Fatal 6 - Bitumen spill due to faulty butterfly valve

WHAT HAPPENED

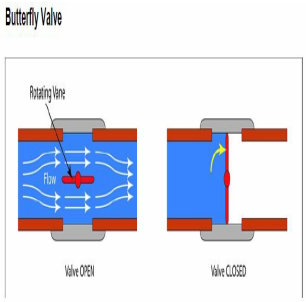
An external fitter was attempting to replace a pressure sensor probe which was situated at the bottom of a vertical bitumen tank. He removed the cover plate to gain access to the butterfly isolation valve, due to the valve handle being missing he used mole grips to turn the butterfly valve 90 degrees. He assumed because he had turned the valve until it stopped, that the valve was fully closed. This was not the case. He then loosened the damaged pressure sensor with a large adjustable spanner and started to remove it by hand. The sensor probe was easily removed but the bitumen started pouring out of behind the sensor and by then it was too late to put it back in as the butterfly valve was obviously open instead of shut. The fitter was wearing welder's gauntlets and a fireproof boiler suit but a small amount of bitumen trickled down the boiler suit into the gauntlet causing a burn covering the back of the left hand. The investigation highlighted that the butterfly valves are not suitable as there is no way of positively identifying what position the valve is in. The manufacturer is now fitting gate valves as standard instead of butterfly valves to prevent this issue.

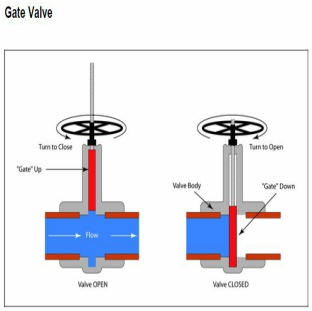
Butterfly Valve with Sensor Probe removed

Bitumen covered PPE

LEARNING POINTS / ACTIONS TAKEN

Gate valves utilise a movable gate or door to allow or prevent flow. In most cases the gate is raised or lowered using a mechanical assist of some kind – often a threaded screw. Flow is initiated by lifting the gate and prevented by lowering the gate. The following action is being taken: - All bitumen tanks to be investigated to determine which type of valve is fitted. - Butterfly valves are to be replaced with gate valves during the next pressure sensor change by a trained and competent person. - This work should only be carried out after the bitumen tank is either empty or completely cooled to reduce the risk of this incident happening again.





LOCATION:	ASPHALT/COATING PLANT	ALERT STATUS:	Normal
ACTIVITY:	MAINTENANCE & HOUSEKEEPING	DATE ISSUED:	25/11/2019 10:06:02
SUB ACTIVITY:	N/A	INCIDENT No:	01536