlorides. Too much chloride in wastewater results in toxic conditions for bioassay organisms, and growth limiting conditions for crops and irrigated landscaping. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams's possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent. The limit is a maximum 2 day average mass limit. The 2 day average allows for flow adjustment to compensate for overloading the limit resulting from the analyses of the previous day 24 hour composite. The 2 day average loading limit of 7120 lbs/day/ will result in an increase in WPCF effluent to range of 160 mg/L to 190 mg/L with brine waste. Bioassay studies indicated that sub-lethal effects from the brine waste occur at 300-400 mg/l and lethality occurs at 700-800 mg/L. The State Water Quality Control Division ("WQCD") has recently issued policy under EPA requirements to implement sublethal WET limits into CDPS permits. Chloride loadings from the new Leprino cheese manufacturing plant, and chlorides discharged to the Cache la Poudre River from upstream industrial discharges have increased overall chloride loads upstream of the Greeley POTW. In addition, the State WQCD is implementing limitations in discharge permits on

Electro Conductivity (“EC”) and Sodium Absorption Ratio (“SAR”) in surface waters used for irrigating crops<sup>1</sup>. The 7120 lbs/day limit may need to be adjusted down in the future depending upon these factors.

Total Dissolved Solids

Brine water is the source of Total Dissolved Solids. Too much Total Dissolved Solids in wastewater results in toxic conditions for bioassay organisms, and growth limiting conditions for crops and irrigated landscaping. JBS Swift Beef Company pays for the potable water used for irrigation at the WPCF because TDS in treated effluent used for irrigation landscaping growth issues. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams’s possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent.

Metals

Metals are allocated as a mass from the MAIL established in the local limits in 14.11.100 of the Pretreatment Ordinance. The allocation was based on the daily flow of 0.006100 MGD from the total SIU flow allocation of 0.417 MGD. The type of composite sample defined in the permit is a 24 hour time composite because of the wastestreams’s possible variability. The composite sample will be collected with an automatic sampler. A time composite is acceptable because the flow is equalized and consistent.

Monitoring Requirements

<u>Parameter</u>	<u>Frequency</u>	<u>Type</u>
Flow, gpd	monthly	Daily continuous recording reported via email or telephone
Chloride, Total, mg/L	3 day/week	24 hr composite
BOD 5 Day, Total, mg/l	7 day/Quarter	24 hr composite
TSS, mg/l	7 day/Quarter	24 hr composite
pH, S.U.	7 day/Quarter	Grab
Ammonia as N, Total, mg/l	1 day/Quarter	24 hr composite
Oil & Grease, Total, mg/L	1 day/Quarter	Grab
Arsenic, Total	1/year	24-hr composite
Chromium, Total	1/year	24-hr composite
Chromium, Hexavalent	1/year	grab

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<sup>1</sup> Implementing Narrative Standards in Discharge Permits for the Protection of Irrigated Crops, Colorado Water Quality Control Division , Policies and Procedures, 3/10/08

Cadmium, Total	1/year	24-hr composite
Cyanide, Total	1/year	grab
Copper, Total	1/year	24-hr composite
Lead, Total	1/year	24-hr composite
Mercury, Total	1/year	24-hr composite
Molybdenum, Total	1/year	24-hr composite
Nickel, Total	1/year	24-hr composite
Selenium, Total	1/year	24-hr composite
Silver, Total	1/year	24-hr composite
Zinc, Total	1/year	24-hr composite

### Special Requirements

#### Best Management Practices

JBS Swift Beef Company must develop a quarterly pretreatment system tank inspection procedure. The tanks must be fully pumped on a scheduled frequency that will be determined by the results of the inspections. Generally, the tanks should be fully pumped out when the combined solids and grease layer compose 25% of the volume of the tank. The tank inspections and the pump out events must be documented and copies must be kept on site for inspection. Information that must be documented include:

- The tank ID.
- The date of inspection.
- The observation of the inspections (i.e. sludge solids depth, grease layer present or absent, grease layer thickness).
- Disposal location of tank contents.

### Analysis Requirements

The permittee is allowed to analyze for Total Chromium in lieu of analyzing Hexavalent Chromium because of matrix interference. If the Total Chromium is reported above 0.94 mg/L, then the wastewater must be re-tested for Hexavalent Chromium using atomic absorption, chelation-extraction method, I-1232.

Chloride in the wastewater from Outfall 01 shall be analyzed using Method 4500 Cl-C, Standard Methods, 18th, 19th and 20th Edition. The permittee has identified that a 1:500 or 2:1000 sample dilution using strong 0.141 N mercuric nitrate titrant from a 0.01 mL graduated interval microburet produces the most accurate results.

Arsenic in the wastewater from Outfall 01 shall be analyzed using the most appropriate 40 CFR Part 136 approved analysis method for the high chloride bearing wastewater matrix. The State of Colorado Department of Public Health and Environment Laboratory have proven to be consistent with this matrix

analysis, and shall be the contract laboratory for this parameter. If a different laboratory is used then analysis must be performed with identical methods, identical dilutions, and identical instrumentation as used by the State of Colorado Department of Public Health and Environment Laboratory, all incorporated to account for chloride interference.

### Reporting Requirements

The permittee shall, at the frequency listed Part 2.A., submit a periodic self monitoring compliance report indicating the concentration and/or mass of pollutants in its discharge that are limited by pretreatment standards, and the measured daily flows for the reporting period. The permittee shall submit the information along with City's Self Monitoring Compliance Report Form, Part 9.

The 2 day average mass average shall be calculated by using a Simple Moving Average method which is the mean of the mass of the current day and the mass of the previous day. In the event that the mass from the previous day is unavailable because of missing parameter concentration data, then a synthesized mass shall be calculated using the daily flow and the last valid measured parameter measurement concentration.

Reporting Dates. All monthly, semiannual, quarterly and annual reports are due 30 days following the end of the sampling period. Weekly test frequency reports are due 30 days following the month in which they were tested.

Non-complying results are required to be reported within 24 hours of becoming aware of the violation. A repeat test of the violated parameter(s) is required within 30 days. A statement outlining which corrective actions will be performed to bring the discharge into compliance is also required within 5 days of the detected violation. An advanced notification of any substantial change in the volume or character in the wastewater discharge is also required.

## **LIMIT CALCULATIONS**

### Local Limits

The calculations and supporting documentation for the local limits developed in 2008 and 2011 are found in the City of Greeley Industrial Monitoring/Pretreatment Program Document.