Critical Food Plant Infrastructure
Drains & Floors

Good, Better, Best

Good drains?

Modern Era (1950s–Present)

1955: ASME begins standardizing plumbing materials and equipment.

1965: Ductile Iron replaces cast iron due to better strength and flexibility.

1980s: Introduction of PVC, CPVC, and PEX revolutionizes plumbing with lightweight, corrosion-resistant materials.

What condition are your drains?

- Site survey, feedback to indicate where issues may already exist
    - What are the signs
        - Drains: sewer gas, drain flies, slow flow, drain back-ups, subsidence

Drain
laintenance Optior

Drains

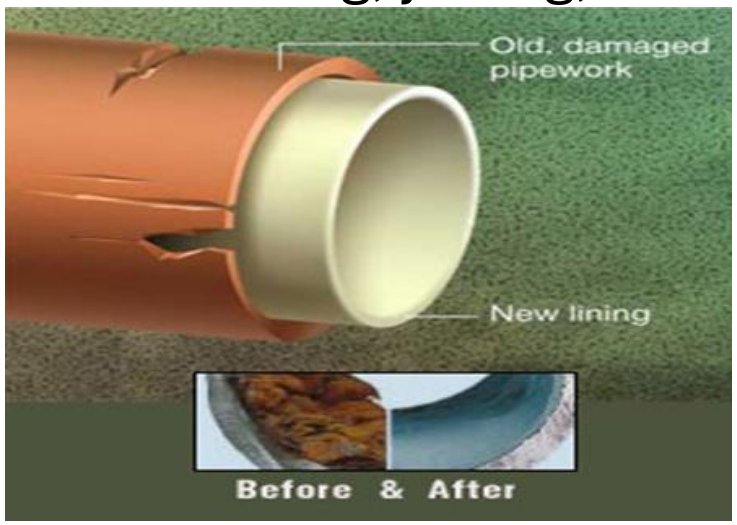
- Inspection program development
  - Qualified vendor
  - Define inspection program standards, documentation, scoring (condition/risk)

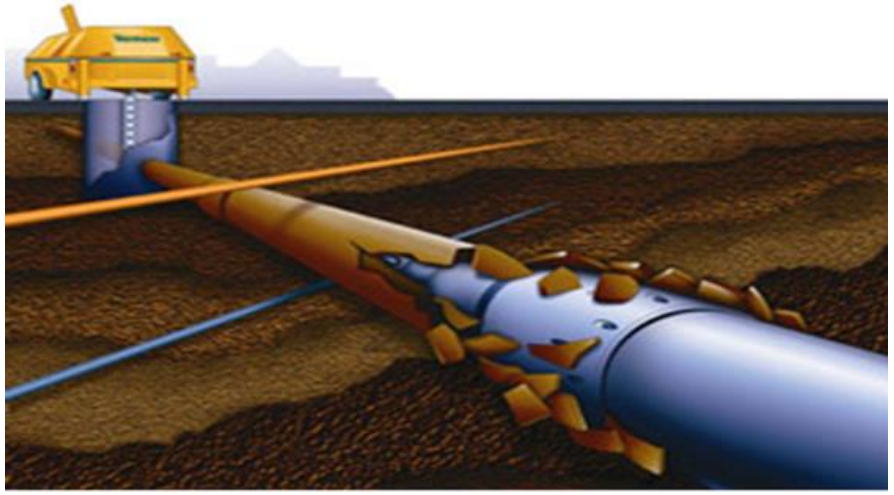
Scoring: Condition & Risk
360^0 color recording
Mapping / Drawing
Pipe identification (P,S,D,O)

LOCATION	SQ FT	BREAKS REPORTED	CLOGS REPORTED	REPAIR % OF BREAKS	REPAIR % OF CLOGS	LINES NEEDING ATTENTION (NON-CRITICAL)	FLUSH PROCESS IN PLACE	AUDIT PROCESS IN PLACE	BREAKS / CLOGS STILL NEED ATTENTION	DRAIN RATING (0-100)
GEORGIA	74500	0	37	0	20	74	NO	NO	30	0
TENNESSEE	451000	5	61	5	5	74	NO	NO	63	0
UTAH	125840	21	8	65	90	13	NO	YES	8	30
OHIO	210400	1	2	100	100	15	NO	NO	0	70
CALIFORNIA	113000	0	1	0	100	9	YES	YES	0	100
NEW JERSEY	90600	0	6	?	?	10	NO	NO	?	?

Better Drains

- What can be done to correct some of the common issues?
  - cleaning, jetting, drain sleeve, localized excavate and repair, line jacking, pipe bursting





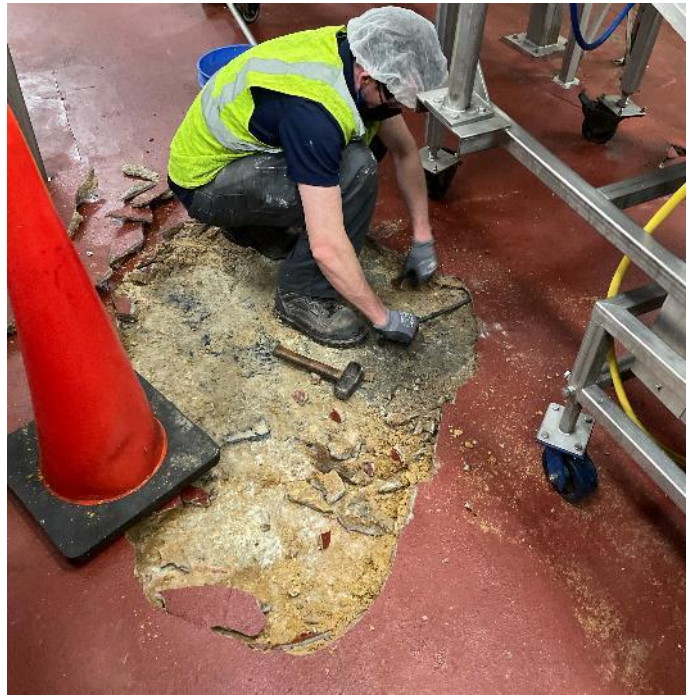
Corrective action / repair recommendations

-Develop a 3-5 year capital plan to address all identified issues, continue to inspect on a schedule and plan maintenance / capital to sustain conditions.

Good floors?

What is the current state?

- Site survey, feedback to indicate where issues may already exist
  - Current materials – Sealed/unsealed concrete, dairy brick, quarry tile, Epoxy coatings, Urethane coatings, MMA, Poly Ureas
  - Are your materials compatible with the use conditions today?



- Formalized site assessment, material fit for purpose, life cycle evaluation, repair, replacement

Good floors?

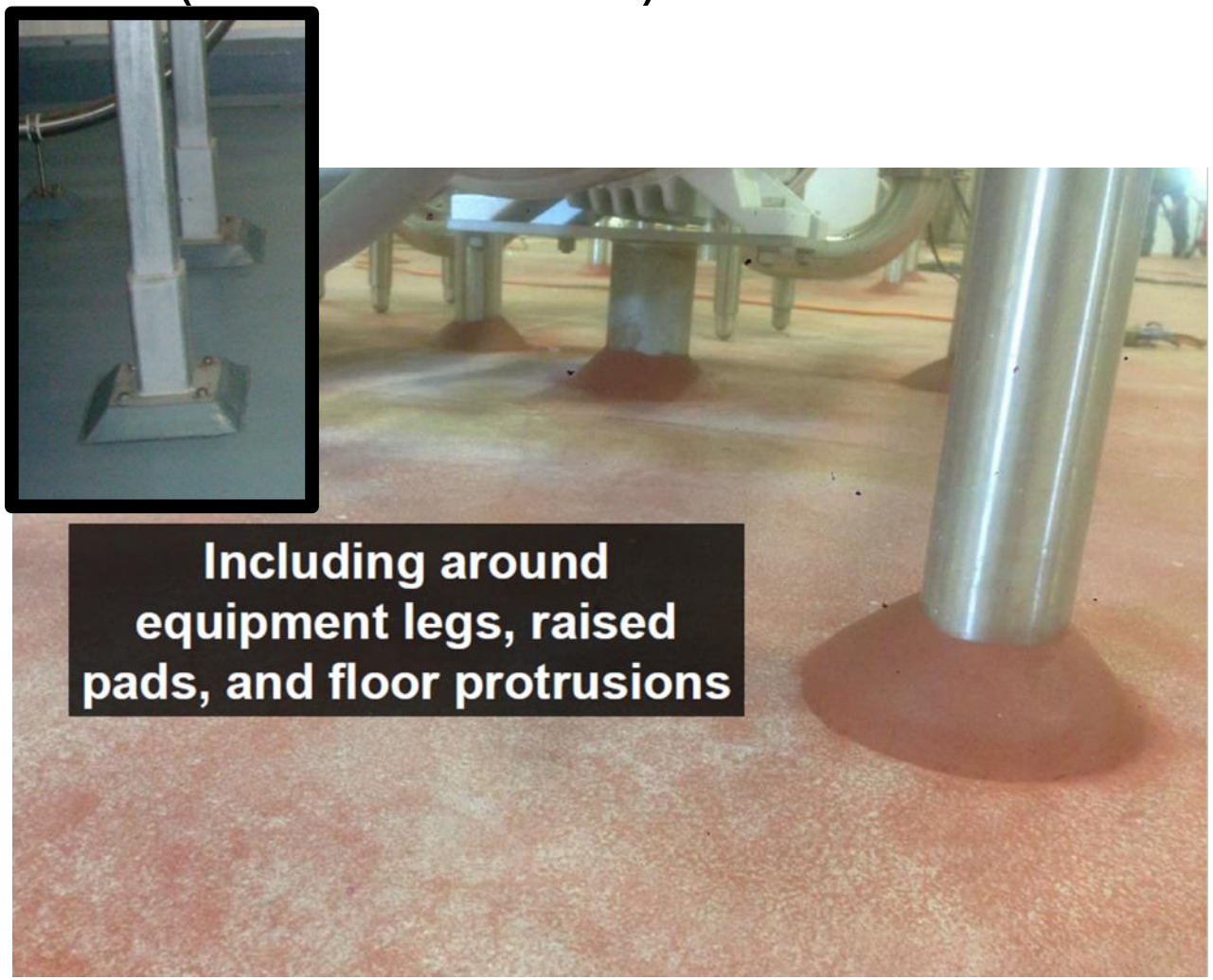
- What are the issues to look out for?
  - Ponding, Thermal shock, Delamination (layers/substrate), Exposed aggregate, Impact damage, Chemical erosion, Equipment/floor interface, floor /wall coving (water ingress)

Better Floors

- What can be done to correct some of the common issues?
    - Remove delamination, Localize patch/repair,

Better Floors

- What can be done to correct some of the common issues?
  - Float/bury feet, Build-up/float to eliminate ponding, Build-up coving (concrete walls)



Q&A Floors – For audience discussion

Repair & Replacement

- What floor materials are best for typical and special conditions? i.e. CIP thermal shock, Strong chemical exposure, High/Low Temps
- How much time is required to ensure a successful install?
  - Is it material dependent?
- What causes the common installation failures and how are they avoided? i.e. delamination
- Can damaged substrate be rehabilitated?
  - Chemically etched concrete, exposed aggregate
  - What can be done if substrate has been exposed to fats / oils?
- Are microbiological growth inhibiting additives of value?