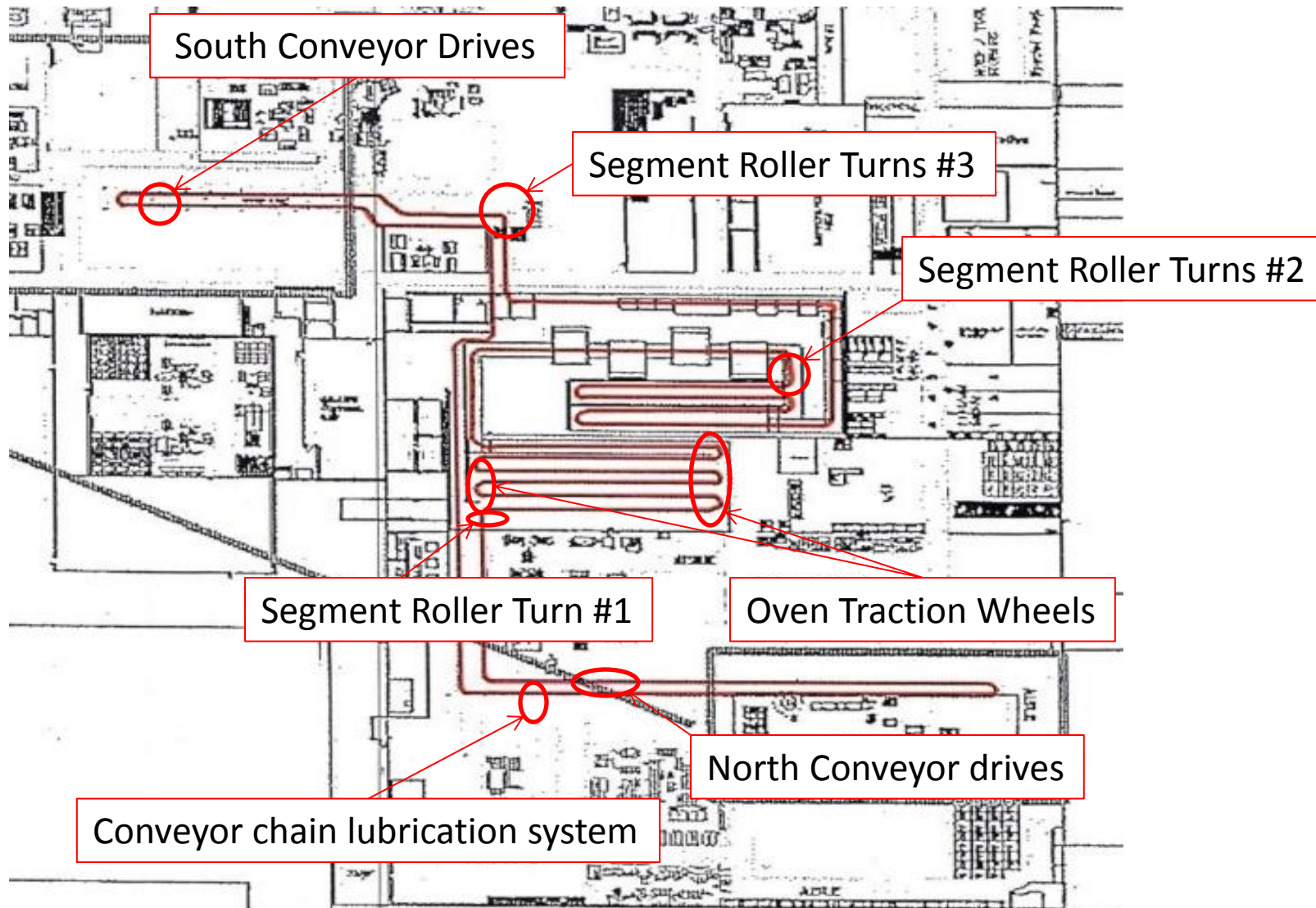


CSP North Baltimore Paint Conveyor System Health Assessment

Performed by



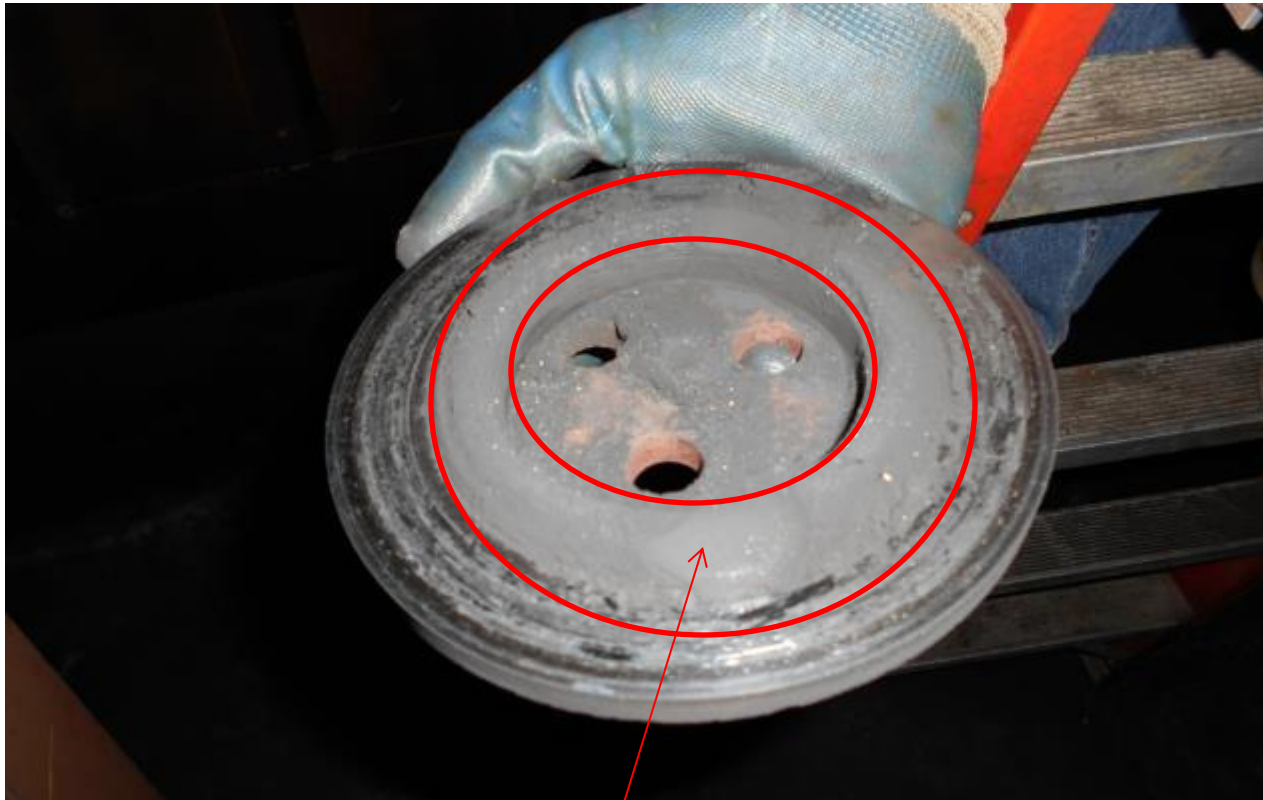
Paint Conveyor System Overall Layout



Traction wheel keeper plate with Graphalloy thrust washer upon first removal

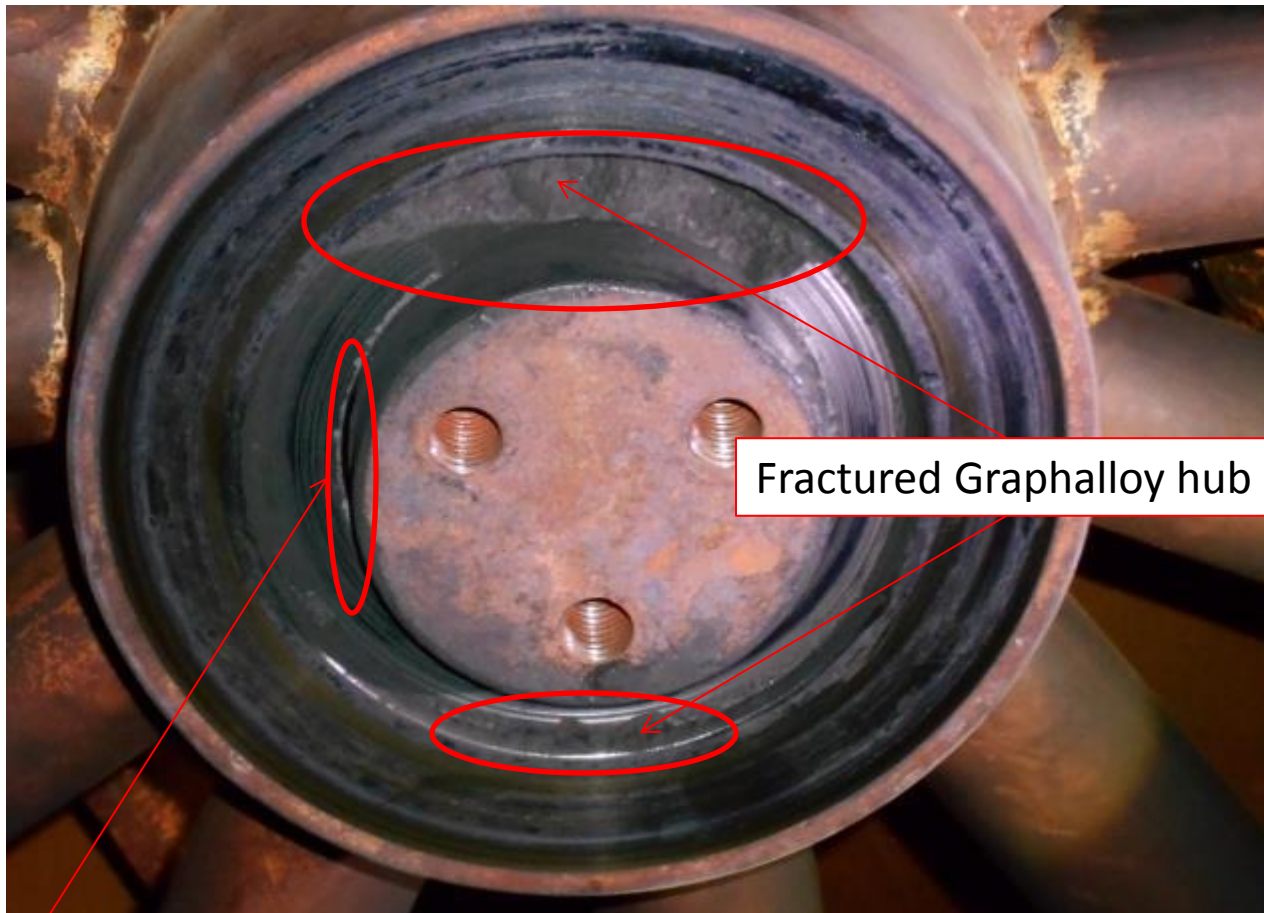


Traction wheel keeper plate with Graphalloy thrust washer upon first removal



Considerable amount of Graphalloy dust and shavings from worn hub and thrust washer was present upon initial removal

Oven traction wheel with keeper plate removed for Graphalloy hub inspection



Fractured Graphalloy hub

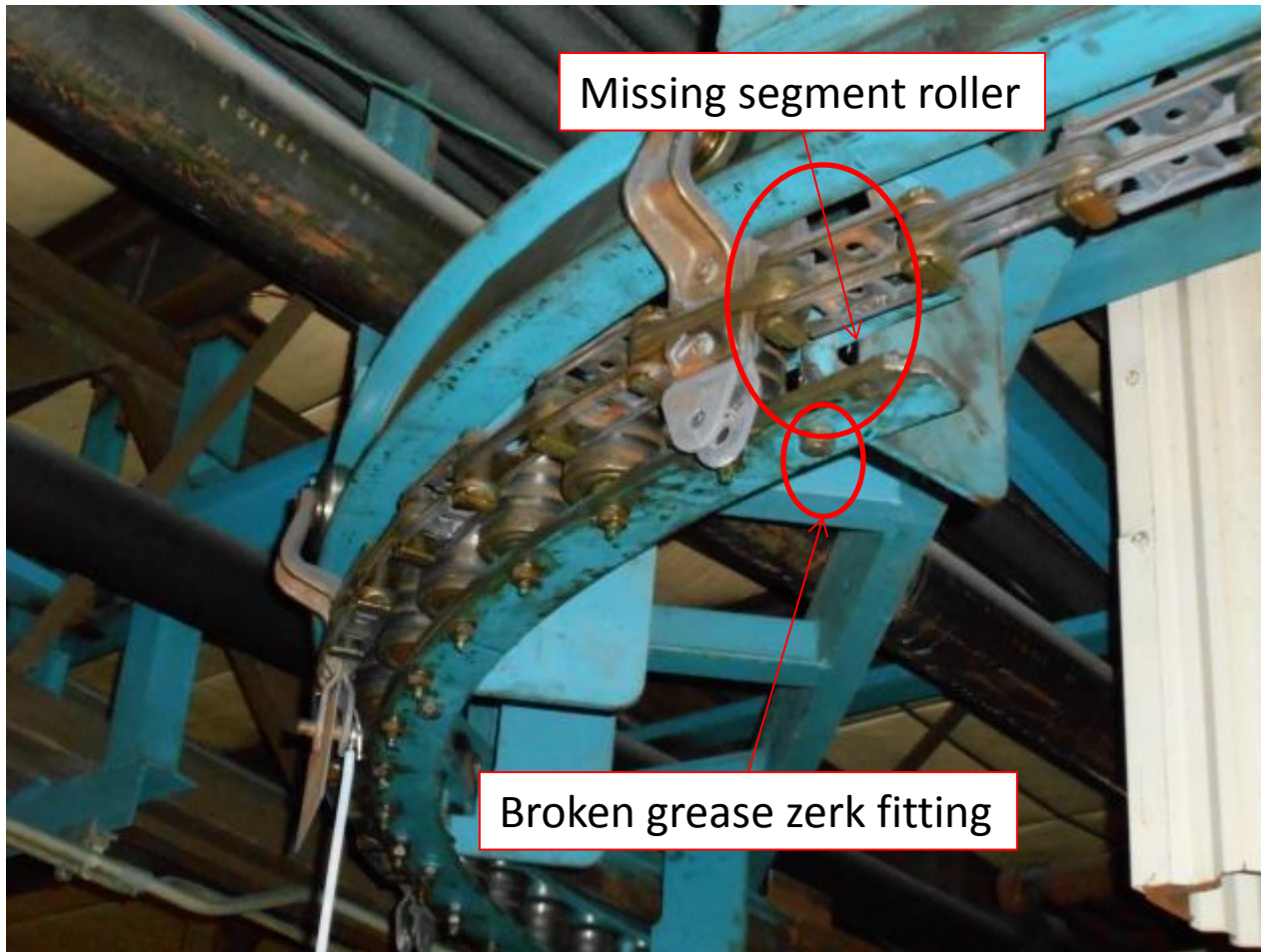
Air gap between worn Graphalloy and shaft suggests excessive wear

Traction wheel keeper plate with Graphalloy thrust washer



Approximately 1/8" of wear shown on this thrust washer. Recommend contacting manufacturer For allowable wear tolerance.

Segment roller turn #1



Missing segment roller

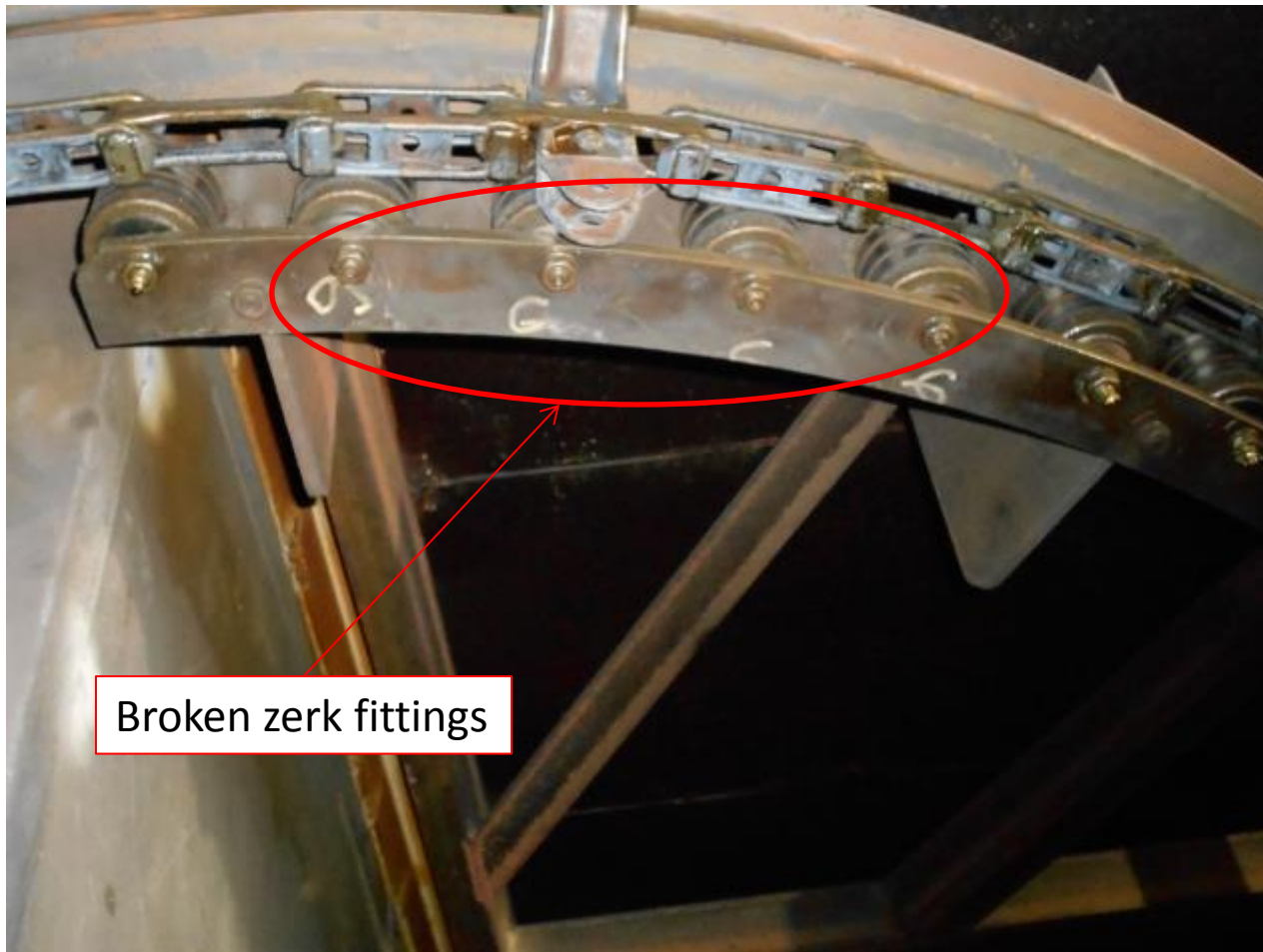
Broken grease zerk fitting

Conveyor chain lubrication system

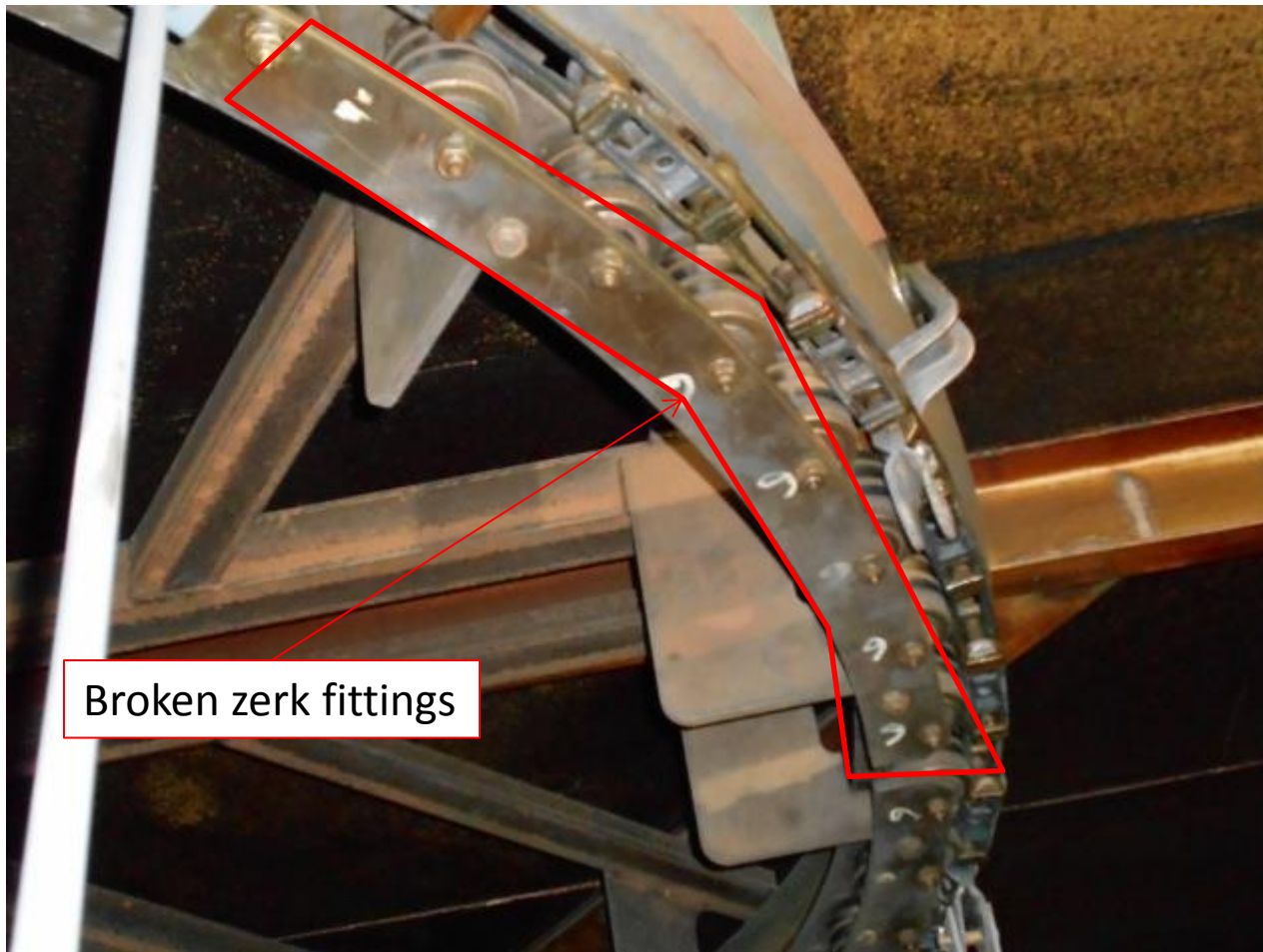


System is disabled. It was mentioned that this is a legacy Lubrication system and parts are no longer available. This System has a broken circuit board that has been out for Repair for the last 8 weeks. Lack of lubrication is a **MAJOR** issue on this type of conveyor system.

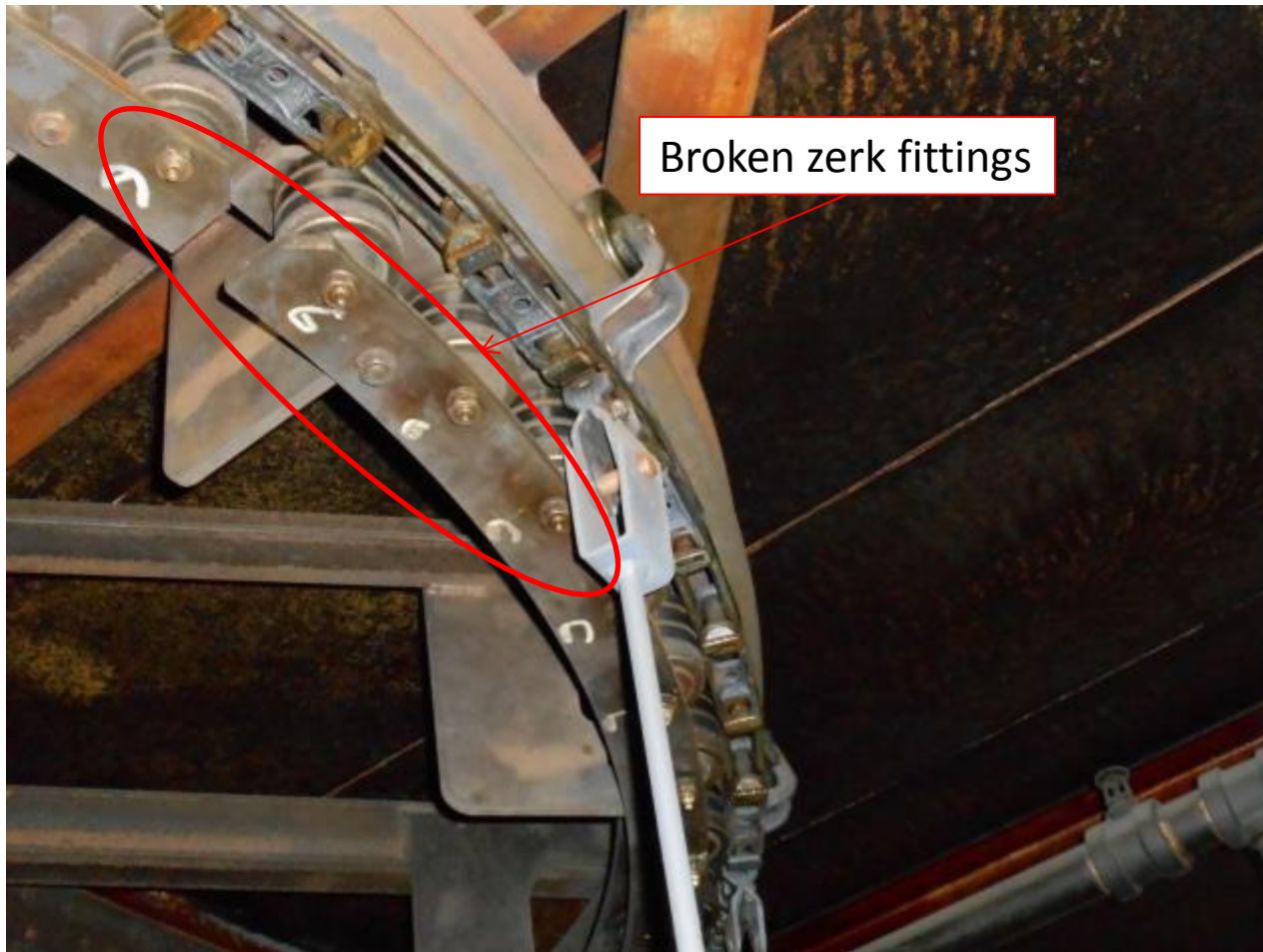
Segment rollers turns #2



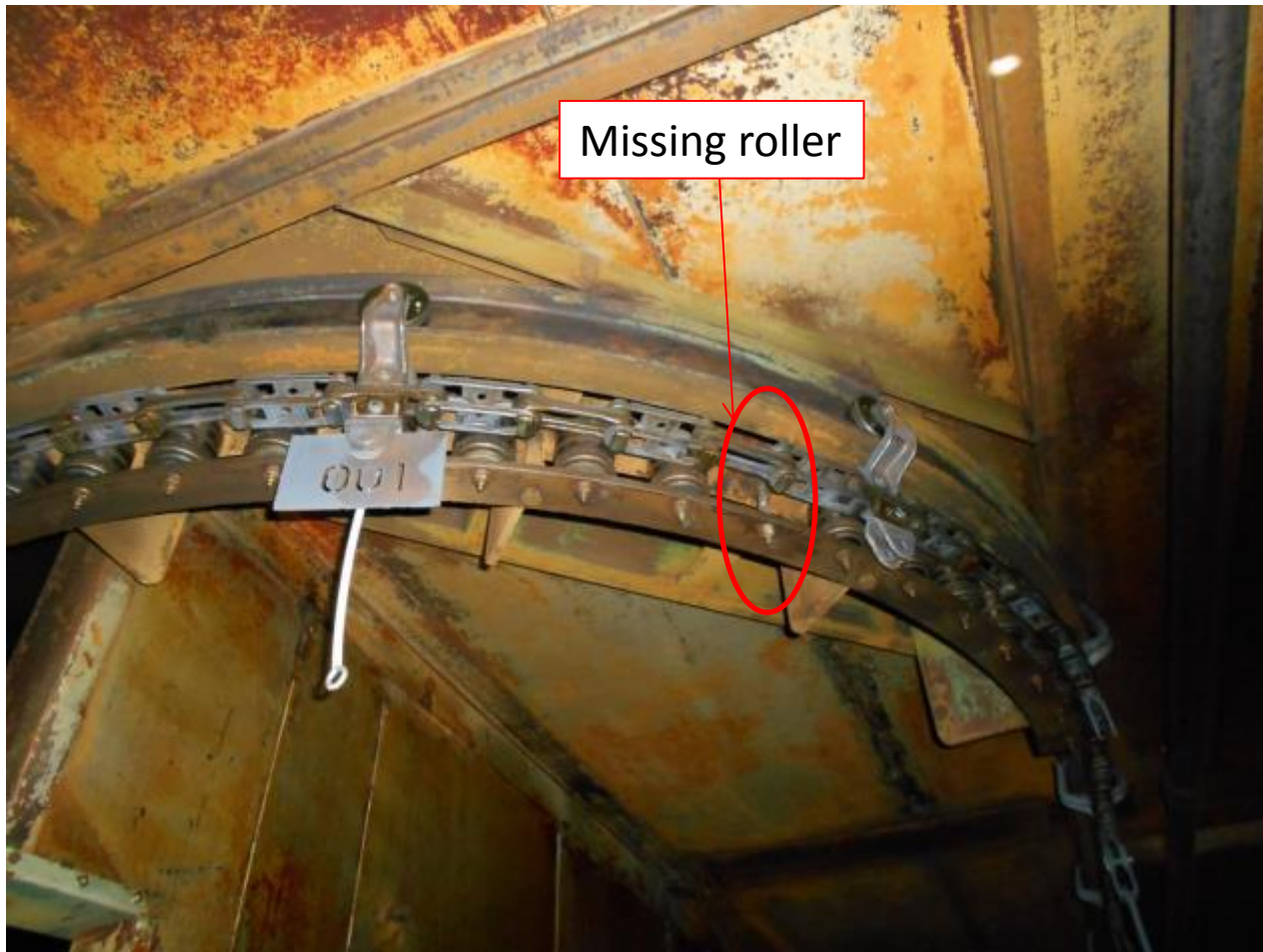
Segment roller turns #2



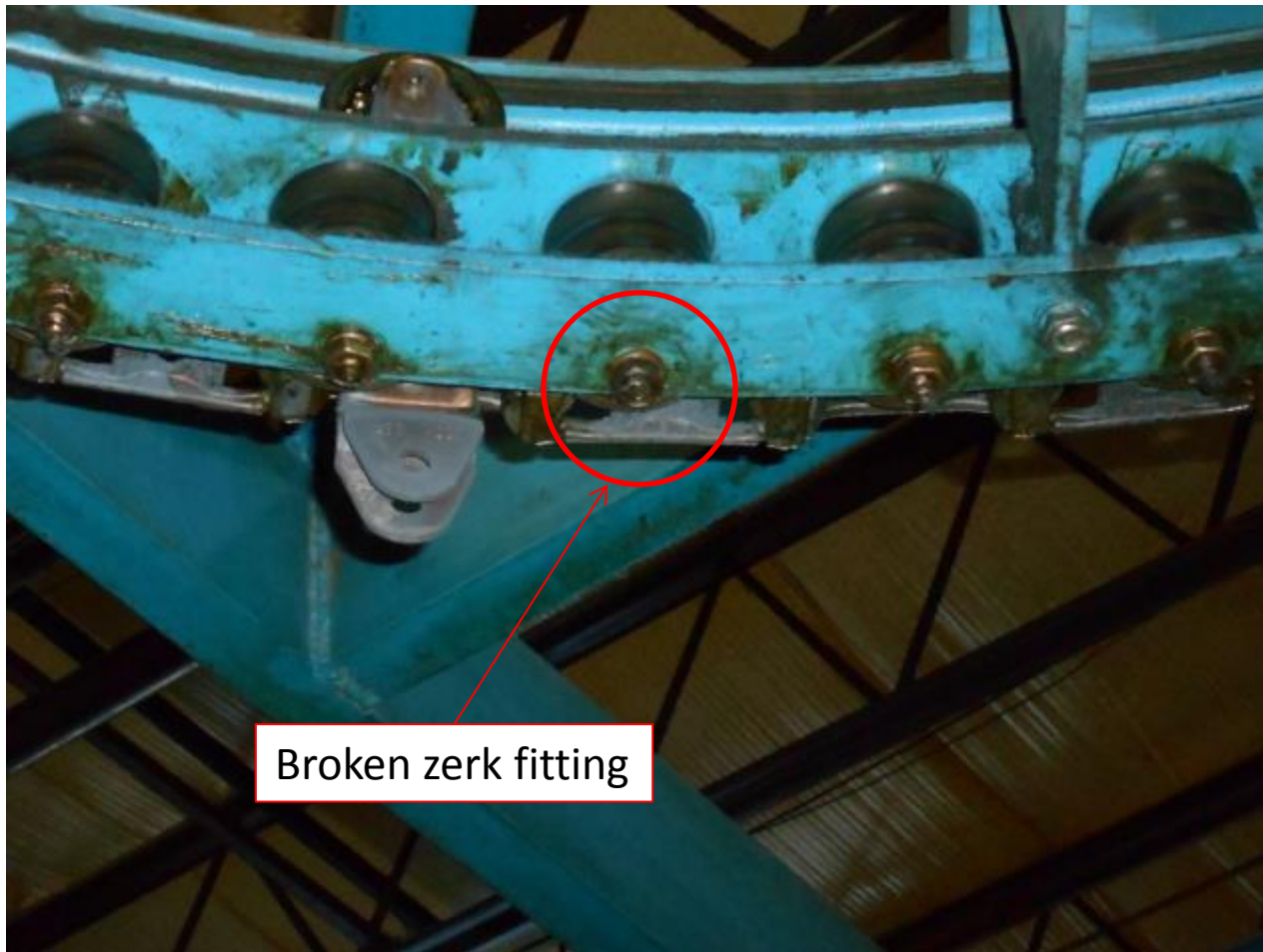
Segment roller turns #2



Segment roller turns #3



Segment roller turn #4



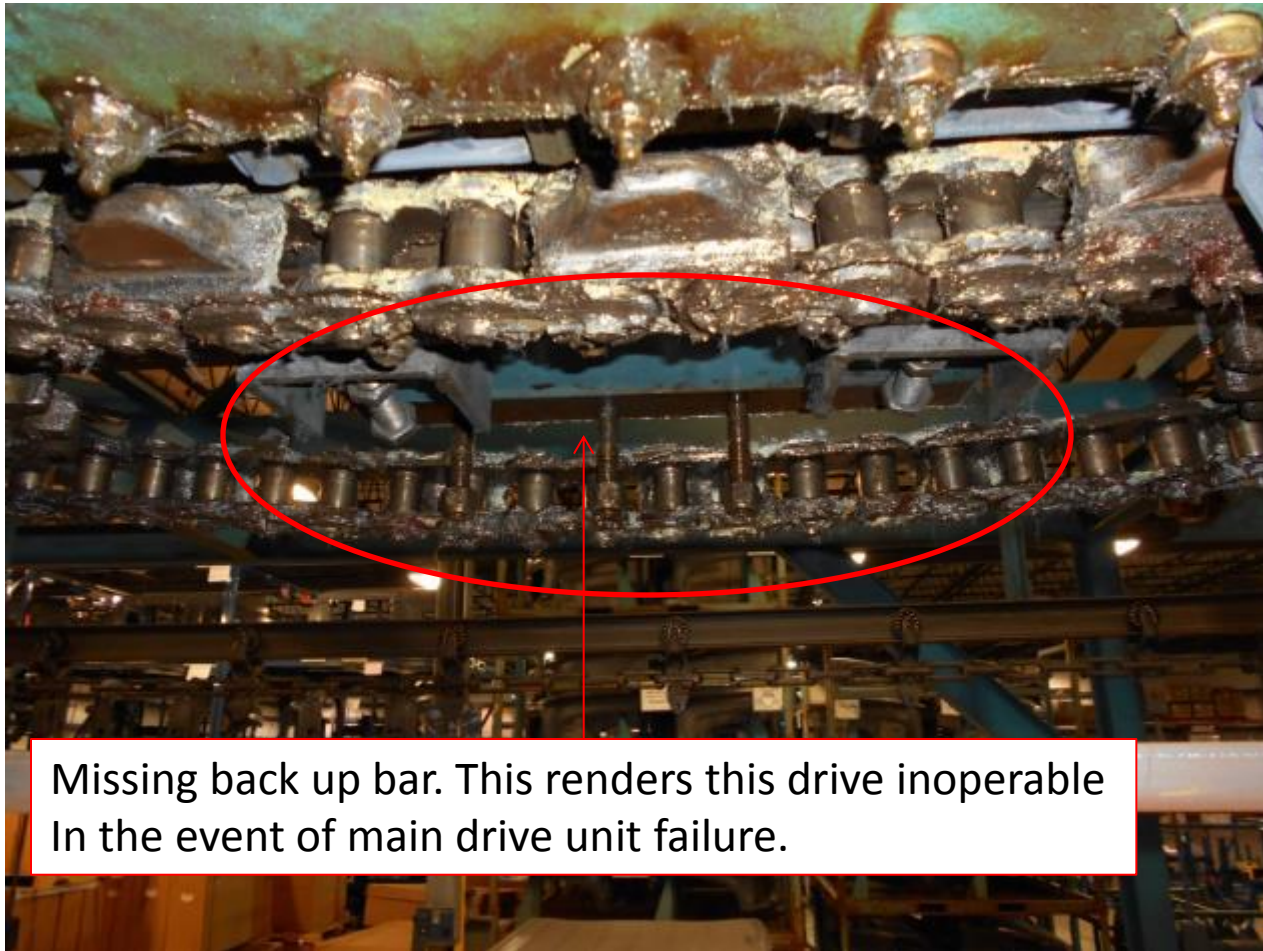
North conveyor drive (back up unit)



North conveyor drive (back up unit)



North conveyor drive (back up unit)



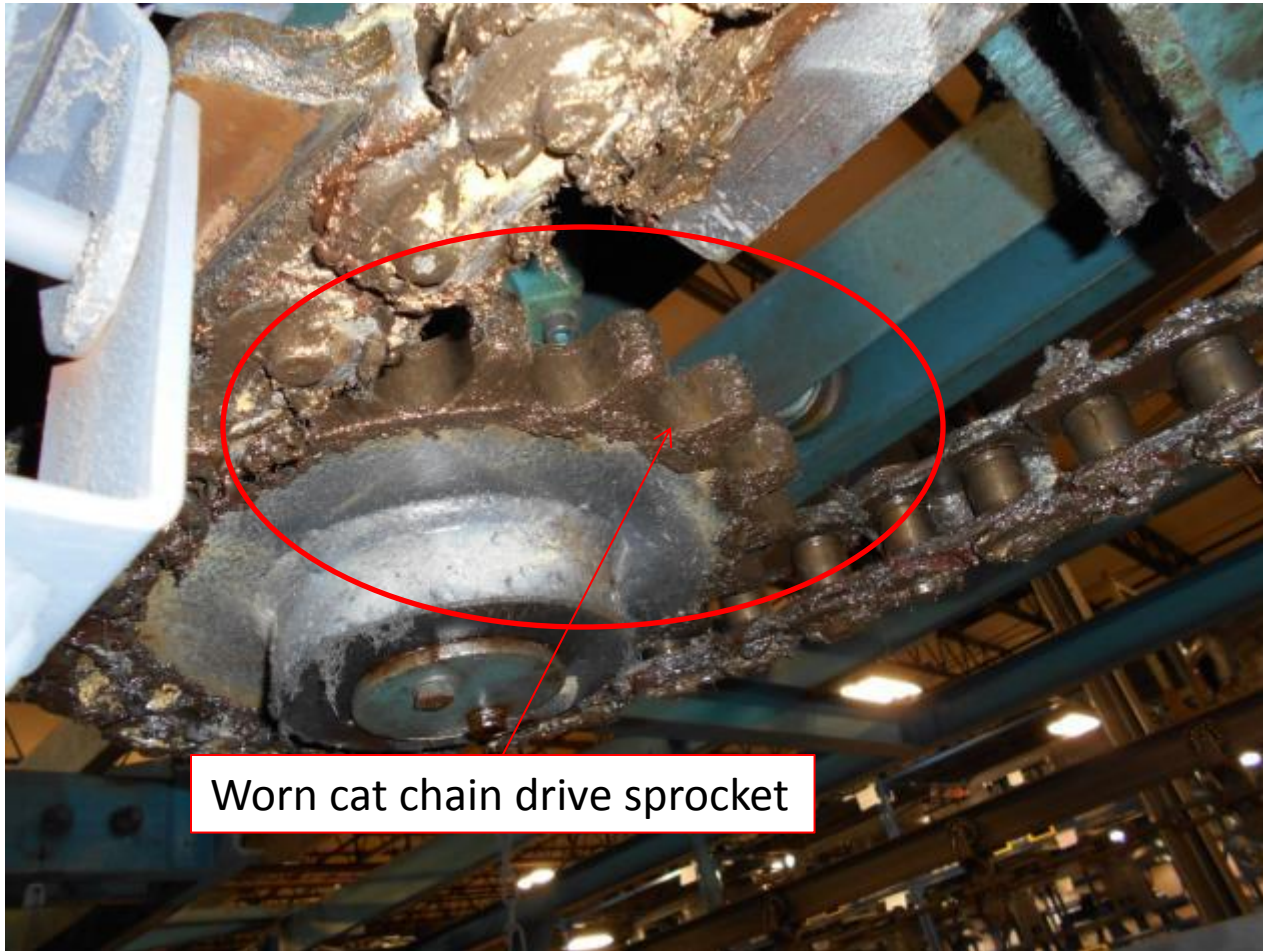
Missing back up bar. This renders this drive inoperable
In the event of main drive unit failure.

North conveyor drive (back up unit)



Worn cat chain take up sprocket

North conveyor drive (back up unit)



Worn cat chain drive sprocket

North conveyor drive (back up unit)



North conveyor drive (main unit)



Worn cat chain back up bar

North conveyor drive (main unit)



Worn cat chain drive sprocket

North conveyor drive (main unit)



North conveyor drive (main unit)



North conveyor drive (main unit)



North conveyor drive (main unit)

Insufficient / improper lubrication technique.
Cat chain lubrication should be light oil to properly
Lubricate between roller and chain pins



Post Inspection Notes:

- An active lubrication system is critical for all paint conveyor systems. Installing a working system will greatly help alleviate the current torque overload issues.
- **An active automatic conveyor chain lubrication system should be the immediate top priority.**
- We recommend replacing all of the Graphalloy hubs on the traction wheels throughout the paint bake oven
- The north conveyor stand by drive unit is inoperable and at a minimum will require new cat chain sprockets, new back up bars, and a new cat chain

Post Inspection Notes Continued...

- We recommend replacing all conveyor drive (main and stand by on both north and south drives) cat chain sprockets, cat chains, and back up bars
- We recommend installation of an automatic cat chain lubrication system on all (4) drive units
- Due to lack of sufficient time to perform a complete system inspection we were unable to physically inspect all of the segment roller turns in the system.
- We recommend that all roller nests are physically inspected for worn out bearings and that new replacement rollers are installed and lubricated where deemed necessary.