Acme Coke
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#4 Conveyor Inspection
Dated: 1992

Recovered from site on March 20 2021

INTEROFFICE
CORRESPONDENCE

Date: October 19, 1992

To: R.J. Walters

From: D.L. Czubak, Supervisor Civil Engineering

Subject: No.4 Coke Conveyor Structure Inspection.

Attached please find the inspection report for the subject No.4 Coke Conveyor. As identified in the report the areas of concern are:

1. South Walkway between Towers TA and T3.
2. Conveyor structure connections to transfer house Blast Furnace side of Calumet River.
3. Sheeting repair/replacement between Towers TA and T3.

These areas require attention to repairs in order to prevent propagation and safety compromises.

If you have any questions please contact me at 2849.

cc: D.A. Davis
J. Bitner
R. Martello ✓
F. Gambol
J. Garzella ✓
J.A. DiMauro
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General Notes:

The following report represents the highlights for the inspection of the No. 4 Conveyor Structure on (2) occasions, in May and September of, this year. The Structure overall is in fair condition.

The area of most concern is at the Torrence Avenue cross over (Tower TB - TC). Temporary flooring has been installed along the south walkway (ie. short sections of deck plate & 2x10 planks), it is necessary to schedule additional repairs to ensure the walkway's integrity, due to the restricted access for repairs and potential ramifications of a failure in this area.

A second area of concern is the south walkway over the railroad tracks (between Tower TC and TE). Repairs in this area should be schedule upon completion of the repairs over the Torrence Ave. section of the structure.

Included in this inspection:

- Conveyor walls and roof sheeting.
- Framing steel accessible on bridge proper (w/o equipment).
- Flooring system.
- Steam loop piping support system.

Excluded from this inspection:

- Support Towers.
- Calumet bridge structure.
- Underside of conveyor framing structure not readily accessible.

The inspection and report are broken into areas as defined between towers. It is assumed that the Repair Priority recommendation is based on effects to structure's integrity and safety considerations.

Repair Priorities:

P1 - Primary Deficiency,implement repairs within (30) days.

P3 - Primary Deficiency, repair within (3) months.

P6 - Primary Deficiency, repairs required within (6) months, to prevent propagation.

P12- Secondary Deficiency, repairs should be implemented within the next 12 months.

Noted - Repairs not required at this time, condition is noted for information only and to be used as a basis for monitoring.

Junction #1 to Tower TA:

Finding(s):

F1 - Roof sheets (6) are missing at Tower TA.
R1 (P3) - Replace sheeting with new.

F2 - Edge of roof sheeting deteriorating at eave connections. Additional blowoff anticipated in next 12 months.
R2 (P12)- Replace sheeting with new.

F3 - Wall sheeting along north wall deteriorated above previous repair (1/2 sheet overlay).
R3 (P12)- Replace sheeting with new.

F4 - Interior structural steel is rust packed & laminated. System is sound, section loss in excess of 25 percent in areas.
R4 (P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F5 - Exterior structural steel (side framing) pitted and rust packed at web to flange connections on diagonals.
R5 (P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F6 - Walkway shows signs of rust, but is sound.
(Noted) - Continue to monitor, especially as roof blowoff exposes this area to atmosphere.

Tower TA to TB:

F7 - Roof sheeting missing (6) sheets at Tower (B). Sheets are temporarily tied down where sheeting has pulled away from fasteners. Sheeting is deteriorated at eave connection fasteners, on north & south sides of structure. Accelerated blowoff should be anticipated in next 12 months.
R7 (P6) - Replace sheeting with new.

F8 - Wall sheeting deteriorated away from walkway attachment angle, between 3-5 inches, on both north and south walls (full length), allowing rain & ice to accumulate & accelerate walkway corrosion.
R8 (P6) - In lieu of complete wall sheeting replacement, installation of half sheets and securing to existing sheeting, allowing sheet to overhang below walkway 1/2-1 inch is recommended.

F9 - Interior structural steel is rust packed and laminated, throughout. Section Loss is in excess of 25%, with connections fused and deteriorated with rust. Intermittent material thickness measurements and hammer soundings taken to establish stability.

R9 (P12)- Continue to monitor. Reinspect in 12 months. Repairs/Replacement forecast for 1-3 years.

F10 - Exterior Structural steel is pitted on exterior and rust packed at web to flange connections of built-up (diagonal) sections, on both north & south sides.
R10(P12)- Continue to monitor. Schedule detailed inspection within 12 months.

F11 - Floor Plate is severely deteriorated - due to exposure, for full length of south walkway.
R11 (P1)- Remove loose debris currently on walkway. Install planking or (temporary) sections of walkway plate to stabilize.
(P6) - Replace existing south walkway in kind.

Tower TB to TC:

F12 - Sheets are temporarily tied down where sheeting has pulled away from fasteners. Sheeting is deteriorated at eave connection fasteners, on north & south sides of structure. Accelerated blowoff should be anticipated in next 12 months.
R12(P12)- Replace sheeting with new.

F13 - Wall flashing missing at Tower C, on both north and south sides.
R13(P12)- Reinstall flashing.

F14 - Wall sheeting (3-4 sheets) is loose and unsecure at electrical box on south wall.
R14 (P1)- Refasten sheets to steel and adjoining sheets.

F15 - Wall sheeting deteriorated away from walkway attachment angle, between 3-5 inches, on both north and south walls (full length), allowing rain & ice to accumulate & accelerate walkway corrosion.
R15 (P6)- In lieu of complete wall sheeting replacement, installation of half sheets and securing to existing sheeting, allowing sheet to overhang below walkway 1/2-1 inch.

F16 - Interior structural steel is rust packed & laminated. System is sound, section loss in excess of 25 percent in areas.
R16(P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F17 - Exterior Structural steel is pitted on exterior and rust packed at web to flange connections of built-up (diagonal) sections, on both north & south sides.
R17(P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F18 - Floor Plate is severely deteriorated - due to exposure, for full length of south walkway.
R18 (P1)- Remove loose debris currently on walkway. Install planking or (temporary) sections of walkway plate to stabilize.
(P6)- Replace existing south walkway in kind.

Tower TC to TD:

F19 – Roof sheeting at eaves is severely deteriorated at connections, with blowoff anticipated within the next 12 months.
R19 (P6)– Replace roof sheeting in kind.

F20 – Wall sheeting is deteriorated at connection to walkway support angle leaving a 3 – 5 inch gap (continuous) on both north and south sides of the structure. Accelerated deterioration of walkway and water and ice buildup occurs due to the hole.
R20 (P6)– In lieu of complete wall sheeting replacement, install half sheets over existing sheeting, and overhang below walkway.

F21 – Interior structural steel is rust packed and laminated. Section loss is in excess of 25% in spots. Thickness measurements and hammer soundings revealed no critical findings.
R21(P12)– Continue to monitor. Schedule reinspection in next 12 months. Repairs forecast in next 1 – 3 years.

F22 - Exterior Structural steel is pitted on exterior and rust packed at web to flange connections of built-up (diagonal) sections, on both north & south sides.
R22(P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F23 - Floor Plate is severely deteriorated - due to exposure, for full length of south walkway.
R23 (P1)- Remove loose debris currently on walkway. Install planking or (temporary) sections of walkway plate to stabilize.
(P6)- Replace existing south walkway in kind.

F24 - Floor Plate is severely deteriorated - due to exposure, 1 section at Tower D on north walkway.
R24 (P6)- Replace existing walkway in kind.

Tower TD - TE:

F25 – Roof sheeting at eaves is severely deteriorated, with blowoff anticipated within the next 12 months.
R25(P6) – Replace roof sheeting in kind.

F26 – Wall sheeting is deteriorated at connection to walkway support angle leaving a 3 – 5 inch (continuous) on both north and south sides of the structure. Accelerated deterioration of walkway and water and ice buildup occurs due to the hole.

R26(P6) – In lieu of complete wall sheeting replacement, install half sheets over existing sheeting, and overhang below walkway.

F27 – Interior structural steel is rust packed and laminated. Section loss is in excess of 25%. Thickness measurements and hammer soundings revealed no critical findings.

R27(P12) – Continue to monitor. Schedule reinspection in next 12 months. Repairs forecast in next 1 – 3 years.

F28 - Exterior Structural steel is pitted on exterior and rust packed at web to flange connections of built-up (diagonal) sections, on both north & south sides.

R28(P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F29 - Floor Plate is severely deteriorated - due to exposure, for full length of south walkway.

R29 (P1)- Remove loose debris currently on walkway. Install planking or (temporary) sections of walkway plate to stabilize.

(P6)- Replace existing south walkway in kind.

<u>Tower TE to T3</u>:

F30 - Roof sheeting at eaves is severely deteriorated at connections, with blowoff anticipated within the next 12 months.

R30(P12)- Replace sheeting in kind.

F31 – Wall sheeting is deteriorated at connection to walkway support angle leaving a 3 – 5 inch gap (continuous) on both north and south sides of the structure. Accelerated deterioration of walkway and water and ice buildup occurs due to the hole.

R31(P6) – In lieu of complete wall sheeting replacement, install half sheets over existing sheeting, and overhang below walkway.

F32 – Interior structural steel is rust packed and laminated. Section loss is in excess of 25%. Thickness measurements and hammer soundings revealed no critical findings.

R32(P12) – Continue to monitor. Schedule reinspection in next 12 months. Repairs forecast in next 1 – 3 years.

F33 - Exterior Structural steel is pitted on exterior and rust packed at web to flange connections of built-up (diagonal) sections, on both north & south sides.

R33(P12)- Continue to Monitor and reinspect in 12 months. Repairs/Replacement forecasted within 1-3 years.

F34 - Floor Plate is severely deteriorated - due to exposure, for full length of south walkway.
R34 (P1)- Remove loose debris currently on walkway. Install planking or (temporary) sections of walkway plate to stabilize.
(P6)- Replace existing south walkway in kind.

Tower T3 – T4:

F35 – Roof sheeting is missing (6 pieces) at midspan, with an additional (4–5) sheets temporarily secured on south side of gallery. At eave edges (both north and south) the sheeting is deteriorated around fasteners for the entire length. Anticipate accelerated blowoff in next 12 months.
R35(P12)– Replace roof sheeting in kind.

F36 – Wall sheeting deteriorated and missing 1–3 inches above support angle, typical between towers, on both walls. Accelerated deterioration of the walkways can be expected.
R36(P12)– In lieu of complete sheeting replacement, install half sheets, and attach to existing. Sheet should extend 1/2–1 inch below walkway.

F37 –Interior structural steel is rust covered, with intermittent buildup, and pitting. Section loss less than 25%.
R37(P12)– Continue to monitor. Reinspect in 12 months.

F38 – Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
R38(P12)– Continue to monitor. Reinspect in 12 months.

F39 – Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north and south walkways.
R39(P12)– Remove existing angle, clean rust buildup, debris, and reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Tower T4 – T5:

F40 – Roof sheeting at eave edges (both north and south) is deteriorated around fasteners for the entire length. Anticipate accelerated blowoff in next 12 months.
R40(P12)- Replace roof sheeting in kind.

F41 - Wall sheeting showing signs of deterioration above support angle, typical between towers, on both walls.

(Noted)- Accelerated deterioration anticipated. Repairs forecast in 1-3 years. Reinspect in 12 months.

F42 - Interior structural steel is rust covered, with intermittent buildup, and pitting. Section loss less than 25%.
(Noted)- Continue to monitor. Reinspect in 12 months.

F43 - Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)- Continue to monitor. Reinspect in 12 months.

F44 - Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north and south walkways.
R44(P12)- Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Tower T5 - T6:

F45 - Roof sheeting at eave edges (both north and south) is deteriorated around fasteners for the entire length. Anticipate blowoff in next 12 months.
(Noted)- Reinspect in 12 months. Repairs forecast in 1-3 years.

F46 - Wall sheeting showing signs of deterioration above support angle, typical between towers, on both walls.
(Noted)- Accelerated deterioration anticipated. Repairs forecast in 1-3 years.

F47 - Interior structural steel is rust covered. Section loss less than 25%.
(Noted)- Continue to monitor. Reinspect in 12 months.

F48 - Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)- Continue to monitor. Reinspect in 12 months.

F49 - Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north and south walkways.
R49(P12)- Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Tower T6 - T7:

F50 - Roof sheeting at eave edges (both north and south) is deteriorated around fasteners for the entire length. Anticipate accelerated blowoff in next 1-3 years.
(Noted)- Reinspect in 12 months. Repairs forecast in 1-3 years.

F51 - Wall sheeting showing signs of deterioration above support angle, typical between towers, on south wall.
(Noted)- Reinspect in 12 months. Accelerated deterioration anticipated. Repairs forecast in 1-3 years.

F52 - Interior structural steel is rust covered. Section loss less than 25%.
(Noted)- Reinspect in 12 months. Continue to monitor.

F53 - Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)- Reinspect in 12 months. Continue to monitor.

F54 - Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north and south walkways.
R54(P12)- Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Tower T7 - Cal Bridge West Tower:

F55 - Roof sheeting is in fair condition.
(Noted)- Reinspect in 12 months.

F56 - Wall sheeting is in fair condition.
(Noted)- Reinspect in 12 months. Continue to monitor.

F57 - Interior structural steel is rust covered. Section loss less than 25%.
(Noted)- Reinspect in 12 months. Continue to monitor.

F58 - Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)- Reinspect in 12 months. Continue to monitor.

F59 - Support angles attaching to floor plate are rolling in, and separating from deck plate, on south walkways.

Tower T6 – T7:

F50 – Roof sheeting at eave edges (both north and south) is deteriorated around fasteners for the entire length. Anticipate accelerated blowoff in next 1–3 years.
(Noted)– Reinspect in 12 months. Repairs forecast in 1–3 years.

F51 – Wall sheeting showing signs of deterioration above support angle, typical between towers, on south wall.
(Noted)– Reinspect in 12 months. Accelerated deterioration anticipated. Repairs forecast in 1–3 years.

F52 – Interior structural steel is rust covered. Section loss less than 25%.
(Noted)– Reinspect in 12 months. Continue to monitor.

F53 – Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)– Reinspect in 12 months. Continue to monitor.

F54 – Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north and south walkways.
R54(P12)– Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Tower T7 – Cal Bridge West Tower:

F55 – Roof sheeting is in fair condition.
(Noted)– Reinspect in 12 months.

F56 – Wall sheeting is in fair condition.
(Noted)– Reinspect in 12 months. Continue to monitor.

F57 – Interior structural steel is rust covered. Section loss less than 25%.
(Noted)– Reinspect in 12 months. Continue to monitor.

F58 – Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)– Reinspect in 12 months. Continue to monitor.

F59 – Support angles attaching to floor plate are rolling in, and separating from deck plate, on south walkways.

R59(P12)– Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and or deck plate as necessary.)

Cal Bridge Crossing:

F60 – Roof sheeting is in fair condition.
(Noted)– Reinspect in 12 months.

F61 – Wall sheeting is beginning to deteriorate above floor plate connection angle on both north and south walkways.
R61(P12)– Continue to monitor. Reinspect in 12 months.

F62 – Interior structural steel is rust covered. Section loss less than 25%.
(Noted)– Continue to monitor. Reinspect in 12 months.

F63 – Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted)– Continue to monitor. Reinspect in 12 months.

F64 – Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north & south walkways.
R64(P12)– Remove existing angle, clean rust buildup and debris and, reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and/or deck plate as necessary.)

F65 – Access doors missing or broken:
A) North walkway – 2ea.
B) South walkway – 1ea.
R65 (P3)– Repair/replace door on frame(s).

Cal River to Blast Furnace Transfer House:

F66 – Roof sheeting is corroded at connection screws at both north and south eaves.
R71(P12)– Continue to monitor. Reinspect in 12 months. Replacement/repairs forecast for 1–3 years.

F67 – Wall sheeting is in fair condition and secure.
(Noted) – Continue to monitor. Reinspect in 12 months.

F68 – Interior structural steel is rust covered. Section loss less than 25%.
(Noted) – Continue to monitor. Reinspect in 12 months.

F69 – Exterior structural steel is rust covered and pitted, where exposed. Section loss less than 25%.
(Noted) – Continue to monitor. Reinspect in 12 months.

F70 – Support angles attaching to floor plate are rolling in, and separating from deck plate, on both north (3) locations & along the south walkways.
R70(P12)– Remove existing angle, clean rust buildup and debris, and reattach the support angle to the deck plate, by applying skip welds (1" long every 12"). (Replace angle and/or deck plate as necessary.)

F71 – Closure plates directly under conveyor deteriorated from transfer house, 1/3rd of the way up the incline, with large holes existing.
R71(P12)– Replace Plates in kind.

F72 – Bottom diagonal bracing (3) sections up incline from transfer house, is deteriorated and/or missing.
R72 (P12)– Replace bracing in kind.

F73 – Bottom framing tie–in connections between the conveyor gallery and transfer house severely deteriorated and rust packed, on both north and south sides.
R73(P12)– Rebuild connection in kind.