



SAFETY ALERT NOTIFICATION

This is NOT an investigation report. It is a NOTIFICATION of a Significant Incident that has taken place at a Freeport-McMoRan location. The information below is a preliminary assessment and not a formal investigation.

OPERATION:	Freeport McMoRan Miami Rod Plant Operations	Incident:	X
ISSUED BY:	Brian Hudson Health & Safety Specialist (928) 473-7492 Roger Laija Manager – Rod & Refining (928) 473-7041	Injury:	X
DATE:	05/02/14	Property Damage:	
TIME:	0730 Hours	Process Loss:	
LOCATION/DEPARTMENT:	Miami Rod Plant Mill Emulsion System		
INCIDENT DESCRIPTION:	<p>On Friday May 2, 2014 at approximately 7:35 a.m., the Miami Rod Plant experienced an airborne emission at the mill emulsion tank. The evacuation alarm was activated and emergency first responders were called to the scene.</p> <p>Four Rod Plant employees in the vicinity of the emulsion tank described seeing a mist or cloud before experiencing hoarseness/irritation of the throat, shortness of breath and eye irritation. Affected employees were treated by emergency responders and transported to medical facilities for further treatment/evaluation. All four employees are receiving follow-up evaluation and care by medical specialists.</p> <p>Once the plant was cleared for re-entry, samples of the mill emulsion were obtained by personnel and the system was drained, charged with water, and purged. The samples were sent to independent labs for testing, and information on the incident reviewed by third party expert microbiologists aiding in the Root Cause Analysis.</p> <p>Based on the lab and microbiological analyses, the cause of the incident was determined to be an “Ammonia Blush.” Ammonia Blush is described as rare and unpredictable, requiring a number of factors to occur. These factors include a solution pH ≥ 8.5, high bacteria level, and the introduction of a biocide. The bacteria react to the biocide in a defensive manner, releasing an ammonia gas into the system as they de-nature (break down). The ammonia vaporizes and caused the symptoms to our employees.</p> <p>While this Ammonia Blush occurred specifically within the Rod Plant mill emulsion system, this event has the potential to occur in any system (cooling towers, etc) with pH control for the presence of bacteria. The ammonia blush may be triggered by a rapid increase in pH to 8.5 or above if high levels of bacteria are present</p>		

DETAILS OF INJURY TYPE:	Four employees lost work days due to respiratory irritation.			
POTENTIAL FOR INJURY:	Fatality	Lost Time	Permanent Disability	Other Potential
PROBABLE DIRECT CAUSES:	<ul style="list-style-type: none"> • pH levels of ≥ 8.5 in the system • High levels of bacteria in the system ($10^{7\text{th}}$ power) • Introduction/low-dosage of biocide into the system 			
IMMEDIATE CORRECTIVE ACTION:	<ul style="list-style-type: none"> • Immediate and follow-up medical attention to all four employees • Mill system was sampled, drained, purged, and re-charged • Samples sent to external laboratories for further testing • Investigation initiated 			
REQUIRED ACTIONS:	<ul style="list-style-type: none"> • Complete RCA to confirm root causes • Develop engineering and administrative controls, specifically pertaining to pH and bacteria management programs. 			

This is NOT an investigation report. It is a NOTIFICATION of a Significant Incident that has taken place at a Freeport-McMoRan operation and is being communicated to enhance safety awareness should a similar situation exist. The information above is a preliminary assessment of the event and is not a formal investigation.