

K6.6

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Toronto, Ontario M4M 3N7 torontohydro.com



February 15, 2013

Utility Regulations
Electrical Safety Authority
Suite 202
155A Matheson Blvd. West
Mississauga, Ontario L5R 3L5

Re: Vault Location 4651 on 95 St. Clair Ave W, Toronto

In regards to the emails titled **"Underground Transformer failure on January 28 at Yonge & St. Clair"** and **"Transformer Explosion – ESA Inquiry"**, which was received by Toronto Hydro-Electric System Limited on January 28 and 29 2013 that had requested for the following information:

1. Confirmation of the date the installation was completed and put into use.
2. Confirmation whether the installation has been upgraded or any repair work completed since February 2004.
3. If the installation was first put into use, upgraded or repaired after February 2004, a copy of the Record of Inspection and a copy of the Certificate for the installation. This request is being made per section 8(7) of Ontario Regulation 22/04 Electrical Distribution Safety.
4. If the installation was first energized, upgraded or repaired after February 2004, a copy of the plans, standard design drawings or standard design specifications that the installation is based on and a copy of the Certificate of Approval for same. This request is being made per section 7(6) of Ontario Regulation 22/04 Electrical Distribution Safety.
5. Any other information that Toronto Hydro can provide with regards to the installation that may help understand the cause of the failure and fire, including but not limited to maintenance activity, condition of equipment or other factors.
6. Was anyone hurt?
7. Can this happen again and is there any potential for anyone to be hurt if it does?
8. Can Toronto Hydro do anything to prevent it from happening again if any injury risk is present?

In response to the information requested:

1. According to Toronto Hydro records, vault location 4651 was constructed in 1966 and is a customer owned vault. Customer is supplied by 12 - 2000 kcmil RINJ secondary cables.

The transformers and all electrical equipment in the vault are owned by Toronto Hydro, and were originally installed and energized on January 1967. This vault contains two 2000 kVA 433Y/250V network transformers and two 3000A fibertop circa 1966 vintage network protectors.

2. In May 2005, one of the original 2000 kVA network transformer was changed-out in a like for like replacement. The reason for this change-out was due to the fact that original transformer (installed in 1967) was approaching end of life.
3. A Record of Inspection and Certificate for the transformer change-out in May 2005, were included in the construction folder as per section 8(7) of Ontario Regulation 22/04 Electricity Distribution Safety. Attached please find a copy of the Record of Inspection and Certificate.
4. Section 7(7) of Ontario Regulation 22/04 Electricity Distribution Safety states the following:

“This section does not apply with respect to work on an electrical installation that involves the replacement of one piece of electrical equipment with another piece of electrical equipment of the same voltage and characteristics O. Reg. 22/04, s. 7 (7).”

Since the transformer change-out in May 2005 was a like-for-like replacement, the entire section 7 of Ontario Regulation 22/04 Electrical Distribution Safety does not apply.

5. Additional Information:

Maintenance History:

The most recent network protector inspection was on August 7th 2012. The inspection showed dirt, debris and contamination on top of the network protector. It was noted that the network protector was cleaned during the inspection. The purpose for this cleaning is to minimize the build-up of contaminants on top of the protectors.

The transformers in this vault were also inspected on August 7th 2012, and both transformers had their tops cleaned.

Probable Root Cause of Failure:

Based on the information we have so far, the fire most likely started on the west side of the customer owned vault. The unit on the west side was fed by the A54H transformer and was equipped with a fibertop protector (as was the unit fed by the A53H transformer).

On the day of the incident, the near freezing weather conditions, resulted in melt water from the snow and the previous day's worth of salt both being present. The accumulation of debris, water and salt on top of the fibertop protector was the most likely cause of the fire.

6. No one was hurt as a result of this incident.
7. Electrical and civil inspections are done by Toronto Hydro to determine the condition of all its assets in order to minimize risks such as fire. Once the condition of the asset is determined, it is then maintained or replaced as required.

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If there are any questions, please feel free to contact Frank Yu at 416-542-3374.

Sincerely,

Frank Yu

Frank Yu, P.Eng.
Engineer, Design Policy



JOB CARD

May 3 2005

Project Information

PROJECT DESCRIPTION:	N5352 2005 N/W Tx repl 4 of 5	PROJECT#:	P0015840
SUBPROJECT DESCRIPTION:	2000kva 95 St Clair Ave W loc4651 A54H	SUBPROJECT #:	P0015846
WORK ORDER DESCRIPTION:	UG - Network Transformer (WO)	WORK ORDER #:	00066332
WORK ORDER INSTRUCTIONS:			

WO ORIGINATOR:	CULOS,MICHAEL	ASSIGNED TO:	
WORK GROUP:	NSD2	WO TYPE:	PLND WRK-INSTL
WO PLAN START:	18 May 2005	MAINT TYPE:	NON-MAINTENANCE
WO PLAN FINISH:	20 May 2005	WO PRIORITY:	
ESTIMATED WO DURATION HOURS:	16.5	ESTIMATED WO UNITS REQUIRED:	208

Equipment Information

EQUIPMENT #:		PLANT NUMBER:	
EQUIPMENT DESCRIPTION:		EQUIPMENT LOCATION:	
		LOCATION DESCRIPTION:	
EQUIPMENT TYPE:		FITMENT:	
EQUIPMENT CLASS:		PUH:	
EGI:			

Location Information

LOCATION CODE:		ROUTE NO:		ROUTE SEQUENCE NO:	
LOCATION TYPE:		LOCATION DESCRIPTION:			
ADDRESS:		LOCATION NUMBER:			
LOCATION INFORMATION:		DISTRICT:			

Associated Work Order Task Information

WORK ORDER TASK #:	001	TASK PLANNED START DATE:	18 May 2005
TASK DESCRIPTION:	Network Transformer Installation (Task)	TASK PLANNED FINISH DATE:	20 May 2005
TASK WORKGROUP:	NSD2		
TASK INSTRUCTIONS:	DATE: <u>JUNE 2/05</u>		

MECHANIC'S
SUPERVISOR SIGNATURE

☒ This site has been left in a condition that presents no undue hazard to the public (as defined in the Technical Guidelines approved by the ESA under Ontario Regulation 22/04) and approved equipment has been used in the repair or replacement.



toronto hydro

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JOB CARD

May 3 2005

TFNSH	CEMENT FINISHER	1	16.2		
THNDC	CHARGE HAND	1	16.2		
TLABR	LABOURER	1	2.5		
TLDRG	CREW LEADER	1	13.62		
TMECE	ELECTRICAL MECHANIC	1	40		

Work Order/Task Completion

Work Order/Task Completed	Yes / No	Date:			
66332	yes	June 1 / 05			
Units Completed (Actual)		Authorized By:			
		Completed By:			MECHANICS
Comments:					

☒ This site has been left in a condition that presents no undue hazard to the public (as defined in the Technical Guidelines for the ESA under Ontario Regulation 22/04) and approved equipment has been used in the repair or replacement.

PROGRAM MGMT.
MAY 10 2005
DATE ISSUED
OF

Fibertop Vault Fire – January 28, 2013



Fibertop Network Protector Vault Fire, January 28, 2013
Vault Location 4651 – 95 St. Clair Ave W.