

**ACTION PLAN
CITY BREWERY**

April 19, 2019

Group	Item	Task	Lead	Start	End	Goal/Results
Control at Source						
Identification	1	Chemical Toxicity <i>Shine, CL4815, BrewFM, Kleentrack, AcidBright</i>	Riverbend Lab	March 15, 2019	March 31, 2019	Only Kleentrack showed biomass toxicity. No further action
Identification	2	Product Toxicity <i>NMB, Dextrose, 14%, 12%, 9.9%, 5%</i>	Riverbend Lab	April 4, 2019	May 15, 2019	Results to be used to target source control activities . NMB suspected major cause
Investigation	3	Investigate valve alarms and tank level alarms	Randy Hughes	March 31, 2019	May 15, 2019	Early warning of overflow to reduce duration
Control	4	Develop Valve Checklist/SOP for Liquid Transfers	Randy Hughes	March 31, 2019	June 1, 2019	Reduce operator error
Investigation	5	Investigate spill capture closer to source	Gerald Clements	March 31, 2019	June 1, 2019	Reduce volume by collecting strong wastewaters before blended
Investigation	6	Investigate Monitoring Methods	Gerald Clements	March 31, 2019	June 15, 2019	Automatically monitor waste stream for slugs (i.e., NMB). Depends on #2
Control	7	Staff Education <i>Checklists and purposes, supervisor review. Walk line after transfers started.</i>	Randy Hughes	Ongoing		Reduce operator error
Equalization						
Investigation	1	DE Removal Investigation <i>Alternate non-DE filtration method. Collect at source Collect before EQ</i>	Gerald Clements	March 31, 2019	June 1, 2019	DE collects in reactors and reduces capacity. The unmixed EQ serves as DE collector
Control	2	Remove Solids from 600,000 gals. EQ Tank <i>Requires river stage <7.5 or dewatering to lower liquid level Alternate method hauling liquid</i>	Gerald Clements	June 1, 2018	August 15, 2019	Regain capacity
Investigation	3	Provide EQ Mixing to Blend Wastewater (COD, pH, toxicity) <i>Mix by air, static mixer, pump</i>	Gerald Clements	June 1, 2019	September 15, 2019	Cost effective, continuous mixing and blending
Identification	4	COD Meter and pH Meter Ahead of EQ <i>Use to control pump to store slugs</i>	Gerald Clements	March 31, 2019	September 15, 2019	Store slugs for equalization or hauling
Control	5	Modify EQ LS to Increase Operating Range	Gerald Clements	June 15, 2019	September 15, 2019	More effective equalization
Control	6	Operate with Slug Reserve <i>Reserve 200K gals. for slug storage</i>	Gerald Clements	September 15, 2019	Continuing	Storage
Control	7	Hauling Out Slugs <i>Removing stored slugs for offsite disposal or storage</i>	Gerald Clements	August 15, 2019	Continuing	Agreement with contract hauler

Enhance Reactor Recovery						
<i>Investigation</i>	1	Evaluate Using Meters at New Flares for Process Control	Gerald Clements	May 1, 2019	July 15, 2019	Determine if timely for slug control
<i>Control</i>	2	Daily Tests for VFA, Alkalinity, NH4-N and Total P <i>After slug hits reactor</i>	Kurt Wood	March 31, 2019	Continuing	
<i>Control</i>	3	Add Phosphoric Acid at 2-3 GPD for 2 days	Kurt Wood	March 31, 2019	Continuing	
<i>Control</i>	4	Add Urea at 2x rate for 2 days	Kurt Wood	March 31, 2019	Continuing	
<i>Control</i>	5	Add 50% Caustic Soda to both RMT and EQ tank <i>Monitor pH at least hourly.</i> <i>Maintain EQ 7.0-8.5. RMT 7.5-8.0. Reactor target 7.0-7.2</i>	Kurt Wood	March 31, 2019	Continuing	
<i>Control</i>	6	Continuously Monitor Reactor pH	Kurt Wood	March 31, 2019	Continuing	
<i>Control</i>	7	Halting Production Priority <i>1. Filtration</i> <i>2. Tank cleaning</i> <i>3. Black Box</i> <i>4. Red Box</i> <i>5. Yellow Box</i> <i>6. Batching</i> <i>7. Packaging</i>	Gerald Clements	March 31, 2019	Continuing	
Update Action Plan						
<i>Report</i>	1	Update Action Plan	Gerald Clements		May 15, 2019	
<i>Report</i>	2	Update Action Plan	Gerald Clements		June 15, 2019	
<i>Report</i>	3	Update Action Plan	Gerald Clements		July 15, 2019	
<i>Report</i>	4	Update Action Plan	Gerald Clements		August 15, 2019	
<i>Report</i>	5	Update Action Plan	Gerald Clements		September 15, 2019	
Other Reports						
<i>Report</i>	1	Status Report on 2017 Stover Recommendations	Gerald Clements		June 15, 2019	Update and select items for action
<i>Report</i>	2	Schedule for East Reactor 2019 Inspection	Gerald Clements		September 30, 2019	