Discharges to Water

JW Aluminum – Mt Holly, SC Facility

Berkeley County Waste and Sanitation (BCWS): Significant Industrial Wastewater Discharge Permit "No Discharge of Categorical Wastewater" Permit #2013-012

Department of Health and Environmental Control (DHEC) – NPDES – No wastewater discharges subject to NPDES regulations.

JW Aluminum – Russellville, AR Facility

Arkansas Department of Energy and Environment (ADEQ) – NPDES – No facility discharges. The Russellville facility does not have any wastewater discharges that are subject to this requirement.

Water Discharge Management Plan

Facility Overview

JW Aluminum – Mt. Holly, SC facility does not operate any wastewater treatment facilities onsite and discharges all non contact cooling water to Berkeley County Water and Sanitation Publicly Owned Treatment Works (POTW). All emulsion water is recycled internally. In the event process emulsion water becomes contaminated, it is collected and sent to US Water Recovery. JW Aluminum is considered a secondary aluminum manufacturing facility but does not discharge any categorial process water subject to pretreatment standards listed in 40 CFR Part 421 & 467 (Secondary Aluminum Smelting Subcategory and Aluminum Forming Point Source Category). The Russellville, AR facility only discharges sanitary wastewater. No process wastewater is discharged from the facility. There is minimal risk associated with the RSV facility and not included in this management plan.

The JW Aluminum Mt. Holly, SC facility is broken down into two separate facilities. The chemical value stream (CVS) is the facility that includes melting, casting, and the hot mill. The mechanical value stream (MVS) is the facility that includes downstream processing including cold rolling, annealing, leveling, and shipping. Water discharges to Berkeley County at the JW Aluminum facility are broken down into four categories. These categories include non-contact cooling tower blowdown, non-contact caster water, reverse osmosis blowdown, and sanitary

wastewater. Discharges to water associated with each value stream are detailed below.

Chemical Value Stream

The CVS includes three types of water discharges associated with its processes including non-contact cooling tower blowdown, non-contact caster water, and reverse osmosis blowdown. All discharged water is collected and commingled into the sanitary manhole located on the east side of the property along Thurgood Rd. The sanitary manhole is equipped with a flow device to determine the amount of discharge on a continuous basis.

Non-Contact Cooling Tower Blowdown

This water loop provides equipment cooling water to our hot mill and casting equipment. The makeup supply is city make-up water. The cooling tower blowdown is controlled to conductivity. The automatic blowdown opens when conductivity reaches 1,100 umhos and closes at 900 umhos. The following chemicals with active discharge concentrations are added to the water system and approved by Berkeley County Water and Sanitation. The expected max discharge flow associated with non-contact cooling tower blowdown is 8.92MGPY. Actual flows are much less.

Chemicals Added	Active Concentration in discharge
CWT-640 fed at 150 ppm	10-12 ppm phosphonate
BIO-909 fed at 25 ppm	4-5 ppm tolytriazole
BIO-215 fed at 150 ppm	2-3 ppm HPA
	10-12 ppm acrylic copolymer
	1-2 ppm chlorine
	0-1 ppm isothiazolin

Non-Contact Caster Pit Water

Non-contact caster pit water provides high quality water to the back side of the casting belt to aid in the solidification and forming process at the caster. The makeup water supply for this water loop is reverse osmosis water. The following chemicals with active discharge concentrations are added to the water system and approved by Berkeley County Water and Sanitation. Blowdown of the caster pit occurs when running at rate of 80 gpm (30-60 min day). On a quarterly basis the entire pit is dumped (25,000 gal).

Chemicals Added	Active Concentration in discharge
CST-901 fed at 2200 ppm	<300 ppm molybdate
	10-15 ppm tolytriazole
	20-35 ppm acrylic copolymer

Reverse Osmosis Blowdown

The reverse osmosis system is utilized to provide high purity water to our hot mill emulsion process and caster pit water. As part of the reverse osmosis system there is some wastewater generated. This includes RO blowdown, carbon filter backwash, and softener water. Expected max discharge flows are 5.77MGPY. Actual flows are much less.

CVS Sanitary Water

The chemical value stream has several bathrooms and a breakroom where sanitary water is generated and discharged to the POTW.

Mechanical Value Stream

The MVS does not discharge any process wastewater. The only discharge with this side of the facility is sanitary discharge from the MVS and office and breakroom areas. The sanitary flow is commingled into the plant piping and collected in the manhole on the North side of the property along Old Mt. Holly Road. The sanitary manhole is equipped with a flow device to determine the amount of discharge on a continuous basis.

Industrial Wastewater Permit

JW Aluminum's water management program follows the framework of our Industrial Wastewater Discharge Permit No. 2023-012. All wastewater collects into a common drain that flows to a manhole with a Rosemount flow meter. The permit requires daily flow monitoring and quarterly composite sampling for BOD, TSS, COD, Ammonia Nitrogen, Total Phosphorus, TKN, Total Aluminum, O&G, Total Copper, Total Zinc, Total Molybdenum, and Temperature. The chemical additions noted above were approved as part of our permitting process. Any changes to chemical addition makeup or concentration must be approved by Berkeley County Water and Sanitation.

JW Aluminum maintains an engineering change request (ECR) process and Capital Appropriations Request (CAR) process that must be completed prior to any changes to the water system or its constitutes. This allows the environmental team to make the determination if any change would need to be reviewed by the POTW. The risks associated with JW Aluminum's water discharges have been evaluated and determined to be low based on the current discharges associated with the lack of contact process wastewater. The risks associated with adverse effects to humans or the environment are also low.

Permit and System Monitoring

The following tasks are performed to minimize risks associated with discharges with water and implement corrective action as soon as possible when issues are identified.

Flow – Daily flow monitoring is required, not to exceed 25,000 gpd monthly average.

Quarterly Composite Sampling – Sampling parameters is required on quarterly basis included BOD, TSS, COD, Ammonia Nitrogen, Total Phosphorus, TKN, Total Aluminum, O&G, Total Copper, Total Zinc, Total Molybdenum, pH, and Temperature.

Internal Monitoring – Monthly internal monitoring of wastewater system is performed by Culligan and reported back to JWA responsible teammates. Monthly monitoring includes chemical inventory, active concentrations in the water, corrosion rates, RO system functionality, make up water rates, and blowdown rates.

Annual Berkeley County Required Sampling performed by third party.

Publicly disclose water discharges from our activities annually within the JW Aluminum Sustainability Report.

Annual calibration and maintenance of the flow meters

Evaluate any ECR or CAR submissions for potential impacts to discharges to water at both MTH and RSV.