Q. **Asset Management**

Provide the titles of the Hydro personnel who inspect terminal stations. Provide a copy of a typical completed 120-day termination station inspection checklist.

A. The titles of the Hydro personnel who inspect terminal stations are Electrical Maintenance A (EMA), Terminal Maintenance A (TMA) and Mechanical Maintenance A. See PUB-NLH-364 Attachment 1 for a typical completed 120-day terminal station inspection checklist.

WORK ORDER : 1073251 SUBSIDIARY: 2 PAGE
The Nalcor Group Of Companies Date .. 14/09/26

THINK SAFETY FIRST

WO TYPE : 2 PM Wo SSDTS,STATION PM INSPECTION PARENT #: 01073251
STATUS : 44 PRIORITY: 3 Plann
ITEM # : 00005811 UNIT #: SSDTS TERMINAL STATION,SSD TS
PLT COND: OL BU #: 1325 SUPV: WHB Station Mtce Dept
LOCN: SSDTS SSD Term Stn, Sunnyside ORIG: Sceviour, James F.
W/H : 1825 Whitbourne Warehouse PLNR: Lyver, Gerard J.
EMPL: W.O.#: 1073251 W.O. SUBCODE:

--- Full Description of Request ----------

1. PERFORM PM IN ACCORDANCE WITH APPROPRIATE CHECK SHEETS.
2. RECORD ANY UNCOMPLETED DEFICIENCIES ON A WORK ORDER REQUEST IN ORDER TO HAVE THE WORK COMPLETED AT A LATER DATE.
3. CONSIDER & REPORT ANY ENVIROMENTAL IMPACTS.

--- Safety Provisions ----------

1. ENSURE NESCESSARY WORK PROTECTION IS IN PLACE BEFORE STARTING WORK.
2. COMPLETE TAILBOARD SAFETY TALK BEFORE BEGINNING WORK.

--- Maintenance Loops ----------

00005811 TERMINAL STATION,SSD TS D120

Keyed 14-09-29
RB

Completed I. Organ
20.4-09-26

WORK ORDER : 1073251 SUBSIDIARY: 2 Page .. 1/2
The Nalcor Group Of Companies Date .. 14/09/26

-- COMMENTS & WORK DONE ----------

Work done as per check sheets.

-- ASSET TRACKING INFORMATION ----------

1. List all assets installed (Description and Serial Number):

1.a Provide Nameplate Data for all new assets installed:

2. If an asset was removed, note the Description, Serial# and JDE# if known and where it was transferred. ie. St. Anthony Line Depot, Bishops Falls etc.

3. List all assets disposed or to be disposed (Description, Serial #, and JDE #, if known):

COMPLETED BY: I. Organ COMPLETED ON: 2014-09-26

-- WORK REMAINING ----------

SUPERVISOR: _____

WORK ORDER : 1073251 SUBSIDIARY: 2
The Nalcor Group Of Companies

Page
Date .. 14/09/26

EXTRA MATERIAL USED

INVENTORY PART #	DESCRIPTION	UOM	QTY

EXTRA MATERIAL RETURNED

INVENTORY PART #	DESCRIPTION	UOM	QTY

VEHICLE USAGE

VEHICLE #	HOURS USED

TAILBOARD SAFETY TALK FORM

Date: 2014-09-27 Location: SSDTS

Job/Task: Station PMs Work Order #: 1073251

Will the scope of the work be performed using an approved Work Method?

_ Yes. If yes, Work Method Number(s): _____

✓ No. (Ensure that all Hazards and Controls/Barriers are identified.)

Work Protection Code Required? _ Yes ✓ No Permit#: _____

List all other Permit/Tag Systems required with associated number: _____

Things to think about before Hazard Identification

✓ Do workers know and understand the task?

✓ Have all workers been given orientations?

✓ Have the Task Based Risk Assessments(s) been reviewed?

✓ Have the Work Method(s) been reviewed (if work requires a Work Method)?

✓ Are all required permits in place?

✓ Are all proper tools available for job?

X Are you/will you be working alone? If yes, review and follow the working alone procedure.

✓ Do all workers have required PPE? Is it in proper condition?

✓ LINE OPERATIONS: Have environmental aspects such as pole/line obstacles and minimum approach distances been considered?

Emergency Information

Emergency Response Plan(s) in place? _ **Yes**

Has it been communicated to all required personnel? _ Yes

Nearest Medical Facility: SSDTS Clinic.

Emergency Contact Numbers

1. 911 3. _____

2. 1557 4. _____

Hazards

Indicate Actual or Potential Hazards.

People

_ Allergies
_ Arc Flash
_ Awkward Positions
_ ✓ Chemical Burn
_ ✓ Cuts/Abrasions
_ ✓ Electrical Shock
_ Falling Objects
_ Infectious Agents
_ Inhale Hazardous Substances
_ Overexertion
_ ✓ Overhead Reach
_ ✓ Particles in Eye
_ ✓ Pinch Points
_ Poisonous Substances
_ Prolonged Positions
_ ✓ Respiratory Distress
_ ✓ Slips/Trips
_ ✓ Sprains/Strains
_ Thermal Burn
_ Working from Height

Equipment

_ Crane/Lifting Equipment in Operation
_ Damaged/Defective
_ Energized Lines/Equipment
_ High Voltage
_ Inadequate Cover Ups
_ Inadequate Guards/ Barriers
_ Lifting Loads
_ Moving Equipment Mobile
_ Moving Machinery
_ Poor Ergonomic Design
_ Pressurized Equipment
_ Pressurized Lines
_ Rigging
_ Temporary Grounding

Environment

_ Back Feeds
_ Blind Spots
_ Dangerous Animals
_ Dangerous Flora/Fauna
_ Inadequate Parking Lots
_ Noise
_ Overhead Lines
_ Poor Air Quality
_ Poor Lighting
_ Poor Storage of Materials
_ Poor Weather
_ Poor Workspace Design
_ Public Can Access Areas
_ ✓ Rough Roads/Terrain
_ ✓ Slippery Surfaces
_ ✓ Trenching/Excavation
_ ✓ Underground Line
_ ✓ Vehicle/Machine Traffic
_ Vibration
_ Work Overhead

TAILBOARD SAFETY TALK FORM (Cont)

Hazards (Cont)

Indicate Actual or Potential Hazards.

Materials

_ Chemical/Other Substance Spills
_ Explosive/Flammable
_ Fibre Optic Cables
_ Hazardous Chemicals
_ Hazardous Waste Present
_ Radioactive Material Present
_ Steam Present

Identify controls in place to address significant hazards noted above, as well as additional hazards identified, not included on page one.

No.	Hazards	Controls/Barriers
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Crew Members Present

Print	Signature
Ivan Organ	Ivan Organ

Remind all crew members to complete necessary Step Back 5X5(s).

Person Conducting Tailboard (Print): Ivan Organ

Date: 2014-09-26

Return to Supervisor for filing upon completion of job/task.

120 DAY - POWER TRANSFORMER INSPECTION

Station: SSDTS Date: 2014-09-25 Readings By: T.O.

WEATHER CONDITIONS: dry: ✓ rain: ☐ humidity: ☐ ambient temperature: 9 °C

Visual Inspection:

- > Primary terminations ✓
- > Tank & fittings ✓
- > Explosion vent ✓
- > Check for gas accumulation ✓
- > Paint conditions ✓
- > Temperatures (Current & Peak) RESET ✓
- > Check bushings ✓
- > Check lightening arrestors (Cat Arm)
- > Access ladder/guard ✓
- > Foundation ✓
- > Silica Gel Breather checked ✓
- > Oil Levels (Normal, High, Low) ✓
- > Check vacuum pressure gauge (Sealed Units, if equipped).
- > Rust Condition
  - A – Minor
  - B – Moderate
  - C – Severe
- > Spare Power Fuses (if applicable)
  Size___ Type ___ Number on Site ___
- > Check Concrete Base ✓
- > Check &Report all Oil leaks ✓
  As per EERP (Environmental Emergency Response Plan)

Operate Manually:
- > Cabinet heater thermostat ✓
- > Fan controls ✓
- > Circulating Pumps Controls
  (T1, T2, T3 HRDTS), (T3 BBKTS)

SUPERVISOR: _____

Trf. No. T4 Tap Pos. 3
Load: M.W. 57 (or) Amps _____
Temp: Winding 48 /Peak 70°C Oil: 40 /Peak 60°C
Reset Drag Hands Once Completed: ✓
Oil Levels: Tank Good Tap Chr. Good Bush. Good
Vacuum Pressure Gauge (Sealed Unit, if equipped) KPA: X NA
SF_6 Bushing Diff. (kPa): H1 X NA H2 X NA H3 X NA
Fan Load Current (amps): Stage I 26 Amps Stage II 44 Amps
Fan Control Return to Auto/Remote ✓
Cabinet Heaters: On ✓ Off _____ Amps 2 Amps
Tap Chr: Counter 12325
Rust Condition: Tank ✓ Cont.Cabinet ✓ Rads ✓
Silica Gel: OK ✓ Replace if 50% or Greater Contamination: X
Explosion Vent Diaphragm Good.
Remarks: Rust condit. on Moderate

Trf. No. _____ Tap Pos. _____
Load: M.W. _____ (or) Amps _____
Temp: Winding ____ /Peak ____ Oil: ____ /Peak ____
Reset Drag Hands Once Completed: ___
Oil Levels: Tank _____ Tap Chr. _____ Bush. _____
Vacuum Pressure Gauge (Sealed Unit, if equipped) KPA: _____
SF_6 Bushing Diff. (kPa): H1_____ H2_____ H3_____
Fan Load Current (amps): Stage I _____ Stage II _____
Fan Control Return to Auto/Remote ___
Cabinet Heaters: On _____ Off _____ Amps _____
Tap Chr: Counter _____
Rust Condition: Tank _____ Cont.Cabinet_____Rads_____
Silica Gel: OK___Replace if 50% or Greater Contamination: ___
Explosion Vent Diaphragm _____
Remarks: _____

Trf. No. _____ Tap Pos. _____
Load: M.W. _____ (or) Amps _____
Temp: Winding ____ /Peak ____ Oil: ____ /Peak ____
Reset Drag Hands Once Completed: ___
Oil Levels: Tank _____ Tap Chr. _____ Bush. _____
Vacuum Pressure Gauge (Sealed Unit, if equipped) KPA: _____
SF_6 Bushing Diff. (kPa): H1_____ H2_____ H3_____
Fan Load Current (amps): Stage I _____ Stage II _____
Fan Control Return to Auto/Remote ___
Cabinet Heaters: On _____ Off _____ Amps _____
Tap Chr: Counter _____
Rust Condition: Tank _____ Cont.Cabinet_____Rads_____
Silica Gel: OK___Replace if 50% or Greater Contamination: ___
Explosion Vent Diaphragm _____
Remarks: _____

DATE: _____

120 DAY - FLOODED (VENTED) BATTERY AND CHARGER INSPECTION

Station: SSDTS Manufacture Batteries: C&D Manufacture Charger: Cordex
Date: 2014-09- Readings By: I.D.

BATTERY CHARGER # 1 ____ or # 2 ____		
DC Voltage Output:	Found 134.1	Left –
DC Amperage Output:	Found 5.9	Left –
	Confirm Charge in Float ✓	
	Record Float Voltage 134	

FLOODED (VENTED) BATTERY CELLS				
Room or Cabinet Temperature °C 18°C			Cabinet Heater (If Applicable) On ____ Off ✓	
Battery Bank Voltage (Disconnected) 130 DC (10 minutes after)				
Pilot Cell:	# 12	Voltage 2.23 DC	Specific Gravity ~~1223~~ 1215	Temperature ºC 15°C
Water Added Yes ____ No ✓			Equalize Charge Yes ____ No ✓	

Note: Specific Gravity should be maintained between 1200 & 1220.

Battery Bank Electrolyte Level: (Found)	Normal ✓	Low ____	Very Low ____

EQUALIZING CHARGE		
Why given:		
Voltage:	Amps:	Duration: hrs

**Notes: Equalize charge only required after any water is added.

CHECKS COMPLETED:

- ✓ Check the Accuracy of the Charger Voltage Meter against another Meter.
- ✓ Check each Cell for Cracks, Corrosion on Terminals, Leaks (Report any Leaks as per EERP).
  (Environmental Emergency Response Plan)
- ✓ Inspect the Battery Rack for Signs of Corrosion & Battery Leakage.
- ✓ Check Cells for Deposits on the Bottom
- ✓ Check the Operation of Ventilation Fans and Thermostat.

Note Any Concerns Below:

Did not add water No equalizing charge

SUPERVISOR: _____ DATE: _____

120/180 DAY - DISCONNECT SWITCH INSPECTION

1073251

Station: SSDTS Date: 14-09-25 Readings By: _____

Switch No.	Alignment	Insulators (Condition)	Motor (Operator)	
			Control Voltage	Heater (Amps)
L02L07-1	Good	Good	133.6	1 Amp
L02107-2	"	"	133.6	1 Amp
L06L07-2	"	"	Breaker off Eng.	1 Amp
L06L07-1	"	"	" " "	1 Amp
L03L06-2	"	"	" " "	1 Amp
L03L06-1	"	"	~~133.7~~ "	1 Amp
B1L03-2	"	"	133.2	1 Amp
B1L03-1	"	"	133	1 Amp
B1L02-1	"	"	133	1 Amp.
B1L02-2	"	"	133.7	1 Amp.
B1T4	"	"	133.7	1 Amp
L109T4-1 (Manual)	"	"		
L100L109-2(Man)	"	"		
L100L109-1 (Man)	"	"		
L19L100-2 (Man)	"	"		
L19L100-1 (Man)	"	"		
B3T4-1 (man)	"	"		
B3T4-2 (Man)	"	"		

B2L12-1 (Man) Alignment & Insulator condition (Good)
B2L12-2 (Man)

CHECKS COMPLETED:

- ✓ Check disconnect blades for alignment
- ~~✗~~ Check interlocks operating [redacted] (not check)
- ✓ Check insulators for signs of burns, flashover, & cracks
- ✓ Check structure condition
- ✓ Check grounding
- ✓ Check concrete base

Note Any Concerns Below:

L06L07-2 close removed not operational Elect. Breckers off for L06L07-2 & -1 B1L02- 2" PVC pipe broken off near ground.

SUPERVISOR: _____ DATE: _____

120 DAY – PT/CVT INSPECTION

1073251

Readings By: I. Dragon Station: SSDTS Date: 2014-09-22

Equipment ID/Phase		Secondary Voltage & Oil Level (Normal) / High / Low) RUST/PAINT CONDITION (A - Minor, (B) - Moderate, C – Severe)					
		Oil Level	Rust	Core 1 Sec Voltage	Core 2 Sec Voltage	Core 3 Sec Voltage	Core 4 Sec Voltage
B2(138KV)	PT	Normal	B	112.6	114.1	112.6	
T1	PT	Normal	B	0Volts	T1 is remove work on going		
T4	PT	Normal	B	~~113.8~~ Volts.			
TL212	PT	Normal	B	~~113.8~~	113.8		
TL207	PT	Normal	B	66.3	66.8	65.9	
TL206	PT	Normal	B	66.5	66.9	66.1	
TL202	PT	Normal	B	66.5	66.7	66.0	
TL203	PT	Normal	B	66.5	66.9	66.1	
100L	PT	Normal	B	65.4	66.6	64.7	
109L	PT	Normal	B	64.7	64.9	65.5	
TL209	PT	Normal	B	65.1	65.5	64.6	
B1L02	CT	Normal	B				
B2T4	CT	Normal	B				
B2T1	CT	Normal	B				
L06L07	CT	Normal	B				
L109TH	CT	"	"				
L03L06	CT	"	"				
B2T2	CT	"	"				
B2L12	CT	"	"				
B1L03	CT	"	"				
L100L109	CT	"	"				
L19100	CT	"	"				
L02L07	CT	"	"				
T1219 or B2L19	CT	"	"				
			–				

120 DAY – PT/CVT INSPECTION

Readings By: J. Dyson Station: SSDTS Date: 2014-09-22

VISUAL INSPECTION:

- ✓ Check Bushings & Tanks
- ✓ Check & Report Any Oil Leaks as per EERP (Environmental Emergency Response Plan)
- ✓ Check Paint/Rust Condition
- ✓ Check Concrete Base
- ✓ Check Primary Connections
- ✓ Check Porcelain Insulators for Flashover, Cracks and Burn Marks
- ✓ Check Conduits & Cabinets
- ✓ Check Grounding

Measure Cabinet Heater Amps _____
Measure PT Heater Amps _____

COMMENTS:
B2(138KV) PT Bphase connection flexlead damaged.
L109TH CT JB bottom rusted completely out. needs tobe replace

SUPERVISOR: _____ DATE: _____

1073851

120 DAY - SF_6 CIRCUIT BREAKER INSPECTION

Station: SSDTS Date: 2014-09-23 Readings By: E.O

WEATHER CONDITIONS: ✓ dry ____ rain ____ humidity 17°C temperature

		Breaker No.	L03L06	B3L19		
		Voltage (kV)	230	138		
		Operations Counter	—	765		
		Reclose Counter	—	—		
AIR SYSTEM	Air Pressure (kPa)	Cut In				
		Cut Out				
		Comp. Running Time (min.)				
		Base Oil (Nor. / Low / Added)				
		Motor (amps)				
		Moisture Discharge				
		Dryer Counter				
		Compressor Hours				
SF_6 Pressure		3 ph – kPa	—	—		
		A ph – kPa	hand moving towards Yellow	75 psi		
		B ph – kPa	Good	73 psi		
		C ph – kPa	Good	73psi		
Hydraulic Oil Pressure						
Heaters (amps)		Cabinet	1Amp	2 Amp		
		Drive Gaskets	7 Amps	—		
		Heat Trace Cable (if applicable)	NA	NA		
		Dryer Drain	NA	NA		

CHECKS COMPLETED:

- ✓ Check for Air Leaks
- ✓ Check bushings for cracks or chips
- ✓ Check Control Cables
- ✓ Drain Air to Check Compressor Pressure Switches
- ✓ Check Concrete Base
- ✓ Check paint condition
- ✓ Check Primary Connections
- ✓ Check Grounding
- ✓ Check Door Hinges & Lubricate, as required
- ✓ Air System (Operate Low Point Drain), if applicable
- ✓ Check for hydraulic leaks, if applicable
- ✓ Check air receiver, if applicable

1073251

120 DAY - SF_6 CIRCUIT BREAKER INSPECTION

Station: SS DTS Date: 2014-09-23 Readings By: E Dyn

REMARKS:

SUPERVISOR:_____ DATE: _____

120 DAY - AIR BLAST CIRCUIT BREAKER INSPECTION 1073251

Station: SSDIS Date: 2014-09-23 Readings By: E.O

WEATHER CONDITIONS: ✓ dry _____ rain _____ humidity 17C temperature

Breaker No.	L02L07	L100L109	L06L07	B2L12	L19L100
Air Pressure (kPA)	230	138	230	138	138
Operations Counter	89996	681	1154	536	90160
Recloser Counter	6	32	177	202	32
Heater (amps)	N/A	—	—	—	—
Control Cabinet Heater (on / off)	1.6	1.2	1.5	1.5	1.6
AØ Control Block Heater Amps	.5	.5	.5	.5	.5
BØ Control Block Heater Amps	.5	.5	.5	.5	.5
CØ Control Block Heater Amps	.5	.5	.5	.5	.5
Heat Trace Cable (amps)	N/A	N/A	N/A	N/A	N/A

Breaker No.	B3B4	L109T4	B1L02		
Air Pressure (kPA)	138	138	230		
Operations Counter	283	600	9021		
Recloser Counter	—	—	59		
Heater (amps)	—	—	—		
Control Cabinet Heater (on / off)	1.6	1.4	1.6		
AØ Control Block Heater Amps	.5	.5	.5		
BØ Control Block Heater Amps	.5	.5	.5		
CØ Control Block Heater Amps	.5	.5	.5		
Heat Trace Cable (amps)	N/A	N/A	N/A		

120 DAY - AIR BLAST CIRCUIT BREAKER INSPECTION

1073251

Station: SSDTS Date: 2014-09-23 Readings By: I. Organ

CHECKS COMPLETED:

- ✓ Check primary connections
- ✓ Check porcelain for cracks or chips
- ✓ Check grounding
- ✓ Check control cables
- ✓ Check Concrete Base
- ✓ Check for air leaks
- ✓ Check tank and paint condition
- ✓ Check pipes and fittings
- ✓ Check tank and cabinet heaters
- ✓ Check Heat Trace Cable (if applicable)

Remarks:

SUPERVISOR: _____ DATE: _____