

## Using X-ray Fluorescence Spectrometry to Investigate Metal Found with Magnets and Metal Detector

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X-ray fluorescence (XRF) spectrometry is used as a tool for examining metal found in metal detector rejects and magnet findings with finished product sugar. This metal is scanned for elemental composition and concentration to determine alloy type. This information is then used in conjunction with previously scanned processing and conveying equipment. By cross referencing the metal detector or magnet location in our system, the XRF scans of processing and conveying equipment and the XRF scans of metal found from the metal detector reject or magnet findings we are able to better to direct our resources to areas matching the metal found on our metal detectors and magnets. This process is call positive material identification (PMI). American Crystal Sugar East Grand Forks has reported an 82.7% decrease in the number of cars placed on hold due to metal from FY14 to FY16.