

Distribution Vaults					
Component Classification Categories					
Criticality	I	X			City of Chicago - Central Business District
	II		X		City of Chicago - Outside Central Business District
	III			X	All Other Distribution Vaults
Duty Cycle	Heavy Load	N/A	N/A	N/A	
	Normal Load	N/A	N/A	N/A	
Service Condition	In Service	N/A	N/A	N/A	
	Spare	N/A	N/A	N/A	
Condition Monitoring Tasks					
	Task Frequencies			Failure Codes	Comments
Visual Inspection	3Y	3Y	3Y	1a-i, 2a-c, 3a-c, 4a-b, 5a-d	
Failure Finding Tasks					
	Task Frequencies			Failure Codes	Comments
None	N/A	N/A	N/A		
Time Directed Tasks					
	Task Frequencies			Failure Codes	Comments
Structural Vault Inspection	1Y	3Y	N/A	1a, 1d-e	As defined per City of Chicago Building Code
Sump Pump - Functional Test	3Y	3Y	3Y	1i, 5e	Where installed
Condition Directed Tasks					
	Task Frequencies			Failure Codes	Comments
None	N/A	N/A	N/A		

FAILURE MODES

1. Fails to Maintain Structural Integrity
2. Fails to Provide Adequate Grounding
2. Fails to Provide Adequate Grounding
2. Fails to Provide Adequate Grounding
3. Fails to Maintain Adequate Equipment Ventilation
3. Fails to Maintain Adequate Equipment Ventilation
3. Fails to Maintain Adequate Equipment Ventilation
4. Fails to Provide Adequate Access
4. Fails to Provide Adequate Access
5. Fails to Provide Adequate Work Environment

FAILURE CAUSES

- 1a. Deteriorated Structural Material
- 1a. Deteriorated Structural Material
- 1b. Deteriorated Seam/Duct Sealant
- 1c. Deteriorated/Missing Duct Edge Protector
- 1d. Deteriorated Concrete/Brickwork
- 1d. Deteriorated Concrete/Brickwork
- 1e. Foundation Re-Bar Corrosion
- 1e. Foundation Re-Bar Corrosion
- 1f. Deteriorated Lid/Casting
- 1g. Deteriorated Channel Iron/Hanger/Saddle-Porcelain
- 1h. Deteriorated Ladder
- 1i. Water Ingress
- 1i. Water Ingress
- 2a. Ground Rod Failure
- 2b. Bonds Missing/Defective
- 2c. Loose/Defective Connector
- 3a. Floor Debris Accumulation
- 3b. Vents Debris Accumulation
- 3c. Forced Air System Damaged
- 4a. Equipment Access Inadequate
- 4b. Personnel Access Inadequate
- 5a. Locking Mechanism Failure
- 5b. Labels/Warnings Missing/Unclear
- 5c. Environmental/Friable Asbestos/Chemical/Bio Hazard
- 5d. Lights Damaged/Missing
- 5e. Water Accumulation

MAINTENANCE TASKS

- Visual Inspection
Structural Vault Inspection
Visual Inspection
Visual Inspection
Visual Inspection
Structural Vault Inspection
Visual Inspection
Structural Vault Inspection
Visual Inspection
Visual Inspection
Visual Inspection
Visual Inspection
Sump Pump - Functional Test
- Visual Inspection
Visual Inspection
Visual Inspection
- Visual Inspection
Visual Inspection
Visual Inspection
- Visual Inspection
Visual Inspection
- Security Check
Visual Inspection
Visual Inspection
Visual Inspection
Sump Pump - Functional Test

TASK

DEFINITION

Structural Vault Inspection
Sump Pump - Functional Test

Inspection requirements as per the Chicago Building Code
For locations where a sump pump is installed, test pump by activating via push button or lifting pump arm

Visual Inspection

Inspect structural integrity of vaults, floors and ceilings.
Inspect hardware including ladders, cable racking, saddles, brackets, hangars and duct shields.
Inspect frames, covers and necks.
Inspect and clean ventilating grates.
Inspect sump pumps and electrical equipment
Inspect the environmental condition of the vault.
Ensure locking mechanism integrity.

Security Check

Distribution Vault Template Summary

The Preventive Maintenance program is documented via maintenance templates. Templates have been developed that address transmission, substation, and distribution equipment that is owned, and / or, maintained by Exelon Utilities. Each template documents the program tasks, frequencies, failure modes, and maintenance basis for the associated equipment. Tasks and associated frequencies are designed to address known failure modes of the equipment covered by the template. In general, the tasks included in the maintenance templates are the result of good industry practices, industry experience, and manufacturer recommendations.

References:

Internal reports and operating experience
City of Chicago Building Code

Boundary Definition

The boundary of a vault is within the vault and the visible external structure.

Excluded from this treatment are equipment in the vaults that are addressed in separate templates.

Failure Experiences

N/A

Vendor Recommendations

N/A

Disposition of Vendor Recommendations

N/A

Basis For Template Tasks

Structural Vault Inspection: Required within the City of Chicago per the Building Code

Sump Pump - Functional Test: Ensure that pump is operational at time of inspection

Visual Inspection: This inspection approximates real-time condition monitoring that can detect developing problems and degradation, and provides condition data used to initiate corrective actions.

Revision 0 (ED)		Date 07/22/2005
Writer	Larry Griess (Strategic Programs)	
Reviewer(s)	07/21/05 Template Challenge Session Attendees	
Approver(s)	Kathy McHugh (FAM Maintenance Planning)	
Reason Written	To document the maintenance program tasks, frequencies, failure modes, and maintenance basis	

Revision 1 (ED)		Date 01/26/2007
Writer	Larry Griess (Strategic Programs)	
Reviewer(s)		
Approver(s)	Kathy McHugh (FAM Maintenance Planning)	
Reason Written	General scrub, task and periodicity review / update	

Revision 2 (ED)		Date 11/30/2010
Writer	Chris Stefanski	
Reviewer(s)	Ken Wendt (Mgr. Material Condition), Drew Reindel (Mgr. T&S Engineering)	
Approver(s)	Bill Fluhler , Bill Gannon, Nitin Patel, Jim Crane, Bill Sullivan	
Reason Written	Added note to ensure template changes are communicated to affected work groups.	

Revision 0 (CE)		Date 3/2/2015
Writer	Daniel Kurtz (BGE)	
Reviewer(s)	Wasif Qazi (PECO), Pete Yan (ComEd), Ed Lake (BGE), Beth Pittaway (BGE)	
Approver(s)	Cory Summerson (UFAM BGE), Mike Moy (UFAM ComEd) , J. Coffman (UFAM PECO)	
Reason Written	EU PM Template Alignment (BGE, ComEd, PECO)	

Revision 1 (CE)		Date 3/27/2018
Writer	Jimi Conway (ComEd)	
Reviewer(s)	Keith Frost (ComEd), Ed Smykowski (ComEd)	
Approver(s)	Mike Moy (UFAM ComEd)	
Reason Written	Three- year cycle review. Added in the text for failure mode 5a. Text was missing, but was already present in the failure modes on the cover page.	