

1 Q. Please confirm that an AMEC 2011 condition assessment of the Holyrood Plant  
2 concluded that the FD fan motor had a limited remaining life and was not likely to  
3 survive until the retirement of the Holyrood Plant.  
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6 A. With respect to the Unit 3 forced FD fan motors, please refer to page 10-109 of the  
7 AMEC 2010/2011 condition assessment, attached as PR-PUB-NLH-142 Attachment  
8 1, which states that the East and West FD fan motors do not have the capability to  
9 reach 2020 but were expected to last through to 2016. Further, on page 10-111,  
10 AMEC made the following recommendation: "[m]aintain ongoing inspection and  
11 maintenance programs. Maintain a spare motor be maintained to service all three  
12 units, in the event of a failure of an existing unit." Please see PR-PUB-NLH-142  
13 Attachment 2.  
14

15 With respect to Hydro's determination on how to respond on the recommendations  
16 arising from the AMEC 2010/2011 condition assessment, please see Hydro's  
17 responses to PR-PUB-NLH-012 and PR-PUB-NLH-013.

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10.2.6.4 Condition Assessment

The condition assessment of the Unit 3 FD fans (and system) is illustrated below in Table 10-52.

TABLE 10-52 CONDITION ASSESSMENT – UNIT 3 FD FANS (AND SYSTEM)

BU # 1	Asset # 2	Asset # 3	Asset # 4	Asset # 5	Asset # 6	Unit	Asset Level 2	Asset Level 3	Description	Detail	Condition Summary ID#	Append #	Condition	EPRI Identifier	Original Life (Base Load) Ops Hrs (Yrs)	Current Expected Minimum Remaining Life Years (Subject to Test)	End of Life (EOL) Required	Next Regular Inspection	Next Planned Overhaul or Major Inspection	Capability to Reach Next Overhaul	Capability to Reach EOL	In Service
1296	8193	8336	8387	0	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SYSTEM	N/A	76	19, 30	Inspected yearly and repairs completed.	3a	200000 (40)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8426	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SUPPLY (A/H TO	N/A	77	19, 30	Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8426	8429	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SUPPLY SEAL AIR	N/A	78	19, 30	Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8426	8432	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER SCANNER AIR SYSTEM	N/A	79	19, 30	Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8433	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER WINDBOX	N/A	80	19, 30	Inspected yearly and repairs completed.	3a	200000 (40)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8782	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN SYSTEM	N/A	81	19, 30	Both FD fans at that time were deemed to be in good condition. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8782	8392	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN EAST	N/A	82	19, 30	Both FD fans at that time were deemed to be in good condition. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8782	8393	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN WEST	N/A	83	19, 30	Both FD fans at that time were deemed to be in good condition. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8782	8392	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN EAST	Motors	84	25	Inspected yearly and repairs completed.	3a	200000 (30)	(5)	2020	2011		Yes	No	1980
1296	8193	8336	8387	8782	8393	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN WEST	Motors	85	25	Inspected yearly and repairs completed.	3a	200000 (30)	(5)	2020	2011		Yes	No	1980
1296	8193	8336	8387	8787	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER	N/A	86	19, 30	No damage observed in 2009. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8787	8404	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER EAST	N/A	87	19, 30	No damage observed in 2009. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8787	8405	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER WEST	N/A	88	19, 30	No damage observed in 2009. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8788	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER	N/A	89	19, 30	Some repair work in 2009 and more extensive work likely in future years on the cold end elements. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8788	8410	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER EAST	N/A	90	19, 30	Some repair work in 2009 and more extensive work likely in future years on the cold end elements. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8387	8788	8411	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER WEST	N/A	91	19, 30	Some repair work in 2009 and more extensive work likely in future years on the cold end elements. Inspected yearly and repairs completed.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8437	0	0	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER GAS SYSTEM	N/A	92	19, 30	Inspected yearly and repairs completed.	3a	200000 (40)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8437	8438	0	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER GAS PASSES	N/A	93	19, 30	Inspected yearly and repairs completed.	3a	200000 (40)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8437	8452	0	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER SOOTBLOWING SYSTEM	N/A	94	17	Inspected yearly and repairs completed as required.	4	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8460	0	0	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER FUEL FIRING SYSTEM	N/A	95	19	Inspected yearly and repairs completed as required.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8460	8461	0	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER HEAVY OIL SYSTEM	N/A	96	19	Inspected yearly and repairs completed as required.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8460	8484	0	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER LIGHT OIL SYSTEM	N/A	97	19	Inspected yearly and repairs completed as required.	3a	200000 (30)	10	2020	2011		Yes	Yes	1980
1296	8193	8336	8503	0	0	3	BOILER PLANT	BLR AUX STEAM & CONDENSATE	BLR AUX STEAM & CONDENSATE	N/A	98		Not reviewed in detail - primarily unit heaters from good to poor condition. New source needed after close of generation.	4	200000 (30)	10	2041	2011		Yes	Yes	1980
1296	8193	8336	8337	0	0	3	BOILER PLANT	BOILER STRUCTURE	BOILER STRUCTURE	N/A	102	17	No recent inspections. Visual walkdown indicated no issues.	4	60	(30)	2041	2011	2011	Yes	Yes	1980

- Notes:
1.

A “(bracketed)” value in the “Current Expected Remaining Life” column is a highly probable minimum value that is considered subject to some subsequent verification during further investigation, including at the next test or overhaul. It may be addressed as part of a Level 2 test. A value identified as “(X/Y)” has been included for the steam turbine and generator where the recommended minimum value is the lower of the two, but that the higher may be achievable at a higher level of failure risk and/or unreliability.
2.

The “Next Regular Inspection” column identifies a regular inspection (not necessarily an overhaul or detailed Level 2 test) that is currently planned and known to AMEC and which may provide further insight into the equipment life. The “Next Planned Overhaul or Major Inspection” column is intended to identify known detailed inspections and/or overhauls that will definitively update current remaining life assumptions and which are a “Desired Life” stage for condition assessment purposes. Note that where a detailed inspection/overhaul date is highlighted in yellow then it is a specific AMEC recommendation and that date is the basis for conclusions on the ability to make the next detailed inspection/overhaul. Where cells are blank, the dates may be either not scheduled or simply are not known to AMEC.
3.

The ability of the FD fans east and west to meet a 2020 EOL date may be affected if planned duct reconfiguration is not undertaken.

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### 10.2.6.5 Actions

Based on the condition assessment, the following actions are recommended for the Unit 3 FD fans (and system).

**TABLE 10-53 RECOMMENDED ACTIONS – UNIT 3 FD FANS (AND SYSTEM)**

BU # 1	Asset # 2	Asset # 3	Asset # 4	Asset # 5	Unit	Asset 2/3	Asset 3/4	Description	Detail	Action #	App #	Action	Year	Priority
1296	8193	8336	8387	0	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SYSTEM	N/A	120	19,30	Continue routine inspection, maintenance and overhaul - evaluating air heater hot end baskets; connecting installed FD fans vibration probes to online monitoring system; refurbish and use the furnace exit thermoprobe during start-up activities to avoid distortion and overheating of the secondary superheater and reheater sections tubes.	2010	1
1296	8193	8336	8387	8426	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SUPPLY (A/H TO	N/A	121	19,30	No recommended action.	2010	2
1296	8193	8336	8387	8426	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER AIR SUPPLY SEAL AIR	N/A	122	19,30	No recommended action.	2010	2
1296	8193	8336	8387	8426	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER SCANNER AIR SYSTEM	N/A	123	19,30	No recommended action.	2010	2
1296	8193	8336	8387	8433	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER WINDBOX	N/A	124	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8782	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN SYSTEM	N/A	125	19,30, 25	Maintain ongoing inspection and maintenance programs. Maintain a spare motor be maintained to service all three units, in the event of a failure of an existing unit.	2010	2
1296	8193	8336	8387	8782	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN EAST	N/A	126	19,30, 25	No recommended action.	2010	2
1296	8193	8336	8387	8782	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER F.D. FAN WEST	N/A	127	19,30, 25	No recommended action.	2010	2
1296	8193	8336	8387	8787	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER	N/A	128	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8787	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER EAST	N/A	129	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8787	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER STEAM AIR HEATER WEST	N/A	130	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8788	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER	N/A	131	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8788	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER EAST	N/A	132	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8387	8788	3	BOILER PLANT	BOILER AIR SYSTEM	BOILER MAIN AIR HEATER WEST	N/A	133	19,30	Continue current inspection and maintenance activities.	2010	2
1296	8193	8336	8437	0	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER GAS SYSTEM	N/A	134	19,30	See details below.		
1296	8193	8336	8437	8438	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER GAS PASSES	N/A	135	19,30	Inspect ductwork during annual inspections for excessive corrosion.	2011	2
1296	8193	8336	8437	8452	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER SOOTBLOWING SYSTEM	N/A	136	19	Update obsolete controls. Evaluate/implement Intelligent Sootblowing (ISB) to reduce sootblowing energy consumption and mechanical damage impacts.	2012	2
1296	8193	8336	8437	8452	3	BOILER PLANT	BOILER GAS SYSTEM	BOILER SOOTBLOWING SYSTEM	N/A	137	19	Continue yearly inspections and repair work.	2011	2
1296	8193	8336	8460	0	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER FUEL FIRING SYSTEM	N/A	138	19	No recommended action.		
1296	8193	8336	8460	8461	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER HEAVY OIL SYSTEM	N/A	139	19	Continue yearly inspections and repair work.	2011	2
1296	8193	8336	8460	8484	3	BOILER PLANT	BOILER FUEL FIRING SYSTEM	BOILER LIGHT OIL SYSTEM	N/A	140	19	Continue yearly inspections and repair work.	2011	2
1296	8193	8336	8503	0	3	BOILER PLANT	BOILER AUXILIARY STEAM & CONDENSATE	BOILER AUXILIARY STEAM & CONDENSATE	N/A	141		Refurbish and replace unit heaters as required.	2011	2
1296	8193	8336	8503	8504	3	BOILER PLANT	BOILER AUXILIARY STEAM MAIN	BOILER AUXILIARY STEAM MAIN	N/A	142		Refurbish as required.	2011	2
1296	8193	8336	8503	8510	3	BOILER PLANT	BOILER AUXILIARY STEAM	BOILER AUXILIARY STEAM	N/A	143		Plan to replace as building heating source.	2011	2
1296	8193	8336	8503	8543	3	BOILER PLANT	AUXILIARY STEAM CONDENSATE	AUXILIARY STEAM CONDENSATE	N/A	144		Refurbish as required.	2011	2
1296	8193	8336	8337	0	3	BOILER PLANT	BOILER STRUCTURE	BOILER STRUCTURE	N/A	145	17	Visually inspect difficult to access areas.	2011	2
1296	8193	8336	8337	0	3	BOILER PLANT	BOILER STRUCTURE	BOILER STRUCTURE	N/A	146	30	Continue present inspection and maintenance program. Evaluate a preventive replacement of the boiler expansion joints.	2011	2
1296	8193	8336	8337	0	3	BOILER PLANT	BOILER STRUCTURE	BOILER STRUCTURE	N/A	147		Evaluate corrosion on the steel structure and hangers in the boilers penthouse areas during the boiler routine maintenance and inspection activities. Review condition of the boiler refractory to assess the requirement for replacement during the boiler routine maintenance and inspection activities.	2011	2