

Decision of Power Pool Council as Balancing Pool Administrator
regarding TransAlta Utilities Corporation's
Force Majeure and HILP Claims

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I. BACKGROUND

In August, 2000 Enmax Corporation ("ENMAX") purchased the Power Purchase Arrangement ("PPA") relating to the Wabamun Generating Units owned and operated by TransAlta Utilities Corporation ("TransAlta"). The PPA runs until January 1, 2004. On August 3, 2000, operation of the Wabamun 4 Generating Unit was, in TransAlta's words, "shut down because of a concern for the safety of plant staff related to the integrity of the unit's water walls."¹ On October 3, 2000, the Alberta Boilers Safety Association ("ABSA") issued a letter requiring that TransAlta complete certain repairs before Wabamun 4 could be re-certified for operation under the *Safety Codes Act*, although it did leave open the possibility of other repair options. On October 11, 2000 TransAlta served the balancing pool administrator ("BPA") and ENMAX with written Notice of Force Majeure under section 14.2 of the PPA, further claiming that the corrosion fatigue cracking found in Wabamun 4's boiler waterwalls is a "High Impact/Low Probability event" (or "HILP Event") as that term is defined in the PPA. The Notice of Force Majeure also claimed that the action by ABSA was an additional event of force majeure. By Notice, published October 24, 2000, the balancing pool administrator initiated a consultation process in accordance with Section 5(2) of the *Balancing Pool Regulation* (AR 169/99) (the "Regulation") to aid in the determinations regarding TransAlta's Notice of Force Majeure. TransAlta also applied to the AEUB for relief under the *Temporary Suspension Regulation* (AR 285/95) ("TSR") on October 27, 2000.

In order to satisfy the obligations of the BPA under the *Electric Utilities Act*, S.A. 1995, c. E-5.5 (the "Act"), the BPA retained an independent engineering consultant, Rode & Associates, LLC ("Rode") to provide technical assistance. A preliminary *Technical Report: Assessment of TransAlta's Wabamun Unit 4 Force Majeure Claim* dated January 9, 2001 (the "January 9 Rode Report") was issued to interested parties for comment on January 11, 2001 by way of notice from the BPA. Comments were requested by the BPA pursuant to the requirement for consultation with interested parties in section 5(2) of the Regulation. The BPA received and reviewed a number of submissions, including responses from ENMAX, TransAlta, and others. On April 5, 2001, representatives of the BPA and Rode went on a site visit to the Wabamun Plant. Following that visit, the BPA submitted twenty-two questions to TransAlta. A response to only question 20 has been received. TransAlta has refused to provide answers to any other questions on the basis that the matter is under arbitration. The questions are attached as Appendix "A". The BPA has also received a further report from Rode dated July 5, 2001.

¹Application under the Temporary Suspension Regulation dated October 27, 2000 by TransAlta, page 6

II. ROLE OF BALANCING POOL AND POWER POOL COUNCIL UNDER THE BALANCING POOL REGULATION

The balancing pool is established by the Power Pool Council (the "Council") pursuant to the Regulation. In the case of unforeseen events that interfere with the expected ability of a unit subject to a PPA to generate power, the Regulation provides for payment out of the balancing pool in s. 7(1)(b). This type of event is called an "extraordinary event", which is defined under the regulation as:

- (i) an event other than the termination of an arrangement, in respect of which the arrangement² provides for payment into or out of the balancing pool, or
- (ii) an event that results in:
 - (A) the delivery after December 31, 2000 of a notice of termination of an arrangement,
 - (B) termination of an arrangement in accordance with the terms and conditions, and
 - (C) the balancing pool administrator becoming a party to the arrangement.

The BPA is responsible under section 5(1)(j) as follows:

on receipt of notice in respect of an extraordinary event from a party to an arrangement or otherwise, assess and verify the occurrence of the extraordinary event and the need for any payment to be made into or out of the Balancing Pool by or to a party under the provisions of the arrangement, and participate in any dispute resolution proceedings under an arrangement pursuant to Section 3.

Section 5(2) of the regulation requires that before acting under subsection 1(j), the Balancing Pool Administrator must consult with the parties to the arrangement and representatives of customers in respect of matters set out in subsection 1(j).

Section 5(1)(k) requires the balancing pool administrator to make the Capacity Payments upon receipt of a claim of Force Majeure, and the BPA has already done so in this matter. Accordingly, pursuant to section 5(4) of the Regulation, in the event that TransAlta's Force Majeure claim is denied by the BPA, and such finding is upheld in any subsequent dispute resolution proceedings involving the decision, TransAlta would be required to reimburse such funds.

²The definition of "arrangement" under s. 1(1)(b) of the Regulation included under (i) a power purchase arrangement approved or varied by the Board under section 45.91 of the Act.

In the case where there is a dispute over determinations made by the BPA, section 5(3) provides that

- (3) Notwithstanding the provisions of an arrangement, if
 - (a) a party to an arrangement disputes a determination by the balancing pool administrator, or
 - (b) the balancing pool administrator disputes that an extraordinary event has occurred or that a payment into or out of the balancing pool should be made under the provisions of the arrangement,

the dispute must be resolved by the dispute resolution process set out in the arrangement.

The dispute resolution process for the arrangement is set out in the next section of this decision.

Early in 2001, the Regulation was changed to provide authority for the Council to carry out all the powers of the BPA, as follows:

- 2.1(1) The Council has authority to carry out all the powers and duties given by the regulations or by an arrangement to the balancing pool administrator.
- (2) The Council may delegate to a person appointed under section 2(1)(c) the exercise of any power or duty referred to in subsection (1).
- (3) A person appointed under section 2(1)(c) has no authority to carry out a power or duty given by the regulations to the balancing pool administrator unless the Council has delegated to that person the exercise of that power or duty.
- (4) A delegation by the Council under this section must be in writing.
- (5) Where the Council delegates the exercise of a power or duty under this section, the Council is not precluded from carrying out the power or duty.

As a result, the Council has the authority to make decisions previously reserved to the BPA. The Council has elected to make this decision. Accordingly, with respect to this decision, references to the BPA include the balancing pool administrator himself, the balancing pool staff and Council. The decision itself has been made by Council acting as the BPA.

III. ROLE OF BALANCING POOL UNDER THE POWER PURCHASE ARRANGEMENT

The PPA provides for the participation of the balancing pool in a number of ways. The balancing pool is entitled to receive prompt notice of a Force Majeure event and the expected duration and probable impact, as well as further notice upon its cessation. Moreover, during any period where an Owner's obligations are suspended due to an event of Force Majeure, the balancing pool is required

to pay the difference in the provisional capacity payment and the monthly capacity payment. The relevant provisions of the arrangement are set out below.

Firstly, under the PPA, **Force Majeure**

means any event or cause which is beyond the reasonable control of the affected Party or its Affiliates, including a HILP Event, a mechanical breakdown but only in so far as such breakdown results from a HILP Event, an act of God, flood, earthquake, storm, lightning, fire, epidemic, war, blockade, explosion, riot, act of the Queen's enemies, act of civil or military authority, civil disturbance or disobedience, strike, lockout or other labour dispute or industrial disturbance, accident, sabotage, lack or inadequacy of fuel supply from a fuel supplier, any suspension or delivery of Electricity pursuant to Section 5.4, restraint by court order or any Laws, or the action or inaction of any Governmental Authority, or inability to obtain or renew any Governmental Approval, provided that lack of funds or economic hardship shall not constitute a cause beyond the reasonable control of the affected Party.

A **High Impact/Low Probability Event** or **HILP Event** means

a major failure of some or all of the components of the plant (or a reasonable prediction by the Owner that a major failure of some or all of the components of the Plant will occur before the next scheduled Plant Outage) and which results (or could reasonably be expected to result) in the Plant being unable to operate or being forced to operate at a lower level (or is reasonably predicted by the Owner to be unable to operate or forced to operate at a lower level) and (a) it is reasonably predicted by the Owner that the Plant will be unable to operate or forced to operate at a lower level for a period in excess of six (6) weeks; (b) the Balancing Pool has confirmed the above conditions have been met.

A **Governmental Authority** means

a court, ministry, minister, official, government, government department, government authority, government agency, regulatory authority, regulatory agency, administrative tribunal, body that establishes or administers Laws, or body having authority over the Arrangement created pursuant to a Law

Article 14: Force Majeure provides as follows:

14.1 Relief for Force Majeure

If either Party is unable, wholly or in part, to perform or comply with any obligation hereunder, and if such inability shall have been occasioned by or as a consequence of any event of Force Majeure, the obligations of such Party, insofar only as its obligations are affected by the event of Force Majeure, shall be suspended for so long as the event of Force Majeure continues to prevent the performance of or compliance with such obligation and for such time thereafter as such Party may reasonably require to fulfil such obligation.

14.2 Notice and Efforts to Continue

If either Party relies on the occurrence of an event of Force Majeure as a basis for claiming suspension of an obligation under this Arrangement, such Party shall:

- (a) provide prompt Notice to the other party and the Balancing Pool of the event or condition being relied upon as an event of Force Majeure, including its expected duration and probable impact on the performance of or compliance with its obligations hereunder;
- (b) exercise all reasonable efforts to continue to perform or comply with its obligations hereunder;
- (c) exercise all reasonable efforts to mitigate or limit the effect of the event of Force Majeure; and
- (d) provide prompt Notice to the other Party and the Balancing Pool upon the cessation of the event of Force Majeure.

...

14.3 Effect of Force Majeure

During any period in which the Owner's obligations to perform or comply with an obligation under this Arrangement are suspended pursuant to Section 14.1, the Monthly Capacity Payment shall be reduced as provided for in Schedule C to reflect the availability of Committed Capacity of each Unit during such Months. The Owner shall be entitled to payment from the Balancing Pool of the difference, if any, between the Provisional Capacity Payment and the Monthly Capacity Payment for such Months.

The relevant sections of TransAlta's rights and obligations under the PPA with respect to safety, maintenance and repairs are as follows:

"Good Operating Practice" means any of the range of practices, methods and acts engaged in or approved by a significant proportion of the industry in North America involved in the supply of electricity from and the operation of generating units similar to the Units, from time to time, or any other practices, methods and acts which, in the exercise of reasonable judgement in light of the facts known or reasonably ascertainable, could have been expected to accomplish the desired result at a reasonable cost consistent with applicable Laws, reliability, safety and expedition;

5.2 Interruption of Supply

The Owner shall have the right to interrupt the provision of Generation Services from any Unit at any time to the extent necessary to safeguard life, property or the environment, or to the extent reasonably necessary to conduct preventative maintenance to safeguard life, property or the environment, whether

such interruption is caused by an event of Force Majeure or otherwise. To the extent and as soon as may be practicable, the Owner shall: (i) limit the duration of such interruptions, and (ii) other than upon the occurrence of an event of Force Majeure, give notice to the Buyer of its intention to interrupt the provision of Generation Services. The provisions of Schedules D and H shall continue to apply in the event the Owner interrupts the provision of Generation Services pursuant to this Arrangement.

7.2 General Obligations

- (a) Without limitation on, and in addition to, any of the specific obligations of the Owner hereunder, the Owner shall at all times during the Effective Term do all things necessary to assure performance by it of its obligations herein, operate and maintain the Units and the Plant in accordance with Good Operating Practice so as to guard against diminutions and interruptions in the supply of Electricity and System Support Services to the Buyer and shall cause such diminutions and interruptions to be terminated with all reasonable dispatch. Such actions by the Owner shall include entering into and maintaining any necessary TA Agreements and, in the usual and ordinary course, complying with applicable Laws and refraining from doing anything or entering into any agreement or arrangement which could reasonably be expected to materially adversely affect the Owner's ability to perform its obligations hereunder.

15.1 Total or Partial Destruction

If any Unit or the Plant is totally or partially damaged or destroyed by any cause whatsoever, the Owner shall, notwithstanding any other provision of this Arrangement, promptly inform the Buyer, in writing, of such event. In addition the Owner shall, as soon as it is reasonable inform the Buyer of the likely period for which such Unit or the Plant will be unavailable for operation. The Owner shall repair, replace, rebuild or restore such Unit or the Plant with all reasonable diligence consistent with Good Operating Practice to at least as good condition or state of repair as it was prior to that damage or destruction; provided that if this Arrangement is terminated in whole or in part under the terms of Sections 15.2 or 15.3, then the Owner shall not be obligated to repair, replace, rebuild or restore such Unit or the Plant. In the event that this Arrangement is not terminated in respect of such Unit, the Owner shall regularly report to the Buyer, in writing, of the progress of the repair work, including an estimate of when the work will be completed.

Article 19 provides for a dispute resolution mechanism among the parties:

19.1 Dispute or Failure to Agree

Where this Arrangement requires the Parties to come to an agreement with respect to any matter, the failure of the parties to come to such agreement within the time specified, or if no time is specified within a reasonable period, shall be deemed to be a dispute between the parties which shall be resolved in accordance with the provisions of the Article 19.

The remaining provisions of Article 19 deal with specific details of the dispute resolution process, including arbitration. Article 21.8 refers to the rights of the Balancing Pool as follows:

21.8 Rights of the Balancing Pool

In any instance where the Balancing Pool may be required to make a payment to either Party, the Party which may receive such payment shall promptly inform the Balancing Pool of the circumstances which may give rise to any such payment. With respect to any such payment and the surrounding circumstances as well as any matter requiring the agreement, confirmation or determination of the Balancing Pool, it shall, with respect to the settlement of disputes that arise between it and the Owner or the Buyer, have rights and obligations under Article 19 [the dispute resolution mechanism between the parties] as if it were a Party to this Arrangement.

Thus, the balancing pool's obligations under an "extraordinary event" are clearly invoked in the case where a party to the arrangement claims an event of Force Majeure. The BPA must investigate and verify the occurrence of the extraordinary event, in this case, the event of Force Majeure and the need for any payment to be made. Furthermore, the BPA is also required to provide confirmation of a HILP Event under the PPA. Thus the BPA's role is clearly defined under both the Regulation and the PPA.

IV. REVIEW OF INFORMATION PROVIDED BY THE PARTIES AND OTHER INTERESTED GROUPS

A great deal of information was received from TransAlta. TransAlta has submitted that the HILP Event definition is met because the Wabamun 4 boiler had experienced a failure or was reasonably expected to have an imminent failure, due to the water wall tube blow out on June 30, 2000. TransAlta then determined that the June blowout was similar to the February, 1999 catastrophic failure. On August 3, 2000, TransAlta received the results of Electromagnetic Acoustic Transducer (EMAT) testing which indicated a significant number of cracks in the water wall tubes and that more blowouts were to be expected. The unit was deemed to be unsafe and was shut down due to the potential for a further catastrophic failure. TransAlta further submitted that all conditions of the HILP were met on January 1, 2001 when the PPAs became operative. TransAlta further submitted that both the HILP Event and the ABSA decertification were beyond its reasonable control and therefore constituted an event of Force Majeure.

Other evidence was received from ENMAX, the Independent Power Producers Society of Alberta ("IPPSA"), the Industrial Power Consumers and Co-Generators Association of Alberta ("IPCCAA"), the Senior Petroleum Producers Association ("SPPA"), the FIRM Group, and ATCO Power. With the exception of ATCO, the other parties endorsed the findings of the January 9 Rode Report and urged the BPA to find that the shut-down of Wabamun 4 was not an event of Force Majeure.

Furthermore, the process under the TSR proceedings are obviously closely-related and certain parties referred the balancing pool to those materials during the consultation process. As a result, the BPA also reviewed the key documents in those proceedings in reaching its decision.

A list of the key documents reviewed is attached as Appendix "B".

V. DECISION

The BPA has carefully considered all of the submissions made by TransAlta, ENMAX, and interested parties as well as other relevant information, such as the submissions made in the TSR hearings. In addition, it has taken into account the materials provided by Rode & Associates and the responses to their January 9, 2001 report.

TransAlta has claimed that this is a HILP Event and that it is also an event of Force Majeure, based both on the fact that it is a HILP Event and the fact that ABSA has decertified the Wabamun 4 boiler. The decision of the BPA on these claims was the result of the following process. First, there was a determination of whether the facts support the submission by TransAlta that this is a HILP Event. Second, there was a determination of whether the action by ABSA qualifies as an action by a Governmental Authority. Finally, there was a consideration of whether this is an event of Force Majeure, both due to the HILP Event claim and the de-certification by ABSA.

HILP Event Determination

The BPA notes that the definition of HILP Event in the PPA provides the parameters for the determination of whether this situation qualifies as a HILP Event. As a result, it must be determined:

- (i) whether a major failure of some or all components of the Wabamun 4 Plant has occurred or has been reasonably predicted by the Owner;
- (ii) whether that failure resulted in the Plant being unable to operate or being forced to operate at a lower level; and
- (iii) whether it is reasonably predicted by the Owner that the Plant will be unable to operate or forced to operate at a lower level for a period in excess of six weeks.

The BPA has carefully considered all the evidence. It recognizes that there is expert testimony by well known consultants and conflicting points of view. However, on balance, it is the determination of the BPA that this event does not meet the definition of a HILP Event because it was not reasonable for TransAlta to predict that any failure would cause the unit to be out of service for a period of more than six weeks.

Governmental Authority Determination

The BPA is of the opinion that ABSA falls within the definition of "Governmental Authority" in the PPA. Pursuant to section 2(1) of the *Boilers Delegated Administration Regulation* (AR 54/95), the powers, duties and functions of an Administrator under section 54 of the *Safety Codes Act* with respect to Part 1 of the *Administration and Information Systems Regulations* are delegated to ABSA. The powers duties and functions of a safety codes officer under numerous other regulations are also delegated to ABSA. It is not entirely clear under which of a number of headings ABSA would be

classified, but if not a "regulatory agency" or "regulatory authority", ABSA is certainly a "body that administers Laws" pursuant to its delegated responsibilities.

For this reason, the BPA has determined that the action taken by ABSA to de-certify the Wabamun 4 unit is the action of a Governmental Authority.

Force Majeure Determination

The next consideration is whether the conditions for a Force Majeure have been met. First, this is not a HILP Event, and therefore it will not meet the definition of Force Majeure under that head. The ABSA de-certification does meet the definition of an action by a Government Authority under the PPA and as a result, the BPA must also determine whether such action was "an event or cause which is beyond the reasonable control" of TransAlta. It should be noted that this analysis applies to both the HILP Event and the shut down by ABSA, notwithstanding that it has been found that the failure was not a HILP Event.

It is the conclusion of the BPA that the outage was not beyond the reasonable control of TransAlta. While there is conflicting evidence, on balance the evidence suggests that TransAlta failed to take adequate steps to maintain the Wabamun 4 unit to the necessary level. As a result, the decision of the BPA is that the failure is not an event of Force Majeure justifying a payment out of the balancing pool under Article 14.3.

APPENDIX "A"



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April 10, 2001

Mr. Dick Way
Vice-President, Regulatory Affairs
TransAlta Utilities Corporation
110-12 Avenue SW
Calgary, AB
T2P 2M1

Dear Dick

Following our discussions with Doyle Sam and Brian Vestby at the Wabamun plant last week, we have a number of outstanding questions related to the assessment of the condition of the boiler. A list of these questions is attached. We appreciate your continued cooperation and look forward to your response at your earliest convenience.

Yours truly,

A handwritten signature in black ink, appearing to be "Renee Usselman", written over a horizontal line.

Renee Usselman
Balancing Pool

Cc: Doyle Sam TAU – Wabamun Plant
 Brian Vestby TAU - Wabamun Plant
 Bill Sylvester Rode & Associates
 ✓ Doug Rode Rode & Associates
 Don Gerke Balancing Pool
 Doug Heath Balancing Pool

Questions relating to Wabamun Unit #4

1. We would like to know more about the multiple failures in the right side walls occurring on February 8, 1999. We have the three metallurgical reports for tube 33. Are there other reports, correspondence or documents that describe that incident, the actions taken and the operating conditions at the time? If possible, please provide. Additionally, for the 24 hours preceding this failure, please provide operating logs and charts showing steam drum pressure, flow and temperature. Were the failures in tubes 6 and 12 metallurgically examined? If so, please provide the reports.

2. Are all leaks found during hydrostatic testing recorded in the database and on the Boiler Tube Failure Reports?

3. Identify the number and dates of waterwall failure/leaks, including those found on hydro tests that occurred in the vicinity of the tube-to-tube tangent point during the following periods:
 - Prior to 1993
 - 1993 to February 8, 1999
 - February 9, 1999 to August 3, 2000

4. During the period from January 1998 through June 1999 a leaking section of the following tubes were noted in the tube database as being replaced or permanently repaired. Upon removal of these tubes, was the o'clock location of the leak noted?

Did any of these tubes leak at the tangent points? Did TAU or others perform any examination of these tubes? Did any of these tubes have cracks at the tangent points? If so, please provide particulars.

Date	Location	Elevation & Tube #
98/01/30	left wall corner 2	2424 T278
98/01/30	front wall corner 8	2457 T470
98/03/13b	front wall corner 8	2461 T472
98/12/18A	right wall corner 8	2428 T1
98/12/18B	front wall	2462.6 (23 from IR 36)
99/01/03	front wall	2458 (23 from IR 36) (a)
99/04/06	rear wall corner 3	2448 (215 from right wall)
99/04/16	left wall corner 1	2422 (corner tube)
99/04/16	front wall	2427 T20
99/04/10	rear wall	2421 (8 from right wall)
99/04/10	rear wall	2421 T437
99/04/10	front wall	2440 T460
99/04/26	left wall corner 1	2420 (corner tube)

99/04/26	rear wall corner 3	2400	(corner tube)
99/04/26	rear wall	2420	T452
99/04/26	left wall	2403	T132
99/04/26	rear wall	2395	T303
99/04/27	rear wall	2437	T463
99/04/27	front wall	2418	T20
99/04/27	front wall	2426	T20
99/04/27	left wall corner 1	2421	(corner tube)
99/05/08	rear wall	2448	T216 (b)
99/06/19	rear wall corner 6	2430	T254

Notes:

1. Tube leak form states that this leak was 5 feet below tube replaced in last outage
 2. This tube had leaked on 93/02/12 at elevation 2445.3. The 1993 leak in this tube appears to have been at the tube's tangent point.
5. During the period April 1, 1999 – August 3, 2000, please provide a record of the tubes that were removed for metallurgical examination and a copy of the metallurgical reports covering those examinations.
- For the same period, please provide records of tubes non-destructively examined and destructively examined. (No need to send the information provided in the TSR responses covering the NDE EMAT and Karta testing in May 2000).
6. When did you start to focus on examining the tangent points of tubes for cracking? When was the first non-destructive examination focused on the tangent points?
 7. Do you concur with Aptech's opinion that the oxide/ash build up occurring between tubes is caused to a large extent by water washing? Why or why not?
 8. When did anyone employed by TAU become aware of the results of the EMAT testing of May 24, 2000?
 9. The report of the May 24, 2000 EMAT testing was received on August 3, 2000. What was the reason for the delay in receiving this report?
 10. If possible, please provide the cover letter to the report of EMAT testing received on August 3, 2000.
 11. When did the outage of May/June 2000 end? When did you first remove and examine a tube identified by EMAT testing as having significant cracks?

12. Please provide a copy of the Combustion Engineering drawing C479-377 showing buckstay elevations.
13. With reference to waterwall leaks and failures, are there graphical recordings similar to Figs. 11 and 12 contained on pages 23-10, 11 and 12 of the 1991 Edition of COMBUSTION Fossil Power? Please provide your process for obtaining a global view (mapping) of failure locations in the waterwalls and provide any documentation showing such mapping.
14. With reference to the investigations and examinations performed after August 3, 2000 specific to tangent point cracking, is there any mapping that shows:

The extent of NDE;

- Areas inaccessible for NDE and the reason why NDE could not be performed at these locations.
- Tubes with recordable NDE indications, the amplitude and length of the indication, and the elevation of the indication;
- Tubes removed for destructive examination (DE);
- The depth and length of tangent point(s) cracking found on DE; and
- The relationship of NDE indications and DE cracking to buckstay elevations, corners and burner nest.

If any of the above items are not presently mapped, can TAU prepare such maps? If not, please provide copies of all reports and drawings that would provide the means to prepare such maps.

15. What was the relationship of the Corner 2 tube shown in the October 3, 2000 presentation to ABSA containing a crack 79% through the wall to the June 30, 2000 rupture in Corner 2? Was this tube one of those removed during the repair of the Corner 2 failure that occurred on July 12, 2000? If not, please provide date and reason for its removal.
16. If possible, please provide copies of minutes of meetings from February 1999 to the present in which tube failure safety concerns and the means for addressing those concerns are addressed. Additionally, please provide copies of minutes of meetings since June 30, 2000 in which means of identifying and replacing tubes with safety concern distress were addressed.
17. When did TAU initiate its formal root cause investigation? Why wasn't this investigation initiated in 1999 when recommended in the EPRI/Aptech report covering the rupture in tube 33 on February 8, 1999? When did TAU initiate the fitness-for-service effort directed by Mr. Brian Vestby? Please describe this effort and provide any reports, analysis or conclusions generated as a result of this effort.
18. Aptech's report of October, 2000 included a recommendation that "economic and safety analysis evaluations should be performed to determine the optimal short-term and long-term

corrective actions to prevent additional corrosion fatigue failures.” When did TAU receive this recommendation and what was done in this regard?

19. Why wasn't the type of examination performed by Aptech on September 14 (R&A correction), 2000 performed:

- Shortly after the issuance of Aptech's April 2000 metallurgical finding of cracking on both sides of the first front wall tube at Corner 1 which leaked on March 30, 1999 at elevation 2,433?
- Shortly after the June 30, 2000 rupture?
- Earlier during the August 3, 2000 outage?

20. Since this unit was operable at the time of shutdown on August 3, 2000, the following would be required to be considered a HILP event: "A reasonable prediction by the Owner that a major failure of some or all the components of the Plant will occur before the next Planned Outage and which results (or could be reasonable expected to result) in the Plant being unable to operate or being forced to operate at a lower level (or is reasonably predicted by the Owner to be unable to operate or forced to operate at a lower level) and (a) it is reasonably predicted by the Owner that the Plant will be unable to operate or forced to operate at a lower level for a period in excess of six weeks; and (b) the Balancing Pool has confirmed that the above conditions have been met."

Please explain in detail, how the August 3, 2000 outage satisfies all of the necessary provisions of HILP as indicated above including the basis for the prediction that the failure was a major failure and expected to last more than six weeks.

21. The Aptech December 2000 Report of upper furnace examination performed October 14-22, 2000 indicates that TAU had decided to replace the tubes below elevation 2,494 feet.

- When was this replacement decision made?
- What was the lower cut line for the front, rear and sidewalls, and if included in the replacement, the center wall?
- What was the basis of this decision and to what extent were alternatives considered?
- Which of the tubes examined by Aptech on September 13 and 14, 2000 were reasonably predicted to fail catastrophically to the casing side of the furnace before the next planned outage?
- It appears that Aptech's NDE in the lower portion of the furnace was limited to 2 days.
- Why wasn't additional NDE performed in the lower portion of the furnace?
- When was the decision made to replace the remainder of the tubes to the roofline? Did this include the center wall and front and rear wall tubes? Were any other tubes in the upper area replaced? What was the basis of this replacement decision and to what extent were alternatives considered?

- Which of the tubes examined by Aptech during the period October 14-22, 2000 were reasonably predicted to fail catastrophically to the casing side of the furnace before the next planned outage?
 - Is there any metallurgical documentation as to the nature of the upper furnace grooves and cracks in addition to that shown in the Aptech December, 2000 Report? If so, please provide.
22. Did TAU consider and present to ABSA at any of its meetings any partial replacement alternatives? Were there any discussions with ABSA about partial replacement alternatives? Could the safety concerns have been addressed by selective tube replacement in known problem areas such as Corners 2 and 8 in the lower furnace with periodic inspection and re-inspection during planned outages of less than 6 weeks at frequencies satisfactory to ABSA? If possible, provide details of all communications with ABSA.

APPENDIX "B"

1. Wabamun Power Purchase Arrangement
2. Notice of Force Majeure dated October 11, 2000
3. Letter from ABSA dated October 3, 2000
4. Undated letter from TransAlta received October 3, 2000
5. Balancing Pool Regulation
6. Notice from the Balancing Pool Administrator dated October 20, 2000
7. Notice from the Balancing Pool Administrator dated January 11, 2001

TRANSALTA MATERIAL

8. EPRI letter and attached Aptech report dated March 22, 1999
9. Aptech Report dated April 1999
10. Power Generation Segment Boiler Shutdown Report - Supervisor Report - undated
11. Inspection and Pressure Part Repair Summary Report for Wabamun Generating Station Unit 4 Outage - February 10 - April 01, 1999 - undated
12. Canspec Report - Analysis of Failed U4 Boiler Tube dated March 12, 1999
13. ABB Tube Examination Report dated May 24, 1999
14. Canspec Report - Partial Inspection of Wabamun Unit No. 4 Boiler dated November 29, 1999
15. Canspec Report - Examination of Waterwall Tubes Re: Wabamun Unit No. 4 dated January 2, 2000
16. Excerpt from Response by TransAlta to IPPCCA.TAU - 11 [a - s] dated March 17, 2000
17. Comments on Technical Report from O. Jonas respecting 1999/2000 TSR application by M&M Engineering
18. EMAT Testing Results. May 24, 2000

19. Canspec Report - Examination of Waterwall Tubes from Wabamun Unit No. 4 dated June 22, 2000
20. Temporary Suspension Regulation Application 990616 - Rebuttal Evidence of TransAlta Utilities dated July 14, 2000
21. Wabamun 4 Leak database January 1, 1999 to July 31, 2000
22. EMAT Testing Results. August 21-23, 2000
23. Wabamun Generating Plant Standard Operating Instruction date August 28, 2000
24. Canspec Report Examination of Waterwall tubes re: Wabamun Unit No. 4 dated September 18, 2000
25. TransAlta's presentation notes to ABSA dated September 30, 2000
26. Aptech Report dated October 2000
27. Application by TransAlta Utilities Corporation under the Temporary Suspension Regulation dated October 27, 2000
28. Letter from TransAlta dated November 27, 2000
29. Aptech Report - Upper Furnace Examination at Wabamun Generating Station, Unit 4 dated December 2000
30. Response by TransAlta to ENMAX.TAU -7 [a-d] dated January 22, 2001
31. Excerpt from Response by TransAlta to ENMAX.TAU - 12 dated January 22, 2001
32. Response by TransAlta to ENMAX.TAU -16 [a-e] dated January 22, 2001
33. Response by TransAlta to ENMAX.TAU -19 dated January 22, 2001
34. Response by TransAlta to ENMAX.TAU -27 dated January 22, 2001
35. Response by TransAlta to IPCCAA.TAU -1 [a-g] dated January 22, 2001
36. Response by TransAlta to IPCCAA.TAU -7 [a-o] dated January 22, 2001
37. Response by TransAlta to SPPA/IPPSA.TAU -1 [a-c] dated January 22, 2001

38. Response by TransAlta to SPPA/IPPSA.TAU -2 [a-d] dated January 22, 2001
39. Response by TransAlta to SPPA/IPPSA.TAU -3 [a-g] dated January 22, 2001
40. Response by TransAlta to EPCOR.TAU -1 [a-e] dated January 22, 2001
41. Response by TransAlta to EPCOR.TAU -2 [a-d] dated January 22, 2001
42. Response by TransAlta to EPCOR.TAU -3 [a-c] dated January 22, 2001
43. Response by TransAlta to EPCOR.TAU -4 [a-b] dated January 22, 2001
44. Response by TransAlta to EPCOR.TAU -5 [a] dated January 22, 2001
45. Response by TransAlta to EPCOR.TAU -6 [a-b] dated January 22, 2001
46. Response by TransAlta to EPCOR.TAU -7 [a-c] dated January 22, 2001
47. Response by TransAlta to EPCOR.TAU -8 [a-e] dated January 22, 2001
48. Response by TransAlta to PICA.TAU -2 [a-e] dated January 22, 2001
49. Response by TransAlta to PICA.TAU -3 [a-b] dated January 22, 2001
50. Response by TransAlta to PICA.TAU -4 [a-b] dated January 22, 2001
51. Table - Wabamun 4 Historic Performance Data
52. Table - Wabamun 4 Forced Maintenance Outages from 1990 to 2000
53. Letter from TransAlta dated January 30, 2001 in response to the January 2001 Rode Report
54. Root cause analysis of Wabamun for boiler tube cracking report by Otakar Jonas dated March 2001
55. Letter from TransAlta dated March 14, 2001
56. Letter from TransAlta dated April 12, 2001
57. Letter from TransAlta dated April 12, 2001
58. Letter from Balancing Pool Administrator dated April 23, 2001

59. Letter from TransAlta dated May 4, 2001 including TransAlta's answer to question number 20 regarding HILP
60. Letter from TransAlta dated May 8, 2001
61. Letter from TransAlta dated May 11, 2001
62. Letter from Balancing Pool Administrator dated May 24, 2001
63. Letter from TransAlta dated June 8, 2001 confirming cessation of event of force majeure
64. Letter from TransAlta dated June 15, 2001
65. TransAlta rebuttal evidence in TSR proceeding dated June 29, 2001

ENMAX MATERIALS

66. E-mail from Enmax dated October 23, 2000 including Enmax preliminary investigation on Wabamun for force majeure declaration
67. Letter from Enmax dated January 23, 2001 in response to the January 2001 Rode Report
68. Evidence of Steven Nelson filed on behalf of Enmax in the TSR proceedings dated 2001
69. Letter from Enmax dated April 4, 2001
70. Letter from Enmax dated May 18, 2001
71. Responses to IRs on behalf of Enmax in the TSR proceeding dated May 14, 2001

INDUSTRIAL POWER CONSUMERS AND COGENERATORS ASSOCIATION OF ALBERTA - IPCCAA

72. Letter from IPCCAA dated January 23, 2001

INDEPENDENT POWER PRODUCER SOCIETY OF ALBERTA AND SENIOR PETROLEUM PRODUCERS ASSOCIATION - IPPSA/SPPA

73. Report of Otakar Jonas dated June 2000 filed in TSR proceedings
74. Letter from SPPA dated January 30, 2001 in response to the January 2001 Rode Report

- 75. Report of Thomas Laronge dated March 16, 2001 filed in the TSR proceedings
- 76. IR responses of SPPA/IPPSA filed in the TSR proceedings dated 2001

FIRM GROUP

- 77. Letter from Brian and Company on behalf of the firm customers dated January 30, 2001 in response to the January 2001 Rode Report
- 78. Evidence of Dr. David French dated March 12, 2001 filed in the TSR proceedings
- 79. IR responses to David French dated May 25, 2001 filed in the TSR proceedings

ATCO POWER

- 80. Letter from Atco Power dated January 30, 2001 in response to the January 2001 Rode Report

RODE & ASSOCIATES LLC

- 81. Rode Report dated January 9, 2001
- 82. Rode Report dated July 5, 2001
- 83. Rode Comments on EMAT Testing dated Ma1, 2001
- 84. Excerpt from ABB Combustion manual
- 85. Discussion Item - February 11, 2000
- 86. Wabamun - Failure of Boiler Tube Reports identified by Rode

MISCELLANEOUS REFERENCE DOCUMENTS

- 87. Boilers Delegated Administration Regulation
- 88. Temporary Suspension Regulation
- 89. Advancements in NDE for Utilities and the Petrochemical Industry through Electromagnetic Acoustic Transducers (EMATs)