FLORIDA PUBLIC SERVICE COMMISSION
OFFICE OF COMMISSION CLERK

DOCUMENT NUMBER ASSIGNMENT*

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CONFIDENTIAL

(CONFIDENTIAL) Hearing Exhibit No. 109 from 2/5/20 DOAH Hearing. [CLK Note: See DN 10935-2019 for Exh Nos. 1, 68-75, 80, 82, 100]

4/7/2026
DECLASSIFIED

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EXHIBIT NO. 109

CONFIDENTIAL

DOCKET NO: 20190001-EI

WITNESS: Jeffrey Swartz

PARTY: Duke

DESCRIPTION: Tenaska Contract No. 270810 in three parts:

DOCUMENTS:

a. DEF-19FUEL-007536-7580 (May 3, 2006)
b. DEF-19FUEL-012419-12724 (January 2, 2008) (Appendix A)
c. May 2002 contract No. 270810 ("Volume 1")

PROFFERED BY: Office of Public Counsel

ASSET SALE AGREEMENT NO. 270810

This Asset Sale Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (the "Contract");

WHEREAS, pursuant to a letter agreement between Progress and Tenaska, dated February 10, 2006, as amended April 24, 2006 (the "Option Agreement"), Tenaska granted to Progress the option to purchase all of Tenaska's right, title and interest in the Contract and the Equipment for a purchase price of Twelve Million Dollars ($12,000,000); and

WHEREAS, Progress has exercised its option in accordance with the Option Agreement to purchase all of Tenaska's right, title and interest in the Contract and Equipment and is willing to assume Tenaska's rights and obligations under the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows:

1. **Sale of Assets.** Tenaska shall sell to Progress and Progress shall purchase from Tenaska all right, title and interest of Tenaska in the Contract and the Equipment in consideration of the payment to Tenaska of Twelve Million Dollars ($12,000,000) (the "Purchase Price") by Progress. Tenaska acknowledges the receipt of One Million Two Hundred Thousand Dollars ($1,200,000) from Progress pursuant to the Option Agreement (the "Exercise Payment") to be applied against the Purchase Price at the Closing. In the event that a Closing fails to occur solely as a result of a default by Progress, Tenaska may elect to retain the Contract, the Equipment, and the Exercise Payment, as a termination fee.

2. **Assignment and Assumption Agreement.** Coincident with the execution of this Agreement Tenaska and Progress have executed an Assignment and Assumption Agreement, in the form attached hereto as Attachment A (the "Assignment and Assumption"), to be held by Tenaska until the Closing. Tenaska shall attempt to obtain the consent of MPS to the Assignment and Assumption, substantially in the form of consent attached hereto as Attachment B (the "Consent").

3. **Closing and Termination.** Immediately following the execution of the Consent by MPS, Tenaska shall provide notice to Progress of the execution of the Consent along with a copy of such Consent. Within five (5) business days after Tenaska has provided Progress with notice of the execution of the Consent by MPS accompanied by a copy of the Consent, Progress shall pay to Tenaska the balance of the Purchase Price in the amount of Ten Million Eight

Hundred Thousand Dollars ($10,800,000) by wire transfer to an account identified by Tenaska and Tenaska shall deliver the Assignment and Assumption and the Consent to Progress along with a Bill of Sale for the Equipment(the "Closing"). In the event that MPS has not executed the Consent within thirty (30) days after the date of this Agreement, then either party to this Agreement may, by written notice to the other party, elect to terminate this Agreement, and upon such termination Tenaska shall immediately return the Exercise Payment to Progress and this Agreement shall terminate and be of no further effect, and all rights and obligations hereunder, except for the right of Progress to receive return of the Exercise Payment, will be extinguished.

4. **Indemnification.** Tenaska shall indemnify and hold harmless Progress from all third party claims involving the Contract and/or the Equipment arising prior to the date of this Agreement. Progress shall indemnify and hold harmless Tenaska from all third party claims involving the Contract and/or the Equipment arising on and after the date of this Agreement. The party claiming indemnification under this Agreement shall provide the other party ("Indemnifying Party") with prompt written notice of any third party claims under this section and shall not settle or otherwise compromise any such claims without the written consent of the Indemnifying Party which will not be unreasonably withheld.

5. **Representations and Warranties.** As of the date of this Agreement, Tenaska represents to Progress that (a) all amounts due to MPS from Tenaska under or with respect to the Contract have been paid in full to MPS; (b) neither Tenaska nor MPS is in default or material breach of the Contract which remains in full force and effect (subject to the limitations described in Section 4.5 which may be removed following inspection and refurbishment in accordance with Section 10.2); (c) Tenaska has good and valid title to the Contract and the Equipment, free and clear of all liens or encumbrances; (d) Tenaska has provided Progress with true, complete and correct copies of the Contract; and (e) Tenaska has all requisite power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement. Tenaska further represents to Progress that the representations set forth in the immediately preceding sentence will remain true on the date that Tenaska delivers to Progress the Assignment and Assumption with the Consent executed by MPS. Tenaska makes no representation, warranty or guaranty with respect to the Equipment. Progress represents to Tenaska that it has all requisite power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement. EXCEPT FOR THE REPRESENTATIONS AND WARRANTIES OF TENASKA SET FORTH IN THIS AGREEMENT, PROGRESS UNDERSTANDS AND AGREES THAT WITH RESPECT TO TENASKA, THE EQUIPMENT IS BEING SOLD AND ACQUIRED "AS IS, WHERE IS" ON THE CLOSING DATE. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, TENASKA EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF MERCHANTABILITY, USAGE, SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE; PROVIDED THAT SUCH DISCLAIMER SHALL NOT VOID OR OTHERWISE IMPACT ANY WARRANTIES WHICH MPS MAY CONTINUE TO HAVE UNDER THE CONTRACT.

6. **Entire Agreement.** This Agreement and the Option Agreement constitute the entire agreement between Tenaska and Progress with respect to the assignment and assumption of the Contract and the sale of the Equipment.

7. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

8. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

9. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

10. **Construction.** The section headings contained in this Agreement are inserted for convenience only and shall not affect in any way the meaning or interpretation of this Agreement. Notwithstanding the fact that this Agreement has been prepared by one of the parties, each of the parties confirm that they and their respective counsel have reviewed, negotiated and adopted this Agreement as the joint agreement and understanding of the parties. This Agreement is to be construed as a whole and any presumption that ambiguities are to be resolved against the primary drafting party shall not apply. Any provision which is required by applicable laws to be included in a contract of this type is deemed to be incorporated in this Agreement, as if it were included in total in this Agreement.

11. **Amendments and Waivers.** No amendment of any provision of this Agreement shall be valid unless the same shall be in writing and signed by each of the parties. Any provision of this Agreement may be waived in writing at any time by the party that is entitled to the benefits thereof.

12. **Notices.** All notices, requests, demands, claims, and other communications hereunder shall be in writing and shall be given or made by confirmed facsimile transmission followed by sending the original by Federal Express or another nationally recognized overnight delivery courier service, and addressed to the intended recipient as set forth below:

If to Progress, to:

Progress Energy Florida, Inc.
410 S Wilmington, PEB 9A
Raleigh, NC 27602-1551
Attention: Thomas M. Cornell
Facsimile: (919) 546-2990

If to Tenaska, to:
Tenaska Power Equipment, LLC
1044 N. 115 Street
Suite 400
Omaha, NE 68154-4446
Attention: Nicholas N. Borman
Facsimile: (402) 691-9530

Notice shall be deemed to have been duly given upon confirmed facsimile transmission. Any party may change the address to which notices, requests, demands, claims, and other communications hereunder are to be delivered by giving the other party notice in the manner herein set forth.

13. **Post Closing Assurance.** In case at any time after the date hereof any further action is necessary to carry out the purposes of this Agreement, Tenaska and Progress will take or cause to be taken such further action (including the execution and delivery of such further instruments and documents as the other party reasonably may request without further consideration).

14. **Severability.** Any term or provision of this Agreement that is invalid, void, or unenforceable in any situation or in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions hereof or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction.

15. **No Consequential or Punitive Damages.** Neither Progress nor Tenaska shall be liable to the other for consequential, incidental, punitive, exemplary or indirect damages, lost profits or other business interruption damages, whether by statute, in tort or contract or otherwise in respect of this Agreement or otherwise in connection with this transaction.

16. **Limited Recourse.** No judgment, order or execution entered in any lawsuit, action or proceeding in favor of a party, whether legal or equitable, under this Agreement shall be obtained or enforced against any parent, affiliate, subsidiary or other person similarly related to any other party or against any of such party's officers, directors, shareholders for the purpose of obtaining satisfaction of any obligation arising under this Agreement, and any right to so proceed is hereby expressly waived, renounced and remitted by each respective party for itself and for its successors and assigns.

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E. Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT A

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 29, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments dated June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract");

WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

4. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

5. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

6. **Representations and Warranties.** Tenaska hereby represents and warrants that (a) the Contract is in full force and effect (subject to the limitations described in Section 2.1 and 4.5 of the Contract which may be removed through the issuance of a change order in accordance with 9.1 and following inspection and refurbishment in accordance with Section 10.2 of the Contract) and neither Tenaska nor, to the best of Tenaska's knowledge, MPS is in default or material breach thereunder; (b) Tenaska has no existing claims, counterclaims, offsets or defenses against MPS under the Contract; (c) to the best of Tenaska's knowledge after due inquiry, no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable Tenaska to terminate the Contract for default or suspend its obligations thereunder; (d) Tenaska is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (e) Tenaska's execution of this Agreement (i) is within Tenaska's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Tenaska, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents; (f) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (g) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Tenaska's knowledge, threatened, against Tenaska before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

7. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar

actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

8. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

9. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

10. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT B

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Dated this 3rd day of May, 2006.

MITSUBISHI POWER SYSTEMS, INC.

Witness

By: _____

Name: Naniaki Fuseya

Title: President and CEO

Notary Public State of Florida
Claudia Miranda
My Commission DD458628
Expires 10/18/2009

Progress Energy

April 24, 2006

Mr. Nicholas N. Borman
Tenaska Energy, Inc.
1044 North 115th Street, Suite 400
Omaha, Nebraska 68154

TALLADEGA MITSUBISHI STEAM TURBINE GENERATOR
OFFER AND OPTION TO PURCHASE LETTER AGREEMENT DATED FEBRUARY 10, 2006
AMENDMENT NO. 1 -- EXTENSION OF THE OPTION TO PURCHASE EQUIPMENT

This Amendment No. 1 modifies the Offer And Option To Purchase Letter Agreement dated February 10, 2006 by extending the expiration date of the Option under Article 8.d from 6:00 p.m. Central Daylight Time April 26, 2006 to 6:00 p.m. Central Daylight Time on May 3, 2006 including without limitation deferring Progress' optional payment of the $1,200,000, Exercise Payment, to May 3, 2006. All other provisions of the Offer and Option To Purchase Agreement remain unchanged.

Please signify your agreement to the above by having an authorized representative of Tenaska Power Equipment, LLC sign below, and return a copy to Mr. James W. Pearce, P. E., 410 South Wilmington Street, Raleigh, NC 27601 not later than April 26, 2006.

AGREED:

Tenaska Power Equipment, LLC
BY: Tenaska, Inc. Its Manager

BY: NBorman
NAME: Nicholas N. Borman

TITLE: Vice President

Power Plant Construction Department

BY: T. M. Cornell
NAME: Thomas M. Cornell

TITLE: General Manager -
Project Development & Engineering

Progress Energy Service Company, LLC
PO Box 1551
Raleigh, NC 27602

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (the "Agreement") is entered into as of _____, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 29, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments dated June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract");

WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated _____, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

3. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

Comment: MPS is not a party to this agreement. Therefore, Tenaska should not release MPS in this document. In addition, this language may introduce an element of confusion as to what obligations remain owed to Progress.

4. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

5. **Representations and Warranties.** Tenaska hereby represents and warrants that (a) the Contract is in full force and effect (subject to the limitations described in Section 2.1 and 4.5 of the Contract which may be removed through the issuance of a change order in accordance with 9.1 and following inspection and refurbishment in accordance with Section 10.2 of the Contract) and neither Tenaska nor, to the best of Tenaska's knowledge, MPS is in default or material breach thereunder; (b) Tenaska has no existing claims, counterclaims, offsets or defenses against MPS under the Contract; (c) to the best of Tenaska's knowledge after due inquiry, no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable Tenaska to terminate the Contract for default or suspend its obligations thereunder; (d) Tenaska is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (e) Tenaska's execution of this Agreement (i) is within Tenaska's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Tenaska, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents; (f) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (g) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Tenaska's knowledge, threatened, against Tenaska before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

6. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof;

and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

7. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

8. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

9. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC **By: Tenaska, Inc., Manager**	**PROGRESS ENERGY FLORIDA, INC.**
By : _____	**By :** _____
Name: _____	**Name:** _____
Title: _____	**Title:** _____

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Comment: This change makes the consent consistent with the Assignment Agreement and the concern about the exchange of guarantees.

Dated this ___ day of _____, 2006.

MITSUBISHI POWER SYSTEMS, INC.

_____
Witness

By: _____

Name: _____

Title: _____

Pearce, Jim

From: Dittman, Tracy L. [tdittman@TENASKA.com]
Sent: Wednesday, May 03, 2006 5:27 PM
To: Cornell, Tom; Pearce, Jim
Cc: Borman, Nicholas N.; Culver, Dan; Hanson, Randy; Lebens, Michael C.; Murray, Kevin; Arany, Akos
Subject: Progress Energy Notice of Execution of MPS Consent

Tom - please see the attached letter regarding the Notice of Execution of MPS Consent. You will receive an overnight package tomorrow with the attached letter and agreements as noted. Feel free to call me should you have any questions.

Thank you.

Tracy Dittman
Engineering Contract Analyst
Tenaska, Inc.
(402) 691-9572

TENASKA POWER EQUIPMENT, LLC
1044 North 115th Street ✧ Suite 400 ✧ Omaha, NE 68154 ✧ Phone: (402) 691-9500 ✧ Fax: (402) 691-9530

Via Overnight Mail/E-mail

May 10, 2006

Mr. Thomas M. Cornell
General Manager
Progress Energy
410 S. Wilmington St.
PEB 8A
Raleigh, NC 27601

RE: Assignment & Assumption Agreement and Bill of Sale of the Equipment

Dear Mr. Cornell:

In accordance with Section 3 of the Asset Sale Agreement, dated May 3, 2006, between Tenaska Power Equipment, LLC ("Tenaska") and Progress Energy Florida Inc. ("Progress"), Tenaska has received the balance of the amount due under this Agreement and hereby provides the following documents in satisfaction of its obligations at Closing:

(1) the original Assignment and Assumption Agreement together with the Consent executed by MPS, and
(2) Bill of Sale of the Equipment

If you have questions, do not hesitate to contact me.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

NBorman

Nicholas N. Borman
Vice President

Enclosures (2)

cc: Mr. James W. Pearce, Progress (via e-mail)

BILL OF SALE

THIS BILL OF SALE (the "Bill of Sale"), dated as of May 10, 2006, is made by Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska"), in favor of Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, reference is made to that certain Asset Sale Agreement, dated May 3, 2006, by and between Tenaska and Progress (the "Agreement") pursuant to which Progress shall purchase a steam turbine generator and associated equipment (the "Equipment") as more particularly set forth in the Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, Tenaska agrees as follows:

1. Definitions. All terms used herein shall have the meanings assigned to them in the Agreement unless otherwise defined herein.

2. Conveyance. Tenaska for good and valuable consideration received from Progress, does hereby transfer, sell, convey, assign, set over and deliver to the Progress, free and clear of all liens or encumbrances, all of Tenaska's right, title and interest in and to the Equipment "AS IS, WHERE IS".

3. Further Action. At any time or from time to time after the date hereof, Tenaska shall execute and deliver or cause to be executed and delivered such other instruments and take such other action as Progress may reasonably request to carry out the intent and purposes of this Bill of Sale and to more effectively vest title to the Equipment in Progress.

4. Interpretation. In the event of any conflict or inconsistency between the terms, provisions and conditions of this Bill of Sale and the Agreement, the terms, provisions and conditions of the Agreement shall govern.

IN WITNESS WHEREOF, Tenaska has executed this Bill of Sale as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: NBorman

Name: Nicholas N. Borman

Title: Vice President

ATTACHMENT A

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 29, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments dated June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract");

WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

4. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

5. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

6. **Representations and Warranties.** Tenaska hereby represents and warrants that (a) the Contract is in full force and effect (subject to the limitations described in Section 2.1 and 4.5 of the Contract which may be removed through the issuance of a change order in accordance with 9.1 and following inspection and refurbishment in accordance with Section 10.2 of the Contract) and neither Tenaska nor, to the best of Tenaska's knowledge, MPS is in default or material breach thereunder; (b) Tenaska has no existing claims, counterclaims, offsets or defenses against MPS under the Contract; (c) to the best of Tenaska's knowledge after due inquiry, no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable Tenaska to terminate the Contract for default or suspend its obligations thereunder; (d) Tenaska is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (e) Tenaska's execution of this Agreement (i) is within Tenaska's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Tenaska, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents; (f) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (g) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Tenaska's knowledge, threatened, against Tenaska before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

7. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar

actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

8. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

9. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

10. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT B

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Dated this 3rd day of May, 2006.

MITSUBISHI POWER SYSTEMS, INC.

Witness

Notary Public State of Florida
Claudia Miranda
My Commission DD459626
Expires 10/18/2009

By: _____

Name: Noriaki Fuseya

Title: President and CEO

TENASKA POWER EQUIPMENT, LLC
1044 North 115th Street ✧ Suite 400 ✧ Omaha, NE 68154 ✧ Phone: (402) 691-9500 ✧ Fax: (402) 691-9530

Via Overnight Mail/E-mail

May 3, 2006

Mr. Thomas M. Cornell
General Manager
Progress Energy
410 S. Wilmington St.
PEB 8A
Raleigh, NC 27601

RE: Notice of Execution of MPS Consent

Dear Mr. Cornell:

In accordance with Paragraph 8(e) of the February Letter Agreement (as amended) between Tenaska Power Equipment, LLC ("Tenaska") and Progress Energy Florida Inc. ("Progress"), Tenaska hereby provides timely written notice to Progress that Mitsubishi Power Systems, Inc. ("MPS") has executed its consent to the Assignment and Assumption Agreement. Enclosed is: (i) one copy of the executed Assignment and Assumption Agreement together with the MPS Consent, (ii) one fully executed original of the Asset Sale Agreement, and (iii) the Authorization to the Release of Letter of Credit. Please execute and return, via e-mail or fax, the Authorization to the Release of Letter of Credit. This will permit Tenaska to release the MPS letter of credit and MPS to issue a new letter of credit to Progress.

Upon receipt by Tenaska of the balance of the Purchase Price, in the amount of $10,800,000, Tenaska shall deliver to Progress:

(1) the original Assignment and Assumption Agreement together with the Consent executed by MPS, and
(2) Bill of Sale of the Equipment

Notwithstanding that our Letter Agreement allows five (5) business days from this notice, Tenaska requests that Progress initiate its wire transfer for the balance of the Purchase Price as soon as possible so that the transaction can be closed this week, and thus permit MPS to execute its change order and issue the new letter of credit to Progress.

We appreciate your accommodations in this regard.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

NBorman

Nicholas N. Borman
Vice President

Enclosures (3)

cc: Mr. James W. Pierce, Progress (via e-mail)

ASSET SALE AGREEMENT NO. 270810

This Asset Sale Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (the "Contract");

WHEREAS, pursuant to a letter agreement between Progress and Tenaska, dated February 10, 2006, as amended April 24, 2006 (the "Option Agreement"), Tenaska granted to Progress the option to purchase all of Tenaska's right, title and interest in the Contract and the Equipment for a purchase price of Twelve Million Dollars ($12,000,000); and

WHEREAS, Progress has exercised its option in accordance with the Option Agreement to purchase all of Tenaska's right, title and interest in the Contract and Equipment and is willing to assume Tenaska's rights and obligations under the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows:

1. **Sale of Assets.** Tenaska shall sell to Progress and Progress shall purchase from Tenaska all right, title and interest of Tenaska in the Contract and the Equipment in consideration of the payment to Tenaska of Twelve Million Dollars ($12,000,000) (the "Purchase Price") by Progress. Tenaska acknowledges the receipt of One Million Two Hundred Thousand Dollars ($1,200,000) from Progress pursuant to the Option Agreement (the "Exercise Payment") to be applied against the Purchase Price at the Closing. In the event that a Closing fails to occur solely as a result of a default by Progress, Tenaska may elect to retain the Contract, the Equipment, and the Exercise Payment, as a termination fee.

2. **Assignment and Assumption Agreement.** Coincident with the execution of this Agreement Tenaska and Progress have executed an Assignment and Assumption Agreement, in the form attached hereto as Attachment A (the "Assignment and Assumption"), to be held by Tenaska until the Closing. Tenaska shall attempt to obtain the consent of MPS to the Assignment and Assumption, substantially in the form of consent attached hereto as Attachment B (the "Consent").

3. **Closing and Termination.** Immediately following the execution of the Consent by MPS, Tenaska shall provide notice to Progress of the execution of the Consent along with a copy of such Consent. Within five (5) business days after Tenaska has provided Progress with notice of the execution of the Consent by MPS accompanied by a copy of the Consent, Progress shall pay to Tenaska the balance of the Purchase Price in the amount of Ten Million Eight

Hundred Thousand Dollars ($10,800,000) by wire transfer to an account identified by Tenaska and Tenaska shall deliver the Assignment and Assumption and the Consent to Progress along with a Bill of Sale for the Equipment(the "Closing"). In the event that MPS has not executed the Consent within thirty (30) days after the date of this Agreement, then either party to this Agreement may, by written notice to the other party, elect to terminate this Agreement, and upon such termination Tenaska shall immediately return the Exercise Payment to Progress and this Agreement shall terminate and be of no further effect, and all rights and obligations hereunder, except for the right of Progress to receive return of the Exercise Payment, will be extinguished.

4. **Indemnification.** Tenaska shall indemnify and hold harmless Progress from all third party claims involving the Contract and/or the Equipment arising prior to the date of this Agreement. Progress shall indemnify and hold harmless Tenaska from all third party claims involving the Contract and/or the Equipment arising on and after the date of this Agreement. The party claiming indemnification under this Agreement shall provide the other party ("Indemnifying Party") with prompt written notice of any third party claims under this section and shall not settle or otherwise compromise any such claims without the written consent of the Indemnifying Party which will not be unreasonably withheld.

5. **Representations and Warranties.** As of the date of this Agreement, Tenaska represents to Progress that (a) all amounts due to MPS from Tenaska under or with respect to the Contract have been paid in full to MPS; (b) neither Tenaska nor MPS is in default or material breach of the Contract which remains in full force and effect (subject to the limitations described in Section 4.5 which may be removed following inspection and refurbishment in accordance with Section 10.2); (c) Tenaska has good and valid title to the Contract and the Equipment, free and clear of all liens or encumbrances; (d) Tenaska has provided Progress with true, complete and correct copies of the Contract; and (e) Tenaska has all requisite power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement. Tenaska further represents to Progress that the representations set forth in the immediately preceding sentence will remain true on the date that Tenaska delivers to Progress the Assignment and Assumption with the Consent executed by MPS. Tenaska makes no representation, warranty or guaranty with respect to the Equipment. Progress represents to Tenaska that it has all requisite power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement. EXCEPT FOR THE REPRESENTATIONS AND WARRANTIES OF TENASKA SET FORTH IN THIS AGREEMENT, PROGRESS UNDERSTANDS AND AGREES THAT WITH RESPECT TO TENASKA, THE EQUIPMENT IS BEING SOLD AND ACQUIRED "AS IS, WHERE IS" ON THE CLOSING DATE. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, TENASKA EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF MERCHANTABILITY, USAGE, SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE; PROVIDED THAT SUCH DISCLAIMER SHALL NOT VOID OR OTHERWISE IMPACT ANY WARRANTIES WHICH MPS MAY CONTINUE TO HAVE UNDER THE CONTRACT.

6. **Entire Agreement.** This Agreement and the Option Agreement constitute the entire agreement between Tenaska and Progress with respect to the assignment and assumption of the Contract and the sale of the Equipment.

7. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

8. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

9. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

10. **Construction.** The section headings contained in this Agreement are inserted for convenience only and shall not affect in any way the meaning or interpretation of this Agreement. Notwithstanding the fact that this Agreement has been prepared by one of the parties, each of the parties confirm that they and their respective counsel have reviewed, negotiated and adopted this Agreement as the joint agreement and understanding of the parties. This Agreement is to be construed as a whole and any presumption that ambiguities are to be resolved against the primary drafting party shall not apply. Any provision which is required by applicable laws to be included in a contract of this type is deemed to be incorporated in this Agreement, as if it were included in total in this Agreement.

11. **Amendments and Waivers.** No amendment of any provision of this Agreement shall be valid unless the same shall be in writing and signed by each of the parties. Any provision of this Agreement may be waived in writing at any time by the party that is entitled to the benefits thereof.

12. **Notices.** All notices, requests, demands, claims, and other communications hereunder shall be in writing and shall be given or made by confirmed facsimile transmission followed by sending the original by Federal Express or another nationally recognized overnight delivery courier service, and addressed to the intended recipient as set forth below:

If to Progress, to:

Progress Energy Florida, Inc.
410 S Wilmington, PEB 9A
Raleigh, NC 27602-1551
Attention: Thomas M. Cornell
Facsimile: (919) 546-2990

If to Tenaska, to:
Tenaska Power Equipment, LLC
1044 N. 115 Street
Suite 400
Omaha, NE 68154-4446
Attention: Nicholas N. Borman
Facsimile: (402) 691-9530

Notice shall be deemed to have been duly given upon confirmed facsimile transmission. Any party may change the address to which notices, requests, demands, claims, and other communications hereunder are to be delivered by giving the other party notice in the manner herein set forth.

13. **Post Closing Assurance.** In case at any time after the date hereof any further action is necessary to carry out the purposes of this Agreement, Tenaska and Progress will take or cause to be taken such further action (including the execution and delivery of such further instruments and documents as the other party reasonably may request without further consideration).

14. **Severability.** Any term or provision of this Agreement that is invalid, void, or unenforceable in any situation or in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions hereof or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction.

15. **No Consequential or Punitive Damages.** Neither Progress nor Tenaska shall be liable to the other for consequential, incidental, punitive, exemplary or indirect damages, lost profits or other business interruption damages, whether by statute, in tort or contract or otherwise in respect of this Agreement or otherwise in connection with this transaction.

16. **Limited Recourse.** No judgment, order or execution entered in any lawsuit, action or proceeding in favor of a party, whether legal or equitable, under this Agreement shall be obtained or enforced against any parent, affiliate, subsidiary or other person similarly related to any other party or against any of such party's officers, directors, shareholders for the purpose of obtaining satisfaction of any obligation arising under this Agreement, and any right to so proceed is hereby expressly waived, renounced and remitted by each respective party for itself and for its successors and assigns.

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: NBorman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E. Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT A

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 29, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments dated June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract");

WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

4. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

5. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

6. **Representations and Warranties.** Tenaska hereby represents and warrants that (a) the Contract is in full force and effect (subject to the limitations described in Section 2.1 and 4.5 of the Contract which may be removed through the issuance of a change order in accordance with 9.1 and following inspection and refurbishment in accordance with Section 10.2 of the Contract) and neither Tenaska nor, to the best of Tenaska's knowledge, MPS is in default or material breach thereunder; (b) Tenaska has no existing claims, counterclaims, offsets or defenses against MPS under the Contract; (c) to the best of Tenaska's knowledge after due inquiry, no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable Tenaska to terminate the Contract for default or suspend its obligations thereunder; (d) Tenaska is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (e) Tenaska's execution of this Agreement (i) is within Tenaska's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Tenaska, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents; (f) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (g) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Tenaska's knowledge, threatened, against Tenaska before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

7. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar

actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

8. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

9. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

10. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT B

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Dated this 3rd day of May, 2006.

MITSUBISHI POWER SYSTEMS, INC.

Witness

By: _____

Name: Noriaki Fuseya

Title: President and CEO

Notary Public State of Florida
Claudia Miranda
My Commission DD458626
Expires 10/16/2009

Authorization to Release of Letter of Credit

Progress Energy Florida, Inc., a Florida corporation ("Progress"), as the purchaser of a steam turbine generator and associated equipment from Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") pursuant to that certain Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006, authorizes Tenaska to return to Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS") the letter of credit, as amended, provided by MPS to Tenaska under and pursuant to Section 3.5 of that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska and MPS, as amended.

PROGRESS ENERGY FLORIDA, INC.

By: _____

Name: _____

Title: _____

Progress Energy

May 3, 2006

Mr. Nicholas N. Borman
Tenaska Energy, Inc.
1044 North 115th Street, Suite 400
Omaha, Nebraska 68154

Re: Exercise of Option

Dear Mr. Borman:

In accordance with paragraphs 8(d) and 8(e) of the February 10, 2006 Letter Agreement (as amended) between Tenaska Energy, Inc. ("Tenaska") and Progress Energy Florida Inc. ("Progress"), Progress hereby provides timely written notice to Tenaska of its exercise of the Option provided by paragraph 8(a) of the Letter Agreement.

As required by paragraph 8(d), Progress has made wire transfer of the $1,200,000 Exercise Payment to Tenaska's account. As required by paragraph 8(e), Progress has executed the Asset Sale Agreement and the Assignment and Assumption Agreement, two (2) copies of both enclosed herein.

Please obtain the consent of Mitsubishi Power Systems, Inc. ("MPS") to the Assignment and Assumption. Within five (5) business days after Tenaska has provided Progress with notice of and a copy of the MPS Consent, Progress shall pay the balance of the Purchase Price in the amount of $10,800,000 to Tenaska and Tenaska shall deliver to Progress the Assignment and Assumption Agreement, the Asset Sale Agreement, and a Bill of Sale for the Equipment, each fully executed.

In the event that MPS has not executed the Consent by June 2, 2006, either Progress or Tenaska may terminate the transaction upon written notice of termination in which event Tenaska shall immediately return the Exercise Payment to Progress.

Please execute both copies of Asset Sale Agreement and the Assignment Assumption Agreement, retain one copy of each original and return one original of each document to: Mr. James W. Pearce, P. E., 410 South Wilmington Street (PEB-2A4), Raleigh, NC 27601.

Sincerely,

BY: _____
NAME: Thomas M. Cornell
TITLE: General Manager -
Project Development & Engineering

Progress Energy Service Company, LLC
PO Box 1551
Raleigh NC 27602

Pearce, Jim

From: Arany, Akos
Sent: Thursday, May 04, 2006 8:42 AM
To: Pearce, Jim
Subject: MPS address

Jim,
Send it to
Satoru Takanohashi
Mitsubishi Power Systems
100 Colonial Center Parkway
Lake Mary, FL 32746

Akos Arany, PE
Progress Energy
Project Engineering Lead
Plant Construction
(919) 546 4447 work
(919) 219 5136 cell
(919) 546 5084 fax

TENASKA POWER EQUIPMENT, LLC
1044 North 115th Street ✧ Suite 400 ✧ Omaha, NE 68154 ✧ Phone: (402) 691-9500 ✧ Fax: (402) 691-9530

Via Overnight Mail/E-mail

May 10, 2006

Mr. Thomas M. Cornell
General Manager
Progress Energy
410 S. Wilmington St.
PEB 8A
Raleigh, NC 27601

RE: Assignment & Assumption Agreement and Bill of Sale of the Equipment

Dear Mr. Cornell:

In accordance with Section 3 of the Asset Sale Agreement, dated May 3, 2006, between Tenaska Power Equipment, LLC ("Tenaska") and Progress Energy Florida Inc. ("Progress"), Tenaska has received the balance of the amount due under this Agreement and hereby provides the following documents in satisfaction of its obligations at Closing:

(1) the original Assignment and Assumption Agreement together with the Consent executed by MPS, and
(2) Bill of Sale of the Equipment

If you have questions, do not hesitate to contact me.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

NBorman

Nicholas N. Borman
Vice President

Enclosures (2)

cc: Mr. James W. Pearce, Progress (via e-mail)

BILL OF SALE

THIS BILL OF SALE (the "Bill of Sale"), dated as of May 10, 2006, is made by Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska"), in favor of Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, reference is made to that certain Asset Sale Agreement, dated May 3, 2006, by and between Tenaska and Progress (the "Agreement") pursuant to which Progress shall purchase a steam turbine generator and associated equipment (the "Equipment") as more particularly set forth in the Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, Tenaska agrees as follows:

1. Definitions. All terms used herein shall have the meanings assigned to them in the Agreement unless otherwise defined herein.

2. Conveyance. Tenaska for good and valuable consideration received from Progress, does hereby transfer, sell, convey, assign, set over and deliver to the Progress, free and clear of all liens or encumbrances, all of Tenaska's right, title and interest in and to the Equipment "AS IS, WHERE IS".

3. Further Action. At any time or from time to time after the date hereof, Tenaska shall execute and deliver or cause to be executed and delivered such other instruments and take such other action as Progress may reasonably request to carry out the intent and purposes of this Bill of Sale and to more effectively vest title to the Equipment in Progress.

4. Interpretation. In the event of any conflict or inconsistency between the terms, provisions and conditions of this Bill of Sale and the Agreement, the terms, provisions and conditions of the Agreement shall govern.

IN WITNESS WHEREOF, Tenaska has executed this Bill of Sale as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: NBorman

Name: Nicholas N. Borman

Title: Vice President

ATTACHMENT A

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (the "Agreement") is entered into as of May 3, 2006, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and Progress Energy Florida, Inc., a Florida corporation ("Progress").

WHEREAS, Tenaska entered into that certain Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, with Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), for the purchase of a steam turbine generator and associated equipment (the "Equipment") by Tenaska, as amended on June 3, 2002, June 25, 2002 and July 29, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments dated June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract");

WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

4. **Successors and Assigns.** This Agreement shall be binding upon the parties and their respective successors and assigns.

5. **Counterparts.** This Agreement may be executed in counterparts, and it shall not be necessary that the signature of all parties hereto be contained on any one counterpart hereof. Each counterpart shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

6. **Representations and Warranties.** Tenaska hereby represents and warrants that (a) the Contract is in full force and effect (subject to the limitations described in Section 2.1 and 4.5 of the Contract which may be removed through the issuance of a change order in accordance with 9.1 and following inspection and refurbishment in accordance with Section 10.2 of the Contract) and neither Tenaska nor, to the best of Tenaska's knowledge, MPS is in default or material breach thereunder; (b) Tenaska has no existing claims, counterclaims, offsets or defenses against MPS under the Contract; (c) to the best of Tenaska's knowledge after due inquiry, no event or condition exists which would either immediately or with the passage of any applicable grace period or giving of notice, or both, enable Tenaska to terminate the Contract for default or suspend its obligations thereunder; (d) Tenaska is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (e) Tenaska's execution of this Agreement (i) is within Tenaska's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Tenaska, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents; (f) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (g) there are no actions, proceedings, claims, suits, investigations, inquiries or similar actions pending, or to the best of Tenaska's knowledge, threatened, against Tenaska before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

7. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar

actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

8. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

9. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

10. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT B

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Dated this 3rd day of May, 2006.

MITSUBISHI POWER SYSTEMS, INC.

Witness

By: _____

Name: Noriaki Fuseya

Title: President and CEO

Notary Public State of Florida
Claudia Miranda
My Commission DD459626
Expires 10/16/2009

TENASKA POWER EQUIPMENT, LLC
1044 North 115th Street ✧ Suite 400 ✧ Omaha, NE 68154 ✧ Phone: (402) 691-9500 ✧ Fax: (402) 691-9530

Via Overnight Mail/E-mail

May 10, 2006

Mr. Thomas M. Cornell
General Manager
Progress Energy
410 S. Wilmington St.
PEB 8A
Raleigh, NC 27601

RE: Assignment & Assumption Agreement and Bill of Sale of the Equipment

Dear Mr. Cornell:

In accordance with Section 3 of the Asset Sale Agreement, dated May 3, 2006, between Tenaska Power Equipment, LLC ("Tenaska") and Progress Energy Florida Inc. ("Progress"), Tenaska has received the balance of the amount due under this Agreement and hereby provides the following documents in satisfaction of its obligations at Closing:

(1) the original Assignment and Assumption Agreement together with the Consent executed by MPS, and
(2) Bill of Sale of the Equipment

If you have questions, do not hesitate to contact me.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

Nicholas N. Borman
Vice President

Enclosures (2)

cc: Mr. James W. Pearce, Progress (via e-mail)

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WHEREAS, reference is made to that certain Asset Sale Agreement, dated May 3, 2006, by and between Tenaska and Progress (the "Agreement") pursuant to which Progress shall purchase a steam turbine generator and associated equipment (the "Equipment") as more particularly set forth in the Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, Tenaska agrees as follows:

1. Definitions. All terms used herein shall have the meanings assigned to them in the Agreement unless otherwise defined herein.

2. Conveyance. Tenaska for good and valuable consideration received from Progress, does hereby transfer, sell, convey, assign, set over and deliver to the Progress, free and clear of all liens or encumbrances, all of Tenaska's right, title and interest in and to the Equipment "AS IS, WHERE IS".

3. Further Action. At any time or from time to time after the date hereof, Tenaska shall execute and deliver or cause to be executed and delivered such other instruments and take such other action as Progress may reasonably request to carry out the intent and purposes of this Bill of Sale and to more effectively vest title to the Equipment in Progress.

4. Interpretation. In the event of any conflict or inconsistency between the terms, provisions and conditions of this Bill of Sale and the Agreement, the terms, provisions and conditions of the Agreement shall govern.

IN WITNESS WHEREOF, Tenaska has executed this Bill of Sale as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: NBorman

Name: Nicholas N. Borman

Title: Vice President

RCH/331770.1

ATTACHMENT A

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WHEREAS, pursuant to an Asset Sale Agreement between Progress and Tenaska, dated May 3, 2006 (the "Asset Sale Agreement"), Tenaska agreed to sell to Progress all of Tenaska's right, title and interest in the Equipment.

WHEREAS, Tenaska desires to assign to Progress all of Tenaska's right, title and interest in the Contract and Progress desires to accept such assignment and assume all of Tenaska's right, title and interest in the Contract.

NOW, THEREFORE, in consideration of the foregoing premises, the terms and conditions set forth in this Agreement and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows, intending to be legally bound:

1. **Assignment by Tenaska.** In consideration of (a) the payment to Tenaska by Progress of the Purchase Price as set forth in the Asset Sale Agreement and (b) Progress's assumption of the Tenaska's rights, obligations and liabilities under the Contract, Tenaska hereby sells, assigns, grants, conveys and transfers to Progress all of the past, present and future, known and unknown rights, obligations and liabilities, whether in contract, tort or otherwise, of Tenaska, that have arisen or hereafter arise under or in connection with the Contract.

2. **Assumption by Progress.** Progress hereby accepts and assumes all such rights, obligations and liabilities of Tenaska under the Contract. The assignment by Tenaska and assumption by Progress of all such rights, obligations and liabilities under the Contract is intended to benefit MPS.

3. **Release.** Tenaska hereby agrees that, as of the date hereof, it hereby irrevocably and forever releases MPS from any and all rights, obligations and liabilities, whether in contract, tort or otherwise, whether known or unknown, that arise under or in connection with the Contract, after the assignment and assumption set forth in Sections 1 and 2 of this Agreement. This release shall not affect the rights, obligations and liabilities under the Contract assigned by Tenaska to Progress pursuant to Section 1 of this Agreement.

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7. Progress hereby represents and warrants that (a) Progress is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization; (b) Progress's execution of this Agreement (i) is within Progress's power, (ii) has been duly authorized by all necessary action on its part, (iii) does not require or will not require any approval of (which approval has not been obtained) the shareholders or members of, or approval or consent of any trustee or holders of any indebtedness or obligations of Progress, (iv) will not violate (A) any provision of applicable law or (B) any order of any governmental authority which, in the case of either (A) or (B), which calls into question the validity or enforceability of this Agreement or the Contract, and (v) does not or will not contravene or result in any breach of or constitute any default under its organizational documents, (c) this Agreement to which it is a party has been duly executed and delivered by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms thereof; and (d) there are no actions, proceedings, claims, suits, investigations, inquiries or similar

actions pending, or to the best of Progress's knowledge, threatened, against Progress before any governmental authority or arbitral tribunal that question the validity or enforceability of this Agreement or the Contract.

8. **No Changes.** This Agreement shall not be amended or otherwise modified without the prior written consent of all parties hereto including MPS.

9. **Entire Agreement.** This Agreement constitutes the complete, integrated agreement between the parties relating to the subject matter hereof and supercedes all other prior or contemporaneous negotiations, agreements and undertakings among them regarding such subject matter.

10. **Choice of Law.** This Agreement shall be governed by the laws of the state of New York (including, without limitation, Section 5-1401 of the General Obligations Law, but otherwise without regard to the conflicts of laws provisions).

IN WITNESS WHEREOF, each of the parties hereto have caused this Agreement to be executed on its behalf by its duly authorized officers, effective as of the date first above written.

TENASKA POWER EQUIPMENT, LLC
By: Tenaska, Inc., Manager

By: N Borman

Name: Nicholas N. Borman

Title: Vice President

PROGRESS ENERGY FLORIDA, INC.

By: E Michael Williams

Name: E. Michael Williams

Title: Senior Vice President
Power Operations

ATTACHMENT B

CONSENT AND AGREEMENT

Mitsubishi Power Systems, Inc., a Delaware corporation ("MPS"), consents to the assignment of the Contract For Purchase of Steam Turbine Generator, dated May 10, 2002, between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Tenaska") and MPS, as amended on June 3, 2002, June 25, 2002 and July 25, 2002 (that certain "Contract for Purchase of Steam Turbine" and only those amendments date June 25, 2002 and July 29, 2002 hereinafter referred to collectively as the "Contract") to Progress Energy Florida, Inc., a Florida corporation ("Progress") and the assumption by Progress of the Contract, and further agrees that Tenaska is released from any and all rights, obligations and liability under the Contract arising after the date of this Consent.

Dated this 3rd day of May, 2006.

MITSUBISHI POWER SYSTEMS, INC.

Claudia de Miranda
Witness

By: _____

Name: Noriaki Fuseya

Title: President and CEO

Notary Public State of Florida
Claudia Miranda
My Commission DD458620
Expires 10/16/2009

CONFIDENTIAL

Progress Energy

Mitsubishi Power Systems Americas, Inc.
100 Colonial Center Pkwy
Lake Mary, FL 32746

Attention: Mr. Howard Perkins, Proj. Mgr.

CONTRACT NO. 270810
AMENDMENT NO. 005
EFFECTIVE JANUARY 2, 2008

By this Amendment, Progress Energy Florida, Inc. (hereinafter "Owner" or "Buyer") offers to change the terms of the above-referenced Contract.

The Description of Work is amended at Owner's Bartow Plant, 1601 Weedon Island Dr., St. Petersburg, FL 33702 (hereinafter "Work").

The following sections of this Contract shall be replaced in their entirety.

Appendix A – Scope of Supply for Steam Turbine Generator
Appendix C – Acceptance Test Guidelines, Procedures, and Specifications
Appendix G – Drawing List
Appendix L – Inspection and Test Plan at Shop (for major components of steam turbine)
Attachment B-1 of Appendix I – Field Service Rates – Schedule of Charges

Except as modified herein, all other terms in the Contract or other Contract Amendments remain unchanged; and this Amendment is governed by those terms and conditions of the above-referenced Contract.

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

Please execute this Amendment, retain an original for your file, and return the other original within ten (10) calendar days to Jenny Williams, Progress Energy Service Company, LLC, P. O. Box 1551 (PEB-8), Raleigh, NC 27602. Overnight delivery should be sent to 410 S. Wilmington Street, PEB 8, Raleigh, NC 27601. If you have any questions, please call Jenny Williams at 919-546-4090.

Sincerely,

Mark Smothers
General Manager - Construction

Accepted:

MITSUBISHI POWER SYSTEMS AMERICAS, INC.

By: _____

Name (printed): Shinichi Ueki

Title: VP, Commercial Operations

Date: January 14, 2008

Should the person's title who is executing this document not indicate that he/she is a corporate officer, an affidavit signed by a corporate officer shall be provided stating that the person whose name appears above is duly authorized to execute Contracts on behalf of the firm.

APPENDIX A
Scope of Supply for Steam Turbine Generator
(Revised January 2, 2008)

BARTOW REPOWERING PROJECT

SCOPE OF SUPPLY

FOR

STEAM TURBINE GENERATOR

T-0204-030 Rev.2

***MARCH*, 2007**

MITSUBISHI POWER SYSTEMS, INC.

CONTENTS

1. INTRODUCTION

The information included in this document has been prepared in accordance with Mitsubishi Heavy Industries, Ltd. (MHI) engineering standards and is based on experience gained by MHI during the completion of combined cycle plants throughout the world. Each project is customized in consideration of our client's specific requirements.

MHI is a leader in the power industry who has produced more than 28,000 MW of Gas turbines, 140,000 MW of steam turbines, and 550,000 tons per hour of steam generation boilers, including HRSG's.

This proposal describes the scope of supply and technical information of the equipment for the steam turbine and generator which can be used in a 4 on 1 combined cycle power plant.

Major equipment included in the proposal is as follows;

- One (1) Steam Turbine and Generator

2. DESIGN CONDITIONS

2.1 General

The equipment and systems included in this proposal are designed based on the design conditions described herein and MHI's standard design practice.

In the event the design conditions and assumptions as stated in this section. Seller reserves the right to modify the design, guarantees and/or pricing accordingly.

2. DESIGN CONDITIONS

2.2 SITE CONDITIONS

Item	Unit	Value
Atmospheric Data		
Ambient Dry Bulb Temperature		
Maximum	°F	95
Average	°F	74
Minimum	°F	35
Relative Humidity		
Average	%	80
Barometric Pressure		
Average	psia	14.69
Site Elevation	ft (AMSL)	13
Seismic Zone	UBC	*0*
Precipitation		
Annual Average in one year	inches	49
Maximum in 24-hours (100yr event)	inches	13
Ground Snow Load	pounds per square foot	0
Wind Velocity		
Design	mph(m/sec)	130(58.1)
Frost Line	inches	0

2. DESIGN CONDITIONS

2.3 Seller's Clarification / Assumption

Item	Seller's Clarification/Assumption
Steam Turbine / Generator and Accessories	The Steam Turbine / Generator and their accessories are MHI's standardized products. So, all equipment arranged around the steam turbine deck (including steam turbine) associated equipment such as lube oil system, control oil system and instrument and control system will be designed, manufactured, assembled, inspected, delivered in accordance with the MHI's standard. Therefore, please note that the specification of such components, including engineering, material selection, manufacturing and testing, can not be changed or modified in compliance with the Buyer's specific requirement. The Buyer may review and comment on Seller's documents, drawings and data sheets etc. for steam turbine and associated equipment, Seller, however, reserves all the rights of final acceptance/rejection of those comments for reasons explained above. If the modifications become mandatory by the American Law, local regulations and/or environmental impact study, then modification will be done with additional cost and change in project schedule. Environmental impact statement, Risk study, making application and taking approval of all permits shall be done by the Buyer. Seller will assist by preparing technical documents if requested by the Buyer. (Note) As explained above, this proposal is based on MHI and MHI's sub-supplier's standards. Major technical clarification and assumption are explained in the following sheets for Buyer's easy understanding.
Inland Transportation	Inland Transportation will not be included in MPS's Scope of

2.3 Seller's Clarification / Assumption

Item	Seller's Clarification/Assumption
	Supply.
Witness testing of equipment in the factory	Buyer shall have the rights, at their own expense, to inspect during normal working hours, with reasonable notice, all work performed under Seller's scope of supply. With respect to any work and/ or test hereunder, Seller will perform it in accordance with manufacturer's standard procedure. Buyer shall not have any right to hold the point, to delay the manufacturing schedule to witness and to request Seller to re-perform the test by Buyer's failure to observe. Seller's inspection and test plan is to be submitted.
Noise Level	The maximum surface noise of equipment (excluding transient conditions like start up, shutdown, trip, etc. and intermittent and/or emergency use equipment such as safety valve systems etc.) at a distance of 3.3 feet (1 meter) from the source and at a height of 4 feet (1.2 meters) will not exceed 85 dB(A) with exception of ST enclosure and ST exhaust. Overall far field noise will be investigated and guaranteed by EPC Contractor. No noise restrictions are applicable to construction activities.
Freeze protection	Based on the minimum ambient temperature 35°F, freeze protection for Seller's equipment which located in ST enclosure except piping will be provided by Seller.
Manufacturer's Standard Design	Unless otherwise specified in this proposal, manufacturer's standard design, materials, sub-venders etc. will be applied to the steam turbine as much as applicable.

2. DESIGN CONDITIONS

2.3 Seller's Clarification / Assumption

Item	Seller's Clarification/Assumption
Generator kVA capacity	The kVA capacity of the generator will be based on meeting the rated output of the turbine at the specified cooling water temperature conditions and at rated generator power factor (0.90). The voltage rating of the generator will be selected based on the manufacturer's standard design criteria.
Auxiliary Cooling Water Temperature	See Utility List.
Gland Steam and Drain System	The configuration of Gland Steam System is shown in the Gland Steam and Drain Piping Diagram (T1-S5881 R3, T1-S5882 R4 and T1-S5883 R4). The design and pricing of the following equipment are related to the design of condenser, equipment layout, design of auxiliary steam system, etc. which are under EPC Contractor's responsibility. Therefore, the following equipment will not be provided by Seller and shall be provided by EPC Contractor. - Gland steam and drain piping and valves - The Gland Seal Steam Regulator consisting of gland steam header, pressure control valves, pressure transmitter and pipings. - Mist Separator - Seal Steam Desuperheater - Exhaust Hood Spray System except the Spray nozzles and thermocouples for Steam Turbine Exhaust Hood temperature measurement. - Condenser Curtain Water Spray System - Turbine Drains and Drain Receivers Seller will provide the technical data required for design of equipment under EPC Contractor's scope including flows, pressures, temperatures, control valve characteristics, etc.
Auxiliary Steam	Auxiliary Steam Requirement for ST are as follows:

2.3 Seller's Clarification / Assumption

Item	Seller's Clarification/Assumption
Requirement	Minimum Pressure : 4.3 psig(0.3 kg/cm2g) (at Gland Seal Steam Regulator) Maximum Temperature: 700°F (350 °C) Maximum Flow : Approx. $8.82x10^3$ lb/hr (4t/h) (For 1 ST)
Insulation procedure for ST	Insulation material and method for ST will be based on Seller's standard practice. (Refer to Insulation specification attached in section 8)
Painting	Painting specification and procedure will be as MHI's standard. Refer to STANDARD PAINTING SPECIFICATION FOR MECHANICAL EQUIPMENT attached in Section 8.
Condenser Air Extraction System	We assume that the condenser vacuum pumps will be applied for condenser air extraction system by EPC Contractor. Therefore, extraction steam for steam air ejector is not considered in Heat Balance Diagram and proposed performance.
Professional Engineers Stamp	Obtaining work of Professional Engineering Stamp is not included in this proposal.
Outdoor Installation	The equipment and systems included in this proposal are designed based on outdoor installation.
Steam Turbine Control Oil System	Steam turbine control oil system will be change from lower pressure system to higher pressure system to enhance controllability.
Oil Piping of Steam Turbine	Oil piping of the steam turbine will be specified in Section 8.25.

3. GUARANTEES

3.1 GUARANTEES

3.2 GUARANTEED PERFORMANCE and other GUARANTEES for ACCEPTANCE TEST

The guaranteed performances and other guarantees for Acceptance Testing of Steam Turbine, performed in accordance with Appendix C and other test procedure which may be mutually agreed in writing, are as follows:

3.2.1. Liquidated Damage Performance Guarantees

3.2.1.1 MPS Net Steam Turbine Electrical Output	391.67 MW
3.2.1.2 MPS Net Steam Turbine Maximum Electrical Output	420.07 MW

3.2.2 Emission Guarantees

3.2.2.1 Noise Levels	[85dBA or as shown in Section 8.11 of Appendix A]

3.2.3 Demonstration Guarantees

3.2.3.1 Minimum Load at Single Gas Turbine Unit 70% Load	Stable Operation
3.2.3.2 Generator Operations (Lead Lag)	0.90 lagging, 0.95 leading
3.2.3.3 Steam Turbine Load Ramp Rate	
3.2.3.3.1 Duct firing operation	[9 MW/min]

3.2.4 Availability Guarantee

97.5%

3.2.5 Conditions to Guarantees

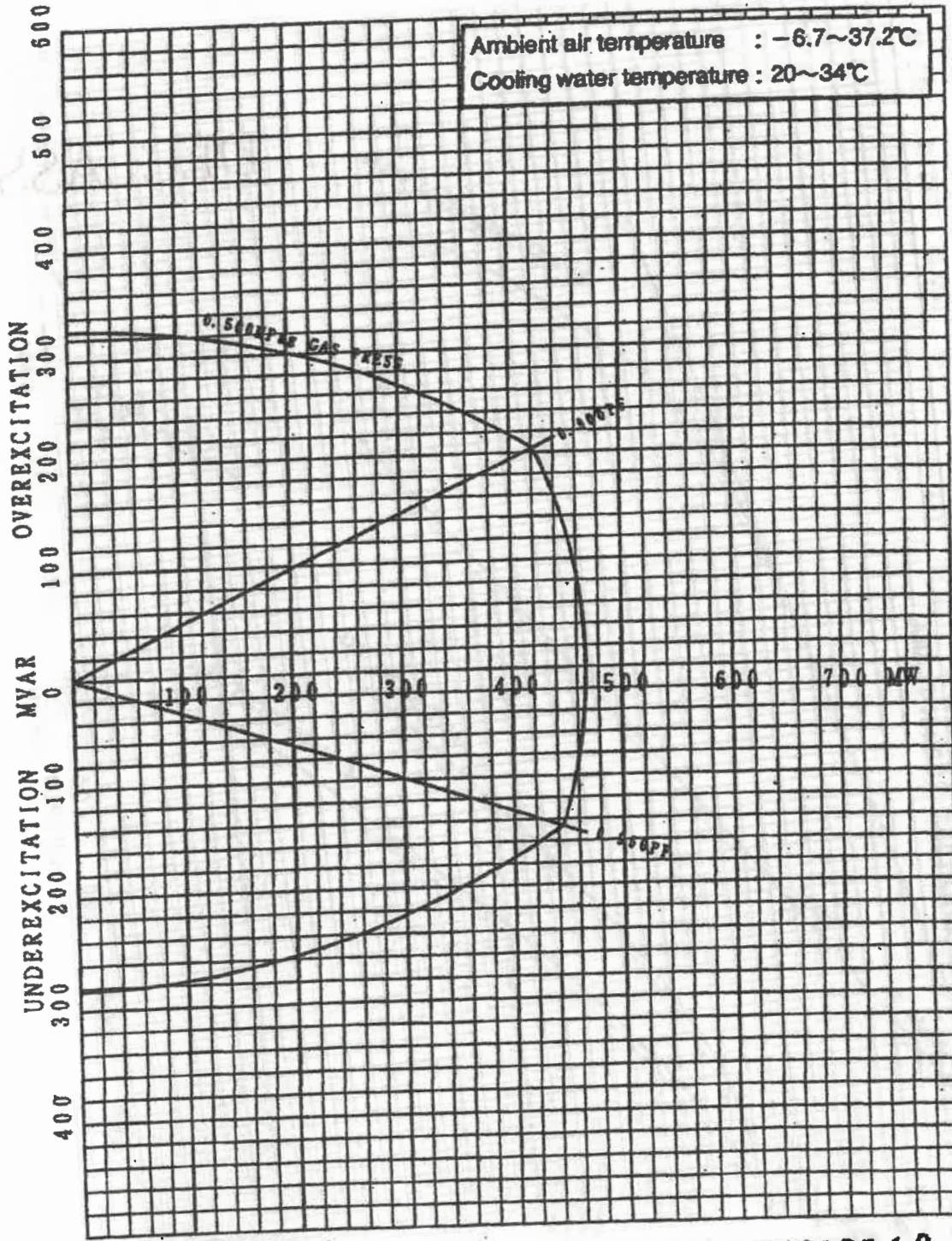
The following conditions are applicable to guarantees set forth in this Section 3.2:

3.2.5.1 Liquidated Damage Performance Guarantees for MPS Net Steam Turbine Electrical Output is based on conditions stated in Section 3.3 and to the following:

KC916812 USA TENASKA C/C M501F-3on1 STG

468000KVA, 421200KW, 18.00KV, 60HZ, 3600MIN^{-1},
0.900PF, 435VEXC, 0.50MPag GAS PRESSURE

HYDROGEN-COOLED TURBINE GENERATOR CAPABILITY CURVE



APPROVED	
CHECKED	T. Kensui
DESIGNED	by-law F. Arikawa

KC916812

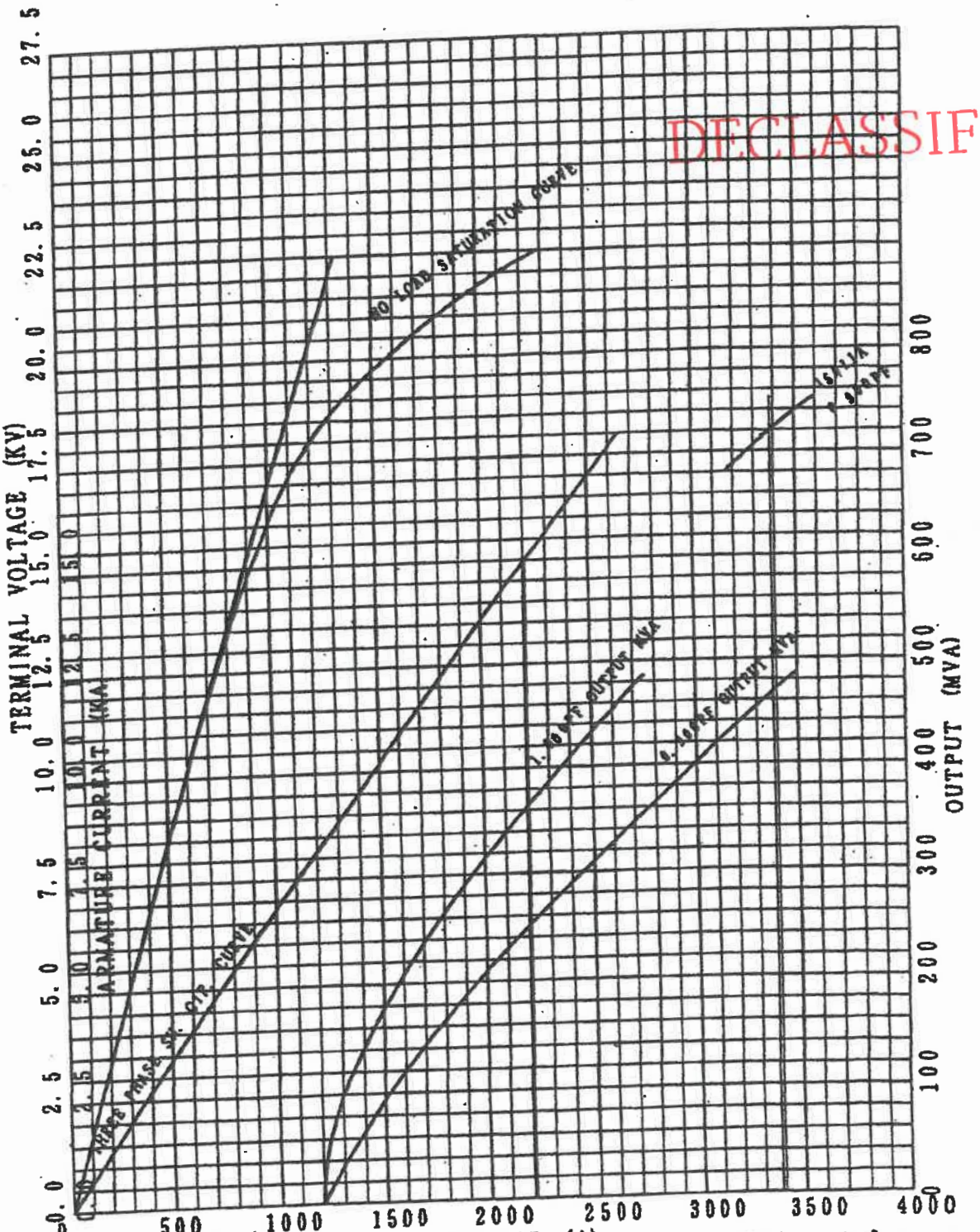
DEF-19FL-FUEL-012596

KC916811

USA TENASKA C/C M501F-3on1 STG

468000KVA, 421200KW, 18.00KV, 60HZ, 3600MIN^{-1},
0.900PF, 435VEXC, 0.50MPag GAS PRESSURE

HYDROGEN-COOLED TURBINE GENERATOR
CHARACTERISTIC CURVE



APPROVED	
CHECKED	T.Kozuka
DESIGNED	

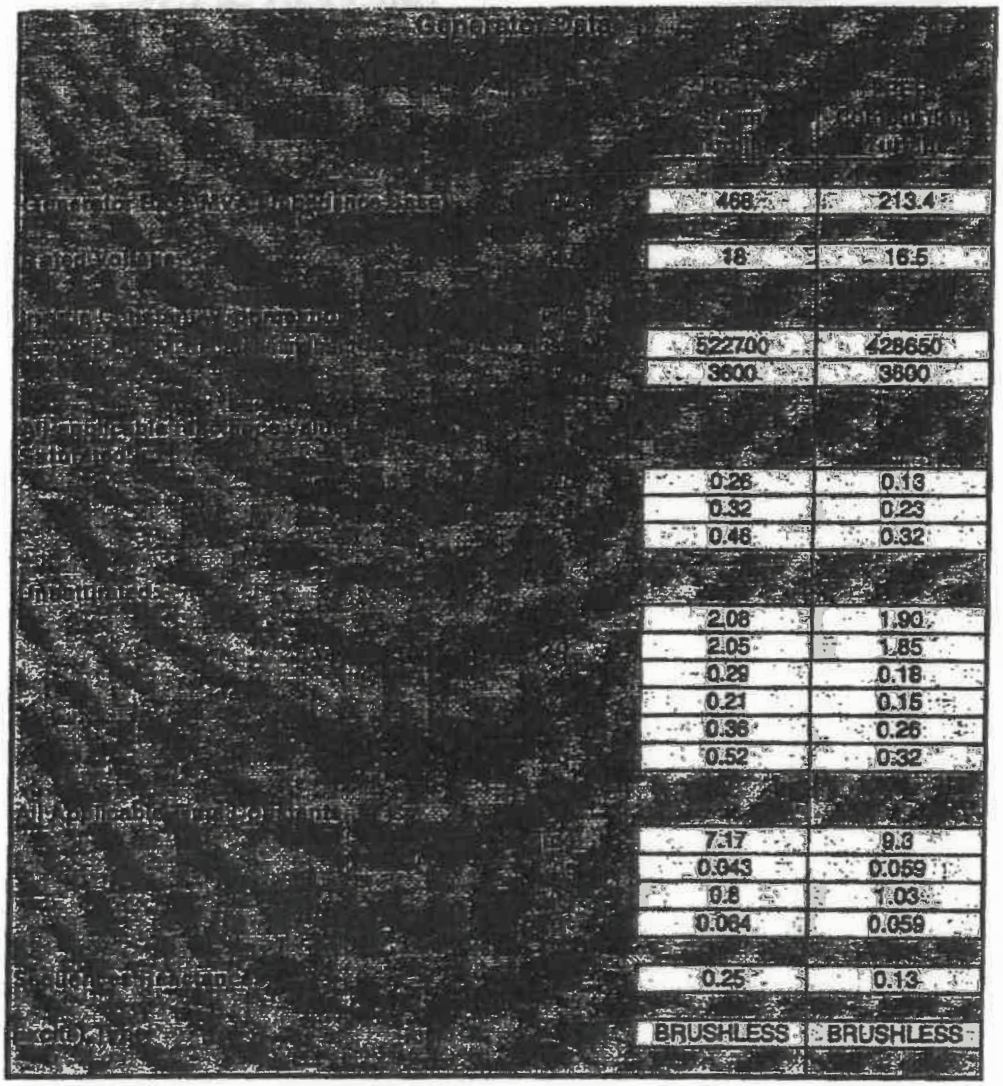
KC916811

DEE 10EL EUEL 012505

CONFIDENTIAL

DECLASSIFIED

TENASKA IV ALABAMA PARTNERS, L.P.
TENASKA TALLADEGA GENERATING STATION



	468	213.4
	18	16.5
	522700	428650
	3600	3600
	0.26	0.13
	0.32	0.23
	0.46	0.32
	2.08	1.90
	2.05	1.85
	0.29	0.18
	0.21	0.15
	0.36	0.26
	0.52	0.32
	7.17	9.3
	0.043	0.059
	0.8	1.03
	0.064	0.059
	0.25	0.13
	BRUSHLESS	BRUSHLESS

	STG	GTG
Please provide Reactive Capability Curve.	KC916812	TE0075-1020
Please provide Supply Generator Saturation Curves.	KC916811	TE0075-111
Please provide Excitation System Block Diagram (gains, time constants and limits) in PSSE format.	EVNA61-ES01	EVNA61-ES01

8.14. Exciter Data

(MELCO PORTION)

8.14 Generator and Exciter Data for Inter Connection Study

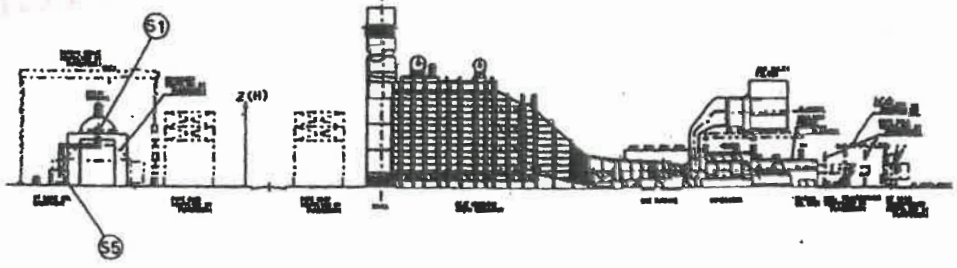
8.13 Expected Emission Data for Duct Burner

(Not Used)

8. ADDITIONAL ENGINEERING INFORMATION

8.12 Expected Emission Data for Gas Turbine Outlet

(Not Used)



FOR REFERENCE

USA / TENASKA
GENERAL ARRANGEMENT (2/2)

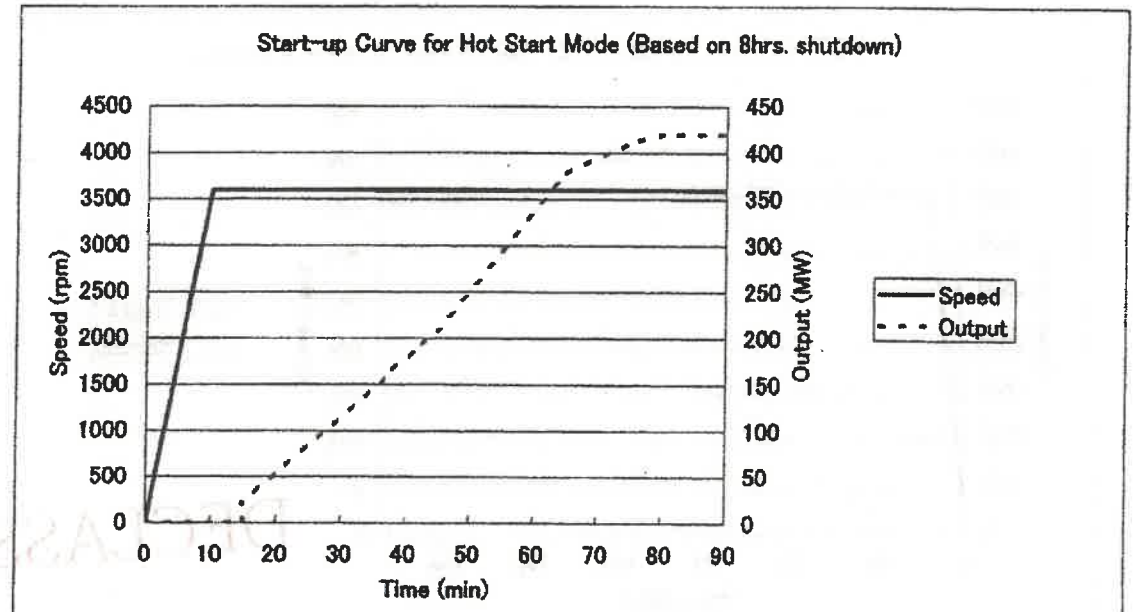
Table-1 Noise simulation data for Steam Turbine and Generator

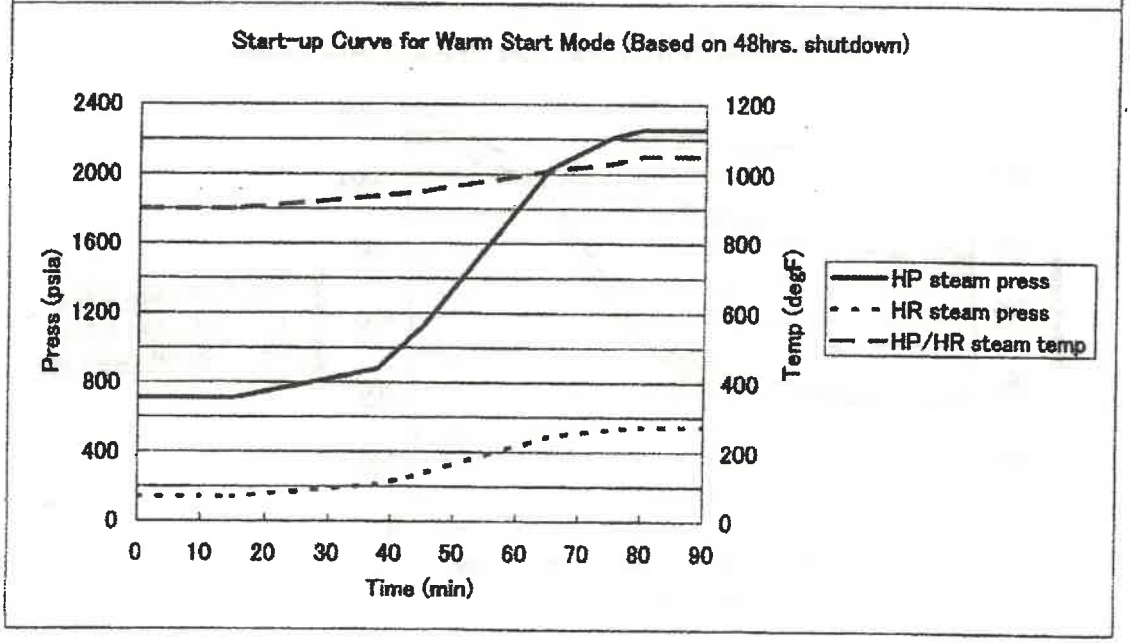
Location No.	Equipment	Noise Source Dimension			SPL or PWL	Octave Band Level									Overall dB(A)	Remark
		W (m)	L (m)	H (m)		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz		
S-1	Steam Turbine Enclosure	16.3	11.6	8.5	SPL	89.2	84.0	77.6	79.8	84.6	81.9	82.1	75.2	63.2	87.5	
S-2	Not Used															
S-3	Steam Turbine Generator	9.6	6.9	4.3	SPL	106.4	94.1	88.1	81.6	81.2	80.0	76.8	75.0	68.1	85.0	
S-4	Steam Turbine Generator Exciter	4.3	5.2	3.7	SPL	106.4	94.1	88.1	82.6	78.2	78.0	78.8	77.0	70.1	85.0	
S-5	ST Lub. Oil Unit	6.5	6.5	4.6	SPL	95.4	93.4	91.7	81.0	73.4	80.8	77.6	73.5	73.9	85.0	

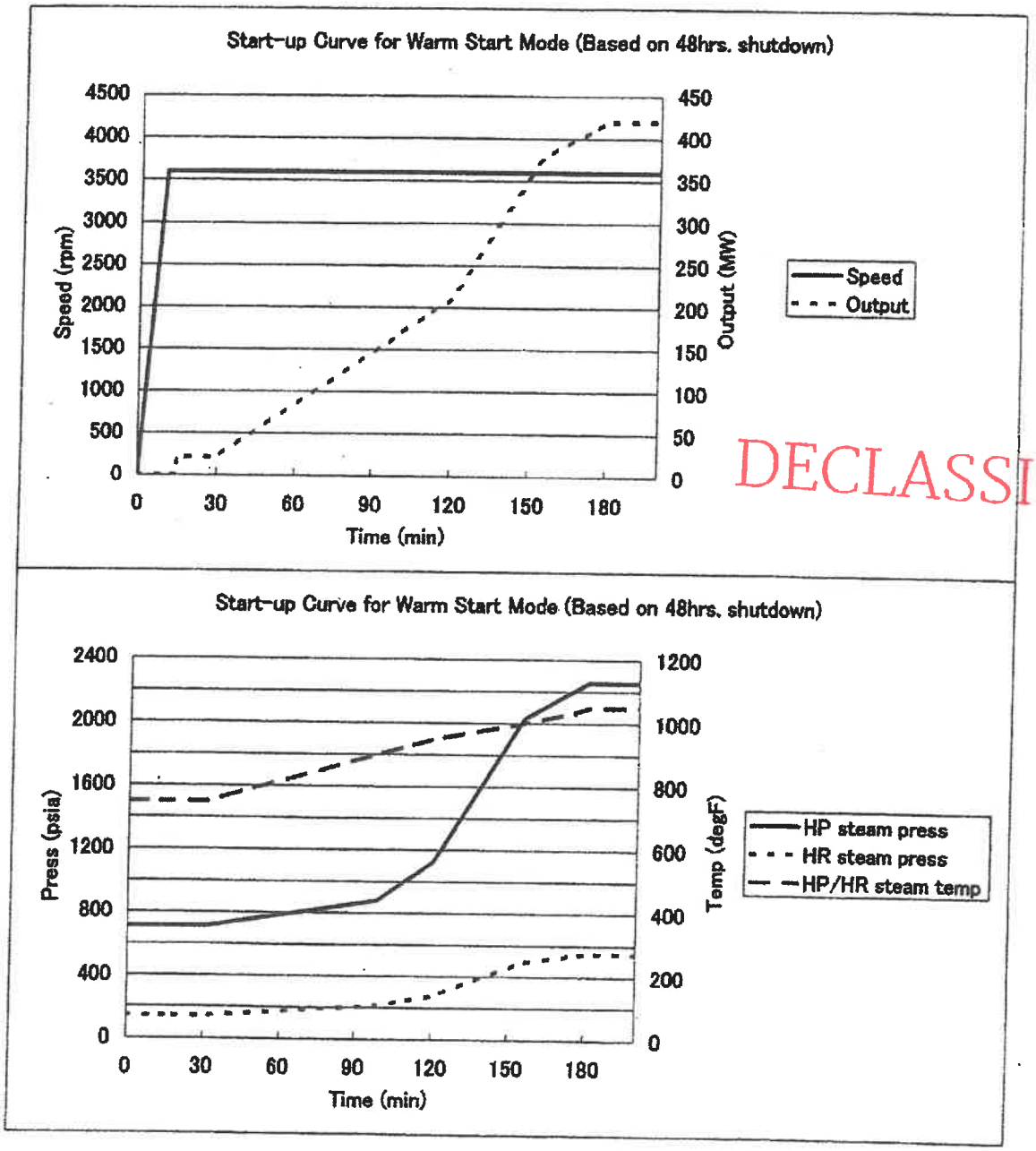
Note:) 1. Octave Band Level is without A-weight correction
2. Noise level of each octave band level is only for reference
3. SPL : Sound Pressure Level
4. PWL : Sound Power Level (dB as ref 10^{-12}watts)
5. The above data is based on free-field condition during normal running of the equipment.
6. Above figures are the data at 1m far from the equipment.
7. Noise Source Dimension X-Direction : L, Y-Direction : W, Z-Direction : H
8. Equipment Layout will be decided by EPC Contractor

8. ADDITIONAL ENGINEERING INFORMATION

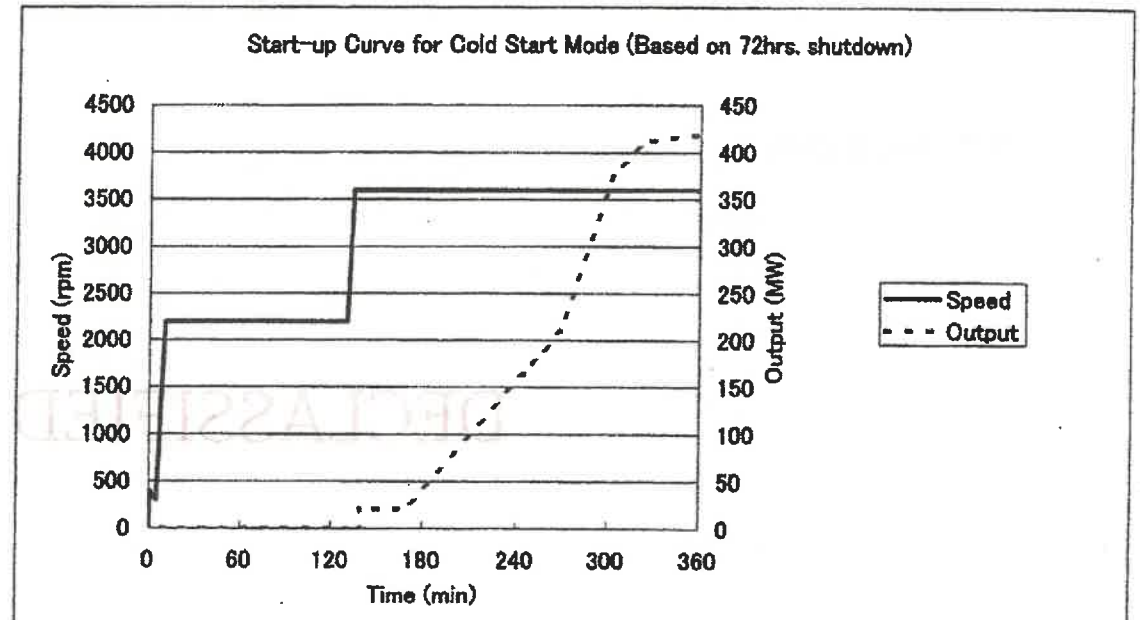
8.11 Noise Data

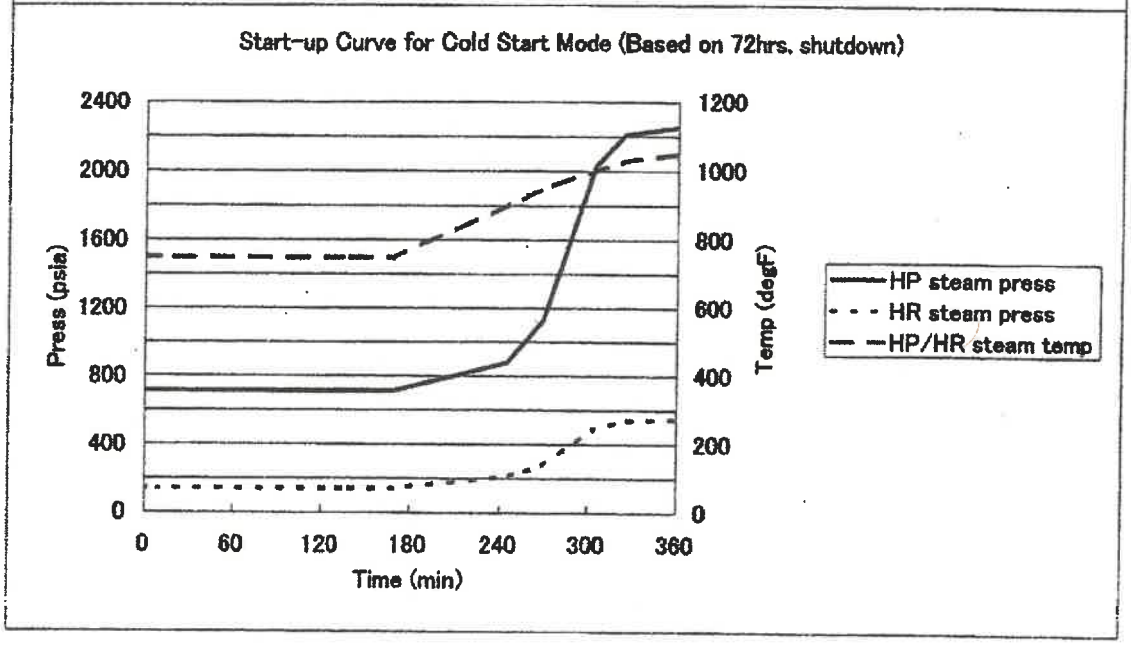






Expected start up curve



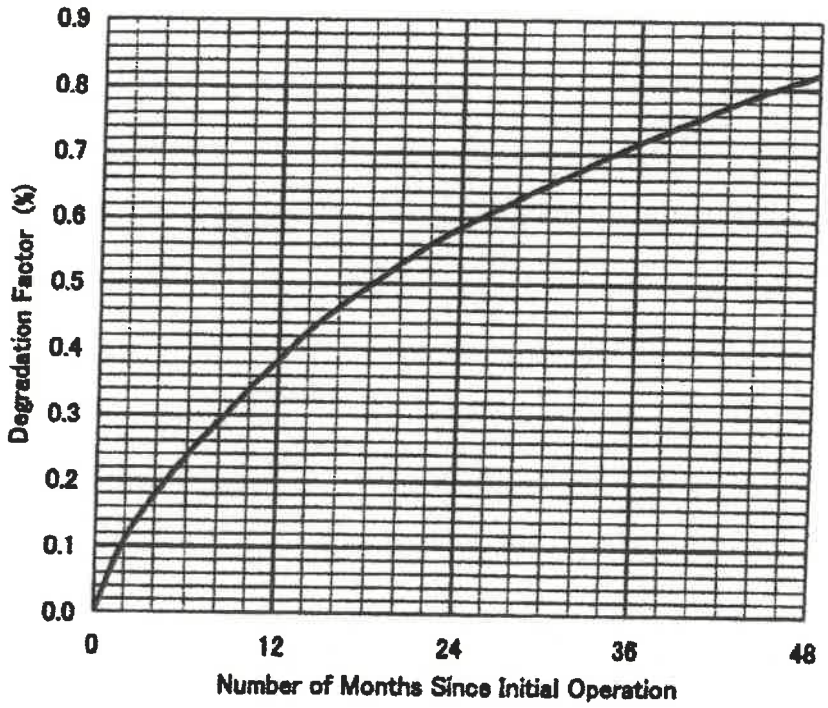


8. ADDITIONAL ENGINEERING INFORMATION

8.10 Start up Curve

C25-D976

DEGRADATION FACTOR for STEAM TURBINE



NOTE : Based on ASME PTC-6 Report-1985
"Guidance for Evaluation of Measurement Uncertainty in Performance Tests of Steam Turbines"

8.9 Degradation Curve

Degradation Curve for Steam Turbine Performance

8. ADDITIONAL ENGINEERING INFORMATION

8.8 Electrical Load List

Please refer to the following Document;

- T4-A6889 R-2, ELECTRICAL LOAD LIST

Note) MPS recommends that the emergency AC power source be available within 1 minute after blackout.

8. ADDITIONAL ENGINEERING INFORMATION

8.7 Standard Specification of Thermal Insulation for Steam Turbine

Please refer to the following Documents;

- T4-V4466 R-5 STEAM TURBINE SPECIFICATION OF INSULATION FOR PIPING AND EQUIPMENT

8.6 Standard Painting Specification for Mechanical Equipment

Please refer to the following Documents;

- L4-759361R-0, PAINTING SPECIFICATION
- GAE-EC-E162 Rev.C, PAINTING COLOR LIST (GENERATOR PORTION)
- GAE-EC-E163 Rev.C, PAINTING PROCUDURE (GENERATOR PORTION)

8.5 List of Closed Cooling Water and Heat Load for MPS's Equipment

Please refer to the following Document;

- T4-A6888 R-3, UTILITY LIST

8. ADDITIONAL ENGINEERING INFORMATION

8.4 Utility List

Please refer to the following Document;

- T4-A6888 R-3, UTILITY LIST

8. ADDITIONAL ENGINEERING INFORMATION

8.3 Loading Data of ST

Please refer to the following Drawings;

- T1-Y4423 R-3 STEAM TURBINE AND GENERATOR LOADS ON FOUNDATION
- AK33K491 Rev.B TURBINE GENERATOR LOAD ON FOUNDATION

(for ST)

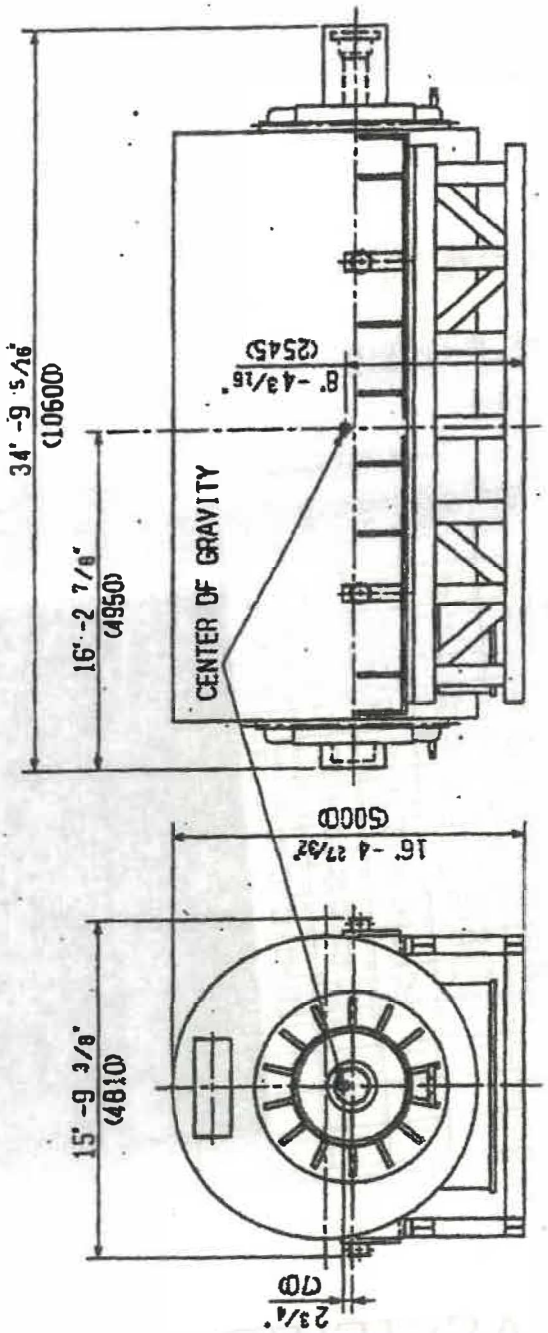
ITEM No.	Equipment (KKS. No.)	Description	Dimension / eqpt.(mm) W	L	H	Q'ty (set/ST)	Heat Dissipation / eqpt.(kw)	Weight / eqpt. (ton)	Location	Power Consumption
1-1	0AMBY02GH001 0AMBY02GH002 0AMBY02GH003 0AMBY02GH004 0AMBY02GH005	Steam Turbine Control System (Ref. Dwg. D3-E2197)	4000	800	2350	1	3kw	1.6ton	Electronics Room	DC 3.6kW AC 4kVA(ups)
1-2	0AMBY02GK001	EMS Engineering Maintenance Station (Ref. Dwg. D3-E1122)	(Desk will be supplied by DCS Supplier)			1	1kw	(Desk will be supplied by DCS Supplier)	Electronics Room	AC 1kVA(ups)
	0AMBY02GK002	OPS Operator Station (Ref. Dwg. D3-E1122)				1				
		OPC Server and Router	(Desk will be supplied by DCS Supplier)			1 (2 pcs)	0.7kw	(Desk will be supplied by DCS Supplier)	Electronics Room or Relay Room	AC 0.7kVA(ups)

8.2 Electrical Equipment List

Electrical Equipment List for steam turbine portion is attached hereinafter.

Regarding the generator portion, please refer to the following Document;

- GAE-EC-E145Rev.C, ELECTRICAL EQUIPMENT LIST (GENERATOR PORTION)



GROSS MASS 645,955 lb (293,000 kg)

EXCHANGE E-VNA-01

MITSUBISHI ELECTRIC CORPORATION					USA TENASKA STG
					TITLE: SHIPPING DIMENSIONS OF GENERATOR
DIM. IN mm	DATE	APR. 27. '01	APPROVED	K. Sasaki	
SCALE	DRAWN	A. NAKAGAWA			
NTS	CHECKED	Y. Gibi			
	DESIGNED	Y. Gibi			DWG. NO. AP30923

夕鉄一	1	
SE㈱	1	
三光E	1	

YYCAD_101\GODAYE\VNA 05AP30923

(C-6C)

FORMAT-B-b

PROFORMA PACKING LIST (STG: サイト送り)

NAME OF EQUIPMENT : ELECTRICAL CONTROL PANEL FOR STG

ITEM NO	DESCRIPTION	PACKAGE QTY		PER ONE PACKAGE						TOTAL NET WEIGHT TON	TOTAL GROSS WEIGHT TON	TOTAL CUBIC METER	REMARKS
		PER UNIT	TOTAL	WEIGHT (TON)		MEASUREMENT (M)			CUBIC METER				
				NET	GROSS	L	W	H					
	STG向け												
1	GENERATOR CONTROL PANEL	1	1	0.4	0.8	1.2	1.6	2.6					EVNA53
2	GENERATOR AUXILIARY PANEL	1	1	0.4	0.8	1.2	1.4	2.6					EVNA52
3	GENERATOR PROTECTION RELAY PANEL	1	1	0.4	0.8	1.2	1.6	2.6					EVNA54
4	SEAL OIL CONTROL PANEL	1	1	0.4	0.8	1.2	1.2	2.6					EVNA51
	BCT TERMINAL BOX	1	1	0.03	0.1	0.4	0.7	0.80					EVNA55
	MAINTENANCE TOOL FOR GPR	1	1	0.03	0.1	0.5	0.7	0.80					FOR GPR EVNA54
	ACCESSORY BOX FOR TEST TERMINAL TT-4C/4P	1	1	0.002	0.013	0.4	0.4	0.3					FOR UCP EVNA53
	ACCESSORY BOX FOR TEST TERMINAL TT-8C	1	1	0.002	0.013	0.4	0.4	0.3					FOR UCP EVNA53
	ACCESSORY BOX FOR TEST TERMINAL TT-4C/4P	2	2	0.002	0.013	0.4	0.4	0.3					FOR GPR EVNA54
	ACCESSORY BOX FOR TEST TERMINAL TT-8C	2	2	0.002	0.013	0.4	0.4	0.3					FOR GPR EVNA54
	ACCESSORY BOX FOR TEST TERMINAL TT-4C/4P	1	1	0.002	0.013	0.4	0.4	0.3					FOR GAP EVNA52
	小 計		13							1.674	3.391	18.9	

PROFORMA PACKING LIST

FIRST
FINAL

DATE: 18-MAR-2002

EXCITATION SYSTEM

ORDER NO. EVNA62

PLANT NAME:USA TENASKA (ST)

MITSUBISHI ELECTRIC CORPORATION

SHIPPING PORT KOBE

SHIPPING DATE '02-3/5

PACKING MAKER

NO.	PACKAGE No.	Q'ty	STYLE	DESCRIPTION	PRE ONE PACKAGE						TOTAL			REMARKS
					WEIGHT (TON)		DIMENSION (M)			VOLUME (M^3)	NET WEIGHT (TON)	GROSS WEIGHT (TON)	VOLUME (M^3)	
					NET	GROSS	L	W	H					
1		1	CASE	POWER SUPPLY FOR AVR TESTING	0.10	0.16	1.00	1.00	1.00	1.00	0.10	0.16	1.00	
2		1	CASE	TRANSFOMER FOR POWER SUPPLY OF AVR TESTING	0.20	0.32	1.00	1.00	1.00	1.00	0.20	0.32	1.00	
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
	TOTAL	2									0.30	0.48	2.00	

CONFIDENTIAL

PROFORMA PACKING LIST

FIRST
FINAL

DATE: 18-MAR-2002

EXCITATION SYSTEM

ORDER NO. EVNA61(STG)

PLANT NAME:USA TENASKA (ST)

MITSUBISHI ELECTRIC CORPORATION

SHIPPING PORT KOBE SHIPPING DATE 02-5/6

PACKING MAKER

NO.	PACKAGE No.	Q'ty	STYLE	DESCRIPTION	PRE ONE PACKAGE						TOTAL			REMARKS
					WEIGHT (TON)		DIMENSION (M)			VOLUME (M^3)	NET WEIGHT (TON)	GROSS WEIGHT (TON)	VOLUME (M^3)	
					NET	GROSS	L	W	H					
1		1	CASE	AVR CUBICLE	0.80	1.28	1.30	1.10	2.90	4.15	0.80	1.28	4.15	
2		1	CASE	CHANNEL BASE	0.05	0.08	1.20	1.00	0.10	0.12	0.05	0.08	0.12	
3		1	CASE	MAINTENANCE TOOL	0.03	0.05	1.00	1.00	1.00	1.00	0.03	0.05	1.00	
4		1	CASE	PRINTER	0.02	0.03	0.50	0.50	0.50	0.13	0.02	0.03	0.13	
5		1	CASE	TESTING TERMINAL BOX	0.01	0.02	0.50	0.50	0.50	0.13	0.01	0.02	0.13	
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
	TOTAL	5									0.91	1.46	5.52	

CONFIDENTIAL

PROFORMA PACKING LIST

DATE :MAR.19. 2001

ORDER NO. H27401
PLANT NAME : TENASKA TALLADEGA (ST)
SHIPPING PORT : KOBE

MITSUBISHI ELECTRIC CORPORATION
POWER DISTRIBUTION SYSTEMS CENTER
(MARUGAME)

NO.	PACKAGE NO.	Q'TY	STYLE	DESCRIPTION	PER ONE PACKAGE						TOTAL			REMARKS
					WEIGHT (TON)		DIMENSION (M)			VOLUME	NET WEIGHT	GROSS WEIGHT	VOLUME	
					NET	GROSS	L	W	H	(M3)	(TON)	(TON)	(M3)	
1		1	CASE	ST GENERATOR PANEL	1.8	2.6	3.0	1.5	3.2	14.4	1.8	2.6	14.4	1 PANEL
2		1	CASE	GTR	0.5	0.7	1.2	1.2	1.5	2.16	0.5	0.7	2.16	1 POE
3		1	CASE	ACCESSORIES FOR ST GENERATOR PANEL	0.2	0.3	3.0	0.7	0.8	1.68	0.2	0.3	1.68	
	TOTAL	3									2.5	3.6	18.24	

PROFORMA PACKING LIS

FIRST	
FINAL	

DATE: DEC.20.2001

MITSUBISI ELECTRIC CORPORASION

ORDER NO. 0-4E-GG5402/ 0-1K-GG5404
PLANT NAME TENASKA TALLADEGA (ST)
SHIPPING PORT KOBE JAPAN SHIPPING DATE

PACKING MAKER	TRNSMISSION & DISTRIBUTION, TRANSPORTATION SYSTEMS CENTER

NO.	PACKAGE NO.	Q'TY	STYLE	DESCRIPTION	PER ONE PACKAGE				TOTAL			REMARKS
					WEIGHT(TON)		DIMENSION	VOLUME	NET/W	GROSS/W	VOLUME	
					NET	GROSS	L X W X H (M)	(M3)	(TON)	(TON)	(M3)	
				- RT/SA CUB -								0-4E-GG5402
		1	CASE	PT/SACUB	3.000	4.000	3.00 X 2.55 X 3.25	24.86	3.000	4.000	24.86	
				- BOT -								0-1K-GG5404
		6	CASE	BOT	0.190	0.300	1.35 X 1.05 X 0.55	0.78	1.140	1.800	4.68	
	SUB TOTAL TOTAL	7			3.190	4.300		25.64	4.140	5.800	29.54	

FD.NO .WIN

SHEET N 1/1

CONFIDENTIAL

PROFORMA PACKING LIST

FIRST / FINAL

DATE: APR,1.2002

ORDER NO.: EVNA-03,04,08,13

MITSUBISHI ELECTRIC CORPORATION

PLANT NAME: TENASKA ALABAMA IV PARTNERS,L.P. TENASKA TALLADEGA GENERATING STATION

SHIPPING PORT: KOBE SHIPPING DATE

PACKING MAKER MELCO [illegible]

NO.	PACKAGE NO.	Q'ty	STYLE	DESCRIPTION	PER ONE PACKAGE						TOTAL			REMARKS
					WEIGHT (ton)		DIMENSION (m)			VOLUME	NET WEIGHT	GROSS WEIGHT	VOLUME	
					NET	GROSS	L	W	H	(m^3)	(ton)	(ton)	(m^3)	
1		1	CRATE	SEAL OIL SUPPLY UNIT	14.00	14.50	5.00	4.00	3.50	70.00	14.00	14.50	70.00	
2		1	CRATE	GAS DRYER	0.30	0.35	1.50	1.50	1.50	3.38	0.30	0.35	3.38	
3		1	CRATE	GAS PRESS./PURITY MONITORING UNIT	0.40	0.50	1.20	0.70	2.00	1.68	0.40	0.50	1.68	
4		1	CRATE	VAPOR EXTRACTOR	0.05	0.07	0.50	0.40	0.50	0.10	0.05	0.07	0.10	
5		1	CRATE	H2 SUPPLY UNIT AND MANIFOLDS	0.30	0.40	1.60	1.00	2.20	3.52	0.30	0.40	3.52	
6		1	CRATE	CO2 SUPPLY UNIT AND MANIFOLDS	0.50	0.60	1.80	1.70	2.40	7.34	0.50	0.60	7.34	
7		1	CASE	VALVES AND OTHER PARTS	1.00	1.20	5.00	3.00	2.00	30.00	1.00	1.20	30.00	
8		1	CRATE	STRAINER	0.20	0.25	1.50	1.00	1.00	1.50	0.20	0.25	1.50	
9		2	CRATE	PIPING AND SUPPORT	3.00	3.50	6.00	3.00	2.00	36.00	6.00	7.00	72.00	
10		1	CRATE	LOOP SEAL TANK	1.00	1.20	3.00	1.00	3.50	10.50	1.00	1.20	10.50	
11		2	CRATE	WATER DETECTOR AND DRAIN LEVEL SWITCH UNIT	0.10	0.15	1.50	1.50	0.50	1.13	0.20	0.30	2.26	
12		10	CRATE	H2 GAS BOTTLES	1.30	1.50	1.50	1.50	1.50	3.38	13.00	15.00	33.80	
13		5	CRATE	CO2 GAS BOTTLES	1.10	1.30	1.50	1.50	1.50	3.38	5.50	6.50	16.90	
14		10	CRATE	H2 GAS BOTTLES RACK	0.15	0.18	2.40	1.00	1.00	2.40	1.50	1.80	24.00	
15		4	CRATE	CO2 GAS BOTTLES RACK	0.10	0.12	1.30	1.00	1.00	1.30	0.40	0.48	5.20	
0														
	TOTAL	42									44.35	50.15	282.18	

ABH-L6125

PROFORMA PACKING LIST

O	FIRST
	FINAL

DATE:

ORDER NO.: E-VNA ~1

MITSUBISHI ELECTRIC CORPORATION

PLANT NAME: TENASKA ALABAMA STG

SHIPPING PORT: KOBE SHIPPING DATE

PACKING MAKER MELCO [illegible]

NO.	PACKAGE NO.	Q'ty	STYLE	DESCRIPTION	PER ONE PACKAGE						TOTAL			REMARKS
					WEIGHT (ton)		DIMENSION (m)			VOLUME	NET WEIGHT	GROSS WEIGHT	VOLUME	
					NET	GROSS	L	W	H	(m^3)	(ton)	(ton)	(m^3)	
1		1	SKIT	GENERATOR WITH GAS COOLER & ROTOR	288. 00	293. 00	10. 60	4. 61	5. 00	254. 93	288. 00	293. 00	254. 93	
2		1	CASE	OTHER PARTS	5. 50	6. 50	5. 50	3. 50	2. 50	48. 13	5. 50	6. 50	48. 13	
3		1	CASE	ACCESSORY	3. 50	4. 00	3. 50	2. 50	2. 50	21. 88	3. 50	4. 00	21. 88	
4		1	SKIT	LEADBOX & BUSHING	6. 50	7. 00	3. 30	2. 60	2. 10	18. 02	6. 50	7. 00	18. 02	
5		1	CASE	BRUSHLESS EXCITER	22. 00	23. 50	3. 90	3. 40	3. 00	39. 78	22. 00	23. 50	39. 78	
6		1	CASE	BRUSHLESS EXCITER PARTS	0. 40	0. 70	2. 50	1. 00	1. 30	3. 25	0. 40	0. 70	3. 25	
7		1	CASE	PAINT&HARDENER	0. 01	0. 03	0. 47	0. 43	0. 27	0. 05	0. 01	0. 03	0. 05	危険物
8		1	CASE	VARNISH	0. 01	0. 02	0. 63	0. 25	0. 40	0. 06	0. 01	0. 02	0. 06	危険物
9		1	CASE	THINNER&NEO BOND	0. 01	0. 01	0. 50	0. 27	0. 38	0. 05	0. 01	0. 01	0. 05	危険物
	TOTAL	9									325. 93	334. 78	386. 15	

ABG-A3176-2 (1/1)

8.1. Profoma Packing List (MELCO PORTION)

CHECKED BY	
DESIGNED BY	H. INOUE
LOADING PORT	KOBE
LOADING DATE	
READY FOR SHIPMENT	

PROFORMA PACKING LIST

9/E FOB

PLANT NAME BARTOW S/T TOOL

DATE H. .

MARKER'S NAME	M.H.I. TAKASAGO	
TOTAL PACKAGES	11	P'KG
TOTAL GROSS W'T	9,960	kg
TOTAL MEASURE	30.43	M3

ITEM NO.	PACKAGE NO.	PACKAGE TYPE	DESCRIPTION	Q'TY	NETW'T(KG) PER P'KG	NETW'T(KG) TOTAL	GROSS W'T(KG) PER P'KG	GROSS W'T(KG) TOTAL	DIMENSION(M) L	DIMENSION(M) W	DIMENSION(M) H	MEASUREMENT(M3) PER P'KG	MEASUREMENT(M3) TOTAL	REMARKS
		S/D	LIFTING BEAM	1	3800	3800	3900	3900	7	0.7	1.3	6.37	6.37	
		S/D	LIFTING BEAM	1	400	400	500	500	3.2	0.6	0.4	0.768	0.768	
		C/S	STUD BOLT etc	1	1200	1200	1500	1500	2.3	1.2	1.2	3.312	3.312	
		C/S	ROTOER GUIDE etc	1	850	850	950	950	1.2	1	0.8	0.96	0.96	
		C/S	BOLT HEATER	1	500	500	650	650	1.8	1	1.1	1.98	1.98	
		C/S	CLAMP etc	1	1000	1000	1100	1100	1.2	1	0.8	0.96	0.96	
		B/R	ROTOER SUPPORT	2	210	420	210	420	1	1	1	1	2	
		B/R	ROTOER SUPPORT	2	400	800	400	800	1.8	1.8	2.1	6.804	13.608	
		S/D	OVERHAUL TOOL	1	90	90	140	140	1.3	0.9	0.4	0.468	0.468	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
			SUB TOTAL	11		9060		9960				22.622	30.426	

			SUB TOTAL	25		26198		29350				57.194	62.024	

Note:
1 Insulation will be procured local and not included in above list.

			SUB TOTAL	34		39320		49540				165.312	183.612	
ITEM	PACKAGE		DESCRIPTION	Q'TY	NEW W'T(KG)		GROSS W'T(KG)		DIMENSION(M)			MEASUREMENY(M3)		REMARKS
NO.	NO.	TYPE			PER P'KG	TOTAL	PER P'KG	TOTAL	L	W	H	PER P'KG	TOTAL	
		B/R	TRESTLE	1	130	130	130	130	3.1	0.8	0.8	1.984	1.984	
		B/R	COVER	2	50	100	50	100	1.4	1.1	0.8	1.232	2.464	
		B/R	COVER	1	20	20	20	20	0.9	0.5	0.8	0.36	0.36	
		B/R	COVER	2	20	40	20	40	0.6	0.5	0.7	0.21	0.42	
		B/R	COVER	1	40	40	40	40	1	0.5	0.5	0.25	0.25	
		C/S	COVER	1	50	50	170	170	1.4	0.9	0.7	0.882	0.882	
		S/D	BEAM	1	33	33	80	80	2.4	1.4	0.2	0.672	0.672	
		C/S	BOLT etc	1	40	40	70	70	0.8	0.5	0.4	0.16	0.16	
		S/D	BRACKET	1	45	45	50	50	1	1	0.2	0.2	0.2	
		C/S	OIL PURIFIER	1	1300	1300	1500	1500	2.2	1.8	2.5	9.9	9.9	
		C/S	TURNING DEVICE	1	1500	1500	1700	1700	1.6	1.2	1.9	3.648	3.648	
		C/S	TOP SEAL DIAPHRAGM	1	300	300	450	450	2.4	2.4	0.5	2.88	2.88	
		C/S	HP PEDESTAL BASE PLATE	1	2750	2750	3050	3050	3.1	2.2	0.7	4.774	4.774	
		C/S	LP BASE PLATE	1	4900	4900	5300	5300	3.5	2.5	0.6	5.25	5.25	
		C/S	LP BASE PLATE	1	2000	2000	2300	2300	4.2	1	0.5	2.1	2.1	
		C/S	BELLOWS	2	1500	3000	1700	3400	2.2	2.2	0.7	3.388	6.776	
		C/S	GEAR SPACER	1	900	900	1000	1000	1.3	1.2	0.4	0.624	0.624	
		C/S	BEARING HOUSING	1	6600	6600	7100	7100	3.5	2.4	1.8	15.12	15.12	
		C/S	LINER & SHIM etc	1	1000	1000	1100	1100	1.3	1	0.8	1.04	1.04	
		C/S	VALVE etc	1	100	100	200	200	1.2	1	0.7	0.84	0.84	
		C/S	BOLT etc	1	1000	1000	1100	1100	1.2	1	0.7	0.84	0.84	
		C/S	LEVELING WEDGE1	1	350	350	450	450	1.2	1	0.7	0.84	0.84	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	
						0		0				0	0	

			SUB TOTAL	38		114610		126010				331.57	431.444	
ITEM	PACKAGE		DESCRIPTION	Q'TY	NEW W'T(KG)		GROSS W'T(KG)		DIMENSION(M)			MEASUREMENY(M3)		REMARKS
NO.	NO.	TYPE			PER P'KG	TOTAL	PER P'KG	TOTAL	L	W	H	PER P'KG	TOTAL	
		C/S	LUBE OIL FILTER	1	1100	1100	1300	1300	1.5	0.7	1.8	1.89	1.89	
		C/S	PIPE	1	270	270	320	320	18	0.8	0.5	7.2	7.2	
		S/D	PIPE	1	2920	2920	2970	2970	6	0.6	0.5	1.8	1.8	
		S/D	PIPE	1	450	450	500	500	5	0.4	0.4	0.8	0.8	
		S/D	PIPE	1	1550	1550	1600	1600	2.7	2.9	0.4	3.132	3.132	
		S/D	PIPE	1	1850	1850	1900	1900	4.5	2	0.5	4.5	4.5	
		B/R	PIPE	1	300	300	300	300	1.2	0.3	0.3	0.108	0.108	
		B/R	PIPE	1	760	760	760	760	7.8	0.6	0.3	1.404	1.404	
		S/D	PIPE	1	680	680	730	730	4.6	3.2	0.4	5.888	5.888	
		S/D	PIPE	1	1120	1120	1170	1170	2.2	1.2	0.7	1.848	1.848	
		S/D	PIPE	1	2850	2850	2900	2900	8.7	0.9	1.5	11.745	11.745	
		S/D	PIPE	1	2360	2360	2400	2400	3.4	3.2	2	21.76	21.76	
		S/D	PIPE	1	970	970	1050	1050	4.5	0.6	0.6	1.62	1.62	
		C/S	FLANGE	1	300	300	400	400	1.2	1	0.8	0.96	0.96	
		C/S	FLANGE etc	1	260	260	360	360	1.2	1	0.8	0.96	0.96	
		C/S	PIPE	1	7800	7800	9800	9800	6	2	2	24	24	
		C/S	PIPE	2	1100	2200	4200	8400	5	1.8	1.5	13.5	27	
		C/S	ELBOW	1	320	320	420	420	1.5	1	0.6	0.9	0.9	
		C/S	CHECK VALVE etc	1	370	370	470	470	1.2	1	0.8	0.96	0.96	
		C/S	GASKET etc	1	100	100	200	200	1.2	1	0.8	0.96	0.96	
		S/D	LAGGING	1	850	850	950	950	3.5	2.2	0.9	6.93	6.93	
		S/D	LAGGING	1	1600	1600	1700	1700	3.5	2.3	0.7	5.635	5.635	
		S/D	LAGGING	1	900	900	1000	1000	3.5	2	0.7	4.9	4.9	
		S/D	LAGGING	1	1550	1550	1650	1650	2.8	1.5	1.2	5.04	5.04	
		S/D	LAGGING	1	1400	1400	1500	1500	3.5	2.3	1.2	9.66	9.66	
		S/D	LAGGING	1	1250	1250	1350	1350	3.5	2	0.9	6.3	6.3	
		S/D	LAGGING	1	1400	1400	1500	1500	2.8	2.2	0.9	5.544	5.544	
		S/D	LAGGING	1	760	760	860	860	3.5	1.5	0.8	4.2	4.2	
		B/R	TRESTLE	2	340	680	340	680	4	1.5	0.8	4.8	9.6	
		B/R	TRESTLE	1	170	170	170	170	3.5	1	0.8	2.8	2.8	
		B/R	TRESTLE	1	130	130	130	130	2.7	1	0.8	2.16	2.16	
		B/R	TRESTLE	1	100	100	100	100	2.2	0.8	0.8	1.408	1.408	
						0		0				0	0	

CONFIDENTIAL

ITEM NO.	PACKAGE NO.	PACKAGE TYPE	DESCRIPTION	Q'TY	NEW W'T(KG) PER P'KG	NEW W'T(KG) TOTAL	GROSS W'T(KG) PER P'KG	GROSS W'T(KG) TOTAL	DIMENSION(M) L	W	H	MEASUREMENY(M3) PER P'KG	MEASUREMENY(M3) TOTAL	REMARKS
		C/S	MOTOR	1	1550	1550	1750	1750	2	1.3	1.8	4.68	4.68	
		S/D	CROSS OVER PIPE	1	10700	10700	11300	11300	8	5.2	3.5	145.6	145.6	
		S/D	HPSV & CV	2	22000	44000	25000	50000	3.8	2	4.4	33.44	66.88	
		S/D	RSV & ICV	2	18000	36000	18500	37000	3.4	2.6	4.1	36.244	72.488	
		S/D	LPSV & CV	1	4000	4000	4500	4500	2.6	2.1	3.3	18.018	18.018	
		C/S	PIPE	1	200	200	300	300	4.2	0.7	0.7	2.058	2.058	
		C/S	LOCAL RACK	1	170	170	220	220	2	2	0.8	3.2	3.2	
		C/S	UNION etc	1	100	100	200	200	1.2	1	0.8	0.96	0.96	
		B/R	TEFLON CABLE	1	150	150	150	150	1	0.8	0.8	0.64	0.64	
		B/R	TEFLON CABLE	1	130	130	130	130	0.8	0.7	0.7	0.392	0.392	
		B/R	TEFLON CABLE	2	50	100	50	100	0.6	0.5	0.5	0.15	0.3	
		C/S	TEFLON CABLE	1	100	100	200	200	2	2	0.7	2.8	2.8	
		C/S	TERMINAL BOX	1	1000	1000	1200	1200	2.2	1.5	1.9	6.27	6.27	
		C/S	CABINET	1	1200	1200	1500	1500	2.6	1	2.7	7.02	7.02	
		C/S	CABINET	1	800	800	1000	1000	1.8	1	2.7	4.86	4.86	
		C/S	CONDUIT	1	350	350	450	450	3.5	0.6	0.7	1.47	1.47	
		C/S	ELBOW etc	1	100	100	200	200	1.2	1	0.7	0.84	0.84	
		C/S	PLANT TUBE	1	550	550	650	650	1.5	1	1	1.5	1.5	
		S/D	CABLE DUCT	1	150	150	200	200	1.6	0.5	0.3	0.24	0.24	
		C/S	BOLT etc	2	100	200	200	400	1.2	1	0.7	0.84	1.68	
		C/S	ANGLE etc	1	950	950	1150	1150	5.7	1	0.6	3.42	3.42	
		C/S	PERSONAL COMPUTER et	1	50	50	150	150	1	1	1	1	1	
		C/S	CABLE etc	1	60	60	160	160	1.2	1	0.8	0.96	0.96	
		C/S	DESK etc	1	500	500	650	650	3	2	2	12	12	
		C/S	SENSOR etc	1	100	100	200	200	2.5	1	1	2.5	2.5	
		C/S	GLAND STEAM EXHAUST FA	2	850	1700	1000	2000	2	1.5	1.5	4.5	9	
		C/S	EXPANSION JOINT etc	1	370	370	500	500	1.5	1	0.8	1.2	1.2	
		S/D	GLAND STEAM CONDENSER	1	5500	5500	5600	5600	3.4	1	1.8	6.12	6.12	
		C/S	BASE PLATE etc	1	400	400	500	500	1.5	1	1	1.5	1.5	
		C/S	LUBE OIL COVER	1	30	30	100	100	1.6	1.2	0.6	1.152	1.152	
		S/D	LUBE OIL COOLER	2	1450	2900	1500	3000	1.9	6.5	2	24.7	49.4	shipment from Sweden
		S/D	THREE WAY VALVE	1	500	500	550	550	1.8	0.8	0.9	1.296	1.296	
						0		0				0	0	

CHECKED BY	
DESIGNED BY	H. INOUE
LOADING PORT	KOBE
LOADING DATE	
READY FOR SHIPMENT	

PROFORMA PACKING LIST

9/E FOB

PLANT NAME BARTOW S/T

DATE H. .

MARKER'S NAME	M.H.I. TAKASAGO	
TOTAL PACKAGES	136	P'KG
TOTAL GROSS W'T	601,860	kg
TOTAL MEASURE	1,543.62	M3

ITEM NO.	PACKAGE NO.	PACKAGE TYPE	DESCRIPTION	Q'TY	NEW W'T(KG) PER P'KG	NEW W'T(KG) TOTAL	GROSS W'T(KG) PER P'KG	GROSS W'T(KG) TOTAL	DIMENSION(M) L	W	H	MEASUREMENY(M3) PER P'KG	MEASUREMENY(M3) TOTAL	REMARKS
		C/S	HP PEDESTAL ASS'Y	1	12000	12000	15000	15000	3	2.5	1.8	13.5	13.5	
		S/D	HIP TURBINE ASS'Y	1	140000	140000	150000	150000	8.3	4.4	5.3	193.556	193.556	
		S/B	LP ROTOR	1	54600	54600	74600	74600	8.9	4	4.2	149.52	149.52	
		S/D	LP OUTER CASING (UPPER)	1	22000	22000	24000	24000	7.5	5.8	3.1	134.85	134.85	
		S/D	PL OUTER CASING (LOWER)	1	43000	43000	45500	45500	7.5	6.4	3.2	153.6	153.6	
		C/S	STEAM CHANBER(UPPER)	1	6400	6400	6900	6900	3.7	2	1.5	11.1	11.1	
		C/S	STEAM CHANBER(LOWER)	1	6500	6500	7000	7000	3.7	2.2	1.5	12.21	12.21	
		C/S	BEARING	3	680	2040	800	2400	1.2	1	0.8	0.96	2.88	
		C/S	BEARING	1	500	500	600	600	1.2	1	0.8	0.96	0.96	
		C/S	OIL RETAINING RING	1	350	350	450	450	1.2	1	0.8	0.96	0.96	
		C/S	COUPLING GUARD	1	100	100	200	200	1.2	1.2	1	1.44	1.44	
		C/S	COUPLING GUARD	1	50	50	150	150	1	1	0.7	0.7	0.7	
		S/D	FLOW GUIDE	2	1400	2800	1600	3200	2.5	2.4	1.2	7.2	14.4	
		C/S	STATIONARY BLADE	4	3500	14000	4000	16000	3.9	2.1	0.8	6.552	26.208	
		C/S	BLADE RING	4	3000	12000	3300	13200	2.8	1.6	0.8	3.584	14.336	
		C/S	BLADE RING	4	3100	12400	3400	13600	2.8	1.8	0.9	4.536	18.144	
		C/S	SEAL RING	1	500	500	600	600	1.2	1	0.8	0.96	0.96	
		C/S	THREAD STAD BOLT	1	600	600	700	700	1.2	1	0.8	0.96	0.96	
		C/S	JACKING BOLT etc	1	700	700	800	800	1.2	1	0.8	0.96	0.96	
		C/S	GASKET etc	1	400	400	500	500	1.2	1	0.8	0.96	0.96	
		B/R	LUBE OIL TANK	1	19000	19000	19000	19000	5.2	4.1	4.1	87.412	87.412	
		B/R	LADDER	1	200	200	200	200	4.6	1	1.2	5.52	5.52	
		B/R	HAND RAIL	1	160	160	160	160	2.5	2	1.1	5.5	5.5	
		B/R	HAND RAIL	1	150	150	150	150	4	2	1.1	8.8	8.8	
		C/S	VAPOR EXTRACTOR	1	1000	1000	1200	1200	2.4	1.2	1.8	5.184	5.184	
		C/S	MOTOR	1	600	600	700	700	1	0.8	1.2	0.96	0.96	
		C/S	STRAINER	1	50	50	150	150	0.8	0.8	1.5	0.96	0.96	
			SUB TOTAL	39		352100		396960				813.404	866.54	

6.	Generator and Electrical equipment	· The generator will be supplied as pre-assembled condition. Please refer to Packing list for Generator

1. Steam Turbine and Auxiliaries

No.	Equipment	Knockdown Condition
1.	Steam Turbine	· HP / IP turbine will be supplied in assembled condition and LP turbine will be supplied in disassembled condition. Please refer to Proforma Packing List enclosed as section 3. · Insulation of ST will be shipped loose.
2.	Turbine valves	· Each HP, IP and LP stop valve and control valve will be shipped loose. · Inlet piping between control valves and ST will be shipped loose. · Insulation of piping will be shipped loose.
3.	ST Enclosure	· ST enclosure will be supplied as number of panels according to Mitsubishi standard. · Internal cabling, wiring and conduit between sensors and junction box will be shipped loose.
4.	Lubrication Oil System	· Lubricating Oil Unit which consists of oil reservoir, pumps, vapour extractor will be shipped as pre-assembled condition. · Oil purifier skid will be shipped in pre-assembled condition. · Lube. oil piping will be shipped loose.
4A	EH Control oil System	· EH Control Oil Unit which consists of oil reservoir, pumps, accumulator and oil cooler will be shipped as pre-assembled condition. · EH control oil piping will be shipped loose.
5.	Gland Condenser and Fan	· Gland condenser and fans will be shipped loose. · Inter connection piping between gland condenser and fans will be shipped loose.

1. GENERAL

This document gives the general description on delivery style for Steam Turbine.

This document describes the conditions (crates, skid, tonnage, size etc.) in which those equipment are shipped to facilitate EPC Contractor planing.

Generally, the shipping information mentioned in the actual packing lists when shipping prevail for final checking of the site lifting methods etc.

EPC Contractor is requested to consider the extra 10% of gross weight mentioned in this documents in order to proceed with lifting activity safely.

This document includes the drawings for main equipment, only relatively large or heavy.

TABLE OF CONTENT

KNOCKDOWN CONDITION

FOR

TENASKA

(for ST)

MITSUBISHI HEAVY INDUSTRIES, LTD.
TAKASAGO MACHINERY WORKS

8. ADDITIONAL ENGINEERING INFORMATION

8.1 Knockdown Condition (Including Proforma Packing List for ST, GEN)

Knockdown condition and proforma packing list for generator is attached hereinafter.

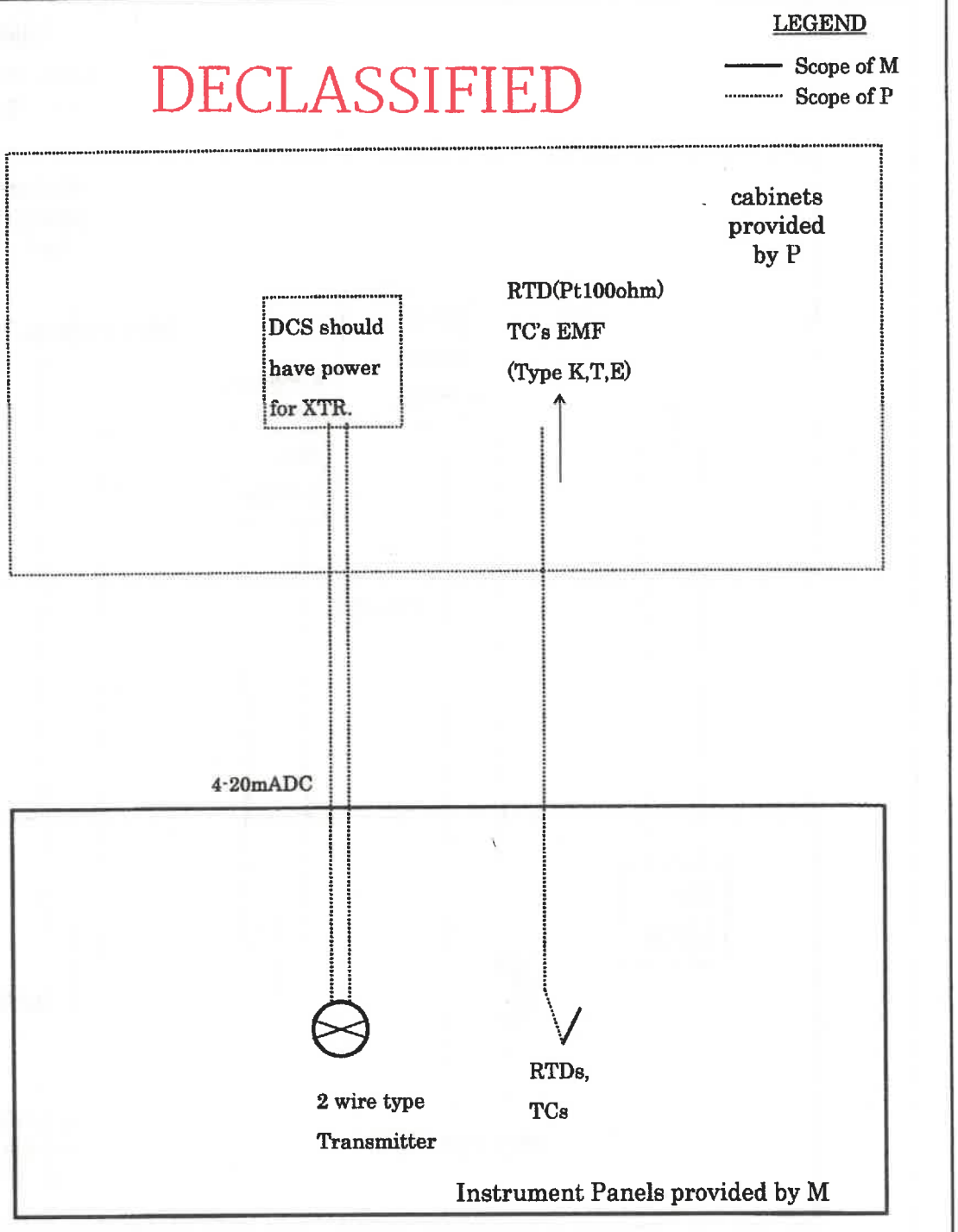
Please refer to the following drawing for steam turbine proforma packing information;

CG-54889 R-0, Main Equipment Delivery Condition

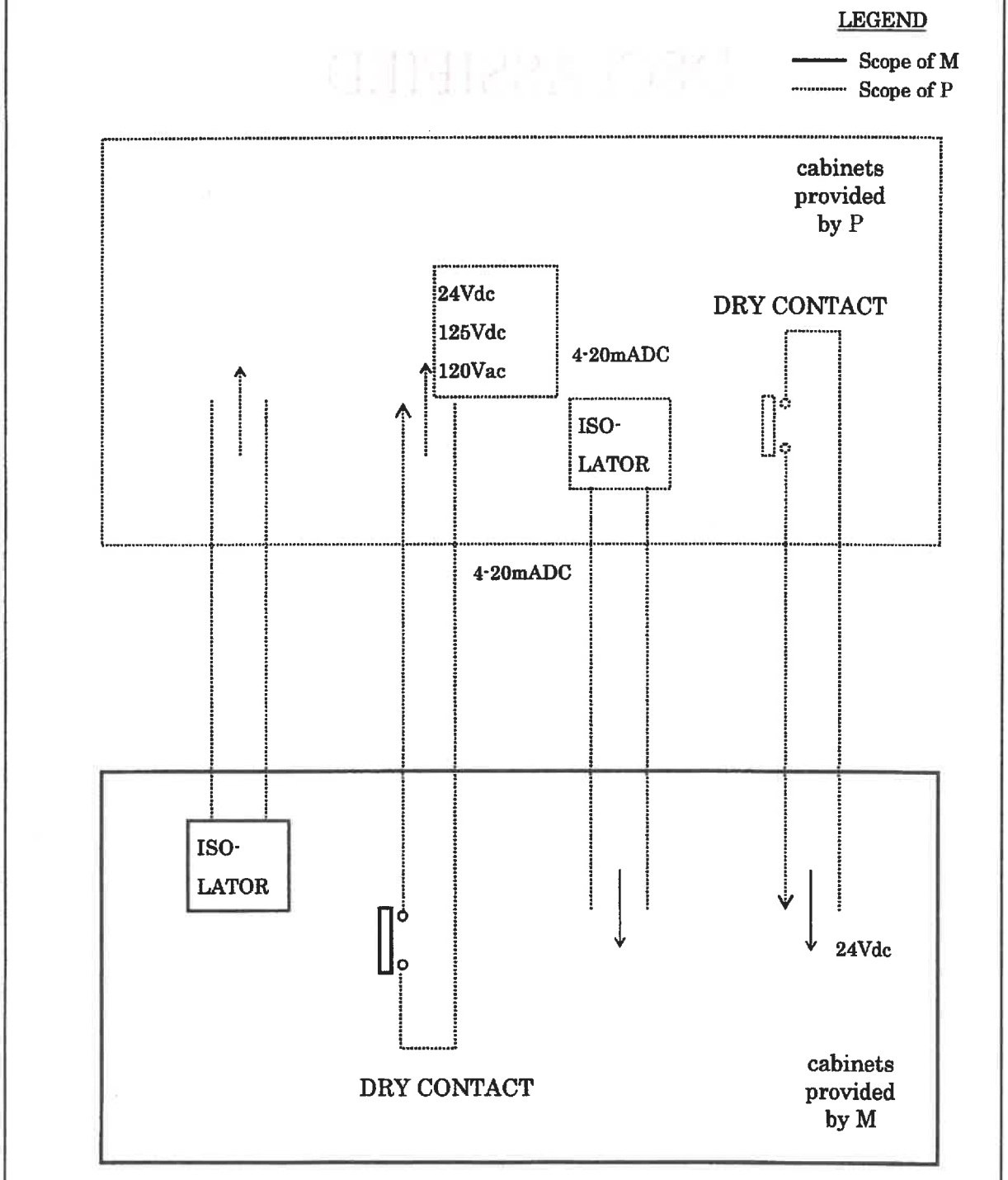
8. ADDITIONAL ENGINEERING INFORMATION

1. Knockdown Condition (Including Proforma Packing List (ST, GEN)
2. Electrical Equipment List
3. Loading Data of ST
4. Utility List
5. List of Closed Cooling Water and Heat Load for MPS's Equipment
6. Standard Painting Specification for Mechanical Equipment
7. Standard Specification of Thermal Insulation for Steam Turbine
8. Electrical Load List
9. Degradation Curve
10. Start up Curve
11. Noise Data
12. Expected Emission Data for Gas Turbine Outlet (Not Used)
13. Expected Emission Data for Duct Burner (Not Used)
14. Generator and Exciter Data for Inter Connection Study
15. Governor Model for Gas Turbine and Steam Turbine
16. Sub-vender List
17. Tool List
18. Terminal Point List
19. Hazardous Area Classification
20. Generator Rotor Removal Plan
21. Codes and Standards
22. Generator Shipping Height Scope Change
23. Storage Plan
24. Steam Purity Requirement for Steam Turbine
25. Oil System Specification for Steam Turbine
26. Allowable Pressure and Temperature Variations for Steam Turbine
27. Corrosion Allowance for HRSG (Not Used)
28. HRSG Erection Procedure (Not Used)

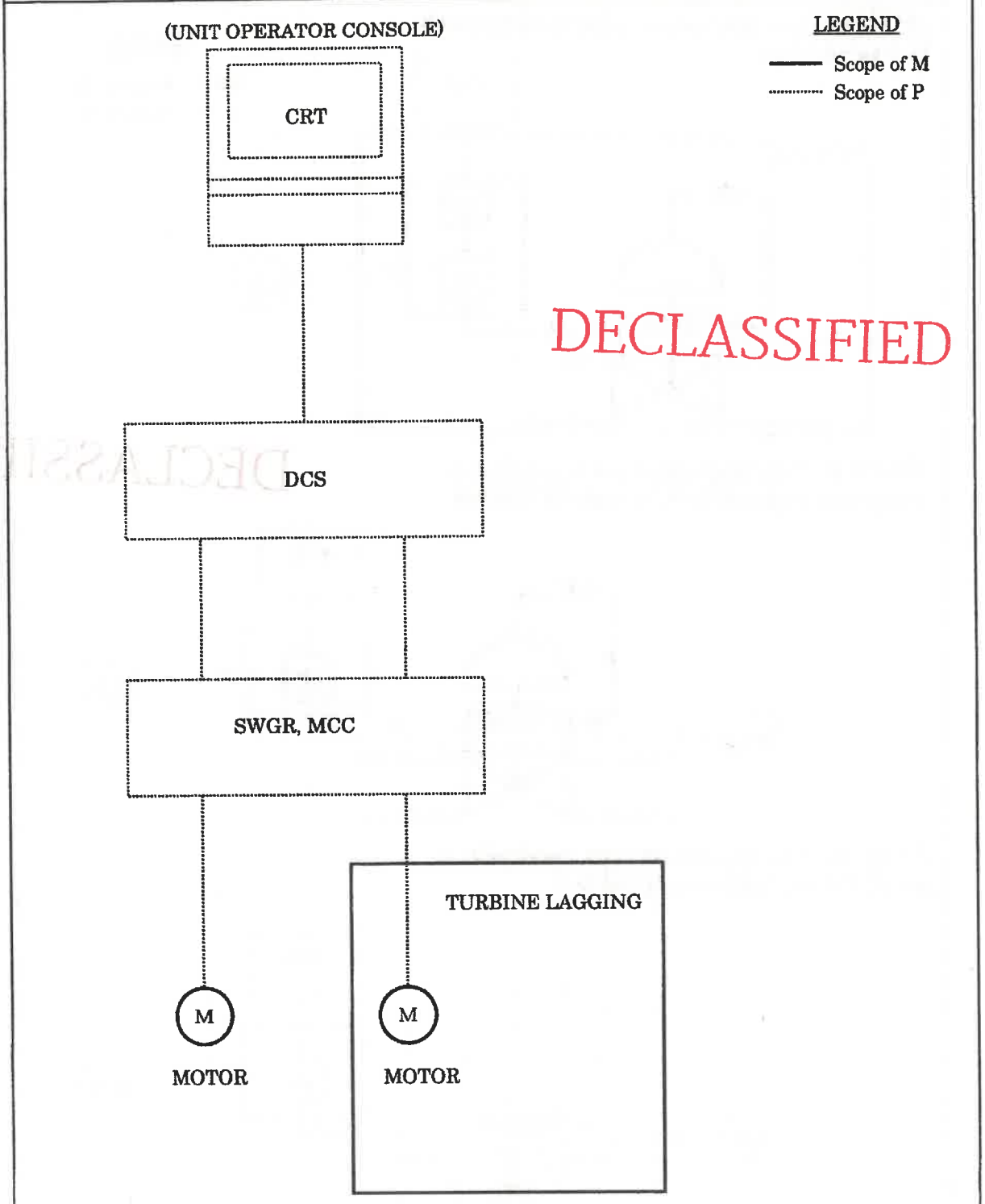
ITEM	SIGNAL EXCHANGE (2)	Fig - 15



I T E M	SIGNAL EXCHANGE (1)	Fig - 14

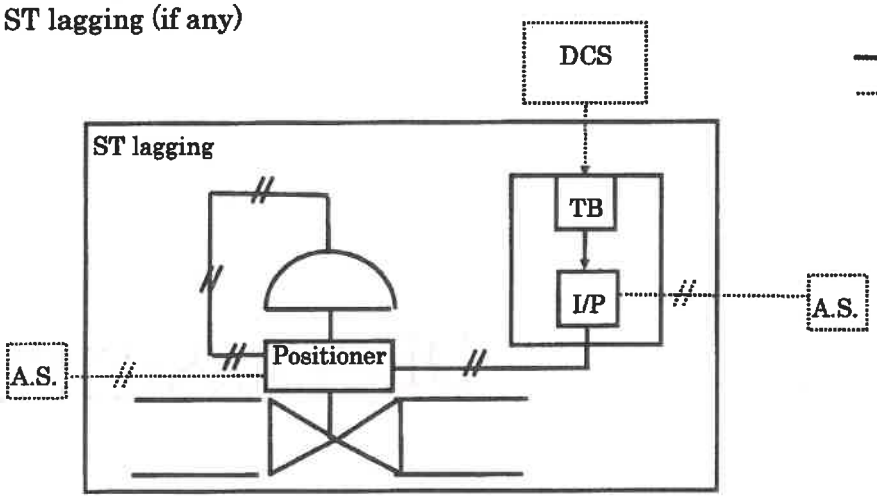


I T E M	MOTOR CONTROL for STEAM TURBINE	Fig - 13

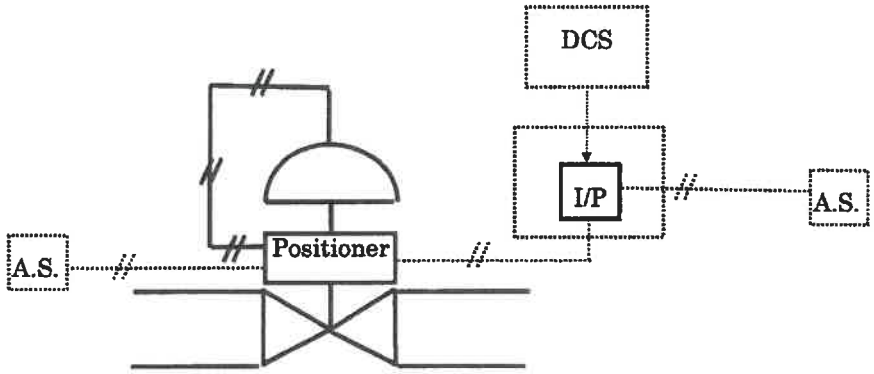


I T E M	Scope of supply for Control Air Tubing	Fig - 11

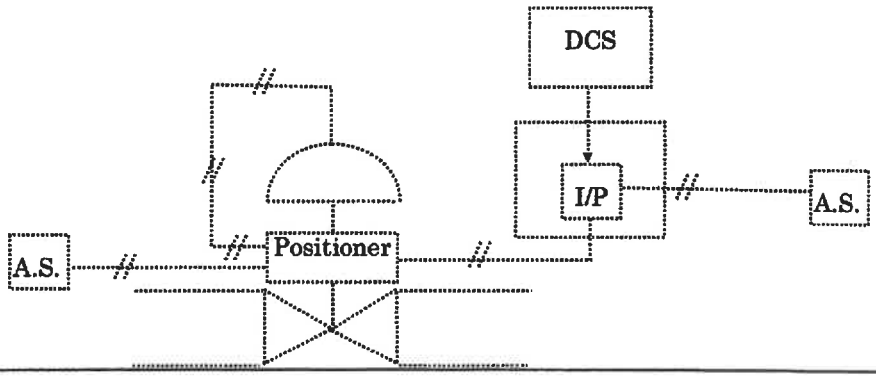
<TYPE-1> Case that control valve installed inside ST lagging (if any)



<TYPE-2> Case that control valve installed on equipment supplied by M (outside ST lagging)



<TYPE-3> Case that control valve supplied by P installed on equipment supplied by P



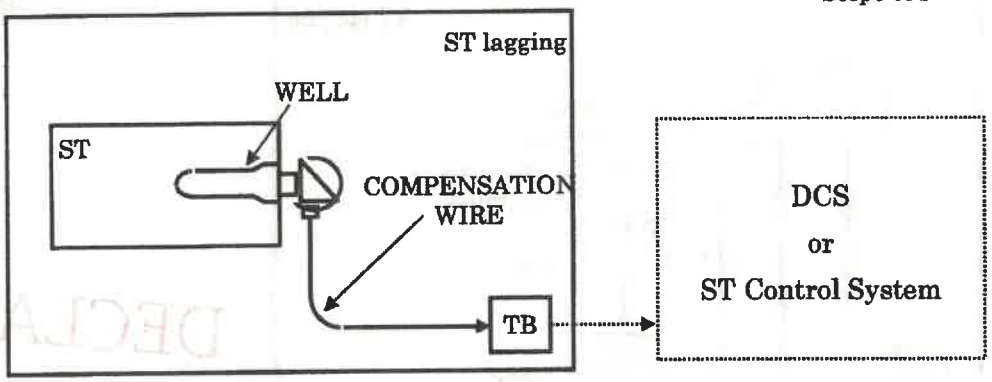
I T E M	Scope of supply for Temperature Detector	Fig - 10

LEGEND

——— Scope of M

..... Scope of P

<TYPE-1> Case that temperature detector installed inside ST lagging

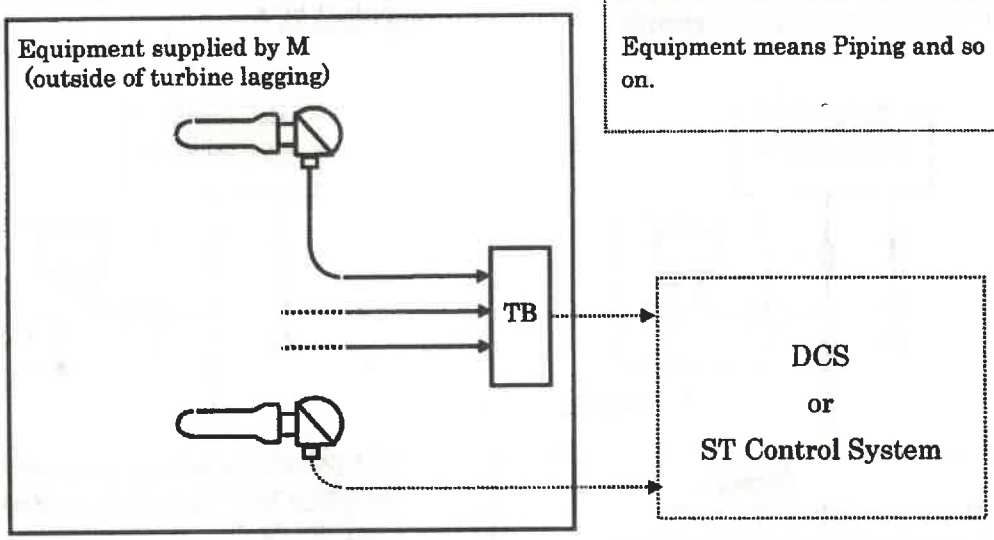


<TYPE-2> Case that temperature detector installed on equipment supplied by M (outside ST lagging)

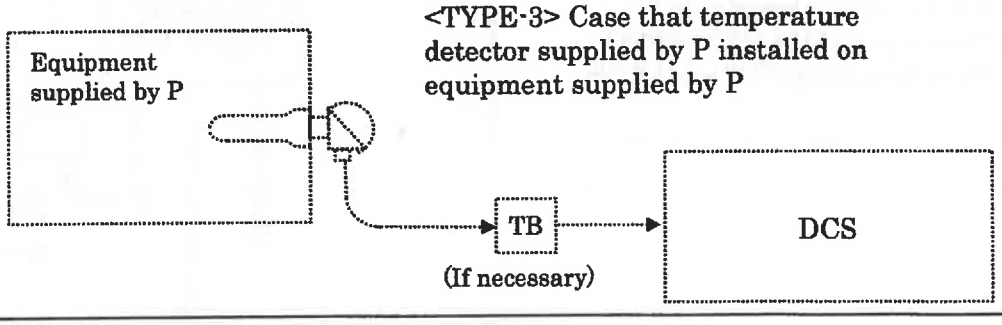
Remark

Thermocouples and terminal boxes are included in the equipment.

Equipment means Piping and so on.



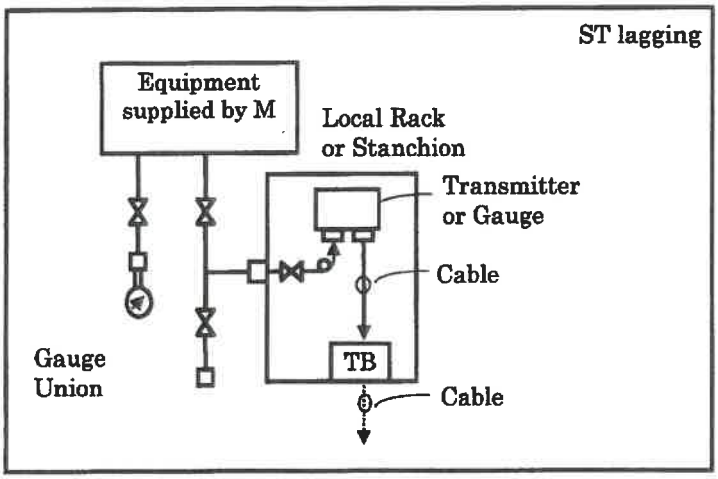
<TYPE-3> Case that temperature detector supplied by P installed on equipment supplied by P



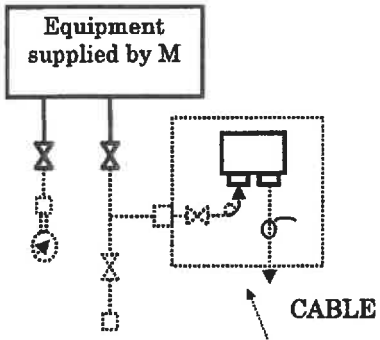
I T E M	Scope of supply for Instrument Process Tubing	Fig - 9

<TYPE-1> Case that instruments installed inside ST lagging

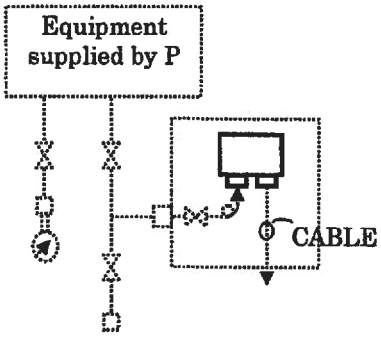
LEGEND
Scope of M
Scope of P



<TYPE-2> Case that instruments installed on equipment supplied by M (outside of turbine lagging)

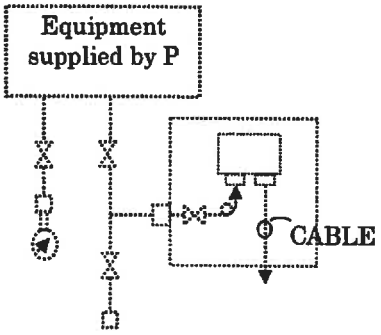


<TYPE-3> Case that instruments supplied by M installed on equipment supplied by P

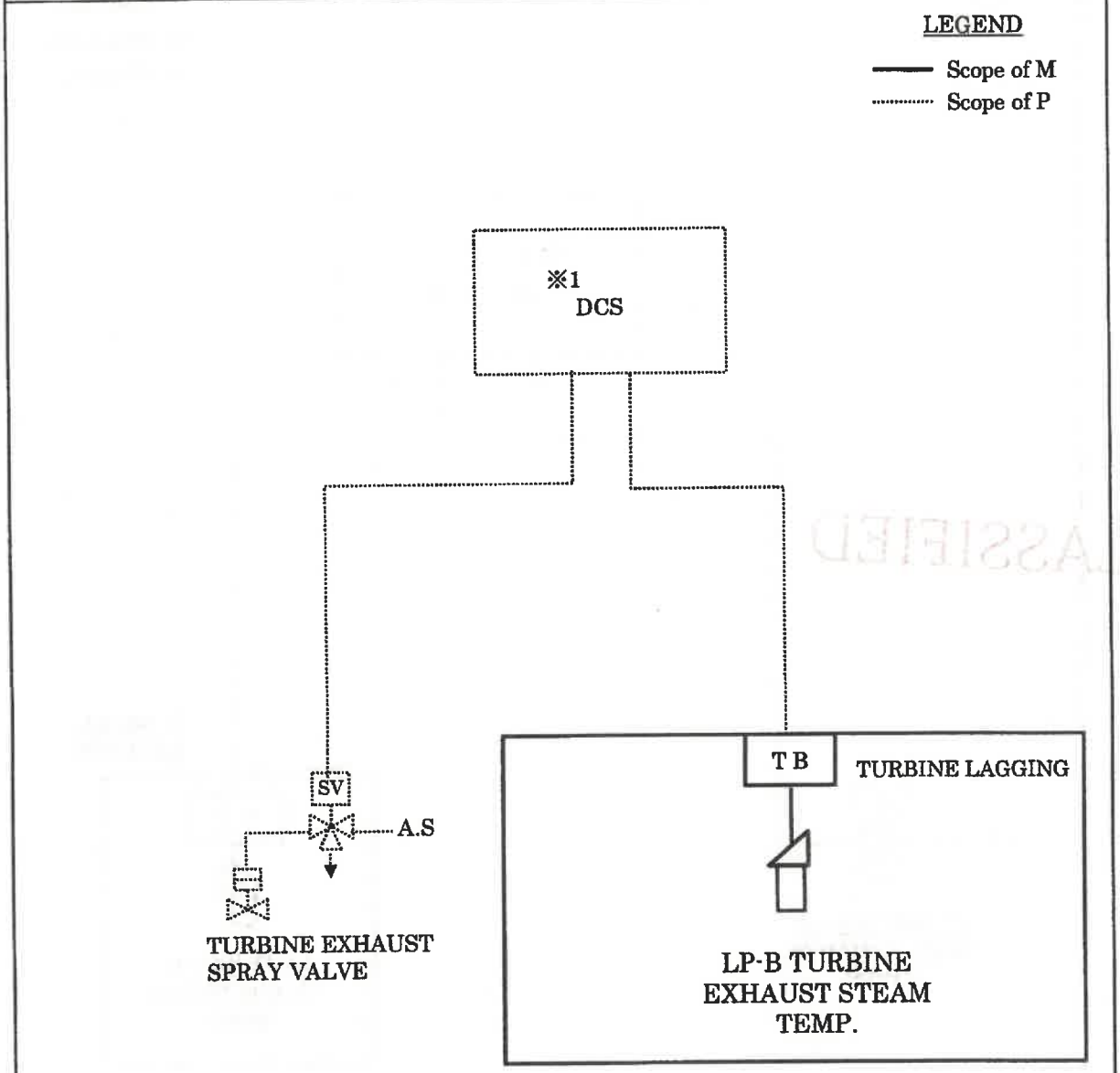


Remark
M provides only instrument.
P mounts this instrument on the instrument rack supplied by P.
Tubing and cabling are P portions.
Equipment means Piping and so on.

<TYPE-4> Case that instruments supplied by P installed on equipment supplied by P

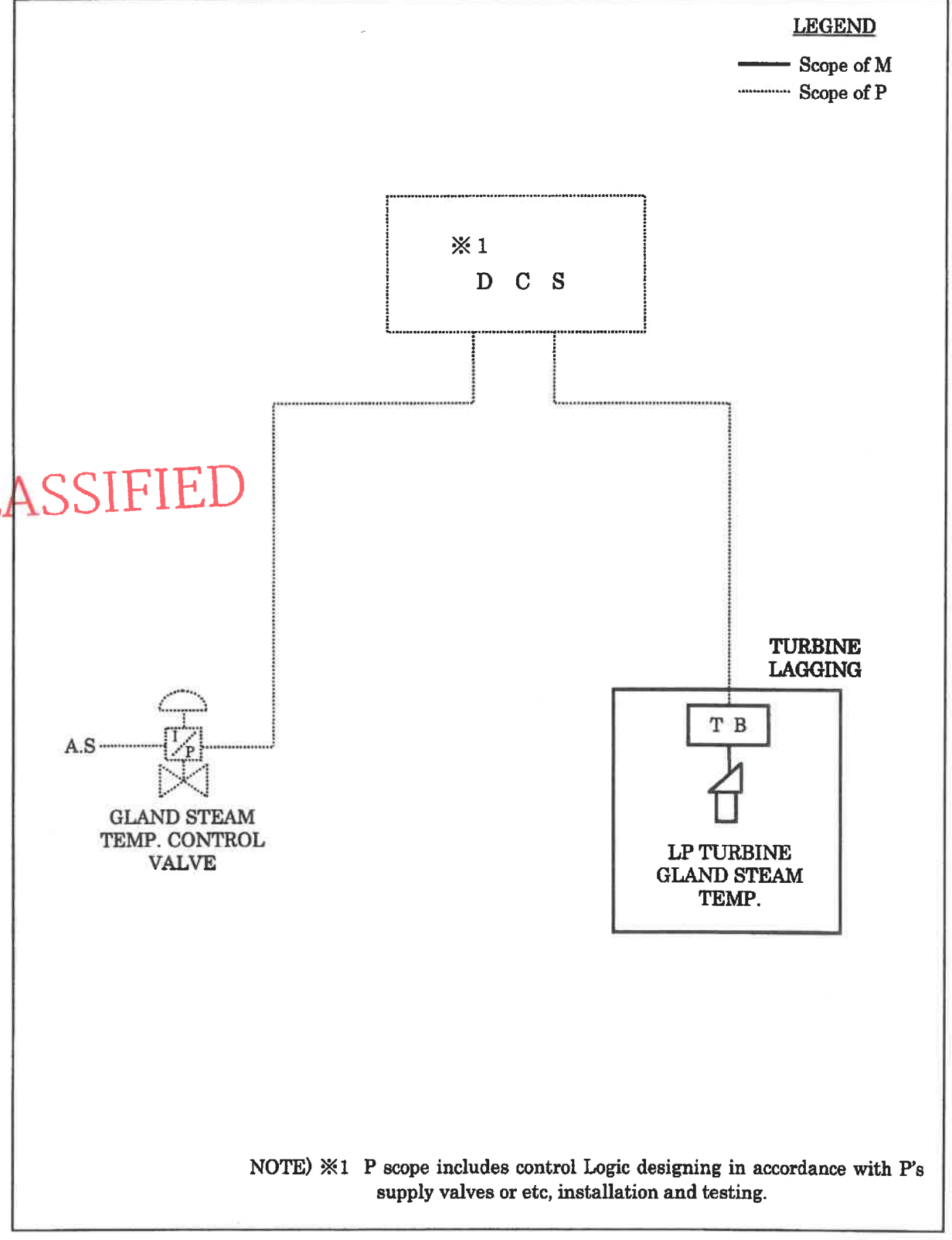


I T E M	TURBINE EXHAUST SPRAY CONTROL	Fig - 8



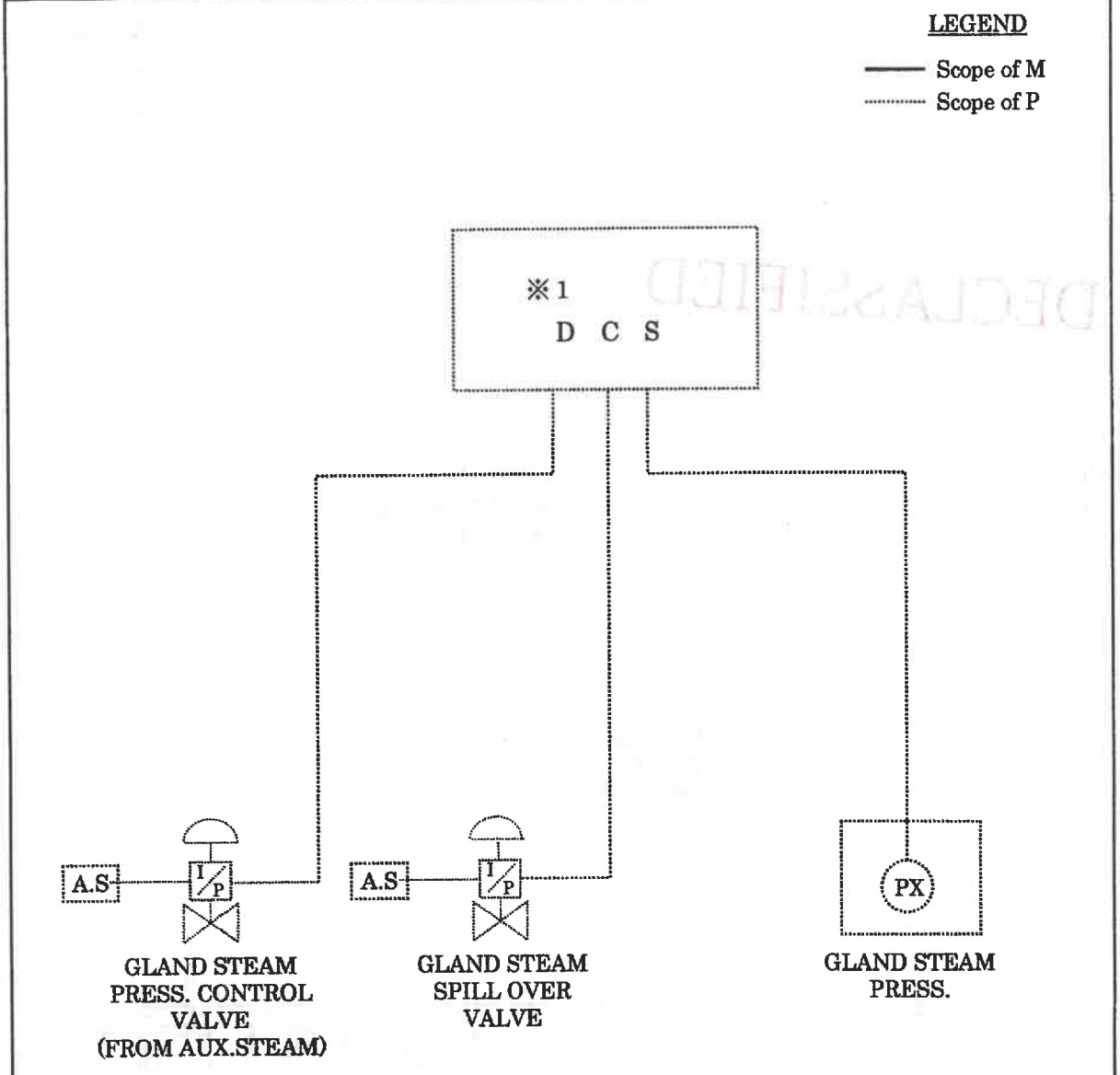
NOTE) ※1 P scope includes control Logic designing in accordance with P's supply valves or etc, installation and testing.

I T E M	GLAND STEAM TEMPERATURE CONTROL	Fig - 7



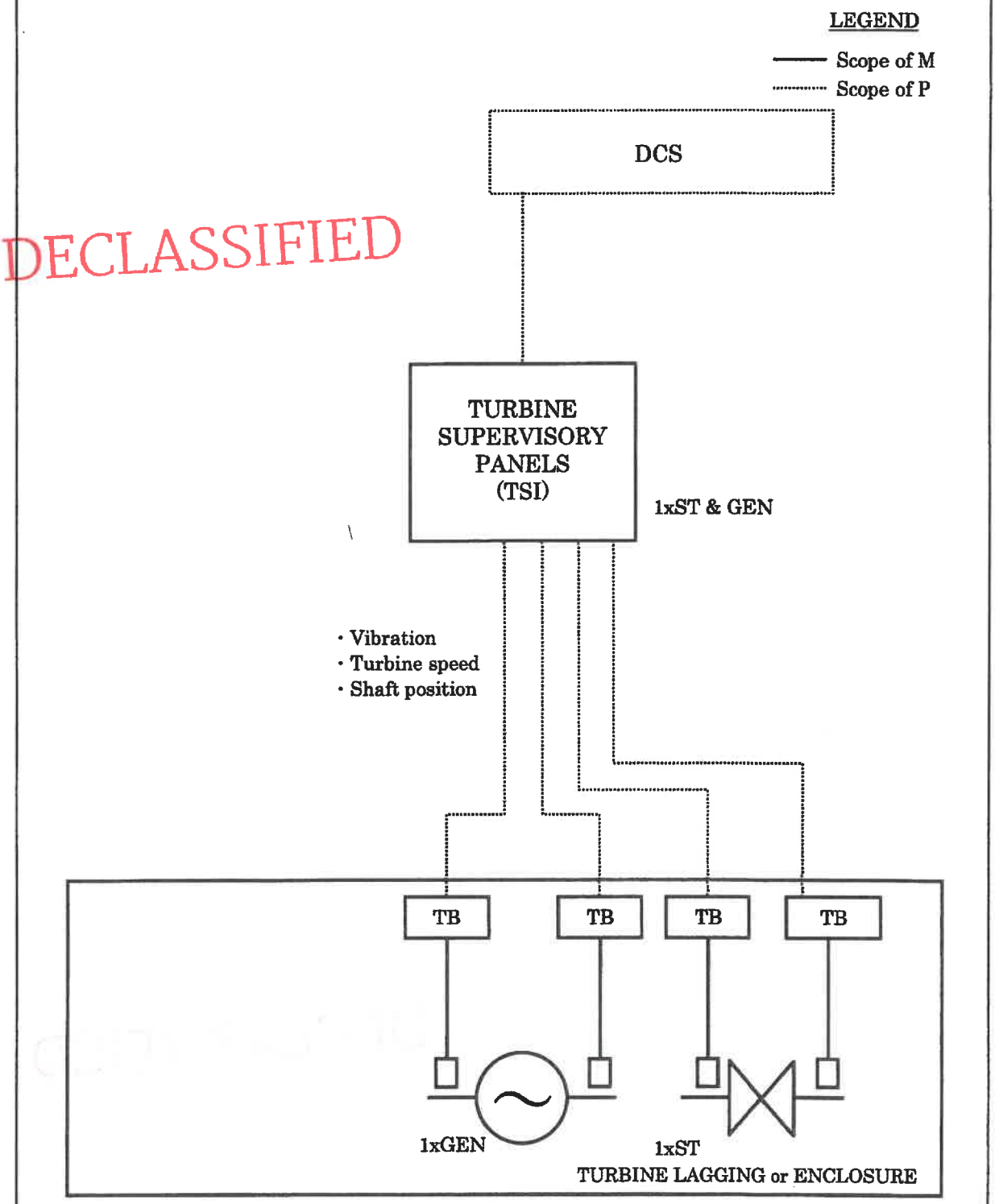
NOTE) ※1 P scope includes control Logic designing in accordance with P's supply valves or etc, installation and testing.

I T E M	GLAND STEAM PRESS CONTROL	Fig - 6



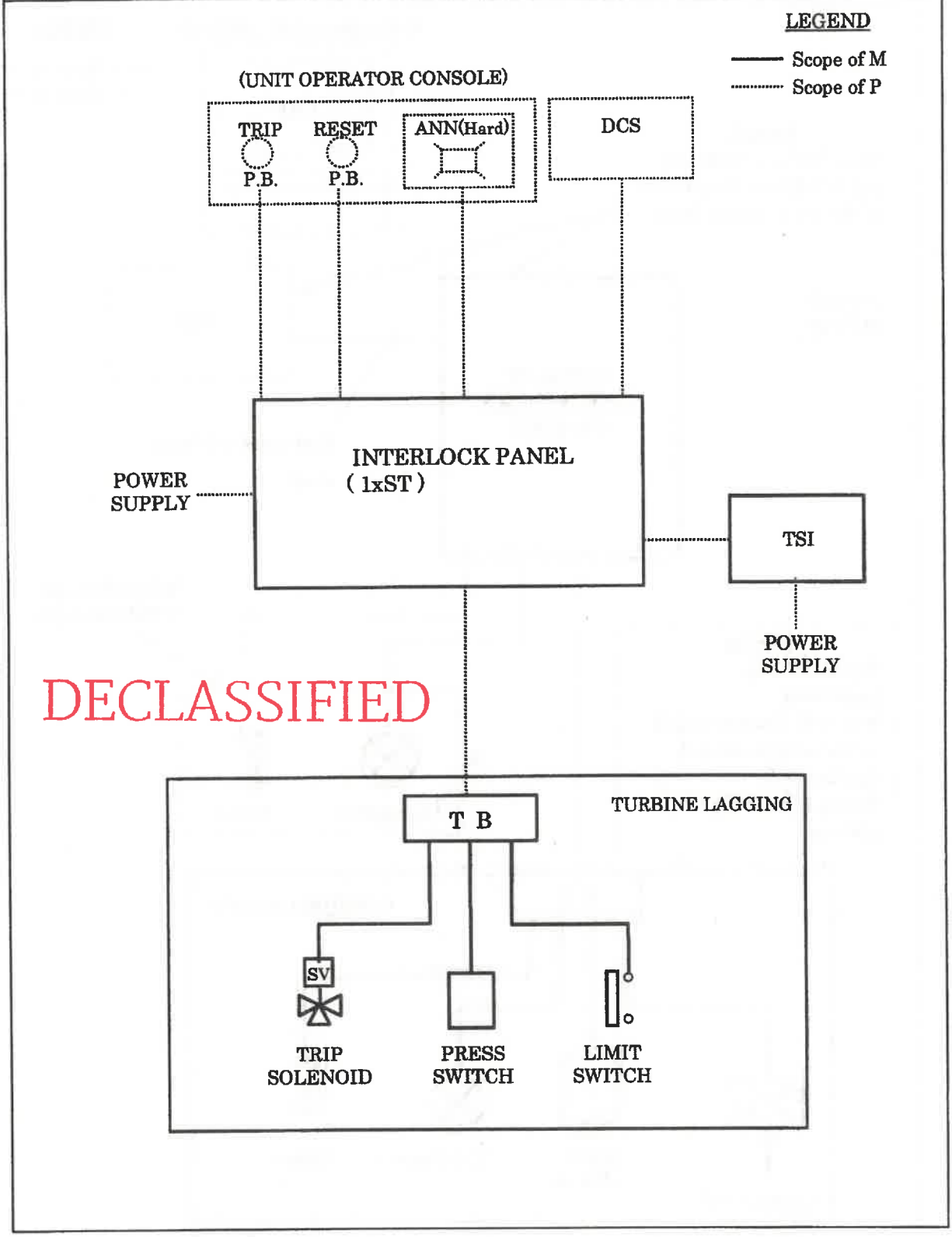
NOTE) ※1 P scope includes control Logic designing in accordance with P's supply valves or etc, installation and testing.

I T E M	TURBINE SUPERVISORY INSTRUMENT	Fig - 5

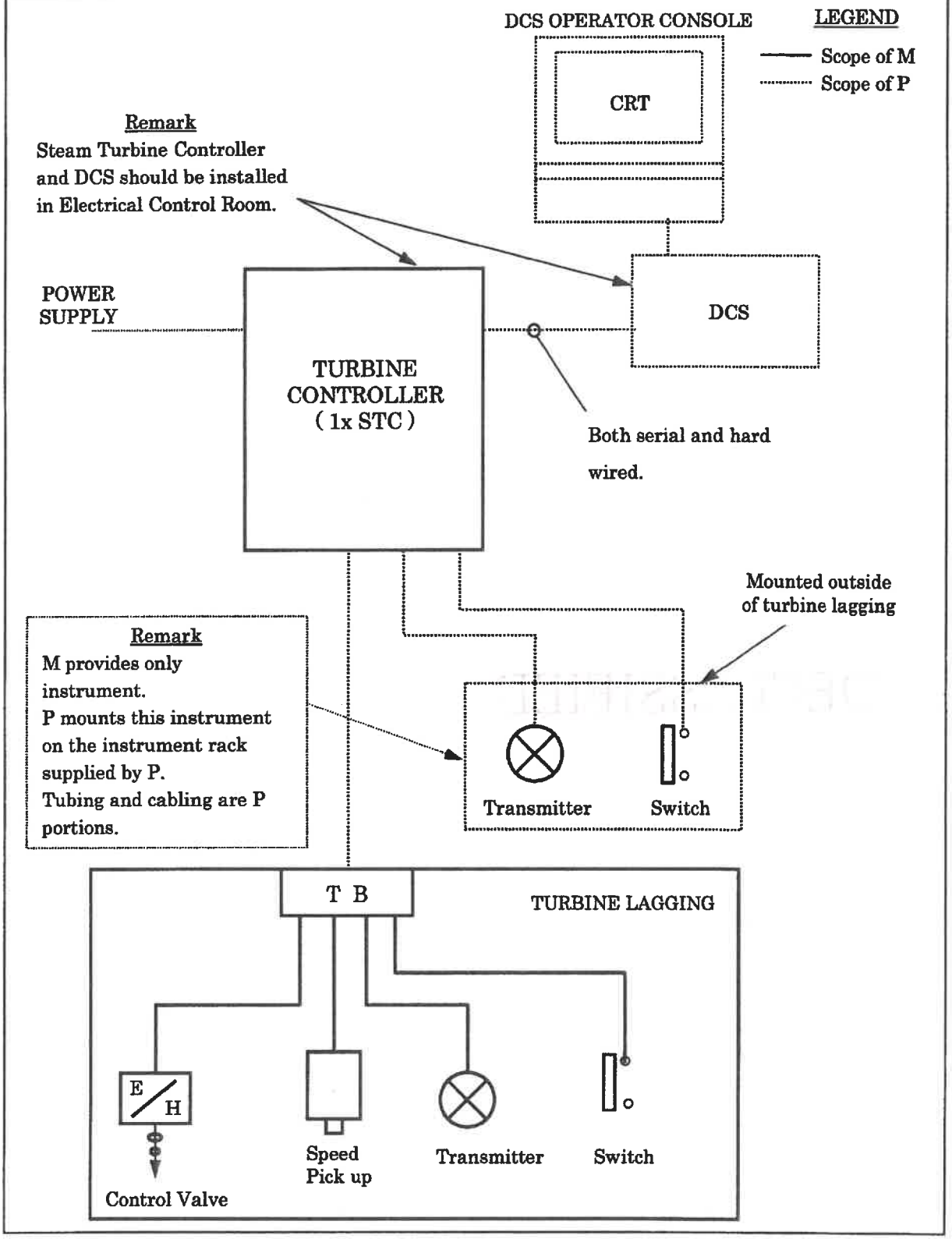


Notes) ※1 : Installation of Remote I/O System depends on P design.

I T E M	STEAM TURBINE PROTECTION	Fig - 4



ITEM	STEAM TURBINE CONTROL	Fig - 2



Attachment-2 Specific interface figures

Typical Terminal Points (interface of boundary limits) are shown in the attached drawings;

FIG.2	Scope of Supply for Steam Turbine Control
FIG.4	Scope of Supply for Steam Turbine Protection
FIG.5	Scope of Supply for Turbine Supervisory Instrument
FIG.6	Scope of supply for Grand Steam Press Control
FIG.7	Scope of supply for Grand Steam Temperature Control
FIG.8	Scope of supply for Turbine Exhaust Splay Control
FIG.9	Scope of Supply for Instrument Process Tubing
FIG.10	Scope of Supply for Temperature Detector
FIG.11	Scope of Supply for Air Control Tubing
FIG.13	Scope of supply for Motor Control for Steam Turbine
FIG.14	Scope of supply for Signal Exchange (1)
FIG.15	Scope of supply for Signal Exchange (2)

No.	C&I Engineering work	Responsible party		Remarks
		M	P	
14.	N/A	-	-	
15.	Continuous Emission Monitoring System		◎*	*If any
16.	Unit interlock system	○	◎	
17.	Steam turbine interlock system	◎		
18	N/A			
19	N/A	—	—	
20	N/A			
21	-Commissioning & test	○*	◎	* Supervisor

No.	C&I Engineering work	Responsible party		Remarks
		M	P	
7.	Turbine Control systems for ST			
	Logic diagram	◎		
	Interface specification to other systems	◎		
8.	Protection interlock system for S/T			
	Logic diagram (Interlock Diagram)	◎		
	Interface specification to other systems (Hard-ANN, etc.)	◎		
	Hard-ANN		◎	
9.	Turbine supervisory instrument panels (ST)	◎		
10.	Communication network (Data highway) (Including interface to STC)	○	◎	M supplies cable specification.
11.	Field equipment			
	Instrument list	◎	◎	for each portion
	Hook up drawing	◎	◎	Ditto
	Location plan	◎	◎	Ditto
	Bill of material	◎	◎	Ditto
12.	Cable & accessories except item 13			
	Cable schedule	○	◎	
	Tray/conduit route design		◎	
	Control wiring diagram	○	◎	
	Connection drawing	○	◎	
13.	Internal cable of ST lagging	◎		

No.	C&I Engineering work	Responsible party		Remarks
		M	P	
6.	Process control and monitoring system (DCS) including ST control system			
6.1	Basic design			
	Basic system configuration	—	◎	
	Basic function specification	△	◎	
	Basic control logic diagram for APS (Automatic Plant Start-up and shutdown), APR (Automatic Power Regulator)	○	◎	M supply interface signal to Power Train.
	Control logic diagram for HRSG	—	◎	
	Control logic diagram for BOP	—	◎	
	Control logic diagram for motor interlock (each manufacture's form)	◎	◎	Each for own scope of supply
	Input/output signal list	○	◎	Ditto
	Set point list	○	◎	Ditto
	Graphic display plan (General form)	○	◎	Ditto
	CRT Operation plan (General form)	○	◎	Ditto
	Logging items	○	◎	Ditto
6.2	Detail engineering			
	System configuration & hardware specification	△	◎	
	Function specification including display's design	△	◎	Each for own scope of supply
	Control logic diagram	△	◎	Ditto
	Interface specification to turbine controller	○	◎	
	Schematic wiring diagram	△	◎	
6.3	System generation and programming	—	◎	
6.4	Shop inspection & test	△	◎	
6.5	Training for each control function	—	◎	
6.6	Commissioning & test			
	Connection signal & Actual operation test	△*	◎	*Support for field/control equipment

Attachment-1: List of I&C Engineering works

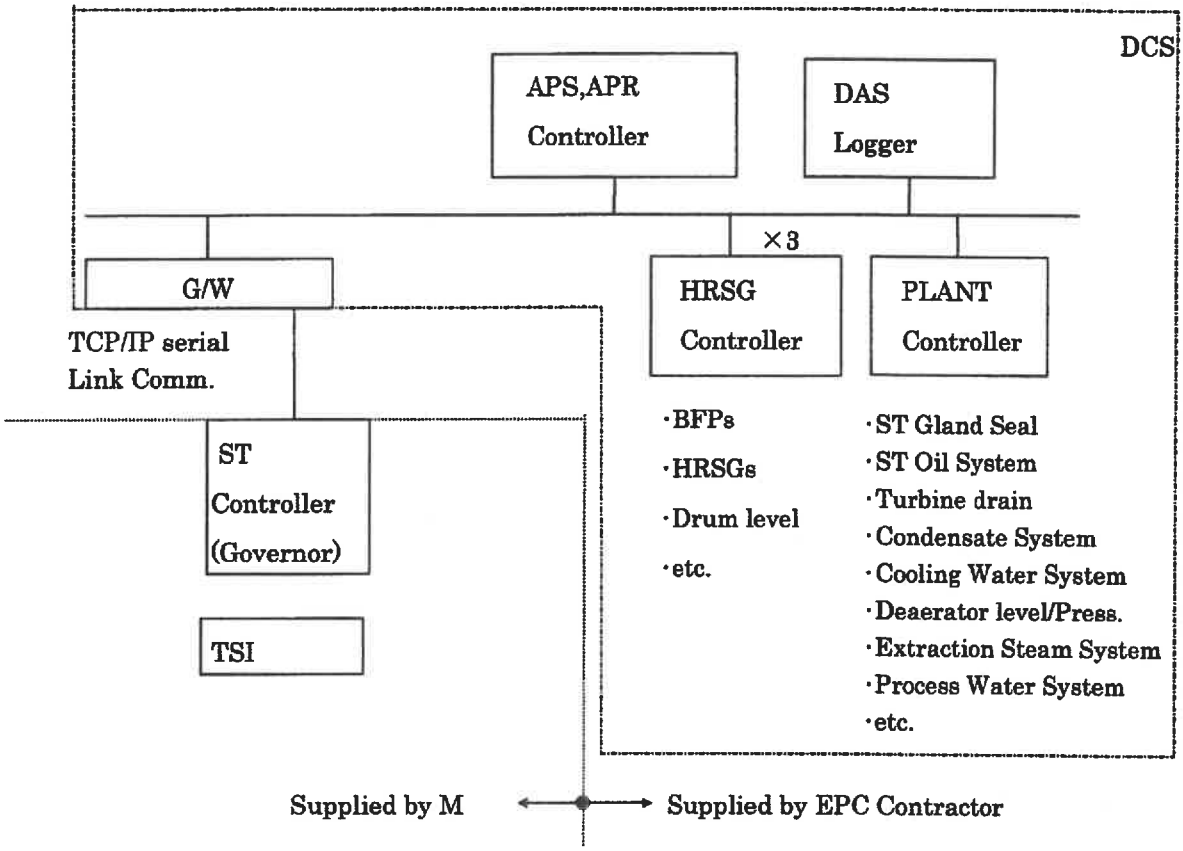
(1) Engineering Works

No.	C&I Engineering work	Responsible party		Remarks
		M	P	
1.	Lay-out and arrangement			
	Control room lay-out	△	◎	
	Electronics room lay-out	○	◎	M's STC, etc.
	Bus duct route plan	—	◎	
2.	Design data for auxiliaries			
	I/O list for DCS	○	◎	M supplies for M's equipment. (ST)
3.	Deviation	◎	◎	Each own scope of supply
4.	Drawings, documents and manuals	◎	◎	Each own scope of supply
5.	Schedule	◎	◎	Each own scope of supply

Ⅳ. Supplemental Explanation

(1) APS (Automatic Plant Start-up & Stop) Controller and APR (Automatic Power Regulation) Controller coordinate the slave controller (ST controller) as shown in the following.

Division of total software and hardware architecture shall be considered in the following.



APS and APR Controller is a part of DCS. The DCS have to prepare the TCP/IP Serial Link Communication to connect M's controller (ST Control System), so that the data can be transmitted between M's controller and DCS and perform the above-mentioned control function.

(2) As for the reporting function (daily, monthly) to help future maintenance and plant management shall be the function of DAS, Logger system in the part of DCS. The required data will be obtained from ST Control System.

3. Division of lighting system & lightning system

(1)Division of lighting system

- For building : Supplied by P
- For yard : Supplied by P
- For equipment : Supplied by respective equipment supplier

(2)Lightning system will be supplied by P, and lightning system for stack shall also be supplied by P.

4. Division of process tubing and control air tubing

(1) M's scope

(a) NA

(b) Design & supply of tubing for instruments inside steam turbine lagging.

(2) P's scope

(a) All of the other tubing design, supply and erection, such as follows.

a. Tubing for instruments supplied by P

b. Tubing for instruments supplied by M except that in M's scope.

(b) Erection of tubing for M's scope.

Table 2 Division of process tubing and control air tubing

	Design	Supply	Erect
NA	-	-	-
Internal of ST lagging	M	M	P
Others except above	P	P	P

About more details , Please refer to Attachment-2.

(Note)

The definition of the marks which are used in Attachment-2 is as below.

The marks and meaning

'P' : EPC Contractor

'M' : Seller

◎ : Prepare drawings and diagrams covering whole system

○ : Supply of necessary data/drawing

△ : Review and/or advice

2. Division of instrument and control cables design, supply & erection

(1) M's scope

a. NA

b. Design & supply for cables internal of steam turbine lagging. (See the Fig below.) Terminal points are terminal box mounted on base plate.

c. Design & supply of Steam Turbine control system special cables such as follows;

(a) Data way cable

(b) Prefabricated cable/System cable

(2) P's scope

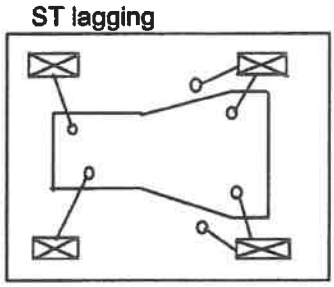
a. All of the other cables design, supply and erection, such as follows.

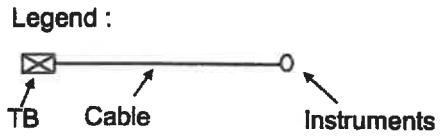
(a) Between equipment supplied by P

(b) Between equipment supplied by M

(c) Between equipment supplied by P and M

b. Erection of cables in M scope (See the Fig. below.)





Cabling design (routing, material) and supply are scope of M
Cable erection work at site are scope of P.

Fig. I&C cables in M's scope

Table 1 Division of I&C cables

	Design	Supply	Erect
NA	-	-	-
Internal of ST lagging	M	M	P
Special cables for DCS	P	P	P
Others except above	P	P	P

About more details, Please refer to Attachment-2.

III Scope of Cables & Tubings

(Note)

1) This chapter shows the division of design, supply & erection for electrical, instrument cables and instrument tubing.
2) The designer & supplier of cables shall also design & supply installation materials, such as cable tray, duct, fitting cable gland and support, etc.
3) All erection work shall be supplied by P.
4) The erection works of non-fabricated cables for the internal of Steam turbine lagging shall also be scope of the P.

In this case M will provide the drawing for the erection work as wiring connection at the terminal boxes, location of instruments/terminal boxes etc.

1. Division of power cables design, supply & erection

(1) Division

All power cables design, supply & erection are supplied by P.

(2) Terminal Points

(a) Power and control cable for electrical equipment (motor, etc.)

At terminal box for each equipment

(b) Power cable for each panel

At terminal box for each panel

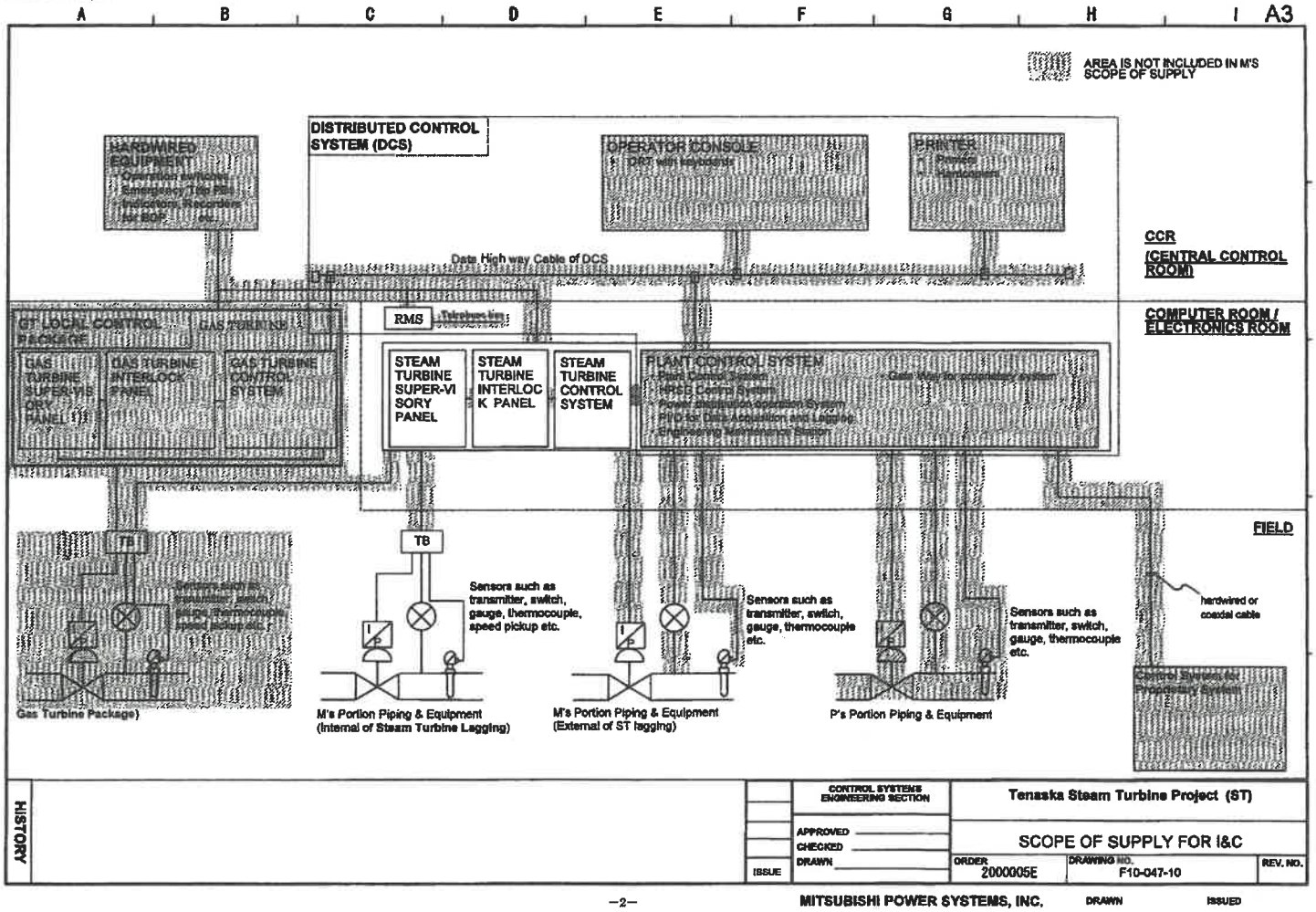
(3) Installation materials

Installation materials, such as earth cable, etc., of earthing system, including for equipment supplied by M, shall be supplied by P.

P shall connect earth cable to the Cadweld plates.

7.0 DOR I&c main(rev2).doc

A3



HISTORY	ISSUE	CONTROL SYSTEMS ENGINEERING SECTION	Tenaska Steam Turbine Project (ST)		
		APPROVED	SCOPE OF SUPPLY FOR I&C		
		CHECKED			
		DRAWN	ORDER 2000005E	DRAWING NO. F10-047-10	REV. NO.

MITSUBISHI POWER SYSTEMS, INC. DRAWN ISSUED

I General

This document shows the scope of I&C engineering work and equipment applicable for contract execution.

Division of scope for I&C Engineering works are shown in Attachment 1.

The definition of the marks which are used in the relevant lists will be as below.

The marks and meaning

'P' : EPC Contractor

'M' : Seller

◎ : Prepare drawings and diagrams covering whole system

○ : Supply of necessary data/drawing

△ : Review and/or advice

II Configuration of control system

1. The configuration of control system is attached as "SCOPE OF SUPPLY FOR I&C (F10-047-10) and the scope of equipment will be marked within the figure.

CONTENTS

ATTACHMENTS

Bartow Repowering Project

~~Tenaska~~

DIVISION OF SCOPE OF SUPPLY FOR INSTRUMENTATION & CONTROL

(ST)

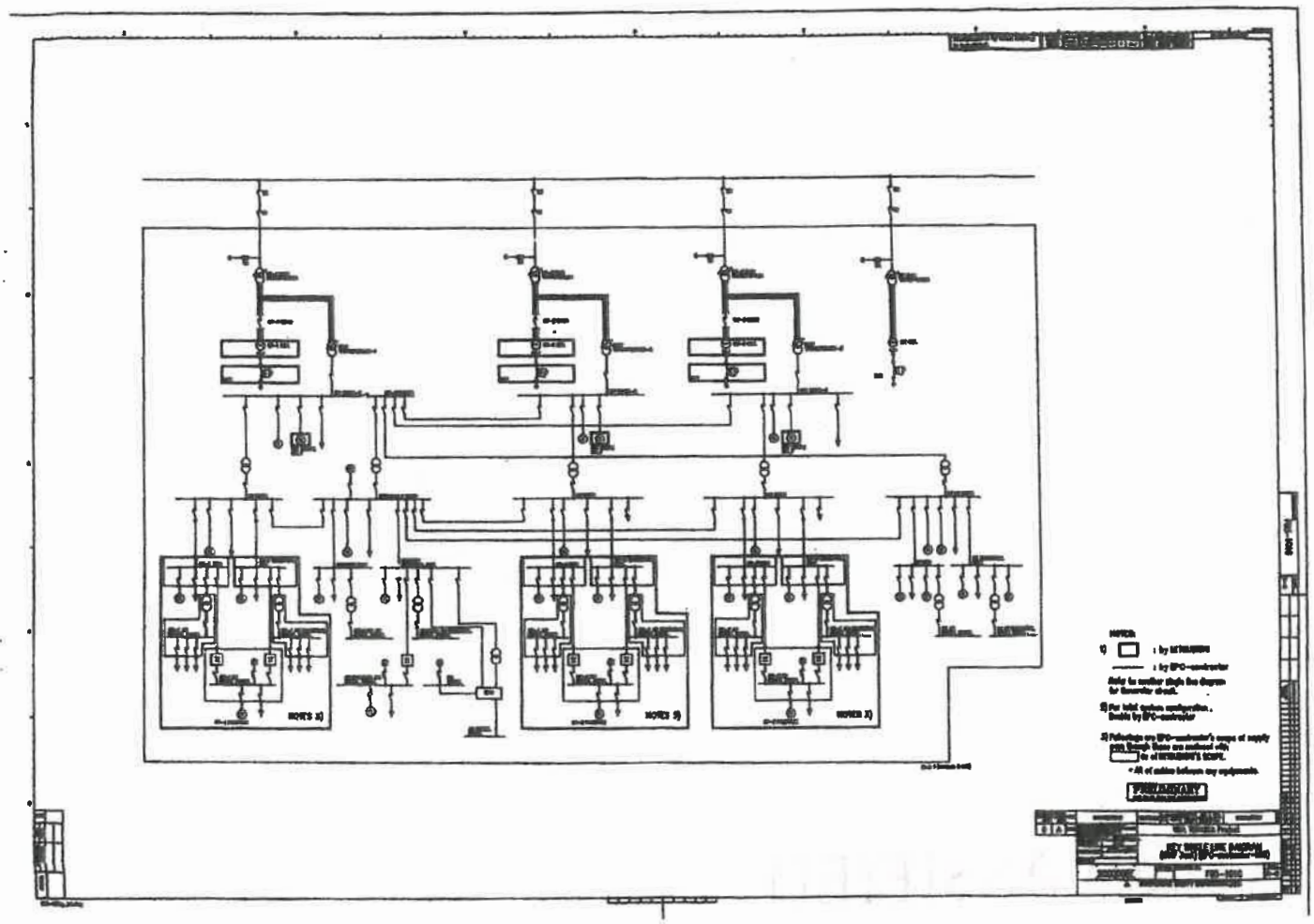
MITSUBISHI HEAVY INDUSTRIES, LTD.
APR. 19. 2002
POWER SYSTEMS PROJECT DEPT.
POWER SYSTEMS HEADQUARTERS

MITSUBISHI HEAVY INDUSTRIES, LTD.

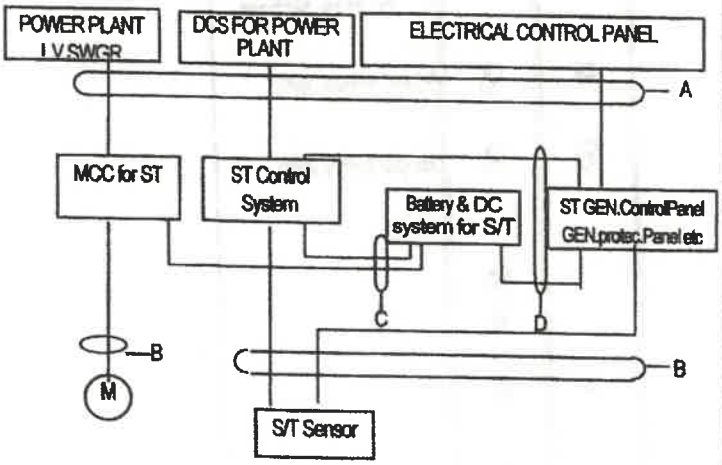
PLAN RECORD	SECTION: CONTROL SYSTEMS ENGINEERING SECTION
	APPROVED BY: K. Misawa
	CHECKED BY: M. Okasaka
	DESIGNED BY:
	DRAWN BY: T. Morimoto
	DATE DRAWN: April 19, 2002
	DATE ISSUED: :
	DRAWING No. F10-047 / REV No. 0
	ORDER No. 2000005E

ISSUE	原検一		見積課		プ技一	プ技二		タ技タ	ガ技	計電技	ボ技一			長船		神船		高製	原検一		電機					機器据付課	控	TOTAL
						1		1											1								1	4

添付用



S/T ELECTRICAL & CONTROL EQUIPMENT



DESCRIPTION	DESIGN	SUPPLY	ERECTION	REMARKS
POWER PLANT LV SWGR	P	P	P	
DCS FOR POWER PLANT	P	P	P	
ELECTRICAL CONTROL PANEL	P	P	P	
MCC for ST,HRSG	P	P	P	
ST Control System	M	M	P	In relay room
ST GEN. Control Panel, protec panel etc.	M	M	P	In central control room or relay room
Battery & DC system for S/T	P	P	P	In electrical room or battery room
ST Sensor	M	M	P	
HRSG Sensor	P	P	P	
Motor	P/M	P/M	P	As per scope split
Cable - A	P	P	P	
Cable - B	P	P	P	
Cable - C	P	P	P	
Cable - D	P	P	P	

No.	Item	Designed by MHI	Designed by P	Remarks
8.	ENGINEERING FOR THE FOLLOWINGS LIST AND SCHEDULE			*2 M to inform EPC contractor of engineering data and requirement for those systems
	1) HVAC system	○*2	◎	
	2) Fire fighting system if required	○*2	◎	
9.	AS-BUILT DRAWINGS	◎	◎	As per scope split
10.	INFORMATION FOR PERFORMANCE TEST	◎	◎	As per scope split
11.	ELECTRICAL STUDY		◎	
	1) Electrical stability study		◎	
	2) Insulation coordination study			
	3) Short circuit study	○	◎	
	Short circuit study of HV,MV,LV system			
	4) Voltage drop study	○	◎	
	Voltage drop study of HV,MV,LV system			
	5) Protection relay study	○	◎	
	Protection relay study of HV,MV,LV system	◎	○	
	Protection relay study of Generator		◎	If necessary
	6) Switchgear & power plant VAR study			
	7)Transformer capacity calculation	○	◎	
	Transformer capacity calculation of MV,LV system	○	◎	
	8).UPS capacity calculation	○	◎	
	9)Battery capacity calculation			
12.	10) Main transformer sizing	○	◎	
	ENGINEERING FOR CABLING			
	1)Cable sizing	○	◎	
	2)Cable schedule	○	◎	
	3)Cable wiring diagram(CWD)	○	◎	
	4)Schematic diagram	○	◎	

No.	Item	Designed by M	Designed by P	Remarks
1.	ARRANGEMENT 1). Bus duct/cabling route plan (incl. Tunnel, trench, duct, tray)	○	◎	
2.	ONE LINE DIAGRAM			
	1) Generator	◎	○	
	2) Generator transformer with generator main circuit	○	◎	
	3) Power distribution (Medium voltage & downstream)	○	◎	
	4) Whole system (Key single line diagram)	○	◎	
	5) GT electrical / local control package		◎	
3.	P & I DIAGRAM 1) Seal oil (Turbine generator)	◎	○*	*Mechanical Interface only
4.	LIST AND SCHEDULE 1) Motor/electrical load list, and Drawing List	◎	◎	As per scope sprit
5.	ELECTRICAL SYSTEM DYNAMIC AND STATIC CHARACTERISTIC ANALYSIS	○	◎	(If necessary)
6.	1) Central control room arrangement	○	◎	
	2) Relay room arrangement	○	◎	
	3) Switchgear room arrangement		◎	
	4) General recommendation of items for computer & supervisory/protection system	○	◎	
	5) Unit Interlock between		◎	
	· GT and Generator.	◎		
	· ST and Generator.			
7.	BASIC DESIGN AND INFORMATION FOR CIVIL ENGINEERING*1			*1 M to transmit the necessary documents and drawings to EPC contractor
	1) Loading data of Equipment supplied by M	◎		
	2) Foundation plan	◎		

I Scope split of Electrical Equipment

Refer to Division of responsibility document.

II. Supplemental Engineering for Electrical System

Mark

- ◎ Prepare drawings and diagrams covering whole system
- ○ Supply of necessary data/drawing
- △ Review [M do not assume the responsibility for the correctness of EPC contractor drawings and documents when it checks them for compliance with M technical requirements.]

[Scope split for engineering work relating to equipment supplied by M and having interface with EPC contractor's work is as specified herein.]

P : EPC contractor

M : Seller

MELCO : Mitsubishi Electric Corporation

III. Note

Cable supplier shall include the erection materials such as conduit & fittings, cable glands, terminal lugs etc.

BARTOW
USA ~~TENASKA C/C~~

SCOPE OF SUPPLY FOR
ELECTRICAL --ST portion--

MITSUBISHI HEAVY INDUSTRIES, LTD.

CAREER

SECTION:	CONTROL SYSTEMS ENGINEERING SECTION
APPROVED BY:	K. Mizuno
CHECKED BY:	K. Ohsuda
DESIGNED BY:	R Tanaka
DRAWN BY:	
DATE DRAWN:	
DATE ISSUED:	APR. 24, 2002
DRAWING No.	F85-051S
REV No.	0
ORDER No.	2000005E

ISSUE	原輸一	原輸二	原輸三	見積課	プ技一	プ技二		タ技タ	ガ技		ボ技一			長船	神船	高砂	原輸1	基本計画		電機	発計2					控	TOTAL
				1		1		1										1			1					1	6

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
g. Earthing Electrodes (network with terminal grid)	P	P	P	P	P	
h. Diesel Generator for Emergency Electrical Supply	N/A	N/A	N/A	N/A	N/A	if necessary, by P
i. Boiler Service Elevators	N/A	N/A	N/A	N/A	N/A	
j. Telephone and Intercommunication Equipment, interfacing with external system	P	P	P	P	P	
k. Centralized Control System for site security including CCTV Monitors	P	P	P	P	P	CCTV at Main Gate with Card Reader
l. Auxiliary Boiler	P	P	P	P	P	M to provide the requirement of steam temperature, pressure and flow for M's equipment.
m. Sewage Treatment	P	P	P	P	P	
n. Effluent Treatment Plant	P	P	P	P	P	
o. Laboratory Furnishings	P	P	P	P	P	
p. Office Equipment and Furniture	O	O	O	O	O	
q. N2 System for corrosion protection and purging	P	P	P	P	P	
r. Site Vehicles and Services Garage complete with Fuel Filling Station, etc.	O	O	O	O	O	
s. Heat tracing for freezing protection	P	P	P	P	P	
8. ERECTION See Attached Document.						

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
7.2 Central Control Room Instrumentation						
a. Station DCS including Plant/BOP, , Data Logger, Unit Interlock System, etc.	P	P	P	P	P	
b. Station DCS Operator Console	P	P	P	P	P	
c. Central Fire Alarm Console	P	P	P	P	P	
7.3 Compressed Air System						
a. Combined Air Compressors with Motors, After Cooler Loading Device and safety protection device	P	P	P	P	P	
b. Service Air Receivers	P	P	P	P	P	
c. Instrument Air Receivers	P	P	P	P	P	
d. Automatically operated regenerative type Air Dryer complete with associated Piping and Control Equipment	P	P	P	P	P	
e. Instrument Air Piping, Valves, Fittings and Supports	P	P	P	P	P	
7.4 Miscellaneous Electrical and Mechanical Equipment and Facilities						
a. Raw Water and Potable Water Systems	P	P	P	P	P	
b. Demineralized Water Plant with Associated Tanks, Pumps, Piping and Control Equipment	P	P	P	P	P	
c. Fire Fighting and Protection Equipment including Tanks, Pumps, Piping and Fittings to provide protection for Boiler Proper, Turbine Area, Transformer Areas, Control Room, Buildings etc.	P	P	P	P	P	
d. Air Conditioning and Ventilation for Control Room and Administration Buildings	P	P	P	P	P	
e. Lighting and Small power System	P	P	P	P	P	
f. Lightning Protection System for Buildings, Equipment, Structures, etc.	P	P	P	P	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
c. Clock System	N/A	N/A	N/A	N/A	N/A	
d. Tariff Metering System, if required	P	P	P	P	P	
6.9 Earthing System						
a. Equipment Earthing bars and Earthing Cables	P	P	P	P	P	
6.10 Switchyard	P	P	P	P	P	
6.11 Station Protection and Control						
a. Generator Protection	M	M	M	M	P	
b. Main and Unit Transformer Protection	P	P	P	P	P	
c. Medium Voltage System Protection	P	P	P	P	P	
d. Generator Breaker and Auxiliaries Control	P	P	P	P	P	
e. Miscellaneous Protection	P	P	P	P	P	
6.12 Painting						
a. Painting at Works	M/P	M/P	M/P	M/P	-	Each for own equipment
b. Painting Material For Site Painting	P	P	P	P	P	Touch up paint supplied by each for own equipment
7. COMMON AUXILIARIES						
7.1 Hoists and Lifting Devices						
a. Outdoor Gantry Overhead Crane with Main Hoist and Auxiliary Hoist	N/A	N/A	N/A	N/A	N/A	if required by P
b. Monorail and lifting appliances for maintenance (if required)	P	P	P	P	P	M to provide lifting beams for ST rotors

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
a. HV Switchgear	P	P	P	P	P	
b. MV Switchgear	P	P	P	P	P	
c. LV Switchgear	P	P	P	P	P	
6.6 Motor Control Center and Distribution Board						M informs motor/electrical
a. Not Applicable						load list for STG
b. Steam Turbine Auxiliary Motor Control Center	P	P	P	P	P	
c. Not Applicable						
d. DC Starters *	P	P	P	P	P	
e. DC Distribution Board *	P	P	P	P	P	STG Auxiliary by P
f. DC Batteries *	P	P	P	P	P	
g. DC Battery Charger *	P	P	P	P	P	
h. UPS with Inverter	P	P	P	P	P	M to provide power requirement
6.7 Cables and Cabling Accessories						
a. High, Medium and Low Voltage Power Cables	P	P	P	P	P	
b. Control and Instrumentation Cables	P	P	P	P	P	
c. Thermocouple Compensation Cables	P	P	P	P	P	
d. Cable Termination Materials and Accessories	P	P	P	P	P	
e. Cable Trays, Cable Duct Conduit and Flexible Conduits	P	P	P	P	P	
6.8 Communication System	P	P	P	P	P	
a. Communication system equipment within the power station complex consisting of internal PAX system, portable UHF radio system and loud speaker system shall be included in the extent of supply.	P	P	P	P	P	
b. SCADA	P	P	P	P	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
d. Generator Excitation cubicle composed of Exciter Field Circuit Breaker Cubicle, Automatic Voltage Regulator Cubicle, Thyristor Amplifier Cubicle, Power System Stabilizer, etc.	M	M	M	M	P	Power System Stabilizer will be delta P type.
e. Thyristor start-up device	NA	NA	NA	NA	NA	
6.2 Generator Circuit Equipment						
a. Isolated Phase Bus Duct	P	P	P	P	P	
b. Generator Circuit Breaker	P	P	P	P	P	
c. Voltage Transformer and Surge Absorber Cubicle	M	M	M	M	P	
d. Generator Neutral Grounding Cubicle	M	M	M	M	P	
e. Complete Group of Current Transformers for Generator Line Side and Neutral Side on the generator terminal	M	M	M	M	P	
f. Voltage Transformer Cubicle located between GMCB to Main Transformer	P	P	P	P	P	
6.3 Generator Control and Instrumentation						
a. Generator Control and Instrumentation Equipment	M/P	M	M	M	P	
6.4 Transformers						
a. Generator Transformer complete with Line and Neutral CT's	P	P	P	P	P	
b. Unit Transformer complete with Line CT's	P	P	P	P	P	
c. Station Transformer complete with Line and Neutral CT's	N/A	N/A	N/A	N/A	N/A	
d. Auxiliary Transformer	P	P	P	P	P	
6.5 Power Station Switchgear						

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
i. Miscellaneous Control	P	P	P	P	P	
j. Local Pressure Gauges	M/P	M/P	M/P	M/P	P	Refer to attached P & ID
k. Local Temperature Gauges	M/P	M/P	M/P	M/P	P	Ditto
l. Level Switches	M/P	M/P	M/P	M/P	P	Ditto
m. Thermocouples and Wells	M/P	M/P	M/P	M/P	P	Ditto
n. Transmitters	M/P	M/P	M/P	M/P	P	Ditto
o. Flow Element for Condensate Water	P	P	P	P	P	
p. Not used						
q. All Wiring and Air Piping for the above instrumentation	P	P	P	P	P	
4.10 Cladding, Painting and Lagging						
a. Painting at Works	M/P	M/P	M/P	M/P	P	M to supply for M equipment.
b. Painting Material For Site Painting	P	P	P	P	P	M provides touch up paint for M's equipment
c. Lagging and Cladding Materials For Site Application	M/P	M/P	M/P	M/P	P	Refer to item 4.1 o & p
5. GAS TURBINE EQUIPMENT (NOT APPLICABLE)						
6. ST GENERATOR AND ELECTRICAL EQUIPMENT						Please Refer to the submitted Document.
6.1 Generator Equipment						
a. Generator complete with cooling system	M	M	M	M	P	Refer to submitted one line
b. Excitation System	M	M	M	M	P	
c. Hydrogen Supply System for STG	M	M	M	M	P	
i. H_2, CO_2 Cylinder with Associated Piping	M/P	M/P	M/P	M/P	P	Refer to Generator Gas System Scope of Supply drawing.

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
b. Feedwater Heater	N/A	N/A	N/A	N/A	N/A	
4.8 Cycle Pipework including Valves and Supports						Refer to attached P & ID
a. Main Steam System	P	P	P	P	P	Any piping connected to
b. Hot Reheat System	P	P	P	P	P	ST should be clean free from
c. Cold Reheat System	P	P	P	P	P	alien substance and stain.
d. Steam Bypass System	P	P	P	P	P	And cleanup using pig and
e. Auxiliary Steam System	P	P	P	P	P	flushing shall be necessary.
f. Feedwater System	P	P	P	P	P	
g. Condensate Water System	P	P	P	P	P	
h. Circulating Water System	P	P	P	P	P	
i. Cooling Water System	P	P	P	P	P	
j. Cooling Steam System for GT Combustor outside of GT Enclosure	N/A	N/A	N/A	N/A	N/A	
k. Waste Water, Storm Water etc. System	P	P	P	P	P	
4.9 Control and Instrumentation Equipment						
a. Steam Turbine Governor Control Panel	M	M	M	M	P	
b Steam Turbine Supervisory Instrument Panel	M	M	M	M	P	
c. Turbine Protection Panel	M	M	M	M	P	
d. Steam Temperature Equipment	P	P	P	P	P	M to provide instrument within Scope. Refer to attached P & ID.
e. Feedwater Heater Level Control	N/A	N/A	N/A	N/A	N/A	
f. Turbine Exhaust Temperature Control (Hood Spray)	P	P	P	P	P	Refer to attached P & ID
g. Gland Steam Temperature Control	P	P	P	P	P	
h. Turbine Bypass Control	P	P	P	P	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
c. Circulating Water Pumps	P	P	P	P	P	
d. Screen Water Wash Pumps	N/A	N/A	N/A	N/A	N/A	
e. Circulating Water Chemical Dosing System	P	P	P	P	P	
f. Cathodic Protection System	P	P	P	P	P	
g. Circulating Water piping with Butterfly Isolating Valves and Expansion Bellows	P	P	P	P	P	
h. Circulating Water Booster Pumps (if required)	P	P	P	P	P	
4.4 Closed Cycle Cooling Water System						
a. Closed cycle Cooling Water Coolers	M/P	P	P	P	P	M to provide flow and heat load
b. Closed cycle Cooling Water Pumps	P	P	P	P	P	for M equipment
c. Closed cycle Cooling Water Head Tank	P	P	P	P	P	
d. Piping and Valves	P	P	P	P	P	
4.5 Deaerating System (if required)						
a. Deaerator Complete with Piping and Valves	P	P	P	P	P	P to use deaerating condenser
b. Deaerator Supporting Structure with Platform etc.	P	P	P	P	P	
4.6 Sampling and Dosing Equipment						
a. Steam and Water Sampling Apparatus	P	P	P	P	P	
b. Chemical Dosing equipment	P	P	P	P	P	M to provide HRSG feedwater and drum water quality and steam purity requirement
4.7 Feedwater System						
a. Motor Driven Boiler Feed Pumps with Associated Piping and Valves	P	P	P	P	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
iii. Cable Trays	M	M	M	M	P	
iv. Conduit	M/P	M/P	M/P	M/P	P	Conduit buried in concrete is P's scope
z. Orifice Block for HP inlet steam pipe drain	M	M	M	M	P	Loose Supply
4.2 Condensing System						
a. Surface Condenser with Tubes, Tube Plates and Expansion Joint	P	P	P	P	P	
b. Condensate Extraction System, incorporating Motor Driven Condensate Extraction Pumps and Associated Pipings and Valves	P	P	P	P	P	
c. Air Extraction System, including Vacuum Pumps or Mechanical Air Ejector and Associated Piping and Valves	P	P	P	P	P	
d. Condenser Inlet and outlet Valves	P	P	P	P	P	
e. Condenser Tube Cleaning System	N/A	N/A	N/A	N/A	N/A	if required by P
f. Condenser Waterbox Air Extraction System	P	P	P	P	P	
g. Condensate Polishing Plant	N/A	N/A	N/A	N/A	N/A	if required by P
h. Condensate leak detection System	P	P	P	P	P	
i. Demineralized Water Storage Tank	P	P	P	P	P	
j. Demineralizer	P	P	P	P	P	M to provide water chemistry requirement
4.3 Main Cooling Water System						
a. Mechanical Draft Wet Cooling Tower	P	P	P	P	P	
b. Circulating Water Intake System	P	P	P	P	P	
i. Pumphouse Crane	N/A	N/A	N/A	N/A	N/A	
ii. Intake Screens, Trash Rakes and Stop Logs	P	P	P	P	P	

	EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
k.	Gland Steam Sealing and Condensing System						
	i. Gland Seal Steam Regulator	M/P	P	P	P	P	Refer to attached P & ID
	ii. Mist Separator	M/P	P	P	P	P	Refer to attached P & ID
	iii. Gland Condenser with Air Extractor Fans	M	M	M	M	P	
	iv. Piping and Valves	P	P	P	P	P	
l.	Exhaust Hood Spray System with Pipe and Valves	M/P	P	P	P	P	M to provide spray nozzles .
m.	HP,IP and LP Steam Bypass Valves and desuperheater	P	P	P	P	P	
n.	Rotor Grounding Device	M	M	M	M	P	
o.	Heat Insulating Material for ST (Including that for steam pipes from HP/IP/LP control valves to ST)	M	M	M	M	P	Loose Supply
p.	Heat Insulation Material for Piping	P	P	P	P	P	M to submit the special requirement for main valves, if needed
q.	Turbine Drains and Drains Receivers	M/P	P	P	P	P	Refer to attached P & ID
r.	ST rotor Lifting Beam for Maintenance	M	M	M	M	-	
s.	Benchmark (Datum Plate) for Monitoring Settlement of ST	P	P	P	P	P	
t.	Temporary Air Blow or Steam Blow Piping and Valves with Silencer	P	P	P	P	P	
u.	Temporary Air Blow or Steam Blow Adapter for HP, IP & LP stop valves	M	M	M	M	P	
v.	Steam Turbine Outlet Expansion Joint	M/P	P	P	P	P	
w.	Vacuum breaker with water sealed	M	M	M	M	P	
x.	Condenser Water Curtain Spray System	M/P	P	P	P	P	Condensate Pump capacity to consider this flow
y.	Cable, Conduit and Wiring within ST Enclosure						
	i. Cables	M	M	M	M	P	Power cables by P
	ii. Wiring	M	M	M	M	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
c. Reheat stop valves and Interceptor Valves	M	M	M	M	P	
d. LP Stop valves and Control Valves	M	M	M	M	P	
e. Steam Pipes from HP/IP/LP Control Valves to ST	M	M	M	M	P	
f. Ventilator Valve	M	M	M	M	P	
g. Piping of Ventilator system	P	P	P	P	P	
h. Protection Devices, Including,	M	M	M	M	P	
i. Overspeed Trip Device	M	M	M	M	P	
ii. Solenoid Emergency Trip Device	M	M	M	M	P	
iii. Thrust Bearing Protective Device	M	M	M	M	P	
iv Low Vacuum Protective Device	M	M	M	M	P	
i. Complete Lubricating System, Including Hydraulic Oil System	M	M	M	M	P	
i. Oil Reservoir With Strainer	M	M	M	M	P	
ii. Main Oil Pump	M	M	M	M	P	
iii. Auxiliary Oil Pump (HP)	M	M	M	M	P	
iv. Auxiliary Oil Pump (LP)	M	M	M	M	P	
v. Emergency Oil Pump (DC)	M	M	M	M	P	
vi. Oil Reservoir Vapor Extractor	M	M	M	M	P	
vii. Oil Coolers	M	M	M	M	P	
viii. Oil Purifier	M	M	M	M	P	
ix. Clean and Dirty Oil Tank & Pumps including Piping and Valves	N/A	N/A	N/A	N/A	N/A	if required by P
x. Complete Interconnecting Oil Piping to and from all Bearings, Protective Devices, Oil Reservoir and Coolers	M	M	M	M	P	M to provide erection criteria
xi. EH Control Oil Unit including Piping and Valves	M	M	M	M	P	Refer to attached P & ID
j. Rotor Turning Gear	M	M	M	M	P	AC turning motor

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
i. Foundation	P	P	P	P	P	
ii. Equipment Support Steel	P	P	P	P	P	
iii. Oil Spill Containment	P	P	P	P	P	
iv. Fire Wall	P	P	P	P	P	
f. Not Applicable						
g. Miscellaneous Building and Structures	P	P	P	P	P	
h. Pipe and Cable Ducts and Trenches	P	P	P	P	P	
i. Covers for Trenches	P	P	P	P	P	
j. Plant Drainage Sumps	P	P	P	P	P	
k. Floor/Sanitary Drains	P	P	P	P	P	
2.6 Site Accommodation for permanent facilities						
a. Offices	P	P	P	P	P	
b. Toilet Facilities	P	P	P	P	P	
c. Workshop Facilities	P	P	P	P	P	
d. Laboratories	P	P	P	P	P	
e. Guardhouse	P	P	P	P	P	
3. HEAT RECOVERY STEAM GENERATOR (NOT APPLICABLE)						
4. STEAM TURBINE						
4.1 Steam Turbine Equipment						
a. Main Steam Turbines	M	M	M	M	P	
b. HP Stop valves and Governor Valves	M	M	M	M	P	

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
b. ST Area						
i. Equipment Layout	M/P	P	-	-	-	M provide STG drawings
ii. Building Foundation	N/A	N/A	N/A	N/A	N/A	Outdoor Installation
iii. Equipment Foundation	M/P	P	P	P	P	M provide load for his Equipment
iv. Building Superstructure (Steel and Concrete)	N/A	N/A	N/A	N/A	N/A	Outdoor Installation
v. Equipment Support Steel	P	P	P	P	P	Including the rain roof for ST valves and support for the ST valves, piping, hangers, etc according to MOM at May 5, 2001
vi. Platform under Generator (if required)	M/P	P	P	P	P	M provide Requirement. Platform required to access generator bushing by P.
vii Exterior Architectural Finishes	N/A	N/A	N/A	N/A	N/A	
c. Circulating Water Structures						
i. Equipment Support Steel	P	P	P	P	P	
ii. Intake Structure	P	P	P	P	P	
ii. Intake Pump House (if required)	P	P	P	P	P	
d. Tank Area						
i. Equipment Foundation	P	P	P	P	P	
ii. Pumping Building (if required)	P	P	P	P	P	
iii. Piping Trench	P	P	P	P	P	
iv. Dike	P	P	P	P	P	
e. Transformer Station						

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
c. Mechanical Layout	P	P	-	-	-	
d. Electrical Layout	P	P	-	-	-	
e. Construction Layout	P	P	-	-	-	
2.2 Site Preparation and Reclamation						
a. Clearing	P	P	P	P	P	
b. Rough Grading, Excavation and Fill	P	P	P	P	P	
c. Water and Earth Retaining Structures	P	P	P	P	P	
d. Site Security Fencing	P	P	P	P	P	
2.3 Site Finishing						
a. Finish Grading	P	P	P	P	P	
b. Yard and Site Drainage	P	P	P	P	P	
c. Dewatering and Piling	P	P	P	P	P	
d. Landscaping	P	P	P	P	P	
e. Excavation and Backfill for Yard Piping	P	P	P	P	P	
2.4 On-Site Transportation Facilities						
a. Roads	P	P	P	P	P	
b. Parking	P	P	P	P	P	
2.5 Buildings and Structures						
a. HRSG Area (Not Applicable)						

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
d. Scaffolding	P	P	P	P	P	
e. Consumables	P	P	P	P	P	
i. Oil for initial fills (Lube oil and control oil)	P	P	P	P	P	ISO VG32 will be applied to Lube oil for ST. Phosphate ester will be applied to ST control oil.
ii. Flushing oil (Lube oil and control oil)	P	P	P	P	P	
iii. Lubricants and grease	P	P	P	P	P	
1.3 Site Services for Construction						
a. Communications	P	P	P	P	P	
b. Electrical Supplies	P	P	O/P	P	P	
c. Raw Water Supplies	P	P	O/P	P	P	
d. Demi. Water Supplies	P	P	O/P	P	P	
e. Potable Water Supplies	P	P	O/P	P	P	
f. Waste Disposal	P	P	O/P	P	P	
g. Compressed Air Supplies	P	P	O/P	P	P	
h. Fuel Gas Supplies	P	P	O	P	P	
i. Fuel Oil Supplies	N/A	N/A	N/A	N/A	N/A	
j. Flushing Oil Supplies	P	P	O/P	P	P	
k. Firefighting Facility	P	P	O/P	P	P	
l. Medical	P	P	P	P	P	EMT (Emergency Medical Technician) on site
m. Warehousing	P	P	O/P	P	P	
n. Security	P	P	O/P	P	P	
2. CIVIL WORKS						
2.1 Site Layout						
a. Access Layout	P	P	-	-	-	
b. Civil Layout	P	P	-	-	-	

	EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
	auxiliaries						
k.	Motorized valves for remote operation	P	P	P	P	P	M provide the ventilator valve and vacuum breaker valve
l.	Local instrumentation and control, local panel etc.	M/P	M/P	M/P	M/P	P	Refer to attached P&ID
m.	Electric cable and electrical conduits, support, etc.	P/M	P/M	P/M	P	P	Cables within ST enclosure by M M provide I/O & TO/FROM list & Installation criteria
n.	Name Plates for equipment, valves and fittings	M/P	M/P	M/P	M/P	P	
o.	Shop painting for equipment, pipework, steelwork, etc.	M/P	M/P	M/P	-	-	Field paint system should be furnished by P.
p.	Sets of substantially bound operation and maintenance instruction manuals and final drawings	M/P	M/P	M/P	-	-	5 copies
q.	Erection and commissioning instruction	M/P	M/P	M/P	-	-	5 copies
r.	Operation Spares (if specified or required)	M/P	M/P	M/P	-	-	
s.	Start up Spares	M/P	M/P	M/P			M provide for M's equipment
t.	Overall Noise Simulation/Calculation	P	P	-	-	-	M to provide noise data for his own equipment
u.	Study for Environmental Impact	P	O	-	-	-	M/P to provide the data.
1.2	Site Equipment						
a.	Tools				-	-	
	i. Special Tools	M/P	M/P	M/P	M/P	-	
	ii. Ordinary Tools	P	P	P	P	-	
b.	Rotor Lifting Beam for ST	M	M	M	-	-	M provide the rotor lifting beam for ST
c.	Test and Commissioning Equipment	P	P	P	P	-	M provide special equipment for M equipment. M will submit a list of special test equipment.

EQUIPMENT OR SERVICES PROVIDED	BASIC ENG.	DETAIL ENG.	SUPPLY	ERECT ADVISORS	ERECT	REMARKS
C. SCOPE OF SUPPLY						
1. EXTENT OF SUPPLY						
The equipment and services to be supplied by each party under this specification shall include but not be limited to the following:-						
1.1 General						
a. Layout and loading data of equipment and structure for the civil engineering and layout designing.	M/P	P	-	-	-	M to provide outline drawing and loading data of his equipment.
b. Foundation design	P	P	-	-	-	
c. Pipe supports and bolts	P	P	P	P	P	
d. Anchor bolts for equipment and steel work	M/P	P	P	M/P	P	Template and shim for ST, GEN by P. Suggested drawing for ST GEN by M Base plate (sole plate) for ST, GEN by M.
e. Embedded materials for equipment and steel work	M/P	P	P	M/P	P	
f. Shelters and enclosures for weather protecting equipment	P	P	P	P	P	M to provide ST enclosure
g. Special tools for erection and maintenance of plant equipment	M/P	M/P	M/P	-	-	Special tools are those tools, not available in the commercial market but, fabricated specially for the ST and GEN. M to provide special tool for ST and GEN.
h. Supporting structures, access platforms, handrails, stairways, ladders.	M/P	P	P	P	P	Refer to Outline Drawing layout about stairway.
i. Lagging and cladding for equipment, pipework and ducting	M/P	M/P	M/P	M/P	P	Refer to relevant Section.
j. Driving motors installed on the common baseplates of	M/P	M/P	M/P	M/P	P	

B. ABBREVIATIONS AND NOTES FOR UNDERSTANDING

The purpose of this document is to establish areas of responsibility and not necessarily to cover the details of the respective extent of supply. The technical Descriptions and Schedules will be provided for this purpose. This document delineates the various responsibilities for the work to be carried out.

Where any responsibility is shared this is indicated by a "/" between the code letters for the parties involved, each party will be responsible for each own equipment and co-ordination with other parties involved in such items of work so that proper co-ordination exists for the execution of this work item.

Basic Engineering is the determination of the functional requirements for the main system and sub system components, or the interface between the system or component and other systems or components, or the supply of information and technical data for further detailed engineering works. US Customary Units shall be the basis of dimensions and data. The party giving the information shall be responsible for the correctness of the information. However, the party receiving the information shall be responsible to request the type of complete information needed to proceed with the detailed engineering.

Detailed Engineering means the development complete engineering design information from the Basic Engineering relative to a component or system so that it may be procured, manufactured, installed and operated in accordance with the function engineering and contractual requirement..
The Detailed Engineering include, but not limit to:-

For fluid system: system descriptions, flow and interlock diagrams, separability requirements, stress and vibration analyses, outline drawings of components, and System Test procedure preparation;

For Mechanical and/or Electrical components: this shall include equipment specifications, material and fabrication QA and QC standards and requirements.

For Control and Instrumentation: functional requirements and diagrams, block, one-line and connection diagrams, major racks and equipment lists, final specification and associated data package.

For Civil: the development of engineering design information so that all necessary site preparation, foundation, buildings, roadways, marine works, and other civil engineering are designed in detail and constructed in accordance with the requirements of the Basic Engineering.

Supply means the responsibility of furnishing at the specified location the material and other requirements including, the design, manufacture of procurement shop tests and inspection, scheduling, expediting and delivery as specified for the system, equipment or components and including the supply of instruction books necessary for the operation and maintenance operations associated with the work item.

Erect & Commissioning Advisors means the provision of experienced staff or technical advice to the party responsible for erection and commissioning partner. The primary responsibility for erection and commissioning lies with the erection partner and not with the advisor.

Erection means the site construction and installation of the electrical and mechanical equipment and includes unloading, storage, erection and installation in site, performance of construction tests, and other work associated with a system, equipment or component including the supervision and direction to carry this out.

Commissioning means the pre-operational testing and setting to work of all systems and equipment such that Tests upon completion can be performed as set out in the contract.

NOTE: Where an identified scope items falls outside of the responsibility of the Contractor(s), this shall be excluded from the Division of Responsibility denoted as NA.

The scope items which are not specified in this Division of Responsibility Document are out of Seller's scope

A. CONCEPT OF DOR (Preliminary)

Delivery and Responsibility

	P	M		
Project Management	○	△		P : EPC Contractor M : Seller O : Buyer ○ : Total responsibility △ : Partial responsibility NA: Not Applicable Partner described in this document and associated attached documents means a part of the Buyer.
Heat Balance	△	○	P guarantees condenser vacuum, pressure loss in steam piping.	
Plot Plan	○			
General Arrangement	○	△	Seller provides technical data and requirement	
P & ID, One Line Diagram	○	△	Seller provides technical data and requirement	
Plant Control	○	△	Seller supplies control system for ST including Generator	
Construction	○	△	Seller provides BQ list and construction procedure at detailed engineering stage	
Permit	○		P or Owners responsibility	
Environmental Assessment	○			
Noise Analysis	○	△	Seller provides data of noise level at Seller's equipment side	
Gross Output	○	△	P with respect to Steam pipe pressure loss, Aux. power , Condenser performance, GT and HRSG performance. M with respect to only Steam Turbine and Generator.	
Gross Thermal Efficiency	○	△	P with respect to Steam pipe pressure loss, Aux. power , Condenser performance, GT and HRSG performance. M with respect to only Steam Turbine Generator Output.	
Auxiliary Power Consumption	○	△	Seller guarantees auxiliary power consumption for Seller's equipment	
Utility Requirement	○	△	Seller provide interface requirement, P, T, Flow, design conditions etc.	

Scope of Supply

	Power Plant (if used in combined cycle operation)										Power Station BOP
	GT (NA)	ST	HRSG (NA)	ST Generator	Wet Cooling Tower and Surface Condenser	Trans-former	Piping	Wiring	Electrical Equipment	Buildings	Water Treatment, Tanks, Fuel Supply system, Sub Station etc.
Engineering		M		M	P	P	P/M	P/M	P/M	P	P
Manufacturing		M		M	P	P	P/M	P/M	P/M	P	P
Overseas Transportation		M		M	P	P	P/M	P/M	P/M	P	P
Inland Transportation		P		P	P	P	P	P	P	P	P
Erection		P		P	P	P	P	P	P	P	P
Commissioning Advisor		M		M	P	P	P/M	P/M	P/M	P	P
Commissioning Operator		P		P	P	P	P	P	P	P	P
Civil		P		P	P	P	P	P	P	P	P
Performance Guarantees		M		M	P	P	P	P	P	P	P

* : Steam piping between GV/ICV and ST by M.

LIST OF CONTENTS

BARTOW REPOWERING PROJECT

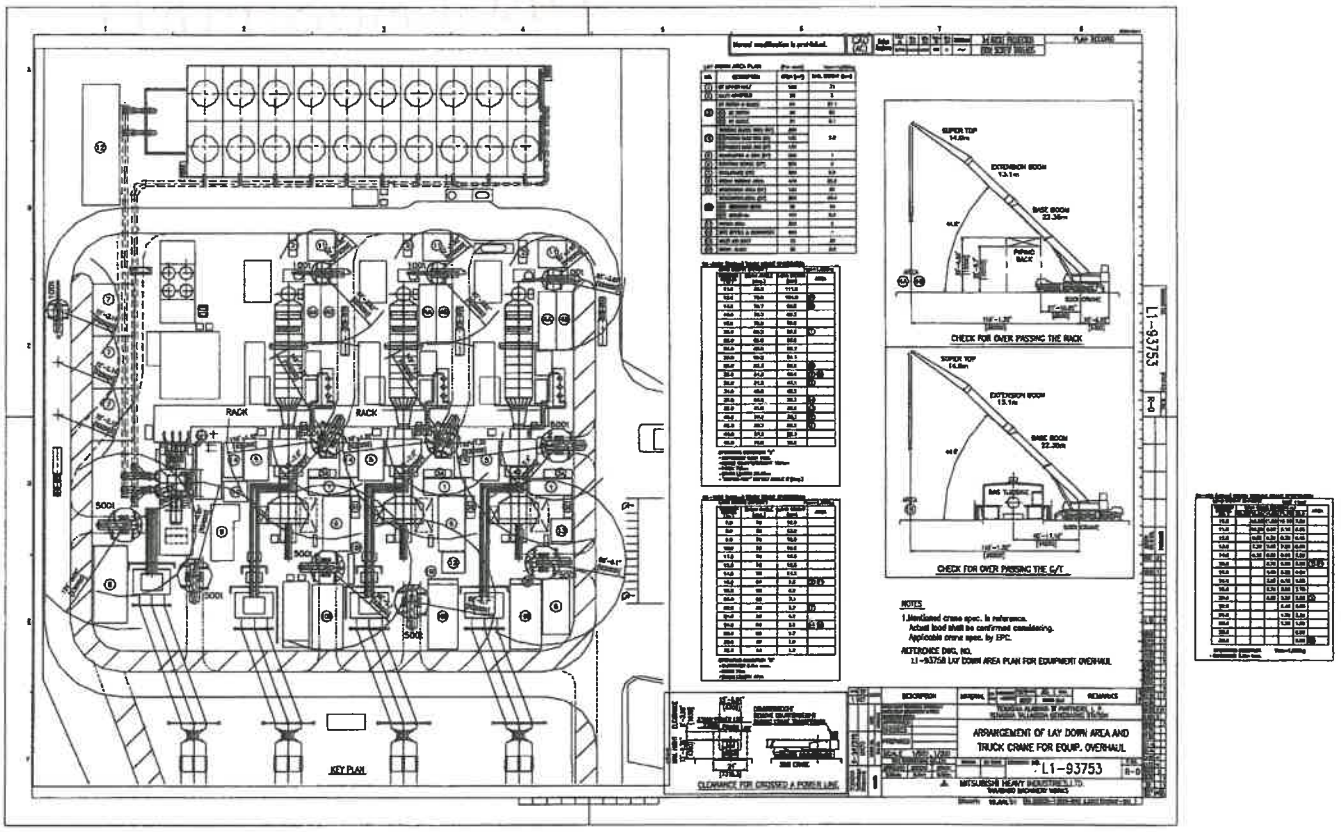
DIVISION OF RESPONSIBILITY DOCUMENT

FOR

STEAM TURBINE AND GENERATOR

MITSUBISHI POWER SYSTEMS, INC.

7. DIVISION OF RESPONSIBILITY



6. GENERAL ARRANGEMENT

The total responsibility of GENERAL ARRANGEMENT belongs to the EPC contractor. Therefore, the GENERAL ARRANGEMENT will be designed and finalized by EPC contractor based on the technical data and requirement, which will be submitted by Seller.

GENERAL ARRANGEMENT drawings which show the typical layout of M501F 3on1 x 1Blocks (Outdoor Type) are attached in this section for reference to specify the basis of design, guarantees and/or pricing of the Seller's equipment.

Unless otherwise specified in this proposal, the equipment and systems included in this proposal are designed based on this GENERAL ARRANGEMENT.

If the layout of major equipment such as ST lube oil system, ST control oil supply system etc. are changed, Seller reserves the right to modify the design, guarantees and/or pricing accordingly.

5.6.6 MISCELLANEOUS

PNEUMATIC CONTROLS

Local single loop control will be provided in the Distributed Control and Information System (DCS).

The following local control will be provided.

- ST lube oil temperature control 1 pc/ 1 ST
- ST EH oil temperature control 1 pc/ 1 ST

5.6.5 MACHINERY MONITORING SYSTEM

TURBINE GENERATOR SUPERVISORY INSTRUMENT

The turbine generator supervisory instrumentation system will be provided for monitoring machine variables necessary for proper operation of the turbine generator. The turbine generator supervisory system will be connected to the Distributed Control and Information System (DCS) for monitoring purposes, including displays on CRTs and logging and data storage on DCS printers and data storage media.

All primary detectors, monitors, alarm contacts, wiring, cable, interconnections, and other accessories required for a complete installation will be provided.

The monitors will provide analog outputs (4～20 mA dc) and contact outputs for alarm and trip functions.

The following instruments will be provided.

For Steam Turbine

1)	Shaft eccentricity	1 pc/1 ST
2)	Shaft vibration (X-Y)	7 sets/1 ST and 1 ST-GEN
3)	Shell expansion	1 pc/1 ST
4)	Shell/rotor differential expansion	1 pc/1 ST
5)	Shaft axial position	3 pcs/1 ST

5.6.4 UNIT PROTECTION SYSTEM

Unit protection system will be provided to assure safe operation of the unit.

This system will consist of turbine trip interlock.

This system consists of hardwired relay logic system and redundant sensors.

STEAM TURBINE PROTECTION

Steam turbine trip conditions will be as follows (including trips for combined cycle operation):

1) Manual emergency trip
2) Overspeed trip
3) Shaft vibration high
4) Lubrication oil pressure low
5) Thrust bearing wear
6) Condenser vacuum low (High exhaust pressure of LP Turbine)
7) HP Turbine Exhaust Pressure High
8) Steam turbine control system failure
9) HRSG Drum level high (from HRSG)
10) Frequency low (in steam turbine generator trip circuit)
11) Reverse power relay operated (in steam turbine generator trip circuit)
12) Generator trip condition established
13) All of GT-Generator-MCB opened or load run-back (No Heat Recovery)

5.6.3 CONTROL FUNCTION

Automatic Power Regulation control (APR)

The following descriptions are for example of APR that will be implemented in DCS by Others.

APR will modulate the generating unit equipment as a whole. APR is designed to accept unit load demand or load change signal (MW) from central load dispatch system, or unit load demand setting by operator. APR produces individual demand signals for each turbine from unit load demand. The maximum load demand signal is limited to unit load which is achievable with the equipment currently in service.

Each turbine load demand is adjusted depending on equipment operating conditions.

- The number of turbines in service

APR includes provision for fully automatic control, or for manual control of any element of the process equipment by the operator at unit control console. The operator interface will permit the operator to adjust the following factors:

- Maximum and minimum unit load limits
- Maximum load rate of change
- Manual load set points
- Central load dispatch system (enable/disable)

5.6.3 CONTROL FUNCTION

Automatic Plant Start up/Shut down control (APS)

Automatic plant start up/shut down control function (APS) is provided in order to control the start up and/or shut down of turbines and HRSG's when used in combined cycle operating mode. APS produces the command signals for each control system such as turbine control systems, HRSG control system and plant control system as required.

◊ APS Operation mode

When operator selects semi-automatic start up mode, APS produces the procedure of the start up/shut down, which is divided into some breakpoints.

Confirmation by the operator is required at each breakpoint to proceed to the next breakpoint.

Local witness and the operator's action are required for the confirmation of the "RUB CHECK".

◊ Manual mode

This mode is performed by subloop controllers such as turbine control system, HRSG control system and PLANT control system.

In this mode, APS is disabled.

- Start up mode

According to HP turbine steam chest metal temperature, APS selects start up mode. (HOT, WARM and COLD)

5.6 INSTRUMENTATION AND CONTROL SYSTEMS

5.6.3 CONTROL FUNCTION

PLANT CONTROL

The plant controls will be implemented in DCS which will be prepared by Others. All the auto/manual operations should be done on the CRTs/keyboards of DCS which will be located in Central Control Room (CCR).

The expected Plant controls are as follows :

- Automatic Plant Start up/Shut down control (APS)
- Automatic Power Regulation control (APR)
- Gland steam pressure control
- Gland steam temperature control
- Condenser hotwell level control
- Deaerator level control
- Deaerator pressure control
- High pressure steam Bypass control
- Intermediate pressure steam Bypass control
- Low pressure steam Bypass control

5.6.3 CONTROL FUNCTION

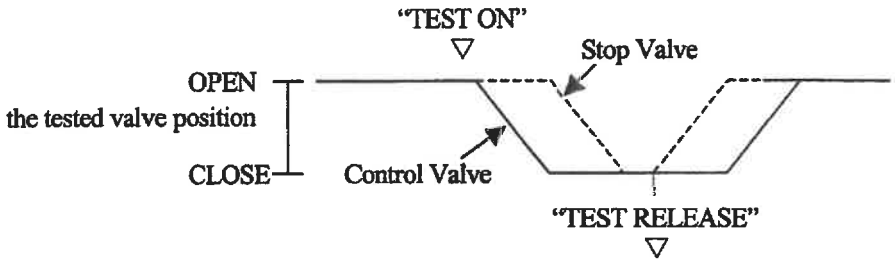


Fig. 5.6.4-1 Valve closing test

9) Over Speed Trip (OST) test

Prior to synchronizing of the generator to the power grid system, actuation of Mechanical Over Speed Trip (MOST) will be confirmed under the condition that the turbine is actually left in over-speed.

In OST test mode, Overspeed Protection Controller (OPC) is blocked and the set point of Electrical Over Speed Trip (EOST) is altered to assure tripping by MOST.

5.6.3 CONTROL FUNCTION

8) Valve closing test

The valve test is performed for the purpose of confirming the safety performance by closing during load operation. Testing Valves are divided into 5 groups as two pairs of HP-SV and HP-CVs, two pairs of RSV and ICV and one pair of LP-SV and LP-CV. For each group, operation command as VALVE TEST "ON" and "RELEASE" are reserved. Full closing test will be carried out for all valves. A pair of SV and CV of each side will be closed fully. Since only one set of SV and CV is provided for LP steam pipe, LP steam is bypassed to condenser through turbine bypass valves during LP-SV and LP-CV test.

Test operations are as follows;

a) Set VALVE TEST "ON" on CRT of DCS, then the valve test is commanded, and the Valve Test Closing Bias is added to the position demand of the tested Control Valve with a ramp function or equivalents. Thus, the tested Control Valve is gradually closed. After the tested Control Valve fully closed, the paired Stop Valve is fully closed.

b) When operator sets VALVE TEST "RELEASE", the tested Stop valve will be back to fully-open gradually. After the tested Stop Valve become fully-open, the tested Control Valve will be back to its original position gradually. Then the valve test is completed.

5.6.3 CONTROL FUNCTION

After throwing the HP-CV/ICV control into HP/IP pressure control mode, LP pressure control mode is thrown into the LP-CV control by operating LP Pressure Control "IN". The LP pressure reference is usually set up at the minimum pressure and LP-CV is full open under normal operation after steam turbine load up.

6) Overspeed Protection Controller (OPC)

OPC is prepared for protection from the turbine's overspeed. The turbine speed and the power-load unbalance are supervised by OPC circuit. If the turbine speed and/or the power-load unbalance exceeds a predetermined set point, OPC solenoid valve is energized and control oil circuit operates so that HP-CV, ICV and LP-CV are forced to close rapidly. This control oil circuit override the electrical control signal for HP-CV, ICV and LP-CV. The power-load unbalance is detected as the error signal between the IP Turbine inlet (ICV outlet) Steam Pressure (representing the power output of the turbine) and the Generator Current (representing the load of the generator). OPC is duplicated.

7) Electrical Over Speed Trip (EOST)

The steam turbine control system has a detector part of EOST which is independent from Mechanical Over Speed Trip (MOST). It is composed of magnetic pickups and EOST module cards (speed channel and comparator). If turbine speed exceeds 111% of the rated speed, EOST is actuated for turbine protection. 2 out of 3 logic is applied for EOST.

5.6.3 CONTROL FUNCTION

2) Speed regulation

After turbine speed has reached at the rated speed, turbine speed is controlled by HP-CVs. In this control mode, speed reference is variable within the rated speed ± 6% (3,384 to 3,816 rpm).

3) Automatic synchronizing

In order to synchronize the generator to the power grid system, turbine speed is variable by "increase" or "decrease" command signal from Automatic Synchronous System (ASS) in ASS mode.

4) Initial load control

As soon as synchronizing of the steam turbine generator to the power grid system, Steam Turbine Control System sets up the HP-CV position corresponding with HP turbine inlet steam pressure to take initial load for prevention of motoring.

5) Pressure control

After initial load operation, HP/IP pressure control mode is thrown into the HP-CV/ICV control by operating HP/IP Pressure Control "IN" . At that time, the HP/IP pressure reference is set up at the minimum required pressure. According to the load up of Steam Turbine from the initial load, the HP/IP pressure reference is set up lower than the actual HP/IP pressure and HP-CV/ICV is full open under normal operation.

5.6.3 CONTROL FUNCTION

180 rpm/min.

360 rpm/min.

c) Speed up control

Steam Turbine Control System executes proportional control in accordance with the difference between reference speed and actual speed.

This control signal is delivered to HP-SVs Servo valve Controller.

d) Program go/hold operation

After set a speed target and a speed acceleration rate, the turbine begins to start. When the speed reaches at the target speed, it is held at the target speed. During speed up, the turbine speed is held at the present speed by operating PROGRAM "HOLD". And the turbine is restarted by operating PROGRAM "GO".

5.6.3 CONTROL FUNCTION

Control function

1) Speed up control

Under steam turbine start up condition, turbine speed is controlled by High Pressure Stop Valves (HP-SVs) until bring up to rated speed and after that valve control is transferred. A reference speed is calculated in a speed setting part which consists of a speed setter to set target speed, a rate limiter to set acceleration rate of speed and an integrator to sum up rate signal until output is equal to target speed.

a) Speed target

One of three predetermined target speed is selectable .

400 rpm Rub check speed

2,400 rpm Heat soak speed

3,600 rpm Rated speed

NOTE): Heat soak speed will be modified if it is within the critical speed range.

b) Speed acceleration rate

One of three predetermined speed acceleration rate is selectable .

90 rpm/min.

5.6.3 CONTROL FUNCTION

STEAM TURBINE CONTROL SYSTEM (STC)

General

Steam Turbine Control System consists of a redundant micro-processor based controller and single IO.

All the auto/manual operations are done on the CRT located in the Central Control Room.

The functions of turbine control are as follows:

1) Speed up control
2) Speed regulation
3) Automatic synchronizing
4) Initial load control
5) Pressure control
6) Overspeed Protection Control (OPC)
7) Electrical Over Speed Trip (EOST)
8) Valve closing test
9) Over Speed Trip (OST) test

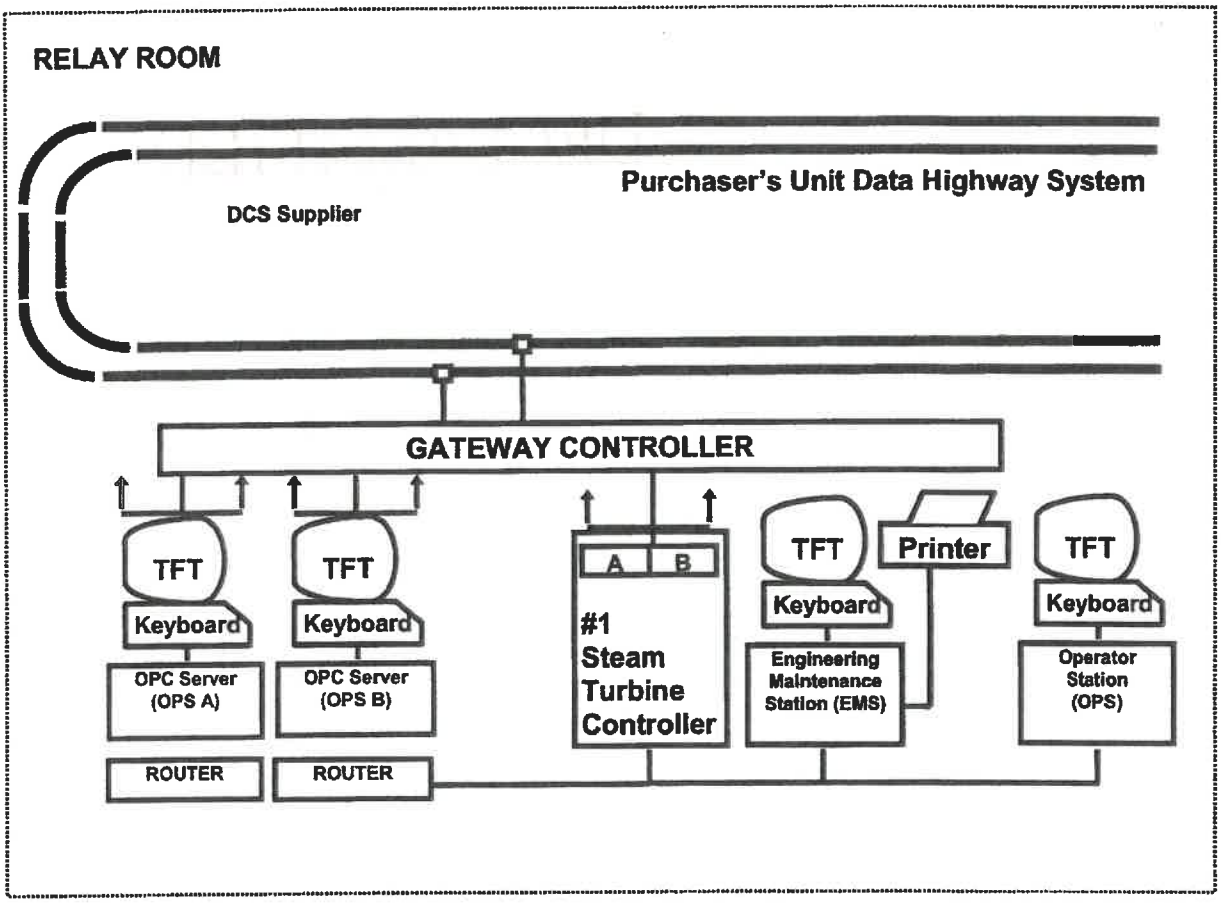
5.6.2 SCOPE OF SUPPLY

The following Control and Instrumentation System will be supplied by Seller:

Table 2-1 Scope of supply of equipment for Control System

No.	Equipment and Works	Number to be supplied	Remarks
1.	Steam turbine control system - duplicated microprocessor controller - dataway interface module - single PI/O system - TCP/IP interface for DCS (2ch Redundant(P-Ch, Q-Ch)	1 set	TCP/IP protocol is OPC communication.
2.	Engineering Maintenance Station (EMS) for ST control system (programming station with color TFT with keyboard) (printer) (include Operator Station function)	1 set	21 inch TFT
3.	Protection system	1 set	Hard wired relay logic for Steam Turbine
4.	Machinery monitoring system	1 set	For the Steam Turbine
5.	Spare parts and consumables	1 set	1 card for each type 1 power module for each type 10 cartridges for printer ink
6.	Operator Station (OPS) for ST control system (programming station with color TFT with keyboard)	1 set	21 inch TFT
7.	OPC Server for DCS communication. (include ROUTER between STC and OPC)	1 set	19 inch TFT

PRELIMINARY



(Legend)
A : Active CPU
B : Standby CPU

F20-012	TURBINE CONTROL SYSTEM CONFIGURATION

5.6 INSTRUMENTATION AND CONTROL SYSTEMS

5.6.1 GENERAL

In this section, Instrumentation and Control System for the power plant is described.

(1) Turbine control system will be provided for the safe, reliable and efficient operation of Steam turbine (ST).

(2) The control and supervisory function will be performed by the integrated plant control system that incorporates the modern micro-electronics technology and plant control technology.

(3) Turbine control system will provide modulating control, digital (on/off) control, monitoring, alarming and indication for the turbine.

(4) Proposed control systems will be of advanced distributed configuration. Turbine control system configuration is shown on the attached drawing;

F20-012 : TURBINE CONTROL SYSTEM CONFIGURATION

(5) ST control system will be composed of redundant microprocessors and the control system will be interfaced with DCS by OPC communication datalink.

(6) Centralized supervision and automatic operation of plant start-up, shut-down, and normal load changing can be performed by the use of operator stations supplied by DCS SUPPLIER.

(7) Individual operation for ST will be performed by the use of operator stations supplied by DCS SUPPLIER.

(8) Hardwired control switches for manual emergency steam turbine trips will be mounted on the control desk in the control room by DCS SUPPLIER.

5.6 INSTRUMENTATION AND CONTROL SYSTEMS

CONTENT

5.5.5 Turbine Auxiliary Motors

Rating and specifications of the motor for turbine and generator auxiliaries are as follows.

Type of AC motor	Induction
Type of AC motor rotor	Cage
Voltage	
- AC motor (MV)	4160V, 60 Hz
- AC motor (LV)	480V, 60 Hz
- DC motor	125 V
Insulation class	Class F/B/E except where otherwise agreed
Temperature rise	Class F/B/E
Enclosure	Drip proof for Emergency lub. oil pump motor, TEFC or TE for other motors
Method of starting;	
- AC motor	Direct
- DC motor	Resistor*

Notes*: Starter panel with resistor will be supplied by Others.

Running duty	Continuous

Codes and standards

Auxiliary motors purchased from Japan will conform to the following standard.

General performance:	IEC 34 or NEMA MG-1
Dimension:	IEC 72, JEC, JEM
Material:	JIS
Test:	JEC 37, JEC54
Explosion-proof:	JIS C0905/ RIIS

Tolerance specified in JEC-37 and JEC-54 will be applied for motor characteristics.

Motors purchased from other countries will comply with the originating country standard.

5.5 ELECTRICAL SYSTEM

5.5.1 GENERAL

This section covers the standard technical specification of Electrical Equipment supplied by Seller for this project.

(1) Standard

The Electrical Equipment will be designed and manufactured in accordance with the standards listed below.

- International Electotechnical Commission (IEC)
- The Institute of Electrical and Electronics Engineers (IEEE)
- National Electrical Manufacturer's Association (NEMA)
- American National Standards Institute (ANSI)
- Japan Industrial Standards (JIS)
- Japan Electrotechnical Manufacturer's Association (JEM)
- Manufacturer's Standards

The codes and standards applicable to individual piece of equipment will be available in detailed specification drawings, which will be issued at later stage.

(2) Standard (nominal) system voltage

The followings are the nominal system voltage for Seller supplied equipment.

1) A.C. Low voltage : 480V, 3 phase, 3 wire, 60Hz
2) D.C. voltage : 125V
3) A.C. voltage for lighting : 480V/208-120V, 3 phase, 4 wire, 60Hz.

5.5.2 NA

5.5.3 NA

5.5.4 REFERENCE DRAWINGS

·Single Line Diagram (F85-101S R-0) refer to sec. 7.

5.4.10 Attached Documents and Drawings

(1) Single line Diagram – ST Generator	JEK44552 Rev.D*1
(2) Generator Output Versus Cooling Water Temperature Curve (according ANSI B temperature rise)	KC917171 Rev.B
(3) Hydrogen-Cooled Turbine Generator Capability Curve	KC916812 Rev.0*2
(4) Hydrogen-Cooled Turbine Generator Characteristic Curve	KC916811 Rev.0*2
(5) Hydrogen-Cooled Turbine Generator V-curve Voltage 18.00kV	KC917036 Rev.0*2
(6) Hydrogen-Cooled Turbine Generator V-curve Voltage 18.90kV	KC917037 Rev.0*2
(7) Hydrogen-Cooled Turbine Generator V-curve Voltage 17.10kV	KC917038 Rev.0*2
(8) Hydrogen-Cooled Turbine Generator Efficiency Correction Curve	KC917044 Rev.0*2
(9) Hydrogen-Cooled Turbine Generator Loss Curve	KC917042 Rev.0*2
(10) Turbine Generator Outline(For Steam Turbine)	AK76890 Rev.B*1
(11) Turbine Generator H2 & CO2 Gas Diagram	AK77201 Rev.B*1
(12) Turbine Generator Seal Oil Diagram	AK77202 Rev.B*1
(13) Turbine Generator Cooling Water Diagram	AK77200 Rev.B*1

*1:Refer to submitted dwg
*2:Refer to section 8.14

FIELD TIME CONSTANT DATA (SEC)

Open Circuit	T'_{do}	7.17	T'_{qo}	0.80
Three-Phase Short Circuit Transient	T'_{d3}	1.10	T'_{q}	0.18
Line to Line Short Circuit Transient	T'_{d2}	1.76		
Line to Neutral Short Circuit Transient	T'_{d1}	2.07		
Short Circuit Subtransient	T''_{d}	0.035	T''_{q}	0.035
Open Circuit Subtransient	T''_{do}	0.043	T''_{qo}	0.064

DC time constant, Ta 0.578

ARMATURE TIME CONSTANT DATA (SEC)

Three Phase Short Circuit	T_{a3}	0.0058
Line to Line Short Circuit	T_{a2}	0.0067
Line to Neutral Short Circuit	T_{a1}	0.0049

NOTE: If requested information is not applicable, indicate by marking "N/A."

MW CAPABILITY AND PLANT CONFIGURATION
LARGE GENERATING FACILITY DATA

ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive	R_1	0.0015
Negative	R_2	0.031
Zero	R_0	0.0015

Rotor Short Time Thermal Capacity I_2^2t = 10
Field Current at Rated kVA, Armature Voltage and PF = 3,255 amps
Field Current at Rated kVA and Armature Voltage, 0 PF = N.A. amps
Three Phase Armature Winding Capacitance = 1.77 microfarad
Field Winding Resistance = 0.12 ohms 95 °C
Armature Winding Resistance (Per Phase) = 0.00086 ohms 95 °C

LARGE GENERATING FACILITY DATA

UNIT RATINGS

kVA 468,000 93.2°F/34℃ (Cooling Water Temp.) Refer KC917171RevA
Voltage 18.0 kV

Power Factor 0.90
Speed (RPM) 3,600 Connection(e.gWye) Wye
Short Circuit Ratio 0.54 (guaranteed value: not less than 0.5) at rated output(468MVA) A
Frequency, Hertz 60
Stator Amperes at Rated kVA 15,011 Field Volts 440

Figure1 .Tabulated data of generator output curve

		Temperature			
		93.2° F 34℃	95° F 35℃	100° F 37.8℃	105° F 40.6℃
Power factor	1.00	468MVA 468MW	463MVA 463MW	448MVA 448MW	430.5MVA 430.5MW
	0.95	468MVA 444.5MW	463MVA 440MW	448MVA 425.5MW	430.5MVA 409MW
	0.90	468MVA 421MW	463MVA 416.5MW	448MVA 403MW	430.5MVA 387.5MW

A

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = 0.98 kW sec/kVA (Generator only)
Moment-of-Inertia, WR^2 = 153,665 lb. ft.^{2} (Generator only)

REACTANCE DATA (PER UNIT-RATED KVA)

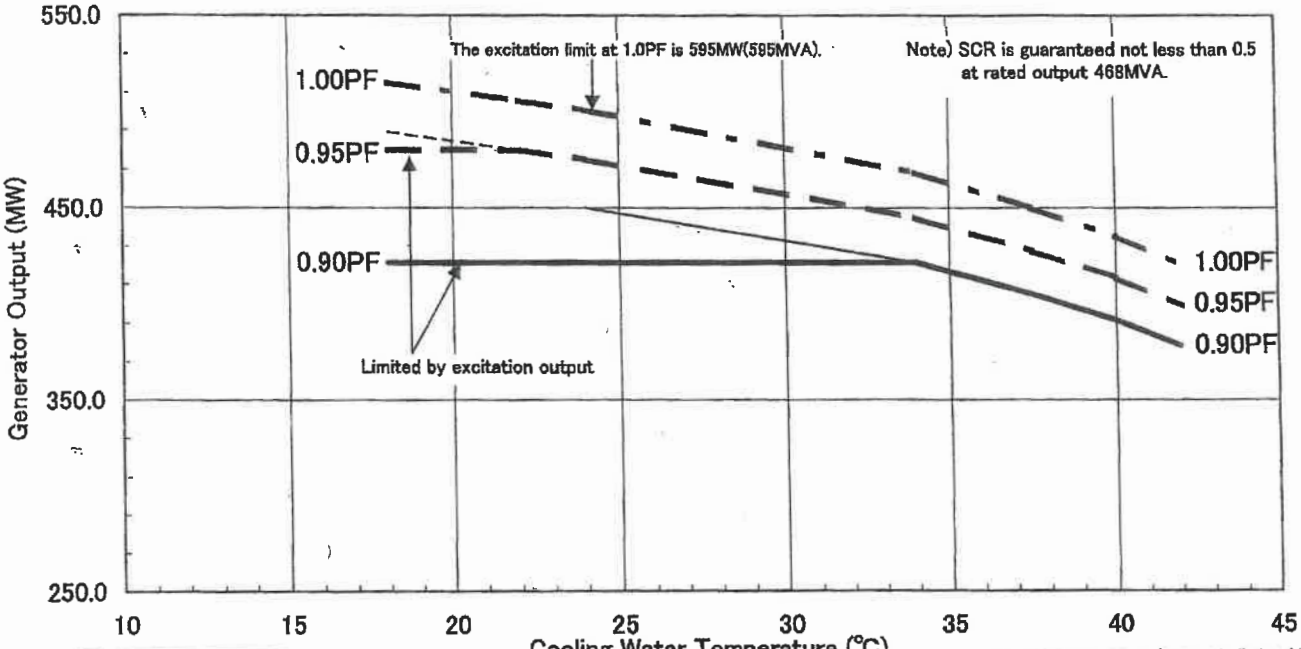
	DIRECT AXIS	QUADRATURE AXIS
Synchronous – saturated	X_{dv} 1.84	X_{qv} 1.54
Synchronous – unsaturated	X_{di} 2.08	X_{qi} 2.05
Transient – saturated	X'_{dv} 0.32	X'_{qv} 0.46
Transient – unsaturated	X'_{di} 0.36	X'_{qi} 0.52
Subtransient – saturated	X''_{dv} 0.26	X''_{qv} 0.25
Subtransient – unsaturated	X''_{di} 0.29	X''_{qi} 0.28
Negative Sequence – saturated	$X2_v$ 0.25	
Negative Sequence – unsaturated	$X2_i$ 0.29	
Zero Sequence – saturated	$X0_v$ 0.14	
Zero Sequence – unsaturated	$X0_i$ 0.14	
Leakage Reactance	Xl_m 0. 21	

KC917171

Bartow Repoweing Project [B]

COOLING WATER TEMPERATURE VERSUS GENERATOR OUTPUT CURVE

(According to ANSI B temperature rise, Hydrogen gas pressure:0.50MPa-g)



APPROVED	H. Ohsaki
CHECKED	T. Kaneta
DESIGNED	'02-4/8 K. Arikawa S. Iwata
Rev.A We amended note.	S. Iwata '06-4/6 T. Kubota
Rev.B We amended P3 name.	S. Iwata '07-2/5 T. Mishida

The generator output curve shows only limitted by ANSI B temperature rise. The generator output may be also limitted by another functions. (i.e. SCR, cooling water condition, and so on.)

[B]

SCR defined in MHI (MELCO) doc (ABF-A632-048)
Tabulated data in MHI (MELCO) doc (ABF-A632-048)

KC917171 Rev.A

TURBINE TURNING GEAR

The turning gear is the automatic engagement type and capable of starting the T-G from standstill and driving it continuously at recommended speed.

Turning gear design will be such that, the gear will be thrown out of engagement without shock after the turbine being started by steam, and put into operation automatically when the turbine is at zero speed.

Suitable pressure interlocking protective devices will be provided to prevent the starting of the turbine generator by the turning gear until the proper oil pressure has been established in the turbine generator bearings.

If the oil pressure drops to an unsafe value, the turning gear will be stopped automatically and an alarm signal will be issued. The turning gear is controlled by Steam Turbine Controller.

The limiting exhaust casing temperature is 248 °F. If this temperature is reached, the unit should be shut down and the trouble corrected before restarting.

- Gland

  The rotor glands are of the spring backed labyrinth type. Outer glands are removable without raising the turbine casing cover.

- Gland Steam Condenser

  The steam and air mixture leaving the outer gland of the turbine is introduced into a surface type gland steam condenser.

- Drain System

  The most important thing in turbine operation is never to introduce water into the turbine.

  Condensation, which may be produced in the turbine at start-up or low load, is routed to the condenser or other equipment through continuous drain orifices and air operated drain valves which shall be open when operating below 20% load.

- Low pressure turbine exhaust spray system

  Automatic sprays are provided to control high exhaust temperatures.

  Temperature control valves control the flow of water from the condensate pump discharge to spray nozzles installed in the turbine exhaust hood chambers.

  Overheating of the exhaust end is not expected even with no load steam and full vacuum.

  Low vacuum will cause overheating with materially less than no load steam flow which would result if the unit were allowed to motorize.

  The temperature control by DCS for the exhaust hood sprays should be set to control exhaust hood temperature to 248 °F maximum.

  If a temperature in excess of 176 °F is obtained, care must be taken to gradually lower the temperature of the exhaust casing by increasing load or improving the vacuum.

GLAND AND DRAIN SYSTEM

The function of the rotor steam gland sealing system is to prevent leakage of air into, or the steam from, the turbine cylinders along the rotor ends.

This function is accomplished by the following components:

- Gland Steam Controller

  The purpose of the gland steam controller is to supply sealing steam at a constant pressure to the turbine glands throughout the start-up, operation, and shut-down of the turbine.

  The controller is adjusted such that at start-up all of the gland sealing steam is supplied from the high pressure steam supply line through the control valve.

  As load increases, HP gland leakage increasingly reduces the required external sealing steam.

  When the leakage steam from the high pressure gland is in excess of the sealing steam requirement of the low pressure gland, the control valve regulating the high pressure steam closes, and the spill-over valve begins to open and passes the excess steam to a zone of lower pressure in order to maintain the desired sealing steam pressure as determined by the pressure regulator setting.

  The above mentioned sealing equipment is automatically controlled by DCS, but can also be manually controlled.

pressure in the fluid return line to the reservoir and set to close contact and sound an alarm on increasing pressure at 42.7 psig.

b) One pressure switch is arranged to sense the fluid system low pressure and set to close contact and start the back-up fluid pump on decreasing pressure at 1181 psig.

c) One pressure transmitter is arranged to sense the fluid system low or high pressure and sound an alarm on decreasing or increasing pressure at 1280psig or 1991 psig .

11. Back-up filter

One filter is mounted on the unit and installed in downstream of the earth filter line to the reservoir. A removable cover plate is provided on filter shell. The disposable type filter element is cotton-cellulose construction.

12. Earth filter

The earth filter is located in a line orificed from the high pressure fluid header. The orificed line (provided with a valve normally opened) will pass fluid through the filter in to the reservoir. The earth filter is the replaceable element type. With the line valve closed, the filter covers can be removed and cartridges can be now replaced.

13. High pressure accumulator

One hydro-pneumatic high pressure accumulator installed on the unit. The accumulator consists of a steel shell and piston charged with dry nitrogen gas at 1067 ~ 1138 psig. The accumulator serves as a shock absorber or surge chamber to displace fluid in high pressure line during load dump.

Two top mounted displacement type of fluid level control switches which actuate switch mechanism in response to liquid level change. Contacts are provided in;

one for fluid level high and low alarm

one for pump stop due to fluid level low

6. Test valve

One test valve installed in the fluid circuit adjacent to the fluid pump pressure switch and the gauge for high pressure operation fluid. This arrangement allows the idle fluid pump start-up switch to confirm pump start pressure by operating point. The test valve opens the high pressure operating fluid line to drain. With the resulting decrease in pressure, the back-up fluid pump pressure switch will function to start the pump. The orifice, installed up stream of the pressure switch, restrict the fluid pressure decrease to the immediate area and prevents any reaction upon the operating component actuators.

7. Temperature control valve

One reverse operating temperature control valve installed in the circulating cooling water inlet line to the fluid heat exchanger. This valve which is connected to temperature control, provides a modulating control on the water flow through the heat exchanger.

8. Check valve for the fluid drain line

One in line spring-loaded check valve installed in the fluid drain return line to the reservoir. This allows the drain fluid to by-pass the heat exchanger if it becomes clogged.

9. Heat exchanger (Oil Cooler)

One heat exchanger mounted on the unit. The cooling water passes through the tube assembly while the system fluid is circulated within the body around the tube assembly.

Water flow is controlled by the temperature control valve.

10. Pressure switches and transmitter

a) A cabinet encloses the electrical terminal board and the following are the assembly of pressure switches : One pressure switch is placed for sensing the

The major elements of the "E-H" fluid system include the E.H. fluid power unit, the accumulator and the steam valve servo-actuators all interconnected with tubing and fitting. The E.H. fluid power unit, with two independent pumping systems, consists essentially of the following items.

1. One fluid reservoir

An access opening in the reservoir top is fitted with a bolted cover plate. The reservoir has a manually-operated drain valve and is provided with a reservoir filling valve.

2. Fluid Pumps

Tow fluid pumps of identical capacity, each coupled to individual motor drives. The pumps are designed for continuous duty and are located below the fluid level to insure positive suction.

3. Filter for pump discharge line

Two cartridge type 3 micron filters, each separately mounted in the pump discharge circuit. One differential pressure switch which is included in each filter is provided to indicate pressure differentials on the inlet and outlet sides of cartridge filters. The disposable type filter element is cotton-cellulose construction.

4. Manifold

One manifold mounted on the unit is machined for the assembly of the following :

a) Check valve installed in the high pressure fluid circuit on the discharge side of each pump.

b) One relief valve installed in the high pressure fluid circuit. Fluid at pressure above the designed requirement is returned to the reservoir. The valve serves as a back-up to the fluid pump regulator.

5. Fluid level control switches

The relief device consists of a thin lead diaphragm supported against the external atmospheric pressure by a round thin diaphragm pressure disc. This pressure disc is in turn carried on a grid type support. The thin lead diaphragm is clamped between the diaphragm pressure disc and the diaphragm retaining ring. If the exhaust pressure rises above the predetermined point, the diaphragm pressure disc is forced outward causing the lead diaphragm to be sheared off between the inner edge of the retaining ring and the edge of the diaphragm pressure disc.

Rupturing of this diaphragm relieves the pressure in the turbine exhaust. The turbine cylinder directs the rush of steam upward and the guard prevents scattering of the diaphragm and disc. This diaphragm is used in conjunction with an automatic low vacuum trip mechanism, which will normally shutdown the turbine when the exhaust pressure rises to a predetermined point, usually about 17.7 – 21.6 inHgvac. The pressure at which the lead diaphragm will rupture is usually 4.3 psig, when mounted on the turbine cylinder.

E.H. HIGHPRESSURE FLUID SYSTEM

A. System Fluid

The design requirements of the "E-H" governing system place unusual demands on the hydraulic medium. To meet these demands for both reliability and safety, it is necessary that a synthetic fluid rather than mineral oil be used. The fluid should be of the undiluted tri-aryl phosphate ester type possessing proper lubricity, fire resistance, and fluid stability, such as "Fyrquel EHC". The "E-H" system pressure is 1706.8 psig. This pressure is controlled constant by the fluid pump, and it supplies enough moving pressure to the steam valve servo-actuator. It must be recognized that synthetic products such as this some possess characteristics that require special consideration. For this reason, it is recommended that the fluid manufacturer's instructions covering its use, storage, and handling be carefully followed.

B. Fluid system equipment

– Low bearing oil pressure trip

This device utilizes pressure switches which are exposed to bearing oil pressure. If the bearing oil pressure falls below a preset value of 6.4 – 8.5 psig the bearing oil pressure switch will be energized to the closed position, and auto stop oil will be released to drain, shutting down the turbine

– Low vacuum trip

This device utilizes pressure switches which are exposed to exhaust vacuum. When the exhaust pressure rises to a preset value, the pressure switch will be energized to the closed position and auto stop oil will be released to drain.

– Thrust bearing trip device

The thrust bearing trip device warns the operator of wearing of the thrust bearing shoes. The unit should be shutdown in case the wearing of the shoes increases to the point where it may cause serious damage to other turbine parts. The thrust bearing wear is detected as displacement of rotor position of axial direction with rotor position pick-ups.

– Exhaust casing pressure relief diaphragm

The relief diaphragm is mounted on the LP turbine exhaust cylinder cover for the purpose of providing automatic emergency relief of internal pressure rise beyond the maximum safe value for which the cylinder is designed.

- Overspeed trip

This mechanical overspeed trip device consists of an eccentric weight mounted in the end of the turbine shaft, which is balanced in position by a spring until the speed reaches 111%. The weight's centrifugal force overcomes the spring force at 110 ±1% of rated speed and the weight flies out striking a trigger which trips the overspeed trip valve releasing the auto stop oil to drain.

Fundamentally the overspeed trip valve, protective trip devices and the emergency trip valve are hydraulically operated utilizing orificed auto stop oil supplied to the oil header by the main oil pump discharge. A relief valve is provided in this line to limit the oil pressure to about 14.2 psig. The auto stop oil header is linked to the high pressure fluid emergency trip header by means of the piston-operated emergency trip valve. The operation of any turbine trip device, with the resultant loss of auto stop oil pressure will open the emergency trip valve, releasing to drain all the operating fluid beneath the hydraulic piston system. Therefore, all valves capable of admitting steam to the turbines will be closed.

The auto-stop oil is also released when any one of the protective devices, such as low bearing oil pressure trip, low vacuum trip, thrust bearing trip and electrical overspeed trip are actuated.

Provision is made for testing the mechanical overspeed trip device without actually overspeeding the turbine. If the overspeed trip test lever is held to prevent the trip valve from opening, it can be tested without taking the unit off line or removing load. This is accomplished by admitting the oil under pressure to the chamber beneath the trip weight and noting the pressure required to move the weight upward.

pressure gradually to test the cut-in points of the pumps. This test can be carried out during normal operation without affecting the system.

Another pressure switch, which is also connected to the bearing oil line, prevents the turning gear from being started until the bearing oil pressure has risen above 4.3 psig.

Two oil coolers (2 x 100% capacity) are provided, being connected by tandem operated three way valve to switch from one cooler to the other, as desired. The oil inlet to each cooler is connected through a crossover pipe and interchange valve.

- Protective Devices

  Protective devices include the following.

  - Solenoid trip
  - Overspeed trip
  - Low bearing oil pressure trip
  - Low vacuum trip
  - Thrust trip
  - Relief diaphragm to protect low pressure turbine exhaust casing

Detailed descriptions are as follows:

- Solenoid trip

  A solenoid is provided, which releases auto stop oil to drain when energized. The solenoid trip feature permits both remote tripping from the control room or by means of protective relays.

A relief valve is provided in the bearing oil line to compensate for moderate changes in oil requirements.

A check valve between the bearing oil header and the ejector discharge assures isolation of the main oil pump discharge and suction line oil system for maintenance when the unit is on turning gear operation.

Temporary strainers are provided in the oil supply line to the bearings during trial operation following erection, a general inspection or a major repair.

During the start-up and the shutdown periods, oil requirements for lubrication oil system are supplied by an AC motor driven turning oil pump.

As the turbine reaches normal speed, the main oil pump supplies motive oil to the ejector, and the discharge from the ejector then supplies lubricating oil to the bearings, turning gear and suction to the main oil pump.

This turning oil pump is automatically controlled by a pressure switch and will start whenever the bearing oil pressure drops to 11.4 – 12.8 psig

In addition, an emergency oil pump driven by a DC motor is provided as an emergency back-up in case all AC power is lost.

The pump can be started by its own pressure switch which is connected to the bearing oil line.

The switch controlling the DC motor driven emergency oil pump is set to close at 8.5 – 10.0 psig. These pressure switches are provided with a test valve which can bleed off the

LUBRICATING OIL SYSTEM

In order to simplify the description, the lubricating oil system can be divided into two parts, namely:

- Lubrication oil system
- Protective devices

The main oil pump impeller is mounted on the front end of the turbine shaft.

The oil discharged by the main oil pump during normal operation is used for the following purposes:

A. To operate the oil ejector which supplies the main oil pump suction. With a centrifugal type main oil pump, one oil ejector is used to furnish oil to main oil pump inlet (suction) at a positive pressure.

B. To operate another oil ejector which supplies lubrication for the bearings.

C. To provide an oil supply for the following devices;

   i) The overspeed trip device

   ii) Protective trip device

   iii) The high pressure fluid interface emergency trip valve

- Lubrication oil system

  The oil supply for the bearing lubrication system is taken from the ejector discharge, circulated through the oil cooler and routed to the main bearings, the thrust bearing and the turning gear. The ejector discharge pressure is sufficient to assure a positive supply of lubricating oil to the bearings.

A shoulder is formed on the valve stem, and it seats on the lower end of the valve stem bushing when the valve is in its fully open position. This arrangement prevents steam leakage along the stem while the unit is operating with control valves fully open.

The cylindrically shaped steam strainer fits around the valve.

The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

- LP Stop Valve

  The turbine has one LP stop valve, which is driven by on-off control of a actuator.

  A separated steam strainer will be provided on the upstream pipe.

  The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

- LP Control Valve

  The turbine has one LP control valve, which is controlled by hydraulic servomechanism.

  The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

- Reheat Stop Valve

  The turbine has two identical reheat stop valves, which are driven by on-off control of a servomotor.

  The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

- Interceptor Valve

  The turbine has two identical interceptor valves, which are controlled by individual hydraulic servomotors.

  The steam valves are ring sealed plug type valve mounted on the shouldered valve stem.

  The diameters of the upper and lower valve seats of the valve are designed to balance the steam pressure forces acting on the valve. Thus the valve can easily be opened and closed at any pressure.

  When in the closed position, the load of the compression spring acting through the pin and valve stem holds the valve tightly on its seat.

  The valve stem packing consists of a closely fitting bushing provided with a suitable leak-off opening, which should be connected to a zone of lower pressure as determined by the operating steam conditions.

TURBINE VALVES

- HP Stop Valve

  The turbine has two identical HP stop valves ,which are driven by hydraulic servomechanism.

  The cylindrically shaped steam strainer fits around the valve.

  The valve will be provided with full stroke test equipment for smooth closing of the valve while the unit is operating.

- HP Governing Valve

  The turbine has two identical HP governing valves which are controlled by individual hydraulic servomotor. The steam valves are ring sealed plug type valve mounted on a shouldered valve stem.

  The diameters of the upper and lower valve seats are designed to balance the steam pressure forces acting on the valve. Thus, the valve can be easily opened and closed at any pressure.

  When in the closed position, the load of the compression spring acting through the pin and valve stem holds the valve tightly on its seat.

  The valve stem packing consists of a closely fitting bushing provided with a suitable leak-off opening, which should be connected to a zone of lower pressure as determined by the operating steam conditions.

  A shoulder is formed on the valve stem, and it seats on the lower end of the valve stem bushing when the valve is in its fully open position. This arrangement prevents steam leakage along the stem while the unit is operating with governing valves fully open.

Materials of Major Turbine Parts

Materials of Major Turbine Parts are shown in Table 5.1.

Table 5.1 : Materials of Major Turbine Parts※

	Material	ASTM references
HP/IP Turbine		
Casing	CrMo Steel Casting	A217 Gr WC9
Rotor	CrMoV Steel Forging 9%Cr Steel Forging	A470 Class 8 ---
Blade	NiCrMoWV Steel 12%Cr Steel	A565 Grade 616 A276 Type 403
LP Turbine		
Outer Casing	Carbon Steel	A283 Grade C
Inner Casing	Carbon Steel	A283 Grade C
Rotor	NiCrMoV Steel Forging	A470, A471
Blade	12%Cr Steel 17-4PH	A276 Type 403 A564 Type 630

※ Materials may be changed on design stage

The low pressure rotor is connected to the generator by a rigid coupling.

For the two journal bearings of the LP turbine shaft, the self-aligning spherical seated type is adopted in order to obtain good bearing alignment along the shaft.

- LP Casing

  The LP casing consists of a steel plate structure, which prevents the cylinder from distortion due to the temperature differential between the inlet and exhaust.

  The low pressure casing, with a double flow arrangement, has a fabricated cover and fabricated base and is split in the horizontal plane.

  The complete low pressure element is supported by a foot which extends around the casing base. This foot rests on seating plates which are mounted on the foundation. Its location is maintained by four keys between the cylinder foot and the seating plates located as follows:

  A. Two keys, one at each end, are placed axially on the longitudinal center line, which locate the cylinder in a transverse direction, but permit free expansion in an axial direction.
  B. The other two keys, one on each side, are placed transversely on the transverse center line, which locate the casing in an axial direction but permit free expansion in a transverse direction.
  C. As a result, from a point at the center of the exhaust opening, the casing can freely expand in any direction in the horizontal plane at the top of the foundation seating plates.

The outer cylinder and inner cylinder distribute the temperature differential between the inlet and the condenser so as not to impose thermal stress and to prevent distortion of the cylinder.

The use of diffuser type exhaust flow guides and a large exhaust hood configuration minimizes exhaust loss.

- LP Blading

  Initial stage blading with short blades consist of high-performance reaction blades. Careful consideration is given in the low pressure end blade design for prevention of erosion as well as improved performance.

  The moisture, or drip flow, in the blade paths has been investigated and the results have been incorporated into the design of the blade path.

  In addition to these essential improvements, the following devices are adopted for the prevention of erosion.

  A. Sufficient length of a stellite strip is attached to the leading edge of the last rotating blade.
  B. Narrow slits are provided in the flow guide at the top of the last rotating blades, through which moisture from the last stationary blades is extracted to the condenser.

- LP Rotor

  The low pressure rotor is machined from a solid alloy steel forging of high tensile strength with excellent ductility qualities.

At each end, the casing is connected to the adjacent pedestal by a centering beam which is bolted and doweled to the casing and the adjacent pedestal. These beams maintain the correct axial and transverse position of the casing relative to the pedestals.

The front pedestal is free to slide axially on its base, but is held against transverse movement by an axial key placed on the longitudinal center line between it and the base.

Any tendency to tilt or lift is limited by side jigs which are fitted with ample clearance to allow free axial movement.

Any tendency of the casing to slide off the pedestals is limited by a stud bolt through each arm. These bolts are fitted with ample clearance under the nut and around the bolt to allow free movement of the cylinder arms in response to temperature changes.

- Steam Chest

  The steam chests with HP stop valves and HP governing valves are separated from the turbine casing.

- HP Inlet Pipe

  Flexible HP steam inlet pipes connect the HP governing valve and the casing. These pipes are connected to the casing by flexible seal rings which minimize leakage flow and absorb thermal distortion and thermal stress.

LP Turbine

The LP turbine has symmetrical double flow construction.

end to form the thrust bearing collar and to carry the overspeed trip device. The rotor diameters are so selected to provide adequate separation of their critical speeds from the running speed.

The smooth surface geometry is carefully designed to reduce stress concentration for both the transient thermal stress and the bending stress.

HP-IP rotor is connected to the LP rotor by a rigid coupling.

For the No. 1 and No. 2 journal bearings of HP-IP turbine shaft, tilting pad non-whirling type journal bearing is utilized.

The thrust bearing is of the leveling plate type, which automatically distributes the load equally among several shoes.

- Casing

The structural shape of the casings and their support method are carefully designed to obtain free but symmetrical movements due to temperature changes and thereby reduce the possibility of distortion to a minimum.

The HP-IP turbine casing is supported by four lugs which are located at the base. At the generator end, these lugs rest on keys placed between them and the intermediate pedestal and on which the lugs are free to slide. At the governor end, the cylinder lugs are likewise supported on keys placed between them and the front pedestal, which is separate, and are free to slide in the same manner.

5.3 STEAM TURBINE

The turbine generator unit for this particular project offered by Seller is a two cylinder, tandem compound double exhaust, condensing reheat turbine, which consists of a combined High pressure - Intermediate pressure turbine and a double-flow 40 inch Last Blade Height Low pressure turbine (TC2F-40)

The construction of the entire turbine for this particular project is shown in the outline drawing, attached as DWG. NO. T0-A4203.

HP-IP Combined Turbine

The HP turbine and IP turbine are combined into one cylinder, thus forming a compact overall steam turbine. The combined HP-IP turbine is designed to eliminate excessive thermal stress and thermal distortion during start-up and load changes.

The combined HP-IP turbine consists of the following components.

- HP-IP Blading

  The HP-IP stages consist of high-performance reaction blades.

- HP-IP Rotor

  The high-intermediate pressure turbine rotor is proven welded rotor, that is, 9%Cr forged steel for higher temperature zone and CrMoV forged steel for lower temperature zone , both are of excellent creep rupture strength characteristics. A separate stub shaft is bolted to the governor

5. DESCRIPTION

5.2 HEAT RECOVERY STEAM GENERATOR

N/A

5. DESCRIPTION

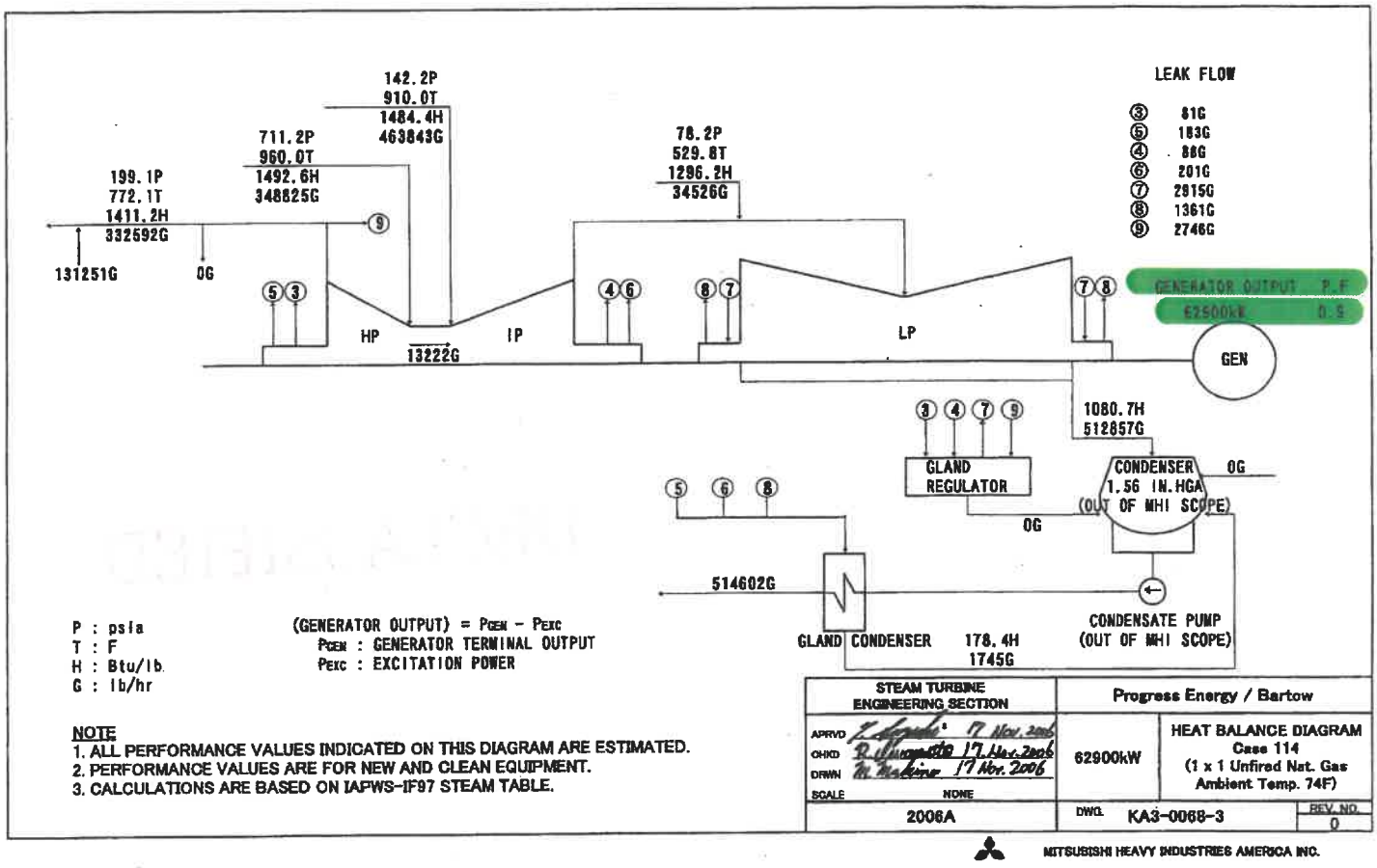
5.1 GAS TURBINE

N/A

4.5 HEAT BALANCE DIAGRAM

Heat Balance Diagram of Steam Turbine

Refer to the drawing KA3-0068-1 Rev.0, KA3-0068-2 Rev.0 and KA3-0068-3 Rev.0.



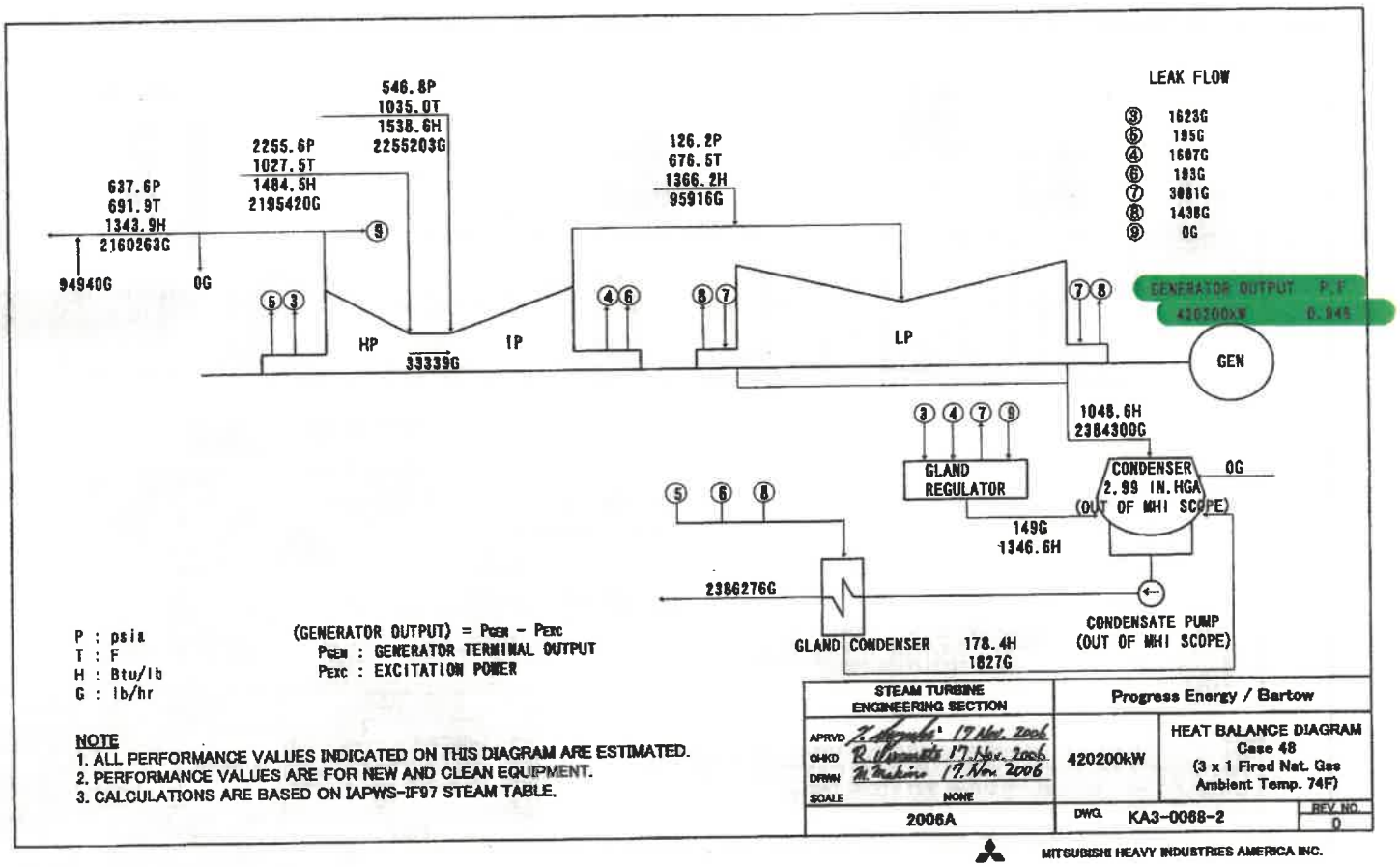
P : psia
T : F
H : Btu/lb
G : lb/hr

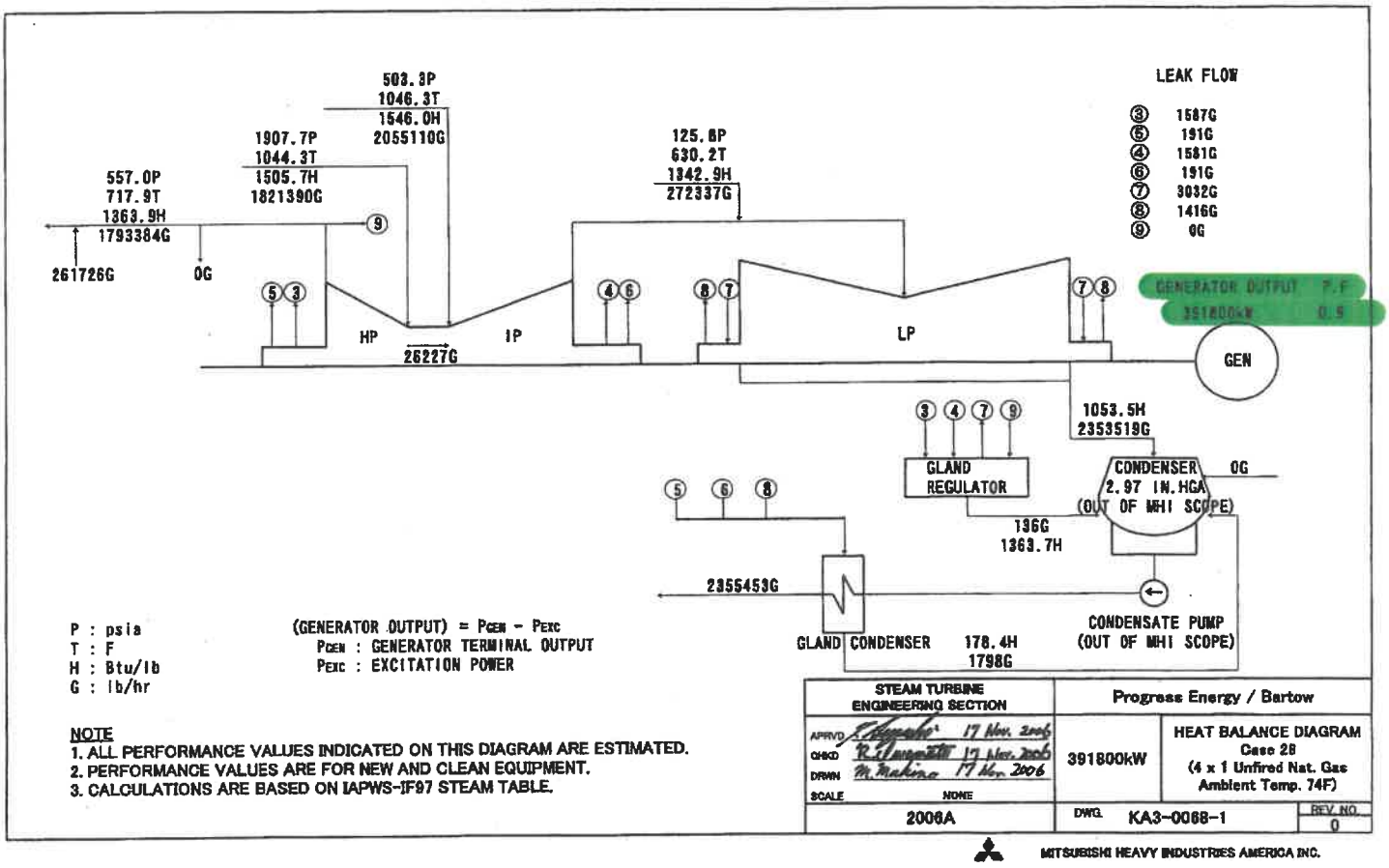
(GENERATOR OUTPUT) = PGEN − PEXC
PGEN : GENERATOR TERMINAL OUTPUT
PEXC : EXCITATION POWER

NOTE
1. ALL PERFORMANCE VALUES INDICATED ON THIS DIAGRAM ARE ESTIMATED.
2. PERFORMANCE VALUES ARE FOR NEW AND CLEAN EQUIPMENT.
3. CALCULATIONS ARE BASED ON IAPWS-IF97 STEAM TABLE.

STEAM TURBINE ENGINEERING SECTION	Progress Energy / Bartow	
APRVD T. Kayaba 17 Nov. 2006	62900kW	HEAT BALANCE DIAGRAM Case 114 (1 x 1 Unfired Nat. Gas Ambient Temp. 74F)
CHKD D. Yamamoto 17 Nov. 2006		
DRWN M. Makino 17 Nov. 2006		
SCALE NONE		
2006A	DWG. KA3-0068-3	REV. NO. 0

MITSUBISHI HEAVY INDUSTRIES AMERICA INC.





P : psia
T : F
H : Btu/lb
G : lb/hr

(GENERATOR OUTPUT) = PGEN - PEXC
PGEN : GENERATOR TERMINAL OUTPUT
PEXC : EXCITATION POWER

NOTE
1. ALL PERFORMANCE VALUES INDICATED ON THIS DIAGRAM ARE ESTIMATED.
2. PERFORMANCE VALUES ARE FOR NEW AND CLEAN EQUIPMENT.
3. CALCULATIONS ARE BASED ON IAPWS-IF97 STEAM TABLE.

STEAM TURBINE ENGINEERING SECTION		Progress Energy / Bartow	
APRVD	17 Nov. 2006	391800kW	HEAT BALANCE DIAGRAM Case 28 (4 x 1 Unfired Nat. Gas Ambient Temp. 74F)
CHKD	17 Nov. 2006		
DRWN	M. Makino 17 Nov. 2006		
SCALE	NONE		
2006A		DWG. KA3-0068-1	REV. NO. 0

MITSUBISHI HEAVY INDUSTRIES AMERICA INC.

Heat Balance Diagram

Heat Balance Diagram of Steam Turbine

Point	GT Load	Duct Firing	Cal. Point	Drawing No.	Rev. No.
Steam Turbine Generator Net Equipment Electrical Output	4 x 100%	OFF	Case28	KA3-0068-1	0
Steam Turbine Generator Net Equipment Maximum Electrical Output	3 x 100%	ON	Case48	KA3-0068-2	0
Steam Turbine Generator Net Equipment Minimum Electrical Output	1 x 70%	OFF	Case114	KA3-0068-3	0

4.4 AUXILIARY POWER CONSUMPTION

List of Load for Auxiliary Power Consumption for Seller's Equipment

O : Included

	Equipment	
ST	Gland Condenser Exhaust Fan	O
	Lub. Oil Purifier Circulating Pump	O
	EH Control Oil Pump	O
	Vapor Extractor	O
	Control Power	O
ST GEN	Seal Oil Pump	O
	GEN Vacuum Pump	O
	Vapor Extractor	O
	Purity Meter Blower	O
	Excitation Cubicle	O
	AVR Cubicle	O
	GEN Control Panel	O
	Protection Relay Panel	O
	H2 Gas and Seal Oil Control Panel	O
	PT/SA Cubicle	O

4. PERFORMANCE

4.3 PERFORMANCE TEST PHILOSOPHY

4) HP Steam Pressure at HPSV inlet
5) HP Steam Temperature at HPSV inlet
6) RH Steam Temperature at RSV inlet
7) LP Steam Pressure at LPSV inlet
8) LP Steam Temperature at LPSV inlet
9) Reheater and Reheat Steam Piping Pressure Drop
10) Steam Turbine Back Pressure
11) Make-up Flow
12) Auxiliary Steam Flow
13) Generator Power Factor
14) Generator H2 Gas Pressure
15) Degradation of Steam Turbine**

* Seller can provide the feedwater condensate flow nozzle with the calibration result, Watt-Hour meter and other special instruments as an option.

** A deterioration correction will be applied if the first synchronization is not achieved within twenty-four (24) months from the shipment from Japan. The deterioration correction shall not exceed 0.1%.

If the test is not carried out within sixty(60) days after the first synchronization, then Section 8.9 Degradation Factor will be applied.

4.3 PERFORMANCE TEST PHILOSOPHY

· In order to obtain the main/reheat/LP steam flow, the measured flow rate of each feedwater and/or steam line will be utilized. The flow measuring instruments of these portions are subjected outside Seller's portion.

The gross flow will be measured by the feedwater condensed flow nozzle and this gross flow will be separated into the HP steam, IP steam and LP steam flow by using the flow ratio obtained through the feedwater and/or steam flow measurement results.
If a certain steam flow rate is required in order to obtain the HP/IP/LP steam flow, the steam flow measuring device will be supplied by others except for Seller. As for this steam flow measurement device, Seller will review the specification of the instrument, transmitter and data acquisition system and the accuracy ,etc. prior to the test.

· The instruments of below points are subjected to others except for Seller. Seller will review the specification of the instrument, transmitter and data acquisition system and accuracy, etc. prior to the test.
HP steam pressure and temperature
HP turbine exhaust steam pressure and temperature
RH steam pressure and temperature
LP steam pressure and temperature
Feedwater flow, pressure and temperature

· As for the LP exhaust pressure, the basket tip based on the PTC-6 will be provided by Seller and this pressure will be used.
· The electrical power will be measured by Mitsubishi Electric Corporation.

4. Corrections

The measured data will be corrected by below items.

1) HP Steam Flow
2) IP Steam Flow (IP SH Outlet)
3) LP Admission Steam Flow

4.3 PERFORMANCE TEST PHILOSOPHY

Steam Turbine Performance Test Philosophy

1. Introduction

This issue describes the basic items which should be agreed by both parties (the Buyer and Seller) before issuing the "Performance Test Procedure". As a rule, the procedure will be established under the concept of measuring the steam turbine guaranteed condition being not to measure the whole unit performance including the Gas Turbine and HRSG.

2. Test Code

The test will be carried out mainly based on ASME PTC-6 1996. The final procedure will be fixed with the "Performance Test Procedure" written by Seller and approved by Buyer.

3. Role of the Parties

3.1 Evaluation

Both parties will share all data and make an evaluation. The final result will be established by mutual agreement.

3.2 Instrumentation

- Buyer will provide the special instruments, wiring and data acquisition system within the supply boundary including the feedwater condensate flow nozzle*.
- Buyer will provide the calibration record of the special instruments within the supply boundary*.
- The feedwater condensate flow nozzle, which might be installed downstream of the gland steam condenser, must be calibrated. The calibration of this flow nozzle will be done by a third party authority.*

  Also, the special care should be taken to the location, straight pipe length and the adoption of the flow straightener, etc. according to ASME PTC-6.

  The specification of the nozzle, piping routine around the nozzle and the calibration result will be reviewed by Seller.
- Seller requires to prepare the temporary PT/CT connection at Watt-Hour meter.*

4.2 PERFORMANCE DATA

Steam Turbine Performance

Operating Point	Case 28	Case 48
Frequency	60Hz	
Generator Power Factor	0.90	0.949
HRSG Drum Blowdown	0%	
Duct Firing	OFF	ON
HP Steam Flow ($x10^3$lb/h)	1,821.39	2,195.42
IP Steam Flow (IP Drum Outlet) ($x10^3$lb/h)	261.726	94.94
LP Admission Steam Flow ($x10^3$lb/h)	272.337	95.916
HP Steam Pressure at HPSV Inlet (psia)	1,907.7	2,255.6
HP Steam Temperature at HPSV Inlet (°F)	1,044.3	1,027.5
Reheater and Reheat Steam Piping Pressure Drop (%)	9.65	14.25
RH Steam Temperature at RSV Inlet (°F)	1,046.3	1,035.0
LP Admission Steam Pressure at LPSV Inlet (psia)	125.8	126.2
LP Admission Steam Temperature at LPSV Inlet (°F)	630.2	676.5
Condenser Vacuum *2 [ST Back Pressure at terminal point]	2.97 inHg	2.99 inHg
Gross Steam Turbine Output (MW) *1	391.8	420.2
Auxiliary Power Consumption For ST/STG *1	130kW	130kW
Auxiliary Cooling Water Temperature (°F) *3	105	105
Remarks		

*1 : The value given are based on New and Clean condition.
*2 : ST back pressure will be measured by basket tips
*3 : The value given are based on Seller's estimation.

4. PERFORMANCE

4.1 PERFORMANCE DESIGN CONDITION

Steam Turbine Generator Performance Design Condition

Steam Turbine Generator performance is based on the design conditions and plant performance parameters as indicated in the Steam Turbine Performance Diagram.
If any of the equipment, arrangement, performance parameters, etc. are changed or if there is a difference in performance of the equipment under Buyer's scope, the steam turbine performance also will be changed.

These performance parameters are based on the reference Heat Balance Diagrams of Combined Cycle Operation.
The steam turbine and its generator have been designed and manufactured under the conditions of these reference Heat Balance Diagrams. Any changes and/or modifications to this proposal must be carefully studied by both the Buyer and the Seller.
Seller has a right to reject the unacceptable changes and/or modifications against these reference Heat Balance Diagrams.

3.3 BASIS FOR GUARANTEED PERFORMANCE

1. Definition of MPS Net Steam Turbine Electrical Output

   "MPS Net Steam Turbine Electrical Output" is calculated as the following conditions

   P_{NST} ; MPS Net Steam Turbine Electrical Output

   P_G ; Gross output (= Generator terminal output)

   P_{AST} ; Auxiliary Power Consumption for ST and STG's Auxiliaries. (Please refer to 4.4)

   $P_{NST} = P_G - P_{AST}$

2. The guaranteed values are based on each equipment being a new and clean conditions, not contaminated. Degradation shall be determined from Seller's degradation curve for the steam turbine equipment based on ASME PTC-6.

3. Corrections shall be applied to the test result for any deviations of the test conditions from those specified. Correction factors for deviations of the operating conditions may be in the form of curves or numerical values. Correction factors will be submitted prior to the acceptance test.

3.2 GUARANTEED PERFORMANCE and other GUARANTEES for ACCEPTANCE TEST

The test shall be performed under the conditions described in Section 2.2.3 of Appendix C. In case that the ramp rate of Steam Turbine Unit is limited by the other party's equipment, the Demonstration Guarantee is changed to the allowable ramp rate of power plant. The ramp rates are based on conditions stated on the following ranges:

1. HP Steam Temperature Deviation during load ramp
   +25 °F/-14 °F from initial temperature* of load ramp
2. RH Steam Temperature Deviation during load ramp
   +25 °F/-14 °F from initial temperature* of load ramp
3. LP Admission Steam Temperature Deviation during load ramp
   +25 °F/-14 °F from initial temperature of load ramp

Note*: If initial temperature exceeds 1,050.8 °F, the temperature limit of high side is 1,076 °F.

3.2.5.7 The conditions applicable to the Demonstration Guarantee for Steam Turbine Unit Trip Capability are:

The test shall be performed under the conditions described in Section 3.2.1 of Appendix-C.

Steam turbine exhaust pressure and temperature should be controlled to be less than the limitation specified in Section 5.3.

3.2.5.8 The conditions applicable to the Availability Guarantee are:

The test shall be performed under the conditions described in Section 2.3 of Appendix C.

3.2 GUARANTEED PERFORMANCE and other GUARANTEES for ACCEPTANCE TEST

3.2.5.3 The conditions applicable to the Noise Levels are:

The maximum surface noise of equipment (excluding unsteady conditions like start-up, shut-down, trip, etc. and intermittent and/or emergency use equipment such as safety valve systems etc.) at a distance of 3.3 feet (1 meter) from the source and at a height of 4 feet (1.2 meters) will not exceed 85 dB(A) with exception of specific equipments listed in Section 8.11 of Appendix A. The maximum surface noise of such equipments will not exceed those sound pressure levels listed in Section 8.11 of Appendix A when measured 3.3 feet (1 meter) from the source and at a height of 3.9 feet (1.18 meters). Overall far field noise will be guaranteed separately by EPC Contractor. No noise restrictions are applicable to construction activities

3.2.5.4 The conditions applicable to the Demonstration Guarantee for Minimum Load are:

Two (2) hours demonstration test is required.

Steam Turbine Unit inlet temperature will be adjusted to the following operational limits:

1. HP Steam Temperature	960°F +0/-50°F
2. RH Steam Temperature	910°F +0/-50°F
3. Temperature Deviation between HP and RH Steam	+/-50°F
4. Backend max temp	160°F

Note:
If each steam flow rate is changed, Seller reserves the right to modify the temperature limit.

3.2.5.5 The conditions applicable to the Demonstration Guarantee for Steam Turbine Generator Operations (Lead Lag) are:

The test shall be performed under the conditions described in Section 2.2.2.

3.2.5.6 The conditions applicable to the Demonstration Guarantee for the Steam Turbine Load Ramp Rate are:

3. GUARANTEES

3.2 GUARANTEED PERFORMANCE and other GUARANTEES for ACCEPTANCE TEST

3.2.5.2 Liquidated Damage Performance Guarantee for MPS Net Steam Turbine Maximum Electrical Output are based on conditions stated in Section 3.3 and to the following:

1.	HP Steam Flow	2,195,420 lb/h
2.	IP Steam Flow (IP Superheater Outlet)	94,940 lb/h
3.	LP Admission Steam Flow	95,916 lb/h
4.	HP Steam Pressure	2,255.6 psia at HP SV Inlet
5.	HP Steam Temperature	1,027.5 °F at HP SV Inlet
6.	Reheater and Reheat Piping Pressure Drop	14.25%
7.	Reheat Steam Temperature	1,035.0 °F at IP SV Inlet
8.	LP Admission Steam Pressure	126.2 psia at LP SV Inlet
9.	LP Admission Steam Temperature	676.5 °F
10.	LP Exhaust Pressure	2.99 inHg abs. At LP Casing Outlet
11.	Make-up Water Flow	0%
12.	Auxiliary Steam Flow except Steam Turbine Gland Seal Steam	0 lb/h

The commercial test tolerance for the MPS Net Steam Turbine Maximum Electrical Output guarantee will have a range from a minimum of 1.8% to a maximum of 2.0%. The commercial test tolerance includes measurement uncertainty and will be based on actual instruments used during the testing. If the measurement uncertainty does not exceed +/- 1.5%, 1.8% of commercial test tolerance will be applied as the commercial test tolerance. If the measurement uncertainty is between 1.5% and 1.7%, measurement uncertainty plus 0.3% will be applied as the commercial test tolerance. Buyer will prepare a list of steam turbine instruments, test instruments, and the calculated measurement uncertainty. Buyer shall implement the testing method if the calculated measurement uncertainty is equal to or less than 1.5%. If the calculated measurement uncertainty is greater than 1.7%, then the Seller shall make recommendations for testing that shall establish a new calculated measurement uncertainty which is less than 1.7%. Buyer shall then have the option to implement the new testing instrumentation recommendations for conducting the Performance Test or allowing the commercial test tolerance to exceed 2.0%.

Degradation will be considered as provided in and Section 8.9.

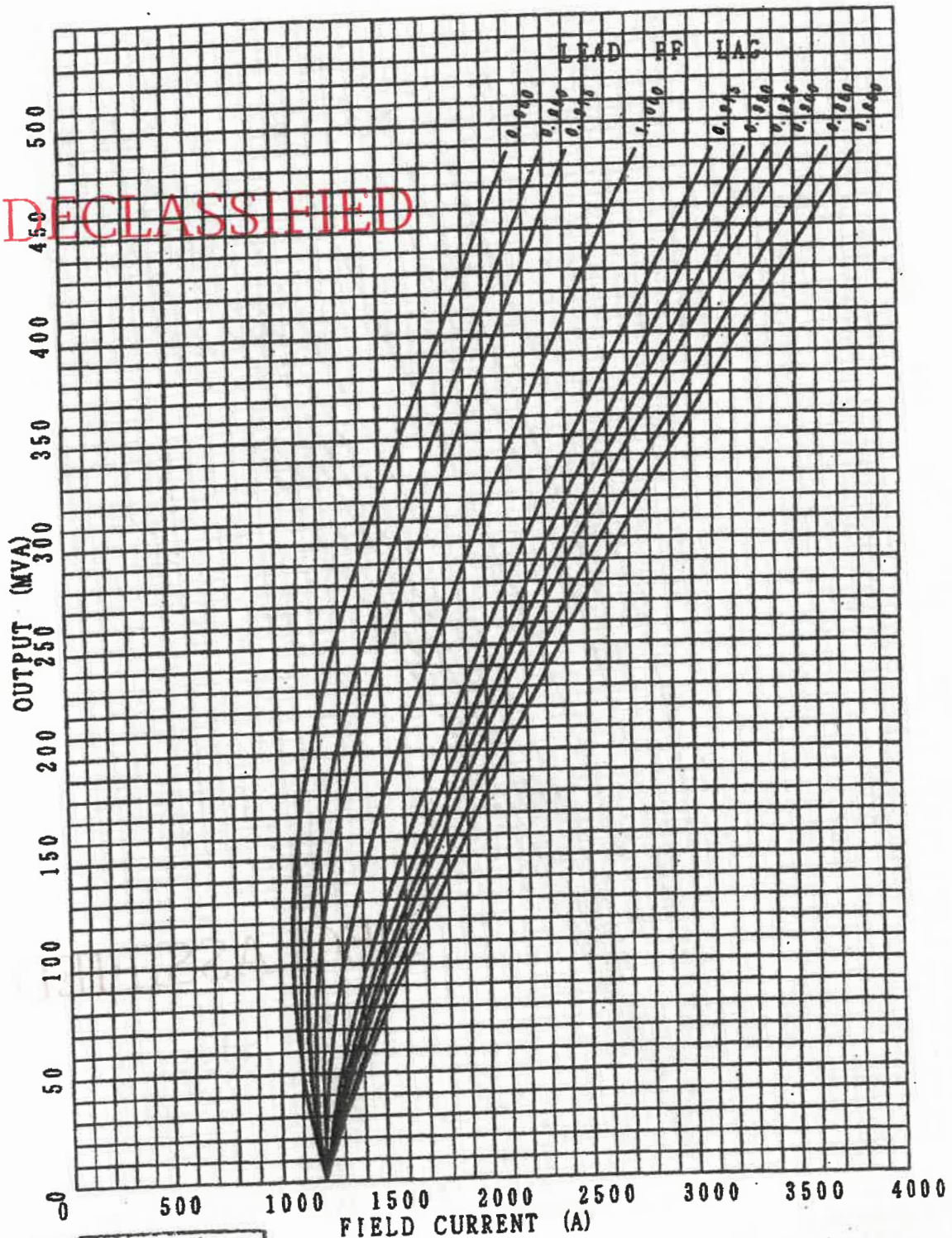
3.2 GUARANTEED PERFORMANCE and other GUARANTEES for ACCEPTANCE TEST

1.	HP Steam Flow	1,821,390 lb/h
2.	IP Steam Flow (IP Superheater Outlet)	261,726 lb/h
3.	LP Admission Steam Flow	272,337 lb/h
4.	HP Steam Pressure	1,907.7 psia at HP SV Inlet
5.	HP Steam Temperature	1,044.3°F at HP SV Inlet
6.	Reheater and Reheat Piping Pressure Drop	9.65%
7.	Reheat Steam Temperature	1,046.3 °F at IP RSV Inlet
8.	LP Admission Steam Pressure	125.8 psia at LP SV Inlet
9.	LP Admission Steam Temperature	630.2 °F
10.	LP Exhaust Pressure	2.97 inHg abs. At LP Casing Outlet
11.	Make-up Water Flow	0%
12.	Auxiliary Steam Flow except Steam Turbine Gland Seal Steam	0 lb/h

The commercial test tolerance for the MPS Net Steam Turbine Electrical Output guarantee will have a range from a minimum of 1.8% to a maximum of 2.0%. The commercial test tolerance includes measurement uncertainty and will be based on actual instruments used during the testing. If the measurement uncertainty does not exceed +/- 1.5%, 1.8% of commercial test tolerance will be applied as the commercial test tolerance. If the measurement uncertainty is between 1.5% and 1.7%, measurement uncertainty plus 0.3% will be applied as the commercial test tolerance. Buyer will prepare a list of steam turbine instruments, test instruments, and the calculated measurement uncertainty. Buyer shall implement the testing method if the calculated measurement uncertainty is equal to or less than 1.5%. If the calculated measurement uncertainty is greater than 1.7%, then the Seller shall make recommendations for testing that shall establish a new calculated measurement uncertainty which is less than 1.7%. Buyer shall then have the option to implement the new testing instrumentation recommendations for conducting the Performance Test or allowing the commercial test tolerance to exceed 2.0%.

Degradation will be considered as provided in Section 8.9.

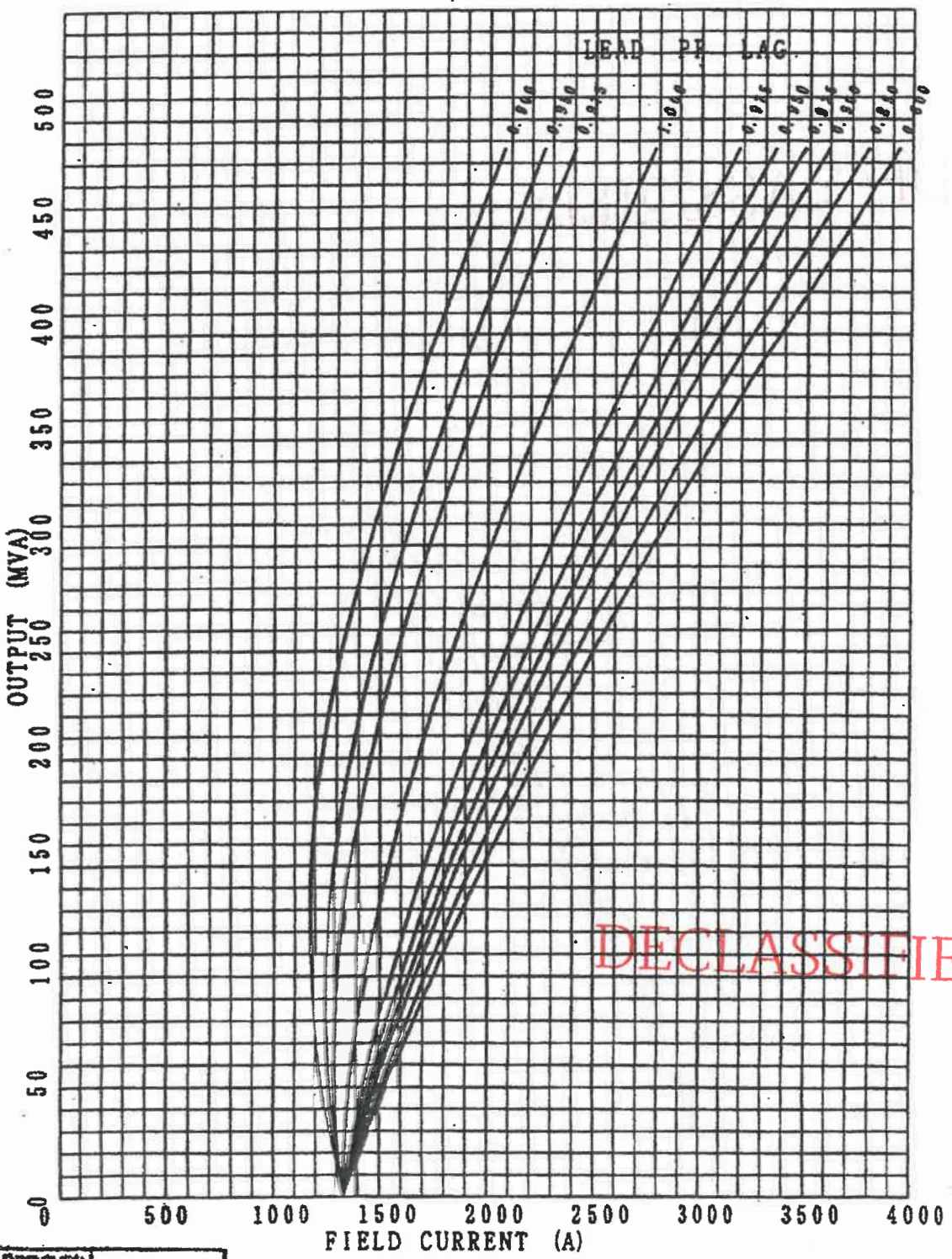
TENASKA ALABAMA IVPARTNERS,L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR
468000KVA, 421200KW, 18.00KV, 60HZ, 3600MIN^{-1},
0.900PF, 435VEXC, 0.50MPag GAS PRESSURE
HYDROGEN-COOLED TURBINE GENERATOR
V-CURVE VOLTAGE 18.00 KV



TENASKA ALABAMA IVPARTNERS,L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR

468000KVA, 421200KW, 18.00KV, 60HZ, 3600MIN^{-1},
0.900PF, 435VEXC, 0.50MPag GAS PRESSURE

HYDROGEN-COOLED TURBINE GENERATOR
V-CURVE VOLTAGE 18.90 KV



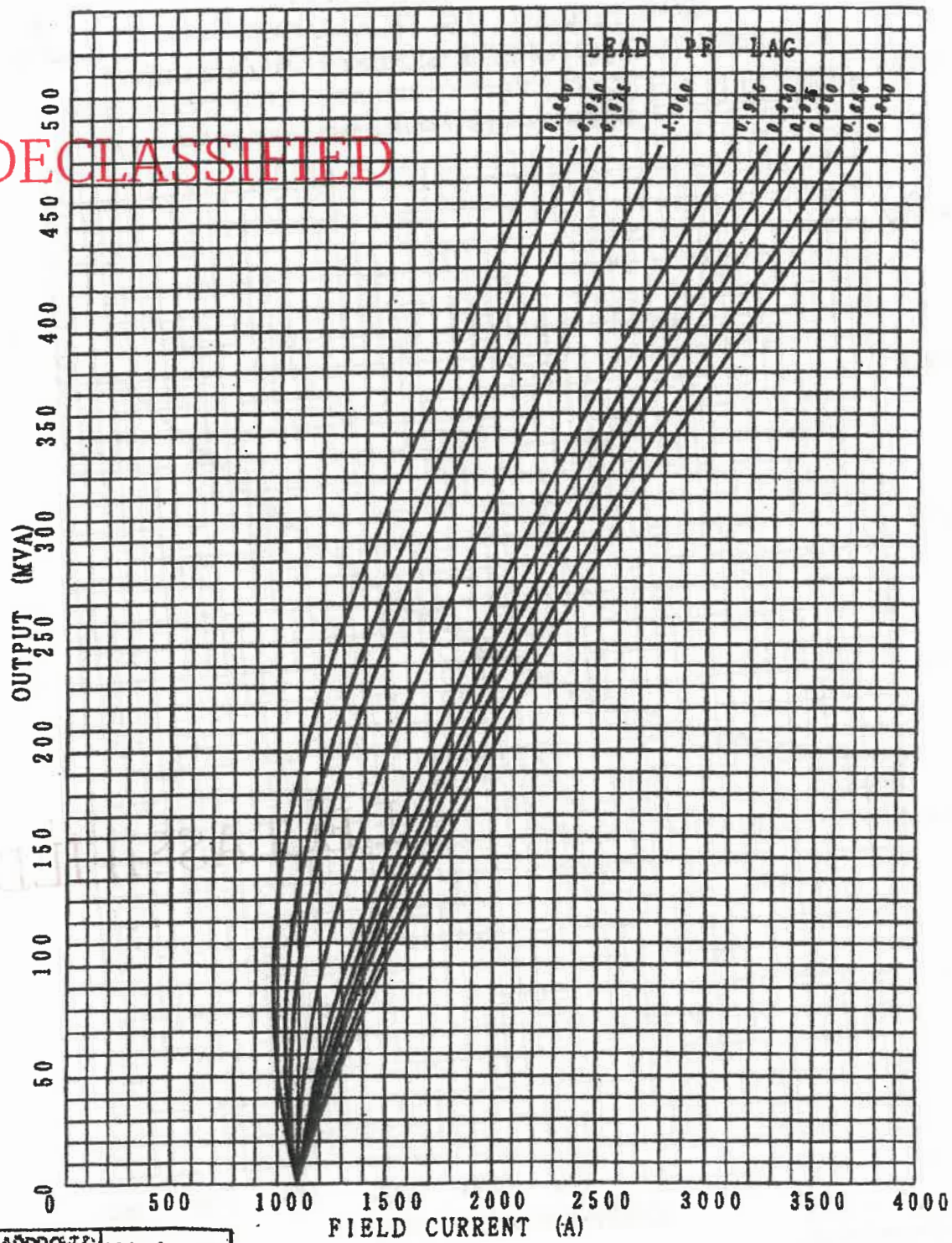
APPROVED	
CHECKED	T. Kuroda
DESIGNED	

KC8170[illegible]

TENASKA ALABAMA IV PARTNERS,L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR

468000KVA, 421200KW, 18.00KV, 60HZ, 3600MIN^{-1},
0.900PF, 435VEXC, 0.50MPag GAS PRESSURE

HYDROGEN-COOLED TURBINE GENERATOR
V-CURVE VOLTAGE 17.10 KV

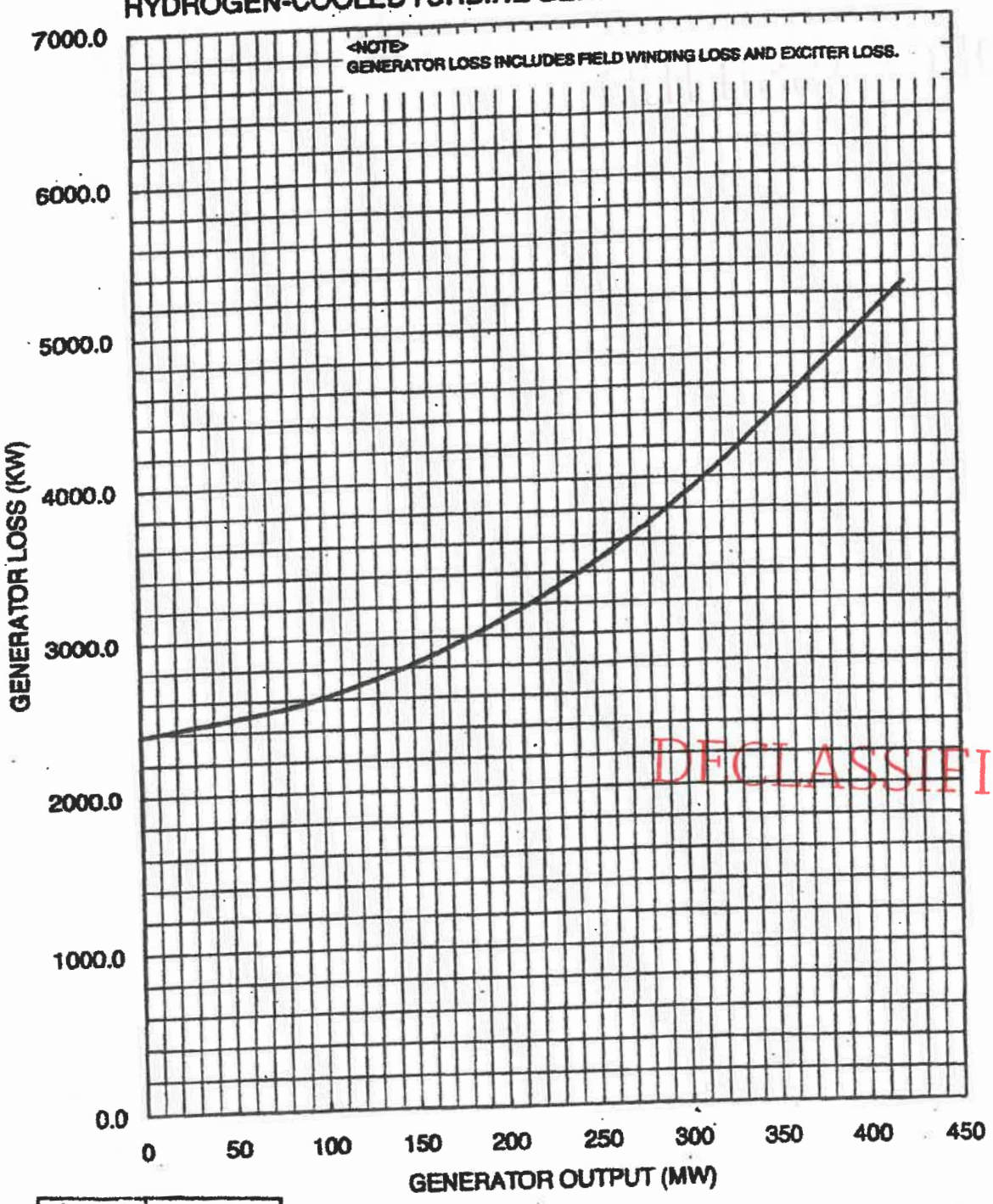


APPROVED	M. Nakamura
CHECKED	T. Kaneta
DESIGNED	S. Tomita

KC917038

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR

468,000MVA, 421,200 KW, 18.0 kV,
60 Hz, 3600 min^{-1}, 0.90 PF, 435V EXC.
HYDROGEN-COOLED TURBINE GENERATOR LOSS CURVE

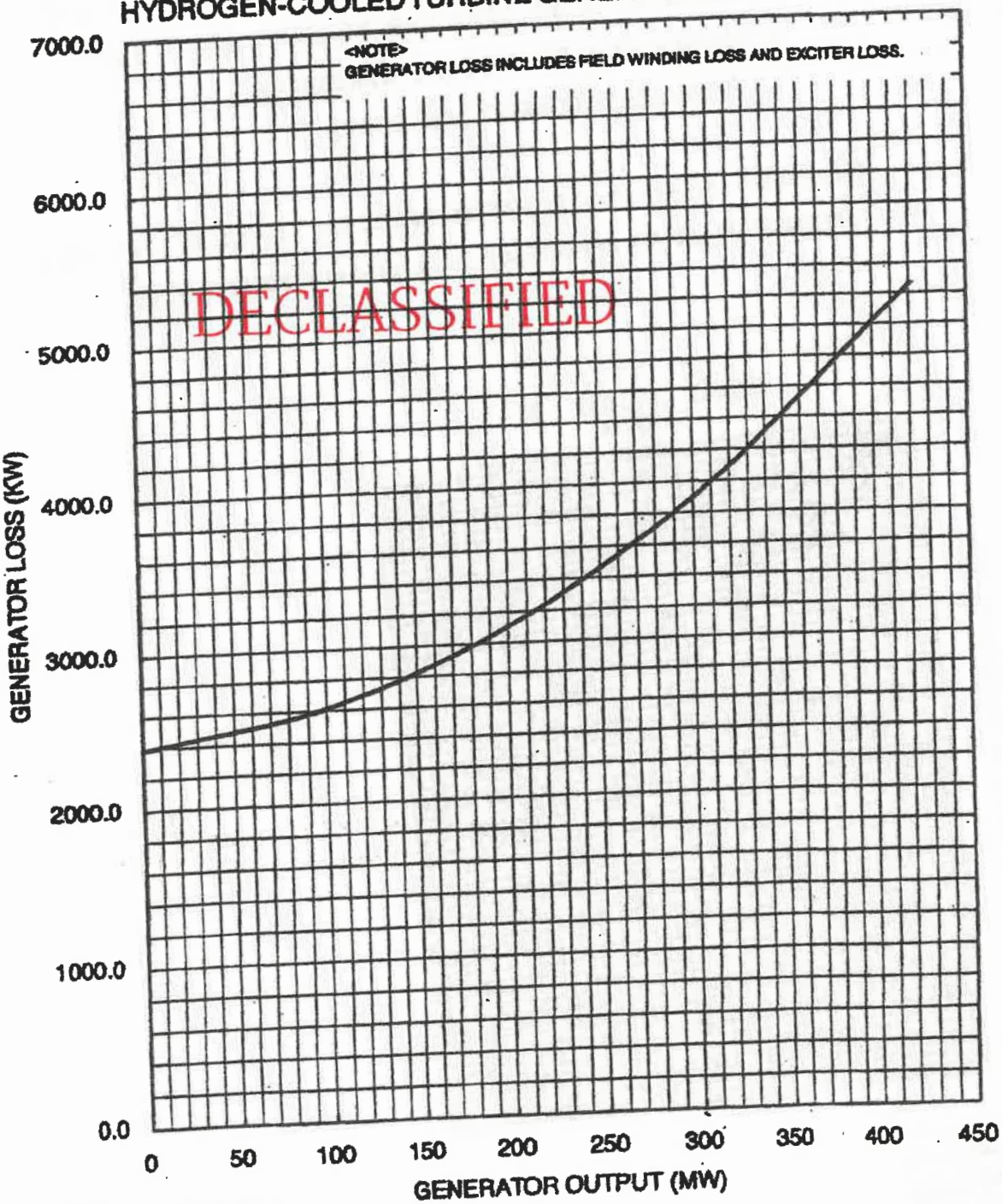


APPROVED	
CHECKED	
DESIGNED	

TENASKA ALABAMA IV PARTNERS,L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR

468,000MVA, 421,200 KW, 18.0 kV,
60 Hz, 3600 min^{-1}, 0.90 PF, 435V EXC.

HYDROGEN-COOLED TURBINE GENERATOR LOSS CURVE



APPROVED	
CHECKED	
DESIGNED	

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLANDEGA GENERATING STATION
STEAM TURBINE GENERATOR

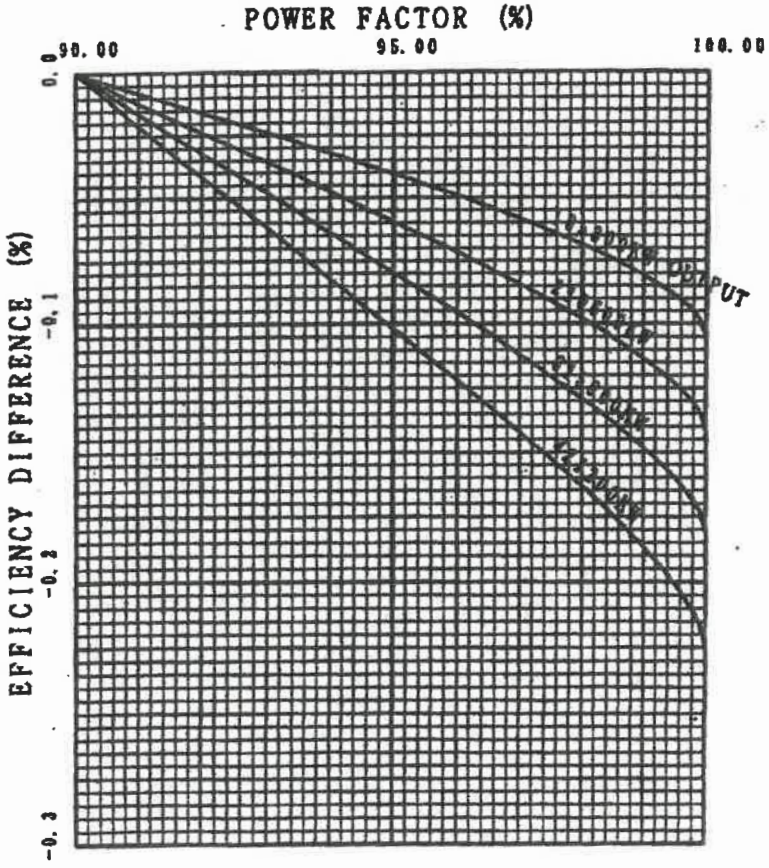
468000 KVA, 421200 KW, 90.00 % PF, 60 HZ, 3600 MIN^{-1}

18 KV, 15011 A, 0.50 MPag GAS PRESS., 435 V EXC.

HYDROGEN-COOLED TURBINE GENERATOR

EFFICIENCY CORRECTION CURVE

EFFICIENCY AT 90.00 % PF CAN BE ESTIMATED BY ADDING EFFICIENCY DIFFERENCE VALUE TO EFFICIENCY AT A CERTAIN POWER FACTOR.



APPROVED	[illegible]
CHECKED	T. Kondo
DESIGNED	J. Imai 04.11.24

8. ADDITIONAL ENGINEERING INFORMATION

8.14 Generator and Exciter Data for Inter Connection Study

MITSUBISHI ELECTRIC CORPORATION

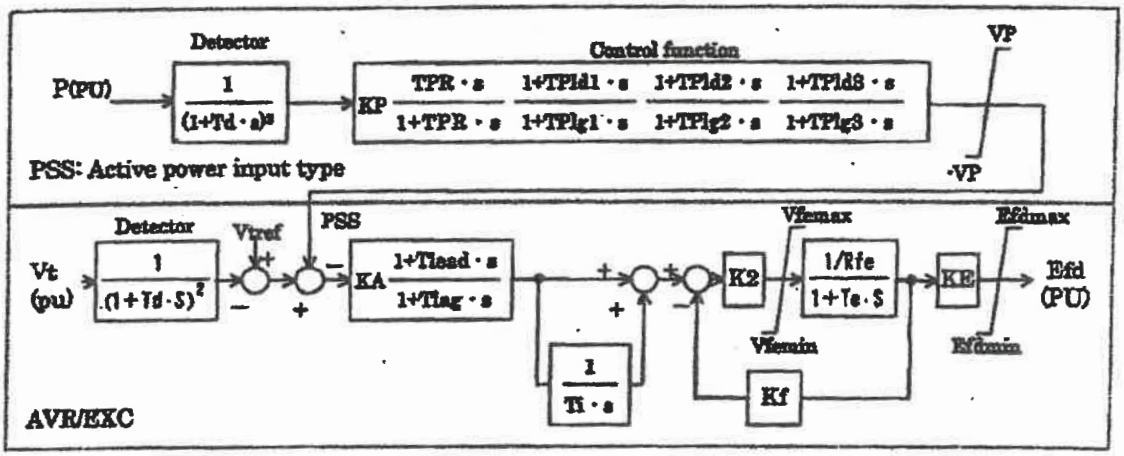
TECHNICAL CORRESPONDENCE SHEET

☐ COMMENT
☐ QUESTION
☐ REPLY
■ INFORMATION

Ref.No.EVNA61-ES01
Date 5 June 2001
Approved K. Enoba
Checked S. Iwata
Drawn K.Morita

SUBJECT : USA TENASKA M501F 3on1 C/C
REF : TRANSFER FUNCTION DIAGRAM of EXCITATION SYSTEM

We would like to inform you the transfer function diagram of Excitation system in the MELCO's model as follows:



Base of 1(pu):
Vtref, Vt : Rated generator terminal voltage
Efd : Field voltage at generator no-load and rated voltage

AVR/EXC Constants(Data for GTG/STG)

Symbol	Value	Unit	Symbol	Value	Unit	Symbol	Value	Unit
Td	0.004	sec	K2	324/337.5	pu/pu	Vfemax	155/162	pu
KA	118.5/79.1	pu/pu	Kf	0.129/0.026	pu/pu	Vfemin	-118/-118	pu
Tlead	0.75/1.94	sec	Rfe	4.65/0.978	pu/pu	Efdmax	5.0	pu
Tlag	1.9/8.65	sec	Te	0.46/1.11	sec	Efdmin	0	pu
Ti	20	sec	KE	0.182/0.067	pu/pu			pu

PSS Constants * (Data for GTG/STG)

Symbol	Value	Unit	Symbol	Value	Unit	Symbol	Value	Unit
Td	0.004	sec	TPlg1	1.2/1.4	sec	TPlg3	0.05/0.04	sec
Kp	1.0	pu/pu	TPld2	0.12/0.14	sec	VP	0.05	pu
TRP	1.5	sec	TPlg2	0.05/0.04	sec			
TPld1	0.12/0.14	sec	TPld3	0.12/0.14	sec			

*This PSS setting were designed by using typical data of 0.8 p.u. (at machine base) for external reactance.

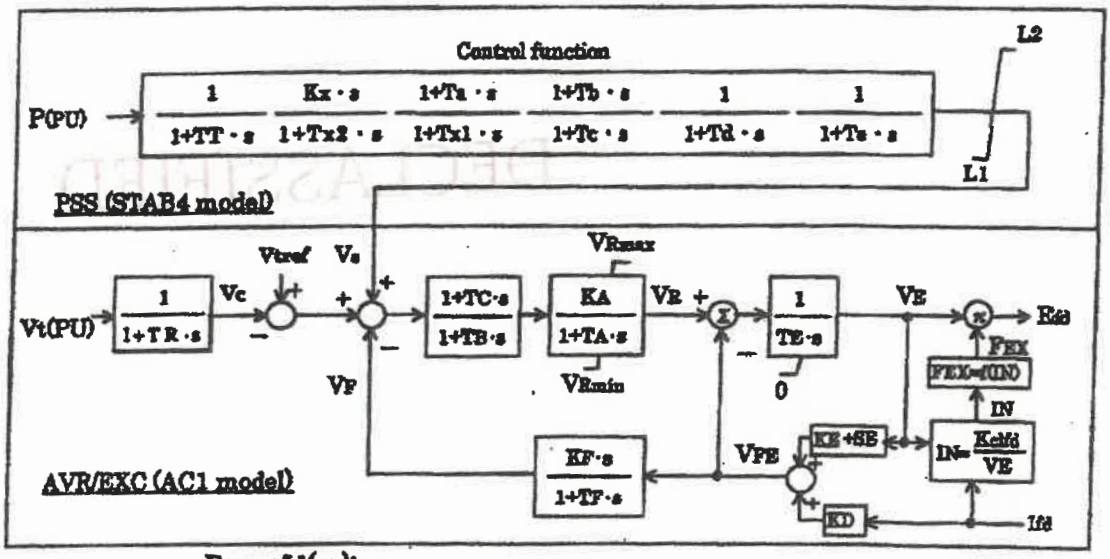
MITSUBISHI ELECTRIC CORPORATION

TRANSFER FUNCTION DIAGRAM of EXCITATION SYSTEM for USA TENASKA C/C

(The model converted the MELCO's model into the IEEE model)

The transfer function converted the MELCO's model into the IEEE model is shown as follows:

- AVR/EXC model ··· IEEE AC1 model.
- PSS model ··· IEEE STAB4 model



Base of 1(pu):

Vref, Vt : Rated generator terminal voltage

Efd : Field voltage at generator no-load and rated voltage

AVR/EXC Constants (Data for GTG/STG)

Symbol	Value	Unit	Symbol	Value	Unit	Symbol	Value	Unit
TR	0.004	sec	KF	0.0	pu/pu	KE	1.0	
TB	1.9/6.65	sec	TF	1.0	sec	E1	0.75	pu
TC	0.75/1.94	sec	VRMAX	6.1/11.0	pu	SE(E1)	0.04/0.056	pu
KA	143.8/182.0	pu/pu	VRMIN	-4.4/-5.1	pu	E2	1.0	pu
TA	0.004	Sec	KC	0.43/0.21		SE(E2)	0.12/0.32	pu
TE	0.05/0.11	sec	KD	1.07/0.31	pu			

PSS Constants* (Data for GTG/STG)

Symbol	Value	Unit	Symbol	Value	Unit	Symbol	Value	Unit
TT	0.01	sec	Tx1	1.2/1.5	sec	Te	0.01	sec
Kx	1.41/1.32	pu/pu	Tb	0.15/0.21	sec	L1	0.05	pu
Tx2	1.5	sec	Tc	0.01	sec	L2	-0.05	pu
Ta	0.15/0.21	sec	Td	0.01	sec			

*This PSS setting were designed by using typical data of 0.3 p.u. (at machine base) for external reactance.

8. ADDITIONAL ENGINEERING INFORMATION

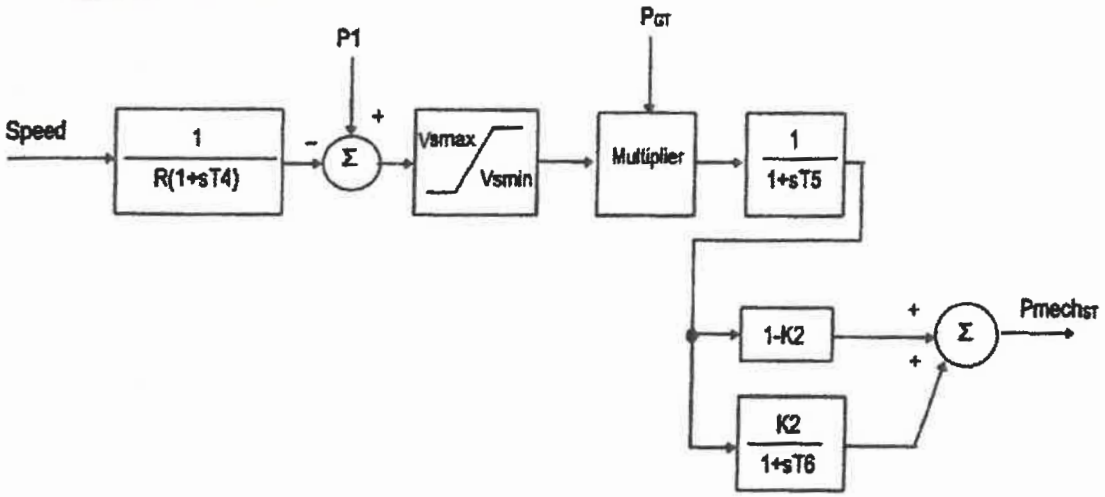
8.15 Governor Model for Steam Turbine

Steam Turbine Governor Model

For Steam Turbine (Reheat) of 3 on 1 C/C system

1.	Controller Lag Time Constant	T4=	0.1	second
2.	Time due to ST Governing delay	T5=	0.7	second
3.	Reheater Delay Time Including IP-LP Turbine Cross-over Pipes and LP end Hoods	T6=	5.7	second
4.	Maximum Valve Position	Vsmax=	1.05	
5.	Minimum Valve Position	Vsmin=	0.0	
6.	Speed Droop	R=	0.05	
7.	Fraction	K2=	0.83	

Block Diagram



P_{GT} represents thermal output from 3 HRSGs which depends on each GT.

P_{GT} is 1.0 in case of the full power.

8. ADDITIONAL ENGINEERING INFORMATION

8.16 Sub-vender List

Sub-vender List for steam turbine portion is attached hereinafter.

Regarding the generator portion, please refer to the following Document;

- GAE-EC-E140 Rev.B, SUB-VENDOR LIST (GENERATOR PORTION)

8.17 Tool List

Please refer to the following Documents;
- T4-A7250 R-0, SPECIAL TOOL LIST
- GAE-EC-E132 Rev.A, SPECIAL TOOL LIST (GENERATOR PORTION)

8. ADDITIONAL ENGINEERING INFORMATION

8.18 Terminal Point List

Please refer to the following Drawings;

- T4-A6891 R-1, CONTRACT INTERFACE
- ABH-L6112B Rev.E TURBINE GENERATOR TERMINAL POINT LIST

8. ADDITIONAL ENGINEERING INFORMATION

8.19 Hazardous Area Classification

Please refer to the following Document;

- T4-A6892 R-1, HAZARDOUS AREA CLASSIFICATION

8.20 Generator Rotor Removal Plan

Please refer to the following Drawings;

- AL74344 Rev.A, TURBINE GENERATOR ANCHOR FOR PULLING OUT ROTOR (FOR STEAM TURBINE)

8.21 Codes and Standards

Codes and Standards for ST

The equipment and materials to be furnished will be in accordance with the following codes and standards. If these conditions should be changed, the design, equipment and materials will be influenced and thereby the price shall be adjusted.

Item	Design	Material	Test
Steam turbine	IEC, JIS, MS	JIS, MS	MS
Gland steam Condenser	ASME	ASME	ASME
Control system	NEMA - C, MS IEC	JIS, MS	MS
Oil cooler	TEMA - C, JIS, MS, ASME	JIS, MS,ASME	MS,ASME
Oil pump	JIS, MS	JIS, MS	JIS, MS
Oil reservoir	JIS, MS	JIS, MS	MS
Oil conditioner	JIS,MS	JIS,MS	MS
Vapor extractor	JIS, MS	JIS, MS	MS
Gland condenser fan	JIS, MS	JIS, MS	MS
Generator	ANSI	JIS, MS	ANSI, MS
Motor	NEMA/IEEE, IEC ***ANSI,*** JIS, JEC, ***RIIS***	JIS, MS	JEC, JIS, ***RIIS***, MS
Panel	NEMA, IEC, MS ***ANSI, JIS, JEC, JEM***	JIS, MS	MS
Piping and valves	JIS*or ANSI	JIS or ASTM	—
Instruments	MS	JIS	—
Bolts & Nuts	ISO Metric (Terminal=ANSI)	JIS	

* Connection at terminal point between the Purchaser and the Vendor will be designed in accordance with ANSI.

NOTE 1

JIS	:	Japanese Industrial Standard
ANSI	:	American National Standard Institute
NEMA	:	National Electrical Manufacturers Association
TEMA	:	Tubular Exchanger Manufacturers Association
IEC	:	International electrotechnical committee
JEC	:	Japanese electrotechnical committee
JEM	:	*Japan Electrical Manufacturer's Association*
IEEE	:	Institute of Electrical and Electronic Engineers
HEI	:	Heat exchange institute standards
ASTM	:	American Society for Testing and Materials
RIIS	:	*The Research Institute of Industrial Safety (JAPAN)*
MS	:	Manufacturer's Standard Practice

3-7 Abridged Standard of Steel Pipes, Tubes, Plates, and Materials and Cast and Forged Steel Products

(For the allowable tensile stress at temperatures, see page 638 and below. See pages 51 and 52 in this section, the "COMPARISON TABLE of NEW AND OLD JIS SYMBOLS FOR STEELS.)

Standard and application	Symbol	Nominal composition	Chemical composition% (Maximum) C	Si	Mn	P	S	Ni	Cr	Mo	Other	Equivalent to ASTM No.
G 3101(1987) Rolled steel for general structure (Building, bridges, ships, Vehicles and other structure)	SS330					0.050	0.050	–	–	–		A6-68a A36-70 A113-70
	SS400		–	–	–	0.050	0.050	–	–	–	–	A131-69 A283-70 A284-70
	SS490		–	–	–	0.050	0.050	–	–	–	–	A529-64
	SS540		0.30	–	1.60	0.040	0.040	–	–	–	–	
G 3202(1988) Alloy steel forgings for pressure vessels for high-temperature service	SFVA F1	½Mo	0.20	0.35	0.60~0.90	0.030	0.030	–	–	0.45~0.65	–	A182F1
	SFVA F2	½Cr. ½Mo	0.20	0.60	0.30~0.80	0.030	0.030	–	0.50~0.80	0.45~0.65	–	A182F2
	SFVA F12	1Cr. ½Mo	0.20	0.60	0.30~0.80	0.030	0.030	–	0.80~1.25	0.45~0.65	–	A182F12
	SFVA F11	1¼Cr. ½Mo	0.20	0.50~1.00	0.30~0.80	0.030	0.030	–	1.00~1.50	0.45~0.65	–	A182F11
	SFVA F22	2¼Cr. 1Mo	0.15	0.50	0.30~0.60	0.030	0.030	–	2.00~2.50	0.90~1.10	–	A182F22
	SFVA F5	5Cr. ½Mo	0.15	0.50	0.30~0.60	0.030	0.030	–	4.00~6.00	0.45~0.65	–	A182F5
	SFVA F9	9Cr. Mo 1	0.15	0.50~1.00	0.30~0.60	0.030	0.030	–	8.00~10.0	0.90~1.10	–	A182F9
G 3103(1987) Carbon Steel and Molybdenum Alloy Steel Plates for Boilers and Other Pressure Vessels	SB410		t ≤ 25 0.24 25< t ≤ 50 0.27 50< t ≤ 200 0.30	0.15~0.30	0.60	0.035	0.040	–	–	–	–	A285 A302 A515
G 3103(1987) (Continued)	SB450	Steel plate	t ≤ 25 0.22 25< t ≤ 50 0.24 50< t ≤ 200 0.27	0.15~0.30	0.90	0.035	0.040	–	–	–	–	
	SB480		t ≤ 25 0.24 25< t ≤ 50 0.26 50< t ≤ 200 0.27	0.15~0.30	0.90	0.035	0.040	–	–	–		
	SB450M		t ≤ 25 0.18 25< t ≤ 50 0.20 50< t ≤ 100 0.22 100< t ≤ 150 0.24	0.15~0.30	0.90	0.035	0.040	–	–	0.45~0.65	–	
	SB480M		t ≤ 25 0.20 25< t ≤ 50 0.22 50< t ≤ 100 0.24 100< t ≤ 150 0.26	0.15~0.30	0.90	0.035	0.040	–	–	0.45~0.60	–	
G 3106 (1992) Rolled steels for welded structure	SM400A		t ≤ 50 0.23 50< t ≤ 200 0.25	–	2.5×C	0.035	0.035	–	–	–	–	A 242-68 A 440-68
	SM400B		t ≤ 50 0.20 50< t ≤ 200 0.22	0.35	0.60~1.40	0.035	0.035	–	–	–	–	
	SM400C		t ≤ 100 0.18	0.35	1.40	0.035	0.035	–	–	–	–	
	SM490A		t ≤ 100 0.20 100< t ≤ 200 0.22	0.55	1.50	0.035	0.035	–	–		–	
	SM490B		t ≤ 50 0.18 100< t ≤ 200 0.20	0.55	1.50	0.035	0.035	–	–	–	–	
	SM490C		t ≤ 100 0.18	0.55	1.50	0.035	0.035	–	–	–	–	

Standard and application	Symbol	Nominal composition	Chemical composition*(Maximum)									Equivalent to ASTM No.
			C	Si	Mn	P	S	Ni	Cr	Mo	Other	
G 3106 (1988) (Continued)	SM490YA		t≦100 0.20	0.55	1.60	0.035	0.035	–	–	–	–	
	SM490YB											
	SM520B		t≦100 0.20	0.55	1.60	0.035	0.035	–	–	–	–	
	SM520C											
	SM570		t≦100 0.18	0.55	1.60	0.035	0.035	–	–	–	–	
G 3115(1990) Steel plates for pressure vessels for Intermediate Temperature Service	SPV230		t≦100 0.18 t>100 0.20	0.15~0.35	1.40	0.030	0.030	–	–	–	–	
	SPV315		0.18	0.15~0.55	1.50	0.030	0.030	–	–	–	–	
	SPV350		0.20	0.15~0.55	1.60	0.030	0.030	–	–	–	–	
	SPV410		0.18	0.15~0.75	1.60	0.030	0.030	–	–	–	–	
	SPV490		0.18	0.15~0.75	1.60	0.030	0.030	–	–	–	–	
G 3201(1988) Carbon steel forgings for general use	SF340A		0.60	0.15~0.30	0.30~1.20	0.030	0.035	–		–	–	A 105-80
	SF390A											
	SF440A											
	SF490A											
	SF540A											
	SF590A											
G 5101(1991) Carbon steel castings Materials	SC360		0.20 0.30 0.35 0.40		–	0.040	0.040	–	–	–	–	A 27-95
	SC410											
	SC450											
	SC480											

G 5151(1991) Steel castings for high temperature and high pressure service	SCPH 1		0.25	0.60	0.70	0.040	0.040	–	–	–	–	A356-88
	SCPH 2		0.30	0.60	1.00	0.040	0.040	–	–	–	–	A217-88
	SCPH11	½Mo	0.25	0.60	0.50~0.80	0.040	0.040	–	–	0.45~0.65	–	
	SCPH21	1¼Cr, ½Mo	0.20	0.60	0.50~0.80	0.040	0.040	–	1.00~1.50	0.45~0.65	–	
	SCPH22	1¼Cr, 1Mo	0.25	0.60	0.50~0.80	0.040	0.040	–	1.00~1.50	0.90~1.20	–	
	SCPH31	1¼Cr, 1Mo¼V	0.20	0.60	0.90~0.80	0.040	0.040	–	1.00~1.50	0.90~1.20	0.15~0.35	
	SCPH32	2¼Cr, 1Mo	0.20	0.60	0.50~0.80	0.040	0.040	–	2.00~2.75	0.90~1.20	–	
	SCPH61	9Cr, 1Mo	0.20	0.60	0.30~0.80	0.040	0.040	–	8.00~10.00	0.85~1.05	–	
G 4109(1987) Chromium-molybdenum alloy steel plates for boilers and pressure vessels	SCMV 1	½Cr, ½Mo	0.21	0.60	0.55~0.80	0.030	0.030	–	0.50~0.80	0.45~0.60	–	A387Gr.2
	SCMV 2	1Cr, ½Mo	0.17	0.60	0.60~0.85	0.030	0.030	–	0.80~1.15	0.45~0.60	–	A387Gr.12
	SCMV 3	1¼Cr, ½Mo	0.17	0.50~0.80	0.40~0.65	0.030	0.030	–	1.00~1.50	0.45~0.65	–	A387Gr.11
	SCMV 4	2¼Cr, 1Mo	0.17	0.50	0.30~0.60	0.030	0.030	–	2.00~2.50	0.90~1.10	–	A387Gr.22
	SCMV 5	5Cr, 1Mo	0.17	0.50	0.30~0.60	0.030	0.030	–	4.75~5.25	0.90~1.10	–	A387Gr.21
	SCMV 6	5Cr, ½Mo	0.15	0.50	0.30~0.60	0.030	0.030	–	4.00~6.00	0.45~0.65	–	A335Gr.5
G 3461(1988) Carbon steel boiler and heat exchanger tubes	STB340		0.18	0.35	0.30~0.60	0.035	0.035	–	–	–	–	A178
	STB410		0.32	0.35	0.30~0.80	0.035	0.035	–	–	–	–	A210-A1
	STB510		0.22	0.35	1.00~1.50	0.035	0.035	–	–	–	–	
Carbon steel tubes for Feed water heater of power boiler provided in Article 3-2, Clause 16	*STB340		0.20	0.10	0.25~1.00	– 0.040	– 0.040	–	–	–	– – –	A556-C2
G 3462(1988) Alloy steel boiler and heat exchanger tubes	STBA 12	0.5Mo	0.10~0.20	0.10~0.50	0.30~0.80	0.035	0.035	–	–	0.45~0.65	–	A209-T1
	STBA 13	0.5Mo	0.15~0.25	0.10~0.50	0.30~0.80	0.035	0.035	–	–	0.45~0.65	–	A209-T1a
	STBA 20	0.75Cr-0.5Mo	0.10~0.20	0.10~0.50	0.30~0.80	0.035	0.035	–	0.50~0.80	0.40~0.65	–	A213-T2

Standard and application	Symbol	Nominal composition	Chemical composition% (Maximum)									Equivalent to ASTM No.
			C	Si	Mn	P	S	Ni	Cr	Mo	Other	
G 3462(1988) (Continued)	STBA22	1Cr-0.5Mo	0.15	0.50	0.30/0.60	0.035	0.035	–	0.80~1.25	0.45~0.65		A213-T12
	STBA23	1.25Cr-0.75Si-0.5Mo	0.15	0.50/1.00	0.30/0.60	0.030	0.030	–	1.00~1.50	0.45~0.65		A213-T11
	STBA24	2.25Cr-1Mo	0.15	0.50	0.30/0.60	0.030	0.030	–	1.90~2.60	0.87~1.13		A213-T22
	STBA25	5Cr-0.5Mo	0.15	0.50	0.30/0.60	0.030	0.030	–	4.00~6.00	0.45~0.65		A213-T5
	STBA26	9Cr-1Mo	0.15	0.25/1.00	0.30/0.60	0.030	0.030	–	8.00~10.00	0.90~1.10		A213-T9
G 3463(1988) Stainless steel boiler and heat exchanger tubes	SUS410TB	13Cr	0.15	1.00	1.00	0.040	0.030	–	11.50~13.50	–		A268 TP410
	SUS430TB	18Cr	0.12	0.75	1.00	0.040	0.030	–	16.00~18.00	–		A268 TP430
	SUS304TB	18Cr-8Ni	0.08	1.00	2.00	0.040	0.030	8.00~11.00	18.00~20.00	–		A213, A249 TP304
	SUS304HTB	18Cr-8Ni	0.04/0.10	0.75	2.00	0.040	0.030	8.00~11.00	18.00~20.00	–		A213, A249 TP304H
	SUS304LTB	18Cr-8Ni Very low C	0.03	1.00	2.00	0.040	0.030	8.00~13.00	18.00~20.00	–		A213, A249 TP304L
	SUS321TB	18Cr-8Ni-Ti	0.08	1.00	2.00	0.040	0.030	9.00~13.00	17.00~19.00	–	Ti≥5×C%	A213, A249 TP320
	SUS321HTB	18Cr-8Ni-Ti	0.08	0.75	2.00	0.030	0.030	9.00~13.00	17.00~20.00	–	Ti: 4×C%≤Ti≤0.60	A213, A249 TP321H
	SUS316TB	18Cr-12Ni-Mo	0.08	1.00	2.00	0.040	0.030	10.00~14.00	16.00~18.00	2.00~3.00		A213, A249 TP316
	SUS316HTB	16Cr-12Ni-Mo	0.04/1.00	0.75	2.00	0.030	0.030	11.00~14.00	16.00~18.00	2.00~3.00		A213, A249 TP316H
	SUS316LTB	16Cr-12Ni-Mo Very low C	0.03	1.00	2.00	0.040	0.030	12.00~15.00	16.00~18.00	2.00~3.00		A213, A249 TP316L
	SUS309TB	22Cr-12Ni	0.15	1.00	2.00	0.040	0.030	12.00~15.00	22.00~24.00	–		A249 TP309
	SUS310TB	25Cr-20Ni	0.15	1.50	2.00	0.040	0.030	19.00~22.00	24.00~26.00	–		A249 TP310
	SUS347TB	18Cr-Ni-Nb	0.08	1.00	2.00	0.040	0.030	9.00~13.00	17.00~20.00	–	Nb: Ta ≥10×C%	A213, A249 TP347
	SUS347HTB	18Cr-8Ni-Nb	0.04/1.00	1.00	2.00	0.030	0.030	9.00~13.00	17.00~20.00	–	Nb: Ta: 8×C%/1.00	A213, A249 TP347H
G 3452(1988) Carbon steel pipes for ordinary piping	SGP		–	–	–	0.060	0.06	–	–	–		A120

G 3454(1988) Carbon steel pipes for pressure service	STPG370		0.25	0.35	0.30~0.90	0.040	0.040	–	–	–	–	
	STPG410		0.30	0.35	0.30~1.00	0.040	0.040	–	–	–	–	
G 3455(1988) Carbon steel pipes for high pressure service	STS370		0.25	0.10~0.35	0.30~0.90	0.035	0.035	–	–	–	–	
	STS410		0.30	0.10~0.35	0.30~1.00	0.035	0.035	–	–	–	–	
	STS480		0.33	0.10~0.35	0.30~1.00	0.035	0.035	–	–	–	–	
G 3456(1988) Carbon steel pipes for high temperature service	STPT370		0.25	0.10~0.35	0.30~0.90	0.035	0.035	–	–	–	–	A106-A
	STPT410		0.30	0.10~0.35	0.30~1.00	0.035	0.035	–	–	–	–	A106-B
	STPT480		0.33	0.10~0.35	0.30~1.00	0.035	0.035	–	–	–	–	A106-C
G 3457(1988) Arc welded carbon steel pipes	STPY400		0.25	–	–	0.040	0.040	–	–	–	–	
G 3458(1988) Alloy steel pipes	STPA12	0.5Mo	0.10~0.20	0.10~0.50	0.30~0.80	0.035	0.035	–	–	0.45~0.65	–	A335-P1
	STPA20	0.5Cr-0.5Mo	0.10~0.20	0.10~0.50	0.30~0.80	0.035	0.035	–	0.50~0.80	0.40~0.65	–	A335-P7
	STPA22	1Cr-0.5Mo	0.15	0.50	0.30~0.60	0.035	0.035	–	0.80~1.25	0.45~0.65	–	A335-P12
	STPA23	1.25Cr-0.75Si-0.5Mo	0.15	0.50~1.00	0.30~0.60	0.030	0.030	–	1.00~1.50	0.45~0.65	–	A335-P11
	STPA24	2.25Cr-1Mo	0.15	0.50	0.30~0.60	0.030	0.030	–	1.90~2.60	0.87~1.13	–	A335-P22
	STPA25	5Cr-0.5Mo	0.15	0.50	0.30~0.60	0.030	0.030	–	4.00~6.00	0.45~0.65	–	A335-P5
	STPA26	9Cr-1Mo	0.15	0.25~1.00	0.30~0.60	0.030	0.030	–	8.00~10.00	0.90~1.10	–	A335-P9
G 3459(1988) Stainless steel pipes	SUS304TP	18Cr-8Ni	0.08	1.00	2.00	0.040	0.030	8.00~11.00	18.00~20.00	–	–	A312 TP304
	SUS304HTP	18Cr-8Ni	0.04~0.10	0.75	2.00	0.040	0.030	8.00~11.00	18.00~20.00	–	–	A312 TP304H
	SUS304LTP	18Cr-8Ni Very low C	0.03	1.00	2.00	0.040	0.030	9.00~13.00	18.00~20.00	–	–	A312 TP304L
	SUS321TP	18Cr-10Ni-Ti	0.08	1.00	2.00	0.040	0.030	9.00~13.00	17.00~19.00	–	Ti: Min. 5×C% Ti: 4×C%~0.60	A312 TP321
	SUS321HTP	18Cr-10Ni-Ti	0.04~0.10	0.75	2.00	0.030	0.030	9.00~13.00	17.00~20.00	–		A312 TP321H
	SUS316TP	18Cr-12Ni-Mo	0.08	1.00	2.00	0.040	0.030	10.00~14.00	16.00~18.00	2.00~3.00	–	A312 TP316
	SUS316HTP	18Cr-12Ni-Mo	0.04~0.10	0.75	2.00	0.030	0.030	11.00~14.00	16.00~18.00	2.00~3.00	–	A312 TP316H

Standard and application	Symbol	Nominal composition	Chemical composition% (Maximum) C	Si	Mn	P	S	Ni	Cr	Mo	Other	Equivalent to ASTM No.
G 3459(1988) (Continued)	SUS316TP	18Cr-12Ni-Mo	0.08	1.00	2.00	0.040	0.030	12.00~15.00	16.00~18.00	2.00~3.00	–	A312 TP316L
	SUS309TP	22Cr-12Ni	0.15	1.00	2.00	0.040	0.030	12.00~15.00	22.00~24.00	–	–	A312 TP309
	SUS310TP	25Cr-20Ni	0.15	1.50	2.00	0.040	0.030	19.00~22.00	24.00~26.00	–	–	A312 TP310
	SUS347TP	18Cr-10Ni-Nb	0.08	1.00	2.00	0.040	0.030	9.00~13.00	17.00~20.00	–	Nb: 10×C%≤Nb	A312 TP347
	SUS321TP	18Cr-10Ni-Ti	0.08~0.10	1.00	2.00	0.040	0.030	9.00~12.00	17.00~20.00	–	Ti: 5×C%≤Ti	A312 TP321H
Stainless alloy steel pipes for power boiler provided in Article 1-2, Clause 1-20.*	★SUS304 J1HTB	18Cr-8Ni-Cu-Nb-N	0.07~0.13	0.03	1.00	0.040	0.030	7.50~10.50	17.00~19.00	–	Nb: 0.05~0.10 N: 0.03~0.07 Cu: 2.50~3.50	
	★SUS309 J1TB	23Cr-13Ni-Mo-V	0.06	1.50	2.00	0.040	0.030	12.00~16.00	22.00~25.00	0.50~1.25		
	★SUS309 J1TB	23Cr-13Ni-1.5Mo-V	0.04	1.00	2.50~3.50	0.030	0.030	12.50~15.50	21.00~23.00	1.00~2.00		
	★SUS309 J1LTB	23Cr-13Ni-0.08% 0.05% N	0.025	0.70	2.00	0.040	0.030	11.00~16.00	23.00~25.00	0.50~1.25	N: 0.250 ~0.040	
	★SUS310 J1TB	25Cr-20Ni-Nb-V	0.10	1.50	2.00	0.030	0.030	17.00~22.00	23.00~27.00	–	Nb: 0.20~0.60	
	★SUS321 J1HTB	18Cr-8Ni-Ti-Nb	0.07~0.14	1.00	2.00	0.040	0.030	9.00~12.00	17.50~21.50	–	Ti: ≤0.20 Nb: ≤0.40	
	★SUS347 HTB	18Cr-10Ni-Nb	0.04~0.10	0.75	2.00	0.030	0.030	9.00~12.00	17.00~20.00	–	Nb: 10×C%≤1.00	A213 TP347H
	★SUS410 J1TB	12Cr-1Mo-W-V	0.14	0.50	0.30~0.70	0.030	0.030	–	11.00~13.00	0.80~1.20	V: 0.20~0.30 Nb: ≤0.20	
Alloy steel tubes for power boiler heat exchanger provided in Article 1-2, Clause 1-18.*	★STBA10	1.25Cr-0.5Mo	0.10	0.25~0.60	0.80	0.030	0.015~0.030	–	1.00~1.50	–	Cu: ≤0.25	
	★STBA21	1Cr-0.5Mo	0.10~0.20	0.50	0.30~0.70	–	–	–	0.80~1.25	0.20~0.45	–	
	★STBA27	9Cr-1Mo	0.08	0.50	0.30~0.70	–	–	–	8.00~10.00	1.00~2.00	–	
	★STBA28	9Cr-1Mo-Nb-V	0.05~0.12	0.20~0.50	0.30~0.60	0.020	0.010	≤0.40	8.00~9.50	0.85~1.05	V: 0.15~0.25 Nb: 0.05~0.10 Al: ≤0.04	A213 T91
Alloy steel pipes for piping of power plant provided in Article 1-2, Clause 1-17*	★STPA21	1Cr-0.5Mo	0.10~0.20	0.50	0.30~0.80	–	–	–	0.80~1.25	0.20~0.45	–	
	★STPA27	9Cr-1Mo	0.08	0.50	0.30~0.70	–	–	–	8.00~10.00	1.00~2.00	–	
	★STPA28	9Cr-1Mo-Nb-V	0.05~0.12	0.20~0.50	0.30~0.60	0.020	0.010	≤0.40	8.00~9.50	0.85~1.05	V: 0.15~0.25 Nb: 0.05~0.10 Al: ≤0.04	A335 P91

G 3118(1987) Carbon steel plates for pressure vessels for intermediate and moderate temperature service	SGV410	≤12.5	0.21	0.15~0.30	0.85~1.20	0.035	0.040	–	–	–	–	
		12.5< t≤50	0.23									
		50< t≤100	0.25									
		100< t≤200	0.27									
	SGV480	t≤12.5	0.21									
		12.5< t≤50	0.23									
		50< t≤100	0.25									
		100< t≤200	0.27									
G 3120(1987) Manganese-molybdenum and manganese-molybdenum-nickel alloy steel plates quenched and tempered for pressure vessels	SQV1A	Mn 0.5%, Mo 0.5%	0.25	0.15~0.30	1.15~1.50	0.035	0.040	–	–	0.45~0.60	–	A533-A
	SQV1B											
	SQV2A	Mn 0.5%, Ni 0.5%, Mo 0.5%	0.25	0.15~0.30	1.15~1.50	0.035	0.040	0.40~0.70	–	0.45~0.60	–	A533-B
	SQV2B											
	SQV3A	Mn 0.75%, Ni 0.5%, Mo 0.5%	0.25	0.15~0.30	1.15~1.50	0.035	0.040	0.70~1.00	–	0.45~0.60	–	A533-C
	SQV3B											
G 3460(1988) Steel pipes for low temperature service	STPL380		0.25	0.35	1.35	0.035	0.035	–	–	–	–	A333-Gr1
	STPL480	3.5Ni	0.18	0.10~0.35	0.30~0.80	0.030	0.030	3.30~3.80	–	–	–	A333-Gr3
G 4103(1979) Nickel chromium molybdenum steels	SNCM240		0.38~0.43	0.15~0.35	0.70~1.00	0.030	0.030	0.40~0.70	0.40~0.65	0.15~0.30	–	
	SNCM431		0.27~0.35	0.15~0.35	0.60~0.90	0.030	0.030	1.60~2.00	0.60~1.00	0.15~0.30	–	
	SNCM439		0.36~0.43	0.15~0.35	0.60~0.90	0.030	0.030	1.60~2.00	0.60~1.00	0.15~0.30	–	
	SNCM447		0.44~0.50	0.15~0.35	0.60~0.90	0.030	0.030	1.60~2.00	0.60~1.00	0.15~0.30	–	
	SNCM625		0.20~0.30	0.15~0.35	0.30~0.60	0.030	0.030	3.00~3.25	1.00~1.50	0.15~0.30	–	
	SNCM630		0.25~0.35	0.15~0.35	0.35~0.60	0.025	0.030	2.50~3.50	2.50~3.50	0.50~0.70	–	

Standard and application	Symbol	Nominal composition	Chemical composition% (Maximum)									Equivalent to ASTM No.
			C	Si	Mn	P	S	Ni	Cr	Mo	Other	
[illegible] Carbon steel forgings for pressure vessels	SFVC1		0.30	0.35	0.60~1.35	0.030	0.030	–	–	–	–	
	SFVC2A		0.35	0.35	0.60~1.10	0.030	0.030	–	–	–	–	
	SFVC2B		0.30	0.35	0.70~1.35	0.030	0.030	–	–	–		
[illegible] Stainless steel forgings for pressure vessels	SUSF304	18Cr 8Ni	0.08	1.00	2.00	0.045	0.030	8.00~11.00	18.00~20.00	–	–	A182F304
	SUSF304L	18Cr 8Ni Low-C	0.030	1.00	2.00	0.045	0.030	9.00~13.00	18.00~20.00	–	–	A182F304L
	SUSF316	16Cr 12Ni 2Mo	0.08	1.00	2.00	0.045	0.030	10.00~14.00	16.00~18.00	2.00~3.00	–	A182F316
	SUSF316L	16Cr 12Ni 2Mo Low-C	0.030	1.00	2.00	0.045	0.030	12.00~15.00	16.00~18.00	2.00~3.00	–	A182F316L
	SUSF321	18Cr 10Ni Ti	0.08	1.00	2.00	0.045	0.030	9.00~13.00	17.00~19.00	–	Ti: Min.5×C%	A182F321
	SUSF347	18Cr 10Ni Nb	0.08	1.00	2.00	0.045	0.030	9.00~13.00	17.00~20.00	–	Nb: Min.10×C%	A182F347
5121(1991) Stainless steel castings	SCS13	18Cr 8Ni	0.08	2.00	2.00	0.040	0.040	8.00~11.00	18.00~21.00	–	–	
	SCS13A	18Cr 8Ni	0.08	2.00	1.50	0.040	0.040	8.00~11.00	18.00~21.00	–	–	
	SCS14	18Cr 8Ni 2Mo	0.08	2.00	2.00	0.040	0.040	10.00~14.00	17.00~20.00	2.00~3.00	–	
	SCS14A	18Cr 8Ni 2Mo	0.08	1.50	1.50	0.040	0.040	9.00~12.00	18.00~21.00	2.00~3.00	–	
	SCS16	18Cr 12Ni 2Mo Low-C	0.03	1.50	2.00	0.040	0.040	12.00~15.00	17.00~20.00	2.00~3.00	–	
	SCS16A	18Cr 12Ni 2Mo Low-C	0.03	1.50	1.50	0.040	0.040	9.00~13.00	17.00~21.00	2.00~3.00	–	
	SCS19	18Cr 8Ni Low-C	0.03	2.00	2.00	0.040	0.040	8.00~12.00	17.00~21.00		–	
	SCS19A	18Cr 8Ni Low-C	0.03	2.00	1.50	0.040	0.040	8.00~12.00	17.00~21.00	–	–	
	SCS21	18Cr 10Ni Nb	0.08	2.00	2.00	0.040	0.040	9.00~13.00	18.00~21.00	–	Nb: [illegible]	
[illegible]	SUS304	18Cr 8Ni	0.08	1.00	2.00	0.045	0.030	8.00~10.50	18.00~20.00	–	–	
	SUS304L	18Cr 8Ni Low-C	0.03	1.00	2.00	0.045	0.030	9.00~13.00	18.00~20.00	–	–	
[illegible] Cold rolled stainless steel plates, sheets and strip	SUS316	16Cr 12Ni 2Mo	0.08	1.00	2.00	0.045	0.030	10.00~14.00	16.00~18.00	2.00~3.00	–	
	SUS316L	16Cr 12Ni 2Mo Low-C	0.03	1.00	2.00	0.045	0.030	12.00~15.00	16.00~18.00	2.00~3.00	–	
	SUS321	18Cr 10Ni Ti	0.08	1.00	2.00	0.045	0.030	9.00~13.00	17.00~19.00		Ti: Min.5×C%	
	SUS347	18Cr 10Ni Nb	0.08	1.00	2.00	0.045	0.030	9.00~13.00	17.00~19.00	–	Nb: Min.10×C%	
	SUS405	13Cr	0.08	1.00	1.00	0.040	0.030	11.50~14.50	–	–	Al: 0.10~0.30	

Notes *---Ministerial Ordinance for providing technical standard for thermal powergenerating facilities

8.22 Generator Shipping Height Scope Change

8.22 Generator Shipping Height Scope Changes

TENASKA / STEAM TURBINE GENERATOR

Work scope items required to reduce generator shipping height.

Item	Category	Category	Additional Item
Limitation of Height (STG)	Design	Additional	Design Fee (This is not MPS standard design)
	Material	Additional	Bolts for fixing lead box with the generator frame
		Additional	Cover plates for transportation
		Additional	Adapter plate(Stainless) for fitting the frame with lead box
		Additional	Packing material
		Reduced	Welding Bar
	Machining	Additional	Machining the cover plates
		Additional	Drilling the holes in generator frame and lead box
	Work	Additional	Assembly (Bolt tightening) and disassembly
		Additional	Packing
		Reduced	Welding for fixing lead box with the generator frame
	TA	Additional	Additional TA is not necessary. This work will be done by Generator assembly TA. He is able to advise this work and another erection work in parallel.

8.23 Storage Plan

Please refer to the following Document;
- CG-56943 R-1, TEMPORARY STORAGE PLAN

8. ADDITIONAL ENGINEERING INFORMATION

8.24 Steam Purity Requirement for Steam Turbine

STEAM PURITY

The presence of unwanted corrosive impurities in steam can cause damage to turbine components by corrosion, stress corrosion and corrosion fatigue. Deposition of impurities can also cause distress by lowering the efficiency of blades, upsetting pressure distributions and clogging seals and clearances in valves. If the extensive damage, lengthy outages and costly repairs caused by these occurrences are to be avoided, the purity of the steam throughout the turbine must be rigorously controlled. In addition, positive steps must be taken to assure that impurities from chemical cleaning procedures for plant piping and equipment do not get into the turbine.

For the best control of steam purity, continuous analysis of sodium, chlorides, cation conductivity, and oxygen in the high pressure turbine inlet steam is recommended. If control of steam purity through the analysis of steam generator water is utilized, then the effects of chemical concentration due to mechanical and vaporous carryover, hideout, forward pumped drains and attemperation water chemistry must be known and considered. In cases where chemicals or additional water are injected into the steam after the HP inlet, additional analyses should be made of the steam beyond the point of injection to assure that the steam purity is maintained. Water injections should utilize condensate quality water.

From the point of view of steam turbine operation, ammonia, cyclohexylamine and morpholine may be used for pH adjustment.

Recommended limits for impurities commonly found in turbine steam are given in Table 1. The normal values represent Seller recommendations for reliable turbine operation. These values represent limits where the impurity concentration in steam is below its expected solubility limit everywhere in the dry regions of the turbine. The limiting conditions represent undesirable conditions which should be corrected to normal within the time periods indicated. In plants where better steam purity can be maintained, every effort should be made to do so.

TABLE 1 - STEAM PURITY RECOMMENDATIONS

		NOTES	NORMAL OPERATION	LIMITING CONDITIONS	
				TWO WEEKS	24 HOURS*
CONTROL PARAMETERS	Cation Conductivity, micromhos/cm	b, c	< 0.3	0.3 - 0.5	0.5 - 1.0
	Dissolved Oxygen, ppb	b, c	< 10	10 - 30	30 - 100
	Sodium, ppb	b, c	< 5	5 - 10	10 - 20
	Chlorides, ppb	b, c	< 5	5 - 10	10 - 20
	Silica, ppb	b	< 10	10 - 20	20 - 50
	Copper, ppb	a	< 2		
	Iron, ppb	a	< 20		
	Na/PO_4 Molar Ratio	a, e	2.3 - 2.7		
	Sulfites and Sulfates, ppb	d	< 3		

* Operation beyond the upper limits should be avoided for any duration. Immediate corrective action should be taken.

NOTES : a. Typical value, should be analyzed at least once a week.

b. Used for chemistry control by continuous direct analysis of condensed inlet steam or as recalculated from steam generator water and mechanical plus vaporous carryover.

c. Continuous analysis recommended.

d. Required analysis period is at least once a week.

e. For units with phosphate water treatment.

8.25 Oil System Specification for Steam Turbine

Sheet1

(for ST)

Specification of oil systems for Gas Turbine and Steam Turbine

		Type	Materials
Steam Turbine and Generator	Lube oil supply piping (downstream of strainer)	Single wall pipe (separate from drain pipe)	Stainless steel
	Lube oil tank	-	Carbon steel
	Lube oil cooler	Plate Type	Plate:Stainless steel
	Lube oil valves (downstream of strainer)	There are no valves on downstream of steiner	
	Control oil supply piping (downstream of strainer)	Single wall pipe (separate from drain pipe)	Stainless steel
	Control oil tank		Stainless steel
	Control oil cooler	Shell & Tube	Shell:Stainless Steel/Tube:(DITTO)
	Control oil valves (downstream of strainer)		Stainless steel

Allowable Pressure and Temperature Variations for the Steam Turbines

1. Inlet steam pressure variation

The average steam pressure at HP stop valve inlet over any twelve (12) months of operation shall not exceed the rated pressure. In maintaining this average, the pressure shall not exceed 110% of the rated pressure, except during abnormal conditions.

During abnormal conditions, momentary swings to 120% of the rated pressure shall be admissible, but the aggregate duration of such momentary swings shall not exceed 12 hours over any twelve (12) months of operation.

2. Inlet steam temperature variation

The steam temperature at the turbine inlet shall average not more than the rated temperature over any 12-month operating period. In maintaining this 12-month average, the temperature shall not exceed the rated temperature by more than 8℃ (15˚ F) except during abnormal conditions. During abnormal conditions, the temperature shall not exceed the rated temperature by more than 14℃ (25˚ F) for accumulated operating periods of not more than 400 hours per 12-month operating period, not 28℃ (50˚ F) above the rated temperature for swings of 15 minutes duration or less, aggregating not more than 80 hours per 12-month operating period.

The turbine and accessories shall be guaranteed as to their satisfactory operation in terms of whole range of temperature and pressure specified under all the load conditions.

8. ADDITIONAL ENGINEERING INFORMATION

8.26 Allowable Pressure and Temperature Variations for Steam Turbine

8.27 Corrosion Allowance for HRSG

(Not Used)

8. ADDITIONAL ENGINEERING INFORMATION

8.28 HRSG Erection Procedure

(Not Used)

APPENDIX C
Acceptance Test Guidelines, Procedures, and Specifications
(Revised January 2, 2008)

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Acceptance Test Guidelines, Procedures and Specifications

APPENDIX C

Acceptance Test Guidelines, Procedures and Specifications

All Section references in this Appendix C shall be to Sections in this Appendix C unless otherwise specifically stated. All capitalized terms used in this Appendix C shall have the same meaning as set forth in the terms and conditions of the Contract unless specifically identified to the contrary.

Section 1.0 Introduction and General Requirements

This Appendix C describes the procedures, guidelines and specifications for Acceptance Testing and the Steam Turbine Generator Unit (STG). Acceptance Testing of the STG will be conducted using the additional equipment and systems supplied by the EPC Contractor. Procedures, guidelines, and specifications that directly relate to guarantees defined in Section 3.2 of Appendix A, will be applied to the STG. This Appendix also includes, where applicable, procedures, guidelines, and specifications for the operation of the additional equipment and systems supplied, installed, tuned and operated by the EPC Contractor. Seller may provide data and advice to the EPC Contractor for the equipment and systems supplied by the EPC Contractor, but the responsibility of providing adequate equipment and systems with adequate design philosophy for the STG is that of the EPC Contractor.

The Acceptance Tests described in this Appendix C fall into two (2) categories: Acceptance Tests Required to Achieve Substantial Completion of the STG, and Additional Acceptance Tests Required to Achieve Final Acceptance of the STG. These Acceptance Tests are directed or conducted for Buyer by the EPC Contractor. With respect to each Acceptance Test, Seller is responsible only for the performance of the STG.

The Acceptance Tests Required to achieve Substantial Completion of the STG, which are covered under Section 2.0, consist of:

(a) Performance Tests to measure MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output; and

(b) Demonstration Tests for Minimum Load, Generator Operations (Lead/Lag), Steam Turbine Load Ramp; and

(c) an Availability Test.

The Additional Acceptance Tests Required to Achieve Final Acceptance of the STG, which are covered under Section 3.0, consist of:

(a) Emission Tests for Noise Levels; and

(b) Demonstration Test for STG Unit Trip Capability .

The Demonstration Tests for STG Unit Trip Capability (sometimes referred to as "Steam Turbine Demonstration Test"), shall be deemed satisfied for purposes of achieving Final Acceptance of the STG, if either: (1) through no fault of Seller, the performance of such Steam Turbine Demonstration Test has not been competed within six (6) months after the Scheduled Date for Substantial Completion; or (2) such Steam Turbine Demonstration Test has been failed three (3) times through no fault of Seller. For each such Steam Turbine Demonstration Test that has been deemed satisfied in accordance with this paragraph, upon the request of Buyer, Seller shall provide technical, diagnostic and/or test equipment support, at Buyer's expense, to support the performance of any further Steam Turbine Demonstration Tests by the EPC Contractor.

The EPC Contractor is responsible for documentation of all Acceptance Test results for the STG. A matrix of Acceptance Testing division of responsibility is shown in Attachment I to this Appendix C. Attachment I also shows how the Acceptance Tests are broken down into four (4) main categories of Performance Tests, Demonstration Tests, an Availability Test and Emission Tests.

During all Acceptance Testing, the STG will be operated within design limits of the Equipment and in a manner consistent with normal practices, methods, acts, standards and industry codes, and the steam turbine inlet temperatures shall not exceed manufacturer's

recommendation for continuous long-term operation. During testing, the STG will be operated from the control room with systems normally operated in automatic mode operating in the automatic mode.

The Acceptance Tests will be conducted after completion of installation of the STG, including the Power Block. Subject to normal wear and tear, all systems must be free of material defects and ready for safe and reliable operation. The use of temporary equipment will not be allowed unless approved by Buyer. Temporary instrumentation will be used if permanent plant instrumentation is not available and if increased accuracy data is required. During Acceptance Testing the Power Block, including the STG, will operate with normal plant staffing (typically 1 control room operator and 2 assistant plant operators). All operating functions will be conducted by competent permanent operating staff provided by Buyer and the EPC Contractor's personnel will provide supervision only and will not perform any hands-on operating functions. The STG will run in a normal manner with no required equipment shutdown to reduce auxiliary load. Only equipment required for normal operation will be in operation.

Buyer and the EPC Contractor will cooperate with Seller to attempt to complete the Performance Tests as timely as possible without sacrificing the reasonable test periods required for the STG.

The general methods outlined in the applicable ASME Performance Test Codes (ASME PTC) will be used as a guide to the extent such methods are not specified in the requirements of the Contract.

MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output for the STG will be calculated by subtracting the measured auxiliary power consumption for the STG (based on equipment loads listed in Section 4.4 of Appendix A) from the measured electrical output at the generator terminals as defined in Section 3.3 of Appendix A. The metering equipment will meet the accuracy standards in the ASME PTC. Adjustments for auxiliary equipment power consumption for the STG must be accurately determined during the Performance Tests.

Within 30 days following the submission of the Acceptance Test Procedure, Seller will submit corrections factors or curves to be used with the performance calculations. The Acceptance Test procedure will be established mainly based on ASME PTC-6, dated 1997. In the event that the Acceptance Tests are not carried out in accordance with the agreed Acceptance Test procedure, the Seller will not be responsible for the result of the Acceptance Test. If the Acceptance Tests will be carried out later than eighteen (18) months from the last substantial shipment of the STG or thirty (30) days from the date of the Power Plant being ready for Acceptance Testing, whichever is earlier, the Seller shall have the right to open the turbine casing and check the internal parts before the Acceptance Test or to correct the Acceptance Test result by the authorized degradation curve.

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Section 2.0 Acceptance Tests Required to Achieve Substantial Completion of the STG

2.1 Performance Tests

2.1.1 Performance Test to Determine MPS Net Steam Turbine Electrical Output

A single Performance Test will be performed to determine the MPS Net Steam Turbine Electrical Output with no duct firing and all gas turbines operated at base load. Test results will be corrected to the appropriate rating condition set forth in Section 3.2.5.1 of Appendix A. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A. ASME PTC 6 shall be used as a guideline for developing test procedures for this Performance Test.

The appropriate rating conditions and factors are listed below:

1. Feedwater Flow
   a. High Pressure (HP) Steam Flow
   b. Intermediate Pressure (IP) Steam Flow at IP Superheater Outlet
   c. Low Pressure (LP) Admission Steam Flow
2. HP Steam Pressure at HPSV inlet
3. HP Steam Temperature at HPSV inlet
4. Reheat Steam Temperature at RSV inlet
5. LP Steam Pressure at LPSV inlet
6. LP Steam Temperature at LPSV inlet
7. Reheater and Reheat Steam Piping Pressure Drop
8. Steam Turbine Back Pressure
9. Make-up Flow
10. Auxiliary Steam Flow (if any)
11. Generator Power Factor
12. Generator Hydrogen Gas Pressure
13. Degradation of Steam Turbine (if applicable)

2.1.2 Performance Test to Determine MPS Net Steam Turbine Maximum Electrical Output

A Performance Test will be performed to determine the MPS Net Steam Turbine Maximum Electrical Output for STG. The Performance Test for MPS Net Steam Turbine Maximum Electrical Output will be performed with duct firing. Test results will be corrected to the appropriate rating condition set forth in Section 3.2.5.2 of Appendix A. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A. ASME PTC 6 shall be used as a guideline for developing test procedures for this Performance Test.

The appropriate rating conditions and factors are listed below:

1. Feedwater Flow
    a. HP Steam Flow
    b. IP Admission Steam Flow at IP Superheater Outlet
    c. LP Admission Steam Flow
2. HP Steam Pressure at HPSV inlet
3. HP Steam Temperature at HPSV inlet
4. Reheat Steam Temperature at RSV inlet
5. LP Steam Pressure at LPSV inlet
6. LP Steam Temperature at LPSV inlet
7. Reheater and Reheat Steam Piping Pressure Drop
8. Steam Turbine Back Pressure
9. Make-up Flow
10. Auxiliary Steam Flow (if any)
11. Generator Power Factor
12. Generator Hydrogen Gas Pressure
13. Degradation of Steam Turbine (if applicable)

2.2 Demonstration Tests

2.2.1 Minimum Load Test

A test shall be performed for the STG with one (1) Gas Turbine Unit and the associated HRSG to demonstrate stable operation at a minimum load (70% of Gas Turbine Unit base load with natural gas) for a duration of two (2) hours with the Steam Turbine Unit in operation in accordance with Appendix A.

2.2.2 Generator Operations Test (Lead / Lag)

The Steam Turbine Unit generator shall demonstrate the capability of operating at power factors of 0.95 leading for a period of one (1) hour and 0.90 lagging for a period of one (1) hour, subject to any limits in adjustment to the 0.90 lagging value imposed by the generator reactive capability curve in Appendix A.

2.2.3 Steam Turbine Load Ramp Rate Test

The maximum allowable load rate changes ("ramp rates") (gross increase or decrease in output of the STG in service per minute) for the STG shall be demonstrated over two operating modes. The two operating modes are: 1) part load on the Gas Turbine Units from 50% to 100% base load without duct firing, 2) duct firing for incremental loading on the Steam Turbine Unit. The Steam Turbine Load Ramp Rate for part load operation on the Gas Turbine Units (mode 1) shall be demonstrated to be equal to or greater than 9 MW/minute in accordance with Appendix A. The Steam Turbine Load Ramp Rate for duct firing operation (mode 2) shall be demonstrated to be equal to or greater than 9 MW/minute in accordance with Appendix A. The design of the Power Plant equipment supplied by the EPC Contractor and/or other Party will affect the ramp rates. Seller shall not be responsible for any failure of this test in the event that the ramp rates are not met because of the influence of the equipment supplied by the EPC Contractor and/or other Party.

2.3 Availability Test

An Availability Test of the STG, including the Power Block, will be conducted to determine if the availability of the STG over a 96-hour continuous operating period satisfies the requirement of Section 3.2.4 of Appendix A. Availability is defined as test energy (with limitations and corrections defined below) divided by the energy represented by 96 hours of operation at Rated Capacity. Rated Capacity is defined as the

result of the Performance Test to determine MPS Net Steam Turbine Maximum Electrical Output, as described in Section 2.1.2 of this Appendix C and Section 3.2.5.2 of Appendix A. Credit for electrical output from the STG above the Rated Capacity in any hour during the test period will not be allowed. The Availability Test will be conducted if the HP steam flow rate is equal or greater than 95% of the measured value of the Performance Test (Rated Capacity). If the HP steam flow rate during the Availability Test should fall into less than 95% of the measured value of the Performance Test (Rated Capacity), the measured electrical output during that period will be regarded as equal to Rated Capacity without any correction. If, following the completion of the Availability Test, the STG has not satisfied the requirement of Section 3.2.4 of Appendix A, the test results will be corrected as follows: If during any hour, the STG fails to reach Rated Capacity, the test results will be corrected to design conditions, and if the corrected test energy for such hour is greater than the measured test energy for such hour, the Seller shall use the corrected test energy, up to but not exceeding the Rated Capacity, for such hour for the accumulation of test energy for the 96 hour Availability Test period. If the STG achieves Rated Capacity during any hour, no correction shall be made for the design conditions for such hour. The accumulation of these corrected or non-corrected amounts of hourly test energy will be utilized to determine if the STG satisfies the Availability requirement of Section 3.2.4 of Appendix A.

During the test all systems shall be in final configuration.

If electrical output of the STG is reduced due to an interruption of utilities, or equipment not supplied or installed under the Contract, or acts or omissions of parties other than Seller or its agents, the test may be stopped by the EPC Contractor. Once the problem is remedied, the EPC Contractor may continue the interrupted test or start a new test and the Scheduled Date of Substantial Completion shall be extended by the period of such suspension, or if the test is terminated, the Scheduled Date of Substantial Completion shall be extended by the period from the start of the old test until the new test is started (subject to any adjustment if other Acceptance Tests required for Substantial Completion are performed during such interval). However, if electrical output is reduced on more than two occasions due to acts or omissions of Buyer and the reduction causes the STG to fail the Availability Test, then beginning on the third such occasion, Seller may elect to have the affected test suspended and continue the affected test after stable operation is re-established; provided that interruptions of testing not caused by STG Equipment shall

cause the Scheduled Date of Substantial Completion to be extended by the period of such interruption. In any event, if the STG has completed one hundred ninety-two (192) hours of operation and would satisfy the requirements of Section 3.2 of Appendix A, if interruptions not caused by STG Equipment were disregarded, then the STG shall be deemed to have satisfied the Availability Test; provided that interruptions of testing not caused by STG equipment shall cause the Scheduled Date of Substantial Completion to be extended by the period of such interruption.

The commercial test tolerance for the test energy during the Availability Tests will have a range from a minimum of 1.8% to a maximum of 2.0% as determined during the MPS Net Electrical Output Test as outlined in Appendix A, Section 3.2. The commercial test tolerance includes measurement uncertainty and will be based on actual instruments used during the testing.

Test output may be corrected based on the Degradation Curve in Section 8.9 of Appendix A for degradation to correlate the results of the Availability Test relative to the results of the Performance Test to determine MPS Net Steam Turbine Maximum Electrical Output.

At Seller's option, the Performance Tests (Sections 2.1.1 and 2.1.2 of this Appendix) may be conducted during the Availability Test.

Section 3.0 Additional Acceptance Tests Required to Achieve Final Acceptance of the STG

3.1 Emissions Tests

3.1.1 Noise Levels

The noise emanating from the STG at all loads shall not exceed 85 dBA when measured 1 meter from the equipment surface (or acoustic enclosure) and 1.2 meters from the actual finished floor (AFF), except as indicated below. The sound levels shall be corrected to exclude the contribution of background noise, including noise from equipment supplied by others.

For specific equipment listed in Section 8.11 of Appendix A with sound pressure levels which exceed 85 dBA, the guaranteed sound pressure levels shall not exceed those sound pressure levels listed in Section 8.11 of Appendix A when measured 1 meter from the equipment surface (or acoustic enclosure) and 1.2 meters from the AFF. The sound levels shall be corrected to exclude the contribution of background noise, including noise from equipment supplied by others.

Start up, shut down, and transients, such as load changes, and operation at other than normal conditions, such as trips, are excluded from the guarantees.

Intermittent noises such as safety valve blow off are not included in the guarantees.

3.2 Demonstration Tests

3.2. 1 Unit Trip Capability (STG)

The STG shall demonstrate the capability of sustaining one full load STG trip to verify proper operation without damaging the STG and auxiliaries provided by Seller. This test shall not be performed at a time when the power grid or other part of the electrical network is not capable of sustaining a trip.

Section 4.0 Acceptance Tests Subject to Reperformance

Upon completion of remedy or retuning activities during any Retest Period or Extended Retest Period, Buyer shall have the right to require reperformance of one or more of the following tests to confirm that such remedy or retuning activities have not adversely affected the prior results from such tests. Any tests selected by Buyer for reperformance will be selected based upon reasonable consideration of the kind of impact such remedy or retuning would have on each of the tests listed below.

MPS Net Steam Turbine Electrical Output
MPS Net Steam Turbine Maximum Electrical Output
Noise Levels

All of the requirements and conditions applicable to such tests as originally performed shall remain applicable. Buyer will direct the EPC Contractor as to which tests must be redone.

Section 5.0 Acceptance Testing Additional Requirements

5.1 Performance Tests—Specific Requirements

5.1.1 Concepts and Objectives

5.1.1.1 The objective of the Performance Tests will be to determine if the STG achieves the guarantees for MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output set forth in Section 16.1(a) of the Contract.

5.1.1.2 Concurrent with the Performance Tests, as long as there is no adverse impact on the schedule of the Acceptance tests, the EPC Contractor will be allowed to take measurements of additional parameters to allow calculation of component performance for the cooling tower, condenser, and balance of plant electrical loads.

5.1.2 General Requirements

5.1.2.1 Data for each Performance Test will consist of instrument readings taken at no greater than ten-minute intervals over a two (2) hour continuous time span after steady-state conditions have been established and following a one (1) hour pretest stabilization period. Results shall be computed separately for each hour of the two (2) hour test, the average of which will be used to determine the MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output.

5.1.2.2 The STG will be considered to be in a steady-state condition when the total steam flow and other parameters do not change more than the amount specified in ASME PTC 6 prior to the test point.
The STG will be considered to be in a steady-state condition when measured output changes by less than the amount specified in ASME PTC 6 prior to the test point.

5.1.2.3 Total steam (feedwater) flow will be measured using the flow element based on ASME PTC 6 requirements. The feedwater flow element will be located downstream of the gland steam condenser outlet. Feedwater flow will be divided according to the flow rate of each steam line. Flow elements shall be tested and calibrated by Buyer.

5.1.2.4 Steam pressure may be measured using temporary pressure transmitters on the Buyer side of terminal point between Buyer and Seller interconnection points. The steam turbine back pressure will be measured using four (4) absolute transmitters through the basket tips installed in the LP turbine casing.

5.1.2.5 Steam temperature may be measured using two (2) temporary thermocouples per steam line.

5.1.2.6 Electrical power output will be measured using a temporary kilowatt-hour meter on the generator terminals defined in Section 3.3 of Appendix A. Buyer shall have the right to have these meters tested and calibrated.

5.1.2.7 If Buyer requires Seller to provide and calibrate the Performance Test instruments, Seller may execute this option as a Change Order. However, installation of theses instruments will be by Buyer.

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5.1.3 Performance Test Data

5.1.3.1 MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output will be determined based on zero percent (0%) HRSG drum blowdown.

5.1.3.2 A post test uncertainty analysis must be performed to determine the resulting precision error effect contribution to the overall test uncertainty.

The metering system/configuration (including CT's and PT's) of the temporary kWh meter(s) will have an accuracy of ± 0.50% or less. The steam and feedwater flow elements will have an accuracy of ± 1.25% or less.

5.1.4 STG Test Final Report

The reports on all Acceptance Tests Required for Substantial Completion and Final Acceptance shall be prepared by Seller and will be presented to Buyer to show the results of the Acceptance Tests Required to achieve Substantial Completion and Final Acceptance as listed in Section 1.0. A report will be prepared within two (2) days of the completion of each such Acceptance Test and reviewed by Buyer within two (2) days after the submission of the report. The evaluation of the Acceptance Tests shall be on a mutually agreed basis. If all of the Acceptance Tests Required to achieve Substantial Completion are verified by mutual agreement to have been passed, Substantial Completion shall occur as of the date on which the last test required for Substantial Completion was completed. If all of the Acceptance Tests Required to achieve Final Acceptance are verified by mutual agreement to have been passed and all other requirements for Final Acceptance are satisfied, Final Acceptance shall occur as of the date on which the last test required for Final Acceptance was completed. Each report shall include:

5.1.4.1 Date and time of the test start and finish.

5.1.4.2 Names of the parties who witnessed the test.

Bartow Repowering Project	Appendix C
CONTRACT FOR PURCHASE – STEAM TURBINE GENERATOR	Page 15 of 14
	Date 3/8/07

5.1.4.3 Description of the conditions under which the tests were performed including meteorological information.

5.1.4.4 Summary of instrument calibration data including signed and approved instrument calibration forms.

5.1.4.5 Summary of all test data and results including any tests conducted on individual components.

5.1.4.6 Summary of test instrument measurement uncertainties.

5.1.4.7 Comparison of test results to the performance guarantees.

5.1.4.8 Conclusions from the test results.

5.2 Availability Test—Specific Requirements

The Availability Test results will be collected and tabulated on an hour by hour basis. The results for each hour shall be corrected as indicated in Section 2.3. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A.

Test electrical output for the STG will be calculated by subtracting the auxiliary power consumption for the STG as measured (equipment loads are listed in Section 4.4 of Appendix A) from the measured electric output at the generator terminals as defined in Section 3.3 of Appendix A.

APPENDIX C

ATTACHMENT I

Acceptance Test Summary

MPS Contract	Who Develops First Draft of Detailed Procedure	Who Directs the Test	Do Performance LS's Apply?	Is Test Required prior to Substantial Completion?	Are Air Emissions to be Verified by CEMS during Test?	Is Test Subject to Retest after Substantial Completion?
Test Category						
Performance Tests						
MPS Net Steam Turbine Electrical Output	Seller	EPC	Yes-MPS	Yes	Yes	Yes
MPS Net Steam Turbine Maximum Electrical Output	Seller	EPC	Yes-MPS	Yes	Yes	Yes
Demonstration Tests						
Demo Tests prior to Substantial Completion						
Minimum Load	EPC	EPC	No	Yes	Yes	No
Generator Operations - Lead/Lag	EPC	EPC	No	Yes	Yes	No
Steam Turbine Load Ramp Rate	EPC	EPC	No	Yes	No	No
Demo Tests after Substantial Completion						
Unit Trip	EPC	EPC	No	No	No	No
Availability Test	EPC	EPC	No	Yes	Yes during steady state	No
Emission Tests						
Near Field Noise Levels	EPC	EPC	No	No	n/a	Yes

APPENDIX G
Drawing List
(Revised January 2, 2008)

Progress Energy Florida

Bartow Repowering Project

DRAWING LIST
(ST PORTION)

出図
2006. 11. 15

CONTENT		REMARKS	PURCHASER	ORDER No.	DATE	STEAM TURBINE ENGINEERING DEPARTMENT	
DESCRIPTION	PAGE			ITEM No.	REFERENCE	STEAM TURBINE ENGINEERING GROUP	
FIGURE	SHEET		Bartow Repowering	6704335	27 Jun. 06	APPROVED BY	T. Suzuki
TOTAL	29 SHEET			6000	M. M.	CHECKED BY	—
						DESIGNED BY	M. Makino
						DRAWN BY	—
						ISSUE	—
						DATE	27 Jun. 06

ORDER or R.No.	PHOTO DATE	COPY FOR	Bibb	M P S	高橋PM	原火品	電計設	制シ設	配設	建設	計電	土建	プ機設	プ総管	タ機設	タ機制	控
		*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

DRAWING No. T4-A6917 DEV.No R-1

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS
高製技 2.A4 トレ 22 69.6改 (タ設 表紙 FR02.DOC)

管理コード T35Z02352
PA CODE T35Z0235902

PLAN RECORD

Rev. No	Date	DESIGNED By	CHECKED By	APPRVED By	DECRIPTION
R−0	27 Jun. 06	———	———	———	This list is issued for Bartow Repowering Project. (Tenaska's drawing No. S4-70824) The hatched drawings in this list are applied for Bartow PJ without revision from Tenaska PJ. The other drawings in this list will be revised or newly issued for Bartow PJ. If some modifications from Tenaska PJ are required, this drawing list will be revised.
R−1	13 Nov. 06	M. Makino	R. Uwamoto	T. Hayashi	Revised as per design progress.

CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 5520

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	LATER (P-00010)		SHOP INSPECTION AND TEST PLAN FOR STEAM TURBINE	(09-22-06) 11-24-06	A			

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I—INFORMATION DWG

RA—REAPPROVAL DWG
C—CONSTRUCTION DWG
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Z—OTHER

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 7320

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1	202-GA-0011-01	D1-S4267 (E-10600)	R02	ARRANGEMENT OF TURBINE CONDUIT FOR T/G FOUNDATION	(06-09-01) 11-28-06	001 :06-11-01 DG-0035 1 :06-07-01 TR-00060	011 :07-10-01 DG-0067	021 :09-28-06 MHI/BRT-DG-0022 6 :10-31-06 202-073	
2	202-EP-0001-01	D1-S4268 (E-10800)	R02	LOCATION PLAN OF INSTRUMENT AND PANEL(ST PORTION)	(10-26-01) 11-28-06	001 :10-26-01 DG-0146 1 :11-21-01 TR-00210	011 :11-29-01 DG-0280 1 :01-28-02 TR-00354	021 :09-28-06 MHI/BRT-DG-0022 6 :10-31-06 202-073	
3	202-ES-0010-02	D3-S4925 (E-00400)	R02	STANDARD LOGIC DIAGRAM FOR AUXILIARIES(ST PORTION)	(06-26-01)	00A :06-17-01 DG-0017	011 :09-05-06 MHI/BRT-DG-0014 1 :09-25-06 202-043	02F :10-06-06 MHI/BRT-DG-0024	
4	*	D3-S4273 (E-10420)	R00	GOVERNOR CONTROL DIAGRAM (ST PORTION)	(11-28-01)	001 :11-10-01 DG-0178			
5	*	D3-S5054 (E-10400)	R01	UNIT INTERLOCKDIAGRAM (ST PORTION)	(06-26-01) 03-31-07	001 :06-21-01 DG-0042	011 :11-21-01 DG-0184 1 :12-03-01 TR-00222		
6		D3-S5085 (E-10200)	R02	INSTRUMENT LOOP DIAGRAM(ST PORTION)	(06-22-01)	021 :10-26-06 MHI/BRT-DG-0029			
7	202-ED-0004-01	D3-S5088 (E-10300)	R02	INSTRUMENT LIST(ST PORTION)	(07-26-01)	001 :07-19-01 DG-0060	011 :11-29-01 DG-0203 1 :01-29-02 TR-00360	021 :09-28-06 MHI/BRT-DG-0022 1 :10-31-06 202-073	
8	*	D3-S5087 (E-10700)	R01	WIRING DIAGRAM OF TERMINAL BOX(ST PORTION)	(11-26-01)	001 :11-29-01 DG-0189 1 :01-14-02 TR-00283	011 :10-26-06 MHI/BRT-DG-0029		
9	*	D3-S5151 (E-10410)	R00	CONTROL LOGIC DIAGRAM (STEAM TURBINE PORTION)	(12-14-01) 06-30-07	001 :12-17-01 DG-0221 1 :01-28-02 TR-00349			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

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10	*	D4-S6492 (E-10106)	R00	SPECIFICATION OF ST CONTROLLER	(06-26-01)	001 :06-27-01 DG-0047 / 1 :07-16-01 TR-00023			
11	*	D4-S6553 (E-10800)	R01	LOCAL RACK & STANCHION LIST (ST PORTION)	(12-12-01) 01-31-07	001 :10-05-01 DG-0128 / 1 :10-29-01 TR-00166	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		
12	202-ED-0006-01	D4-S6573 (E-00610)	R02	INTERFACE SIGNAL LIST FOR DCS(ST PORTION)	(07-25-01)	001 :05-31-01 DG-0030	011 :11-21-01 DG-0184 / 1 :12-03-01 TR-00222	021 :06-14-06 MHI/BRT-DG-0018 / 1 :10-17-06 202-060	
13	*	D4-S6536 (E-10610)	R01	SPECIFICATION OF SUPERVISORY INSTRUMENT (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116 / 1 :11-26-01 TR-00213	011 :11-29-01 DG-0184 / 1 :01-29-02 TR-00361		
14	*	D4-S6639 (E-10310)	R01	SPECIFICATION OF PRESSURE SWITCH (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116 / 1 :11-07-01 TR-00169	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		
15	*	D4-S6640 (E-12140)	R01	SPECIFICATION OF LIMIT SWITCH (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116 / 1 :11-07-01 TR-00169	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		
16	*	D4-S6641 (E-12170)	R01	SPECIFICATION OF SOLENOID VALVE (ST PORTION)	(10-26-01) 02-28-07	001 :10-04-01 DG-0116 / 1 :11-07-01 TR-00169	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		
17	*	D4-S6642 (E-12010)	R01	SPECIFICATION OF SPEED PICK UP (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116 / 1 :11-07-01 TR-00169	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		
18	*	D4-S6643 (E-12050)	R01	SPECIFICATION OF PRESSURE TRANSMITTER (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116 / 1 :11-07-01 TR-00169	011 :11-29-01 DG-0201 / 1 :01-29-02 TR-00358		

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19	[redacted]	[redacted]	001	SPECIFICATION OF LVOT (ST PORTION)	(10-04-01)	001 :10-04-01 00-0117 / 1 :10-28-01 TR-00347	011 :11-24-01 00-0281 / 1 :01-13-02 TR-00358		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

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1	*	D3-E1119 (I-09120)	R01	SCHEMATIC DIAGRAM OF ST CONTROL SYSTEM	(12-28-01)	001 :11-16-01 DG-0170	811 :10-30-06 MHI/BRT-DC-0038		
2		D3-E1122 (I-03190)	R00	SCHEMATIC DIAGRAM OF ENGINEERING MAINTENANCE STATION DESK	(11-15-01) 12-15-06	001 :11-16-01 DG-0170			
3		D3-E2197 (I-03020)	R01	OUTLINE OF ST CONTROL SYSTEM	(06-22-01) 11-15-06	00A :06-25-01 DG-0044 / 1 :10-24-01 TR-00155	81F :11-15-06 DG-0329		
4	*	D4-E2872 (I-03210)	R00	HARDWARE SPECIFICATION OF ST CONTROL SYSTEM	(06-26-01) 11-15-06	00A :06-02-01 DG-0066			
5	*	D4-E2874 (I-03223)	R00	HARDWARE SPECIFICATION OF ENGINEERING MAINTENACE STATION	(06-02-01) 11-15-06	00A :06-02-01 DG-0066			
6	*	D4-E2875 (I-03253)	R00	SPECIFICATION OF ENGINEERING MAINTENANCE STATION	(12-26-01) 11-15-06	00A :06-02-01 DG-0066			

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(11-13-06)

CUSTOMER APPROVAL DRAWING CONTROL LIST

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3		L2-67735 (D-62101)	R02	GLAND STEAM CONDENSER FAN EXHAUST PIPING	(09-01-01)	00A :09-25-01 DG-0106 / 3 :10-29-01 TR-00151	01RA:11-15-01 DG-0114 / 1 :12-18-01 TR-00210	02F :03-15-02 DG-0169	
2		L4-74741 (D-00151-000)	R02	OUTLINE DRAWING OF VALVE FOR GLAND STEAM CONDENSER EXHAUST PIPING	(09-04-01)	00A :09-06-01 DG-0095 / 5 :12-17-01 TR-00255	01F :10-19-01 DG-0134 / 1 :11-21-01 TR-00206	02F :03-15-02 DG-0164	
1		LX-74742 (D-61150-000)	R01	OUTLINE DRAWING OF EXPANSION JOINT FOR GLAND STEAM CONDENSER EXHAUST PIPING	(10-19-01)	00A :10-22-01 DG-0131	01F :03-15-02 DG-0230		
4	—	L4-75936 (D-01150-000)		PAINTING SPECIFICATION	(07-07-06) 07-07-06	A			

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DEF-19FL-FUEL-012659

CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION-CODE | 7710

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	CG-56937 (Q-00050)		INSULATION PROCEDURE FOR PLANT PIPING	(08-14-07) 08-14-07				
2	*	CG-56938 (Q-00105)		ERECTION PROCEDURE FOR FIELD PIPING	(09-14-07) 09-14-07				
3	*	CG-56940 (Q-00115)		PNEUMATIC TEST PROCEDURE FOR FIELD PIPING	(09-14-07) 09-14-07				
4	*	CG-56941 (Q-00120)		GROUTING PROCEDURE FOR STG	(07-14-07) 07-14-07				
5	202-DA-0012-01	CG-56943 (Q-00140)	R01	TEMPORARY STORAGE PLAN(ST PORTION)	(07-14-07)	011 :10-06-06 MHI/BRT-DG-0023 4 :10-25-06 202-076			
6	*	CG-56944 (Q-00400)	R00	STEAM TURBINE ARRANGEMENT OF TEMPLATE. (ST PORTION)	(03-14-07)	001 :10-16-06 MHI/BRT-DG-0025			
7	*	CG-56945 (Q-00405)	R00	SETTING POSITION AND ELEVATION OF MAJOR EMBEDDED MATERIALS (ST PORTION)	(03-14-07)	001 :10-16-06 MHI/BRT-DG-0025			
8	*	CG-56946 (Q-00410)	R09	INSTALLATION PROCEDURE THE ANCHOR BOLT & TEMPLATE FOR ST POWER TRAIN	(12-14-07)	001 :10-16-06 MHI/BRT-DG-0025			
9	*	CG-56947 (Q-00425)		LUBE OIL LINE FLUSHING FOR ST SYSTEM	(12-14-07) 12-14-07				

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*—TO BE SHIFTED OR INCLUDE TO NEW DRG NO

CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER		ORDER-NAME	Bartow Repowering Project	SECTION -CODE	7710

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10	*	CC-56948		CONTROL OIL LINE FLUSHING FOR ST SYSTEM	(12-14-07)	I			
		(Q-00430)			12-14-07				
11	*	CC-56949		BLOWING OUT PROCEDRUE FOR STEAM PIPING	(01-14-08)	I			
		(Q-00435)			01-14-08				
12	*	CC-56950		ERECTION PROCEDURE FOR STEAM TURBINE	(06-14-07)	I			
		(Q-00440)			06-14-07				
13	*	CC-56952		INSULATION PROCEDRUE FOR STEAM TURBINE	(07-14-07)	I			
		(Q-00485)			07-14-07				

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 7750

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1	*	CF-56309 (N-00880)	R00	OUTLINE OF TERMINAL BOX FOR ST	(01-26-02) 04-08-07	001 :11-30-01 DG-0284 / 1 :01-28-02 TR-00355			
2	*	CF-56311 (N-00828)	R00	SUPPLY & CONTROL AIR TUBING DIAGRAM FOR ST	(01-26-02) 04-08-07	001 :12-25-01 DG-0231 / 1 :01-28-02 TR-00363			
3	*	CF-56314 (N-00858)	R00	APR. OF CABLE DUCT & CONDUIT FOR ST INTERNAL	(03-26-02) 06-04-07	001 :02-01-02 DG-0251			
4		CF-56317 (N-00830)	R00	CABLE LIST FOR STEAM TURBINE	(02-28-02) 05-06-07	001 :02-01-02 DG-0251			
5		CF-56318 (N-00842)	R00	CONDUIT DIAGRAM FOR STEAM TURBINE INSTRUMENT	(02-28-02) 06-04-07	001 :02-28-02 DG-0267			
6	*	CF-SC058 (N-00818)	R00	ERECTION MANUAL OF INSTRUMENT WORK(ST)	(01-14-07)	00A :11-06-06 MHI/BRT-DG-0034			
7	*	CF-SC051 (N-00828)	R00	SPECIFICATION OF INSTRUMENT CABLE(INSIDE OF ST PACKAGE)	(02-12-07)	00A :11-06-06 MHI/BRT-DG-0034			

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7—NOT APPROVED

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DEF-19FL-FUEL-012662

CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER		ORDER-NAME	Bartow Repowering Project	SECTION -CODE	7760

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1		CB-15979 (L-00100)	R02	DESIGN NOTE FOR T/G FOUNDATION	(06-28-06)	001 :06-30-06 BRT-MPS-PE-100001	011 :10-23-06 MHI/BRT-DC-0026	021 :11-09-06 MHI/BRT-DC-0035	

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 73A0

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1	*	32-32269 (H-16020)	R00	OUTLINE DRAWING OF LUBE OIL COOLER FOR S/T	(05-26-01)	00A :05-24-01 DC-0029			
2		32-32295 (H-16030)	R04	OUTLINE DRAWING OF THREE WAY VALVE FOR S/T LUBE OIL COOLER	(05-26-01)	00A :05-24-01 DC-0029	01A :09-05-01 DC-0087	02A :09-10-01 DC-0107 6 :10-26-01 TR-00149	03RA:11-13-01 DC-0166 7 :01-26-02 TR-00365
						04A :11-15-02 DC-0331			
3	*	32-32426 (H-19050)	R00	OUTLINE DRAWING OF GLAND STEAM CONDENSER EXHAUST FAN	(07-26-01)	00A :09-26-01 DC-0092			
4		32-32431 (H-16040)	R01	PIPING ASSEMBLY DRAWING OF LUBE OIL COOLER FOR S/T	(08-31-01)	00A :09-18-01 DC-0098 1 :10-29-01 TR-00147	01F :10-17-02 DC-0327		
5	202-ME-0044-01	32-36432 (H-19020)	R00	GLAND STEAM CONDENSER SECTIONAL ASSEMBLY	(09-14-06) 11-14-06	00I :09-14-06 MHI/BRT-DC-0019 6 :10-17-06 202-061			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 7J00

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1	202-GA-0019-01	T0-A4203 (T-01A01-01A)	R04	STEAM TURBINE & GENERATOR OUTLINE	(06-26-01) 10-13-06	00A :04-23-01 DG-0009	01A :11-13-01 DG-0164	02F :03-20-02 DG-0295	031 :04-22-02 DG-0309
							1 :01-15-02 TR-00295		
						04A :06-23-06 MHI/BRT-DG-0002			
						6 :06-15-06 202-031			
2	202-PP-0011-01	T0-A4206 (T-01A01-06B)	R04	TERMINAL POINTS OF STEAM TURBINE PIPING 1/2	(06-12-01) 10-13-06	00A :06-13-01 DG-0036	011 :05-17-01 DG-0098	021 :12-05-01 DG-0209	031 :04-05-02 DG-0302
							1 :10-24-01 TR-00143	1 :01-23-02 TR-00307	
						04A :06-23-06 MHI/BRT-DG-0002			
						6 :06-15-06 202-031			
3	202-PP-0012-01	T0-A4207 (T-01A01-06B)	R04	TERMINAL POINT OF STEAM TURBINE PIPING 2/2	(06-26-01) 10-13-06	00A :06-13-01 DG-0036	031 :05-17-01 DG-0098	021 :12-05-01 DG-0209	031 :04-05-02 DG-0302
							6 :10-24-01 TR-00143	1 :01-23-02 TR-00307	
						04A :06-23-06 MHI/BRT-DG-0002			
						6 :06-15-06 202-031			
4		T0-A4215 (T-01A02-01A)	R00	STEAM TURBINE LONGITUDINAL SECTION	(02-28-02)	001 :12-21-01 DG-0230			
						1 :01-23-02 TR-00313			
5		T0-A4226 (T-01A01-02A)	R00	STEAM TURBINE HIP TURBINE ROTOR CLEARANCE TABLE 1/2	(04-25-02)	001 :02-21-02 DG-0261			
6		T0-A4227 (T-01A01-02A)	R00	STEAM TURBINE HIP TURBINE ROTOR CLEARANCE TABLE 2/2	(02-28-02)	001 :02-26-02 DG-0260			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | ORDER-NAME: Bartow Repowering Project | SECTION-CODE: 7J00

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7		TD-A3842 (T-03A03-02A)	A01	STEAM TURBINE LP TURBINE ROTOR CLEARANCE TABLE 1/2	(02-25-02)	003 :02-28-02 DG-0358	011 :04-09-02 DG-0386		
8		TD-A4043 (T-03A03-02A)	R01	STEAM TURBINE LP TURBINE ROTOR CLEARANCE TABLE 2/2	(03-25-02)	001 :03-12-02 DG-0382	011 :04-09-02 DG-0386		
9	202-PD-0005-01	TD-C3890 (T14C0101901)	R04	STEAM TURBINE CONTROL & LUBRICATION OIL SYSTEM DIAGRAM	(01-26-02) 10-13-06	00A :04-18-01 DG-0005	01RA:10-18-01 DG-0131 1 :11-19-01 TR-00177	03F :06-27-02 DG-0324	04A :06-23-06 MHI/BRT-DG-0007 6 :06-15-06 202-031
10		TD-C3917 (T-14C47-01A)	R01	HPSV ACTUATOR ARRANGEMENT	(10-15-01)	00K :10-09-01 DG-0123 1 :11-20-01 TR-00183	01E :02-12-02 DG-0283		
11		TD-C3918 (T-14C41-01A)	R00	HPCV ACTUATOR ARRANGEMENT	(10-18-01)	00D :10-09-01 DG-0122 1 :11-20-01 TR-00184			
12		TD-C3919 (T-14C44-01A)	R00	RSV ACTUATOR ARRANGEMENT	(10-15-01)	00N :10-09-01 DG-0127 2 :11-20-01 TR-00183			
13		TD-C3920 (T-14C45-01A)	R00	ICV ACTUATOR ARRANGEMENT	(10-15-01)	00E :10-09-01 DG-0123 1 :11-20-01 TR-00184			
14		TD-C3852 (T-14C47-01A)	R01	SOLENOID BLOCK ARRANGEMENT	(10-15-01)	00E :10-11-01 DG-0129 3 :11-20-01 TR-00182	01E :02-12-02 DG-0283		
15		TD-03914 (T-07B01-01A)	A02	STEAM TURBINE MAIN OIL TANK OUTLINE	(09-25-01)	00A :04-22-01 DG-0008	01RA:07-26-01 DG-0081 6 :12-19-01 TR-00233	021 :10-26-01 DG-0141 1 :12-19-01 TR-00361	

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16	202-PP-0014-01	T6-P3388 (T-07P81-02A)	R03	STEAM TURBINE EH FLUID PIPING ASSEMBLY 1/5	(07-27-01) 11-14-06	001 :06-01-01 DG-0065 6 :09-18-01	011 :10-30-01 DG-0148 1 :01-15-02 TR-00271	021 :03-12-02 DG-0287	031 :06-31-06 MHI/BRT-DG-0012 6 :10-17-06 202-039
17		T6-54529 (T-08S03-03A)	R02	420,000KW STEAM TURBINE CROSS OVER PIPING ASS'Y	(10-02-01)	001 :10-04-01 DG-0114 1 :11-26-01 TR-00215	011 :11-05-01 DG-0209 1 :01-23-02 TR-00357	021 :02-07-02 DG-0256	
18		T6-U4532 (T-07U01-45A)	R02	STEAM TURBINE OIL DRAIN GUARD PIPING ASS'Y 1/2	(05-07-01)	001 :06-18-01 DG-0016 1 :10-03-01	011 :06-03-01 DG-0083	021 :01-16-02 DG-0289	
19		T1-A3842 (T-01A03-15A)	R03	STEAM TURBINE AND GENERATOR BEARING ALIGNMENT	(03-05-01)	001 :09-07-01 DG-0093 1 :10-01-01			
20		T3-E7785 (T-13E05-01A0)	R01	STEAM TURBINE PROTECTIVE DEVICE PANEL ASS'Y 1/2	(09-03-01)	001 :06-03-01 DG-0085 1 :10-03-01	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :12-06-01 DG-0158 1 :01-23-02 TR-00318	031 :01-28-02 DG-0282
21		T3-E7770 (T-13E05-01A0)	R04	STEAM TURBINE PROTECTIVE DEVICE PANEL ASS'Y 2/2	(06-05-01)	001 :06-06-01 DG-0089 1 :10-03-01	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :11-06-01 DG-0158 1 :01-23-02 TR-00314	031 :12-05-01 DG-0233 1 :01-28-02 TR-00309
						041 :01-24-02 DG-0242			
22		T1-E7771 (T-13E04-01A0)	R03	STEAM TURBINE OIL PUMP AUTO START PANEL ASS'Y 1/2	(08-03-01)	001 :06-06-01 DG-0089 1 :10-03-01	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :12-06-01 DG-0158 1 :01-23-02 TR-00314	031 :01-28-02 DG-0282
23		T1-E7772 (T-13E06-01A0)	R01	STEAM TURBINE OIL PUMP AUTO START PANEL ASS'Y 2/2	(05-03-01)	001 :06-06-01 DG-0089 1 :10-03-01	011 :10-30-01 DG-0148 1 :01-14-02 TR-00287		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | ORDER-NAME: Bartow Repowering Project | SECTION-CODE: 7J00

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24		T1-E7286 (T-13E01-010A)	R04	STEAM TURBINE MAIN OIL TANK INSTRUMENT BOARD ASS'Y	(09-01-01)	001 :06-08-01 DG-0089 1 :10-01-01 –	011 :06-10-01 DG-0140 1 :01-10-02 TR-00297	021 :11-05-01 DG-0168 1 :01-23-02 TR-00314	021 :12-05-01 DG-0211 1 :01-23-02 TR-00320
						041 :01-22-02 DG-0240			
25	202-CA-0012-01	T1-E7288 (T-13E11-083)	R02	LOCATION OF TEMPERATURE INSTRUMENTS FOR S/T	(09-05-01) 10-23-06	001 :06-07-01 DG-0091 6 :10-03-01 –	011 :01-22-02 DG-0240	021 :06-10-06 MHI/BRT-DG-0010 6 :06-25-06 202-037	
26		T1-E7289 (T-13E11-050)	R01	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENTS 1/2 (NO.1-4 SEC. 4 THRUST BRG. OF S/T)	(09-10-01)	001 :06-11-01 DG-0095 1 :10-03-01 –	011 :01-22-02 DG-0240		
27		T1-E7810 (T-13E11-080)	R00	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENTS 2/2 (NO.1-4 SEC.4 THRUST BRG. OF S/T)	(09-10-01)	001 :06-11-01 DG-0095 1 :10-03-01 –			
28	202-CA-0015-01	T1-E7811 (T-13E11-090)	R02	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENTS (AROUND STEAM TURBINE) 1/4	(09-10-01)	001 :06-11-01 DG-0093 1 :10-24-01 TR-00143	011 :01-22-02 DG-0240	021 :06-10-06 MHI/BRT-DG-0010 1 :06-25-06 202-037	
29	202-CA-0016-01	T1-E7812 (T-13E11-090)	R01	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENTS (AROUND STEAM TURBINE) 2/4	(09-10-01) 10-23-06	001 :06-11-01 DG-0093 1 :10-24-01 TR-00143	011 :06-10-06 MHI/BRT-DG-0010 6 :06-25-06 202-037		
30	202-CA-0017-01	T1-E7813 (T-13E11-090)	R01	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENTS (AROUND STEAM TURBINE) 3/4	(01-26-02)	001 :06-11-01 DG-0093 1 :10-24-01 TR-00143	011 :06-10-06 MHI/BRT-DG-0010 1 :06-25-06 202-037		
31	202-PP-0035-01	T1-E7814 (T-13E11-090)	R01	MOUNTING ASS'Y OF TEMPRATURE INSTRUMENTS (AROUND STEAM TURBINE) 4/4	(01-26-02) 10-23-06	001 :06-11-01 DG-0093 1 :10-24-01 TR-00143	011 :06-10-06 MHI/BRT-DG-0010 6 :06-25-06 202-037		

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31		T1-E7841 (T-13E07-16P)	R02	S/T GAUGE PIPING FOR LUBE OIL FILTER DIFF. PRESS.	(09-20-01)	001 :09-25-01 DG-0105 1 :11-26-01 TR-00217	021 :11-15-01 DG-0188 1 :12-18-01 TR-00266		
32		T1-E7841 (T-13E09-02A)	R06	STEAM TURBINE PIPING OF AROUND HP PEDESTAL T/T	(11-27-01)	001 :11-28-01 DG-0196 1 :01-23-02 TR-00304			
34		T1-E7842 (T-13E09-02A)	R00	STEAM TURBINE PIPING OF AROUND HP PEDESTAL T/T	(11-27-01)	001 :11-28-01 DG-0196 1 :01-23-02 TR-00304			
35		T1-E7843 (T-13E09-02A)	R00	STEAM TURBINE PIPING OF AROUND HP PEDESTAL T/T	(11-27-01)	001 :11-28-01 DG-0196 1 :01-23-02 TR-00304			
36		T1-E7844 (T-13E06-14P)	R02	STEAM TURBINE PROTECTIVE DEVICE RACK CONNECTION PIPING	(10-17-01)	011 :11-19-01 DG-0178 1 :01-28-02 TR-00341	021 :12-18-01 DG-0229 1 :01-28-02 TR-00331		
37		T1-E7845 (T-13E06-14P)	R01	STEAM TURBINE OIL PUMP AUTO START RACK CONNECTION PIPING	(10-17-01)	011 :12-18-01 DG-0228 1 :01-28-02 TR-00337			
38		T1-E7895 (T-13E04-01AB)	R01	STEAM TURBINE EMERGENCY TRIP PANEL ASS'Y T/T	(11-13-01)	001 :11-14-01 DG-0167 1 :12-18-01 TR-00269	011 :01-28-02 DG-0243		
39		T1-E7896 (T-13E04-01AB)	R01	STEAM TURBINE EMERGENCY TRIP PANEL ASS'Y T/T	(11-13-01)	001 :11-14-01 DG-0167 1 :12-18-01 TR-00269	011 :01-28-02 DG-0242		
40		T1-06834 (T-14541-03Y)	R01	NAME PLATE INSTALLING PROCEDURE FOR MAIN VALVE ACTUATOR T/T	(11-20-01)	001A :11-15-01 DG-0171 1 :12-01-01 TR-00225	011 :01-25-02 DG-0223		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | ORDER-NAME: Bartow Repowering Project | SECTION-CODE: 7J00

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41		T1-C6635 (T-14C41-03V)	R01	NAME PLATE INSTALLING PROCEDURE FOR MAIN VALVE ACTUATOR 2/2	(11-30-01)	00A :11-16-01 DG-0171 1 :11-28-01 TR-00228	01F :07-05-02 DG-0323		
42		T1-C6688 (T-14C41-01V)	R00	DRAIN PIPING SUPPORT FOR ACTUATOR & OTHERS 1/2	(03-05-02)	00A :03-07-02 DG-0278			
43		T1-M4107 (T-06B01-01A)	R02	STEAM TURBINE RIVEICY OUTLINE	(10-01-01)	001 :10-04-01 DG-0116 2 :11-21-01 TR-00263	01A :10-12-01 DG-0125 4 :11-21-01 TR-00199	021 :12-26-01 DG-0233 4 :01-28-02 TR-00347	
44		T1-M4312 (T-06B23-04I)	R02	REV BALANCE VALVE CONTROL DIAGRAM	(10-02-01)	01A :10-14-01 DG-0132 1 :11-24-01 TR-00218	021 :11-27-01 DG-0183 1 :01-23-02 TR-00302		
45		T1-M8251 (T-07B10-01I)	R02	STEAM TURBINE LUBE OIL PURIFICATION SYSTEM DIAGRAM	(07-26-01)	00A :05-02-01 DG-0011	01A :11-13-01 DG-0184 1 :01-15-01 TR-00295	021 :12-18-01 DG-0234 1 :01-29-02 TR-00317	
46		T1-M6260 (T-07B16-02A)	R01	STEAM TURBINE OIL PIPING ASS'Y AROUND MAIN OIL TANK 1/2	(10-16-01)	001 :10-19-01 DG-0131 1 :11-26-01 TR-00234	011 :12-18-01 DG-0226 1 :01-29-02 TR-00371		
47		T1-M6260 (T-07B16-02A)	R00	STEAM TURBINE OIL PIPING ASS'Y AROUND MAIN OIL TANK 2/2	(10-16-01)	001 :10-19-01 DG-0137 1 :11-26-01 TR-00214			
48	202-PP-0025-01	T1-P4713 (T-07P01-02A)	R03	STEAM TURBINE EH FLUID PIPING ASSEMBLY 2/5	(07-27-01) 11-14-06	001 :06-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	031 :06-31-06 MHI/BRT-DG-0012 6 :10-17-06 202-039
49	202-PP-0026-01	T1-P4714 (T-07P01-02A)	R03	STEAM TURBINE EH FLUID PIPING ASSEMBLY 3/5	(07-27-01) 11-14-06	001 :06-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	031 :06-31-06 MHI/BRT-DG-0012 6 :10-17-06 202-039

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50	202-PP-0027-01	T1-P4715 (T-07P01-02A)	R03	STEAM TURBINE EH FLUID PIPING ASSEMBLY 4/5	(01-26-02) 11-14-06	001 :08-01-01 DG-0085 6 :08-16-01	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	031 :08-31-06 MHI/BRT-DG-0012 6 :10-17-06 202-039
51	202-PP-0028-01	T1-P4782 (T-07P01-02A)	R01	STEAM TURBINE EH FLUID PIPING ASSEMBLY 5/5	(07-27-01)	001 :10-30-01 DG-0148 1 :12-19-01 TR-00271	011 :08-31-06 MHI/BRT-DG-0012 1 :10-17-06 202-039		
52		T1-S5446 (T-05B05-01A)	R02	STEAM TURBINE HYDRAULIC OUTLINE	(10-01-01)	001 :10-04-01 DG-0116 1 :11-21-01 TR-00203	011 :10-12-01 DG-0128 6 :11-29-01 TR-00156	021 :11-28-01 DG-0233 1 :01-23-02 TR-00342	
53		T1-S5876 (T-08301-21P)	R01	420,000KW STEAM TURBINE STEAM TURBINE PIPING FOR VACUUM BREAKER VALVE	(07-31-01)	001 :08-21-01 DG-0077 6 :09-11-01 TR-00158	011 :10-05-01 DG-0210 1 :01-23-02 TR-00341		
54	202-PD-0005-01	T1-S5881 (T08S0101001)	R04	STEAM TURBINE GLAND STEAM AND DRAIN PIPING DIAGRAM 1/3	(03-26-01) 10-13-06	00A :04-16-01 DG-0005 03F :03-20-02 DG-0295	01A :10-19-01 DG-0138 1 :11-20-01 TR-00190 04A :06-23-06 MHI/BRT-DG-0007 1 :09-15-06 202-031	02A :11-06-01 DG-0159 1 :01-23-02 TR-00305	02A :11-06-01 DG-0159 1 :01-23-02 TR-00308
55	202-PD-0007-01	T1-S5882 (T08S0101001)	R05	STEAM TURBINE GLAND STEAM AND DRAIN PIPING DIAGRAM 2/3	(03-26-01) 10-13-06	00A :04-16-01 DG-0005 6 03F :03-20-02 DG-0295	01A :10-19-01 DG-0138 6 :11-20-01 TR-00190 04RA:04-03-02 DG-0299	02A :11-06-01 DG-0159 1 :01-23-02 TR-00305 05A :06-23-06 MHI/BRT-DG-0007	02A :11-06-01 DG-0159 1 :01-23-02 TR-00308 6 :09-15-06 202-031

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56	202-PD-0009-01	T1-S5803 (T0850101S01)	R05	STEAM TURBINE GLAND STEAM AND DRAIN PIPING DIAGRAM 3/3	(03-26-01) 10-13-06	00A :04-16-01 DG-0005 6 :11-21-01 TR-00206	01A :10-19-01 DG-0138 6 :11-20-01 TR-00159	02A :11-05-01 DG-0159 1 :01-23-02 TR-00305	02A :11-05-01 DG-0159 1 :01-23-02 TR-00308
						03RA:12-12-01 DG-0218	04RA:04-03-02 DG-0299	05A :06-23-06 MHI/BRT-DG-0007 1 :09-15-06 202-031	
57	202-PP-0013-01	T1-S5808 (T-08S02-01A)	R02	STEAM TURBINE HP STEAM INLET PIPING ASS'Y	(07-27-01) 11-14-06	001 :07-31-01 DG-0063 6 :12-13-01 TR-00235	011 :12-05-01 DG-0210 1 :01-26-02 TR-00341	021 :09-14-06 MHI/BRT-DG-0017 6 :10-17-06 202-058	
58	202-PP-0034-01	T1-S5809 (T-08S03-01A)	R03	STEAM TURBINE HOT REHEAT STEAM INLET PIPING ASS'Y	(07-27-01) 11-14-06	001 :07-31-01 DG-0063 6 :12-13-01 TR-00235	011 :12-05-01 DG-0210 1 :01-26-02 TR-00341	021 :02-06-02 DG-0257	031 :09-14-06 MHI/BRT-DG-0017 6 :10-17-06 202-058
59	202-PP-0036-01	T1-S6021 (T-08S01-02A)	R01	PRINCIPAL STEAM PRESSURE PIPING ASS'Y	(11-13-01) 10-23-06	001 :11-14-01 DG-0166 1 :12-18-01 TR-00264	011 :06-30-06 MHI/BRT-DG-0018 6 :09-25-06 202-037		
60		T1-U5605 (T-07U01-45A)	R01	STEAM TURBINE OIL DRAIN GUARD PIPING ASS'Y 2/2	(05-07-01)	00A :06-19-01 DG-0016	011 :08-03-01 DG-0061 1 :10-31-01		
61		T1-U5711 (T-07U01-20A)	R03	S/T AND GENERATOR OIL PIPING ASSEMBLY 1/2	(03-07-01)	001 :05-11-01 DG-0095 1 :10-03-01	011 :12-12-01 DG-0225 1 :01-23-02 TR-00331		
62		T1-U5712 (T-07U01-20A)	R01	S/T AND GENERATOR OIL PIPING ASSEMBLY 2/2	(01-26-02)	001 :05-11-01 DG-0095 1 :10-02-01	011 :12-12-01 DG-0225 1 :01-23-02 TR-00331		
63		T1-W4870 (T-08U01-05B)	R00	ROTOR GROUNDING DEVICE	(07-26-01)	001 :05-17-01 DG-0018			

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64	202-ST-0002-01	T1-Y4623 (T-10Y01-01A)	R02	STEAM TURBINE ENCLOSURE ASS'Y 1/2	(09-03-01)	001 :09-04-01 DG-0006 / 1 :10-03-01 -	011 :04-22-02 DG-0309	021 :08-10-06 MHI/BRT-DG-0011 / 1 :09-25-06 202-038	
65	202-ST-0003-01	T1-Y4624 (T-10Y01-01A)	R02	STEAM TURBINE ENCLOSURE ASS'Y 2/2	(11-28-01)	001 :09-04-01 DG-0006 / 1 :10-03-01 -	011 :04-22-02 DG-0309	021 :08-10-06 MHI/BRT-DG-0011 / 1 :09-25-06 202-038	
66	[illegible]	T1-Y4422 (T-10Y01-01B)	R03	OUTLINE OF T/G FOUNDATION DECK	(06-26-01)	00A :04-22-01 DG-0009			
67	202-FN-0009-01	T1-Y4423 (T-10Y01-11Z)	R02	STEAM TURBINE AND GENERATOR LOADS ON FOUNDATION	(06-12-01) 10-13-06	00A :04-22-01 DG-0009	011 :08-03-01 DG-0084	02A :08-23-06 MHI/BRT-DG-0002 / 6 :09-15-06 202-031	
68	[illegible]	T1-Y4439 (T-10Y01-01A)	R00	FOUNDATION OUTLINE OF EH OIL UNIT	(05-09-01)	001 :05-10-01 DG-0015			
69	202-FN-0011-01	T1-Y4440 (T-10Y02-05A)	R01	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FOR T/G FOUNDATION 1/3	(06-28-01)	001 :06-29-01 DG-0048	011 :08-30-06 MHI/BRT-DG-0009 / 1 :09-25-06 202-036		
70	202-FN-0012-01	T1-Y4441 (T-10Y02-05A)	R01	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FOR T/G FOUNDATION 2/3	(06-28-01)	001 :06-29-01 DG-0048	011 :08-30-06 MHI/BRT-DG-0009 / 1 :09-25-06 202-036		
71	202-FN-0013-01	T1-Y4442 (T-10Y02-05A)	R02	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FOR T/G FOUNDATION 3/3	(10-26-01) 10-23-06	001 :06-29-01 DG-0048	011 :04-05-02 DG-0304	021 :08-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036	
72	202-FN-0014-01	T1-Y4443 (T-10Y02-10A)	R01	S/T T/G FOUNDATION PIPING SUPPORT BACKING PLATE 1/5	(06-28-01) 10-23-06	001 :06-29-01 DG-0048	011 :08-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036		

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73	202-FH-0015-01	T1-Y4444 (T-10Y02-10A)	R01	S/T T/G FOUNDATION PIPING SUPPORT BACKING PLATE 2/5	(06-28-01) 10-23-06	001 :06-29-01 DG-0048	011 :06-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036		
74	202-FH-0016-01	T1-Y4445 (T-10Y02-10A)	R01	S/T T/G FOUNDATION PIPING SUPPORT BACKING PLATE 3/5	(06-28-01) 10-23-06	001 :06-29-01 DG-0048	011 :06-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036		
75	202-FH-0017-01	T1-Y4446 (T-10Y02-10A)	R01	S/T T/G FOUNDATION PIPING SUPPORT BACKING PLATE 4/5	(06-28-01) 10-23-06	001 :06-29-01 DG-0048	011 :06-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036		
76	202-FH-0018-01	T1-Y4447 (T-10Y02-10A)	R01	S/T T/G FOUNDATION PIPING SUPPORT BACKING PLATE 5/5	(06-28-01) 10-23-06	001 :06-29-01 DG-0048	011 :06-30-06 MHI/BRT-DG-0009 / 6 :09-25-06 202-036		
77		T1-Y4448 (T-10Y02-23A)	R02	S/T ARRANGEMENT OF TRANSVERSE & AXIAL ANCHORS 1/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 / 1 :01-29-02 TR-00371	021 :11-06-06 MHI/BRT-DG-0032	
78		T1-Y4449 (T-10Y02-23A)	R02	S/T ARRANGEMENT OF TRANSVERSE & AXIAL ANCHORS 2/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 / 1 :01-29-02 TR-00371	021 :11-06-06 MHI/BRT-DG-0032	
79		T1-Y4450 (T-10Y02-23A)	R02	S/T ARRANGEMENT OF TRANSVERSE & AXIAL ANCHORS 3/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 / 1 :01-29-02 TR-00371	021 :11-06-06 MHI/BRT-DG-0032	
80		T1-Y4451 (T-10Y02-23A)	R01	S/T ARRANGEMENT OF TRANSVERSE & AXIAL ANCHORS 4/4	(06-05-01)	001 :06-06-01 DG-0033	011 :11-06-06 MHI/BRT-DG-0032		
81	202-FH-0023-01	T1-Y4452 (T-10Y02-31A)	R01	STEAM TURBINE GROUTING AREA FOR T/G FOUNDATION 1/2	(06-28-01)	001 :06-29-01 DG-0048	011 :09-28-06 MHI/BRT-DG-0021 / 4 :10-17-06 202-066		

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82	202-FN-0024-01	T1-Y4453 (T-10Y02-31A)	R01	STEAM TURBINE GROUTING AREA FOR T/G FOUNDATION 2/2	(06-28-01) 11-14-06	001 :06-29-01 DG-0048	011 :06-29-06 MHI/BRT-DG-0021 7 :10-17-06 202-966		
83		T1-Y4454 (T-10Y02-34A)	R00	STEAM TURBINE T/G FOUNDATION GROUT RETAINERS 1/2	(06-29-01)	001 :06-29-01 DG-0048			
84		T1-Y4455 (T-10Y02-34A)	R00	STEAM TURBINE T/G FOUNDATION GROUT RETAINERS 2/2	(06-29-01)	001 :06-29-01 DG-0048			
85	202-FN-0027-01	T1-Y4456 (T-10Y02-37D)	R02	STEAM TURBINE T/G FOUNDATION ENCLOSURE SUPPORT 1/3	(09-03-01) 10-23-06	001 :06-06-01 DG-0068 6 :10-03-01 _	011 :04-24-02 DG-0310	021 :06-30-06 MHI/BRT-DG-0011 6 :06-25-06 202-938	
86	202-FN-0028-01	T1-Y4457 (T-10Y02-37D)	R03	STEAM TURBINE T/G FOUNDATION ENCLOSURE SUPPORT 2/3	(09-03-01)	001 :06-06-01 DG-0068 1 :10-03-01 _	011 :04-24-02 DG-0310	021 :06-07-02 DG-0314	031 :06-30-06 MHI/BRT-DG-0011 1 :06-25-06 202-938
87	202-FN-0029-01	T1-Y4458 (T-10Y02-37D)	R02	STEAM TURBINE T/G FOUNDATION ENCLOSURE SUPPORT 3/3	(09-03-01) 10-23-06	001 :06-06-01 DG-0068 1 :10-03-01 _	011 :04-24-02 DG-0310	021 :06-30-06 MHI/BRT-DG-0011 6 :06-25-06 202-938	
88		T1-Y4459 (T-10Y02-47D)	R02	ARRANGEMENT OF LEVELING PLATES FOR T/T FOUNDATION 1/2	(06-28-01)	001 :06-29-01 DG-0048	011 :05-31-01 DG-0093 6 :10-24-01 TR-00148	021 :10-18-01 DG-0328 1 :01-29-02 TR-00171	
89		T1-Y4460 (T-10Y02-47D)	R00	ARRANGEMENT OF LEVELING PLATES FOR T/T FOUNDATION 2/2	(06-28-01)	001 :06-29-01 DG-0048			
90		T2-C0015 (T-14C01-06C)	R02	NAME PLATE INSTALLING PROCEDURE FOR SOLENOID BLOCK	(11-30-01)	01A :12-03-01 DG-0255 1 :12-14-01 TR-00242	021 :07-05-02 DG-0123		

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01		T2-C5020 (T-14C41-010)	R00	DRAIN PIPING SUPPORT FOR ACTUATOR & OTHERS 2/2	(03-08-01)	000 :03-07-02 DG-0378			
02		T2-M4855 (T-08K04-01A)	R00	REV ATTACHMENT PARTS FOR MOD DOWN	(04-04-02)	001 :04-05-02 DG-0393			
03		T2-V4871 (T-10V01-210)	R00	STEAM TURBINE NAME PLATE	(01-07-02) 12-13-06	001 :01-08-02 DG-0235 1 :01-23-02 TR-00386			
04		T2-Y3633 (T-10Y03-200)	R00	STEAM TURBINE FOUNDATION OF MAIN OIL TANK	(05-10-01)	001 :05-20-01 DG-0041			
05		T2-Y3634 (T-10Y01-200)	R00	STEAM TURBINE FOUNDATION OF OIL PURIFIER UNIT	(05-10-01)	001 :05-20-01 DG-0041			
06		T2-Y3635 (T-10Y02-200)	R00	STEAM TURBINE FOUNDATION OF LUBE OIL STRAINER	(05-10-01)	001 :05-20-01 DG-0041			
07	202-RE-0009-01	T4-A5635 (T-01A01-041)	R01	MAINTENANCE NOTES INCLUDING MAIN COMPONENT DIMENSION AND WEIGHT FOR LAY DOWN(FOR	(05-31-01)	001 :06-04-01 DG-0031 1 :07-18-01 TR-00031	011 :06-23-06 MHI/BRT-DG-0005 1 :06-15-06 202-031		
08		T4-A5691 (T-01A01-03A)	R00	HP,LP TURBINE RADIAL CLEARANCE TABLE	(04-30-02)	001 :05-05-02 DG-0280			
09	202-RE-0022-01	T4-A6888 (T3SZ0235002)	R01	UTILITY LIST(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 6 :06-15-06 202-031	011 :10-24-06 MHI/BRT-DG-0028		

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<NOTE>
9—TO BE SHIFTED OR INCLUDE TO NEW DWG NO

(11-13-06)

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 7J00

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
100	202-LD-0001-01	T4-A6889 (T35Z0235302)	R01	ELECTRICAL LOAD LIST(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 6 :09-15-06 202-031	011 :10-31-06 MHI/BRT-DG-0031		
101	202-RE-0023-01	T4-A6891 (T35Z0235402)	R00	CONTRACT INTERFACE(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 1 :09-15-06 202-031			
102	202-RE-0024-01	T4-A6892 (T35Z0235902)	R01	HAZARDOUS AREA CLASSIFICATION(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 6 :09-15-06 202-031	011 :10-31-06 MHI/BRT-DG-0031		
103	202-RE-0025-01	T4-A6893 (T35Z0236102)	R01	MOTOR LIST(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 6 :09-15-06 202-031	011 :10-31-06 MHI/BRT-DG-0031		
104	202-RE-0026-01	T4-A6894 (T35Z0235202)	R00	EQUIPMENT LIST(ST PORTION)	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 1 :09-15-06 202-031			
105		T4-A6895 (T35Z0235502)	R00	LUBRICATING OIL LIST(ST PORTION)	(08-31-06)	001 :10-23-06 MHI/BRT-DG-0027			
106	202-RE-0027-01	T4-A6896 (T35Z0235702)	R00	PLANT IDENTIFICATION NUMBERING SYSTEM	(07-31-06)	001 :06-23-06 MHI/BRT-DG-0003 1 :09-15-06 202-031			
107	202-RE-0028-01	T4-A6954 (T35Z0234402)	R00	OPERATING PROCEDURE(ST PORTION)	(10-31-06) 10-13-06	001 :06-24-06 MHI/BRT-DG-0005 6 :09-15-06 202-031			
108	202-RE-0037-01	T4-A6979 (T35Z1225002)	R00	REQUIREMENT FOR GLAND STEAM SYSTEM	(09-15-06) 11-21-06	001 :09-19-06 MHI/BRT-DG-0020 6 :10-24-06 202-053			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(11-13-06)

ORDER | | ORDER-NAME | Bartow Repowering Project | SECTION -CODE | 7J00

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE;DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
109		T4-G4T06 (T-13E12-012)	R01	STEAM TURBINE VALVE LIST (FOR TURBINE INSTRUMENTATION)	(10-22-01)	001 :10-28-01 DC-0140 / 1 :11-14-01 TR-00180	011 :11-16-01 DC-0225 / :01-22-02 TR-00331		
110		T4-G4853 (T-14G41-021)	R01	NAME PLATE FOR CONTROL OIL SYSTEM ACTUATOR & SOLENOID BLOCK	(11-30-01)	00A :11-14-01 DC-0171 / 1 :12-01-01 TR-00226	011 :01-05-02 DC-0373		
111		T4-G4858 (T14G0103002)	R00	CONTROL SETTING FOR STEAM TURBINE	(11-02-06)	001 :11-06-06 MHI/BRT-DC-0033			
112		T4-M5811 (T-07B02-001)	R00	MAIN OIL TANK ELECTRICAL HEATER	(10-02-01)	001 :10-04-01 DC-0115 / 1 :10-25-01 TR-00167			
113		T4-M5814 (T-07H08-021)	R01	STEAM TURBINE OIL PURIFIER	(10-30-01)	001 :10-31-01 DC-0151 / 1 :11-10-01 TR-00278	011 :01-25-02 DC-0341		
114		T4-M5845 (T-07B04-011)	R00	CONTROL OIL PUMP	(01-06-02)	001 :04-22-01 DC-0030			
115		T4-M5846 (T-07B04-071)	R00	TURNING OIL PUMP	(08-27-01)	001 :08-28-01 DC-0010			
116		T4-M5847 (T-07B04-051)	R00	EMERGENCY OIL PUMP	(01-06-02)	001 :05-29-01 DC-0080			
117		T4-M5848 (T-07B06-031)	R00	MAIN OIL TANK VAPOR EXTRACTOR	(01-24-02)	001 :10-02-01 DC-0112 / 1 :11-16-01 TR-00171			

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118		T4-H5822 (T-07H10-04Y)	R01	STEAM TURBINE LUBE OIL FILTER	(10-31-01)	001 :11-01-01 DG-0183 1 :01-25-02 TR-00350	011 :11-29-01 DG-0195 1 :01-28-02 TR-00351		
119		T4-P4728 (T-14G40-11A)	R01	EHC HYDRAULIC UNIT ASS'Y	(12-28-01)	00A :11-28-01 DG-0198 1 :01-24-02 TR-00352	01E :01-25-02 DG-0227		
120		T4-P4740 (T-14G40-20Y)	E01	NAME PLATE FOR EHC HYDRAULIC UNIT ASS'Y	(12-12-01)	00A :12-10-01 DG-0224 1 :01-15-02 TR-00282	01F :01-05-02 DG-0323		
121		T4-P4761 (T-14G40-22Y)	R01	NAME PLATE INSTALLING PROCEDURE FOR EHC HYDRAULIC UNIT ASS'Y	(02-08-02)	00A :01-31-02 DG-0240 1 :02-19-02 TR-NOT-278	01F :01-05-02 DG-0321		
122		T4-S4454 (T-08S10-03Z)	R01	STEAM TURBINE VALVE LIST FOR STEAM PIPING	(11-01-01)	001 :11-05-01 DG-0154 1 :11-20-01 TR-00183	011 :12-04-01 DG-0208 1 :01-28-02 TR-00353		
123		T4-S4470 (T-08S10-01Y)	R01	STEAM TURBINE VENTILATOR VALVE (VALVE NO. :GAEBC01AA101)	(10-24-01)	001 :11-20-01 DG-0180 1 :01-24-02 TR-00324	011 :02-22-02 DG-0317		
124		T4-S4471 (T-08S10-03Y)	R02	STEAM TURBINE VACUUM BREAKER VALVE (VALVE NO. :GAEAC11AA001)	(10-25-01)	001 :10-25-01 DG-0143 1 :11-20-01 TR-00183	011 :11-12-01 DG-0187 1 :01-25-02 TR-00352	021 :12-03-01 DG-0207 1 :01-25-02 TR-00354	
125		T4-U4912 (T-07U05-01Z)	R01	STEAM TURBINE VALVE LIST FOR OIL PIPING	(10-22-01)	001 :10-23-01 DG-0140 1 :11-21-01 TR-00180	011 :12-18-01 DG-0205 1 :01-31-02 TR-00311		
126	202-SP-0001-01	T4-V4456 (T-10V03-01Y)	R02	STEAM TURBINE SPECIFICATION OF INSULATION FOR PIPING AND EQUIPMENT	(11-26-01) 10-31-06	001 :11-28-01 DG-0191		021 :09-01-06 MHI/BRT-DG-0013 6 :10-03-06 202-045	

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127		(T06RD60101A)		LPSV&LPCV OUTLINE	(12-25-06) 12-25-06				
P28		(T06R060301A)		LP STOP VALVE ASSEMBLY	(12-25-06) 12-25-06				
129		(T06R130101A)		LP CONTROL VALVE ASSEMBLY	(12-25-06) 12-25-06				
130		(T06S021101A)		STEAM TURBINE LP STEAM INLET PIPING ASS'Y	(10-31-06) 12-26-06				
131		(T35Z0235602)		SPECIAL TOOL LIST (ST PORTION)	(03-31-07) 03-31-07				
132		(T35Z0240202)		OPERATION AND MAINTENANCE MANUAL	(09-30-07) 09-30-07				
133		(T91A9119003)		PERFORMANCE TEST PROCEDURE	(03-31-08) 03-31-08				

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Changes for the Better

PROGRESS ENERGY
BARTOW REPOWERING PROJECT

DRAWING LIST (MELCO PORTION)

FOR INFORMATION

ENERGY SYSTEMS CENTER
NOV. 22. 2006
MITSUBISHI ELECTRIC CORP. JAPAN

NO	DATE	DESCRIPTION
D	2006/11/20	Updated. S.Takegawa M.Tsuno
C	2006/6/28	Totally revised according to the project change.
B	2002/2/19	Revised as per design progress. N.N S.S S.H
A	2001/4/17	Revised as per design progress. N.N S.H

改訂 REVISION

MITSUBISHI ELECTRIC CORPORATION
ENERGY SYSTEMS CENTER
ENERGY PLANT ENGINEERING SECTION 1

送付先 SEND TO

客先			MELCO ORL	1	本プラ建	—	エネ品一	1	作成 DRAWN	照査 CHECKED	課長 APPROVED
			MPS	1	配電	1	エネシニ	1			
					(伊)系電	1					
					(独)系電	—					
MHI	原技	-			名電・配制	1	海力営	—	N.Niki	-	S.Hino
	長船	-	TMEIC長崎	-	夕鉄一	1	MEE発技二	-			
	神船	-	TMEIC中鉄	-	回建	—	(SH)	-	日付 DATE	図番 DWG.No	REV
	高製	1	TMEIC大鉄	-	回品	—	(配電)	—	2006/4/25	GAE-EC -E120	D
	広船	-	回開発	-	TMEIC/PER	1	控(輸出)	1	オーダ ORDER		
			名電/新城	—	TMEIC/PE品	—	合計	7			

CONFIDENTIAL

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CUSTOMER APPROVAL DRAWING CONTROL LIST

Page = 1

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-GEN I

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		ABH-L6112	A	TURBINE GENERATOR TERMINAL POINT LIST		[redacted]	A 1 : 06-11-10 BRT-MEL-PE-200021		
2		A33S738	0	TURBINE GENERATOR HYDROGEN SIDE SEAL OIL DRAIN LEVEL SWITCH UNIT OUTLINE (FOR STEAM TURBINE)			0 : "STAMPED" 1 : 06-10-17 202-050		
3		AL77536	0	FOUNDATION OF GENERATOR ANCHOR BLOCK ASSEMBLY (FOR STEAM TURBINE)			0 : "STAMPED" 2 : 06-10-03 202-048		
4		A33L200	A	TURBINE GENERATOR VAPOR EXTRACTOR OUTLINE (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-17 202-050	
5		A33L201	A	TURBINE GENERATOR GAS DRYER OUTLINE (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-17 202-050	
6		AL74628	A	TURBINE GENERATOR H2 PRESSURE/PURITY MONITORING UNIT OUTLINE (FOR STEAM TURBINE)				A : "STAMPED" 1 : 06-08-25 202-047	
7		AL74629	A	TURBINE GENERATOR CO2 GAS SUPPLY UNIT OUTLINE (FOR STEAM TURBINE)				A : "STAMPED" 1 : 06-10-17 202-050	
8		AK77203	B	TURBINE GENERATOR AUXILIARY EQUIPMENT WIRING DIAGRAM (FOR STEAM TURBINE)				B 1 : 06-11-10 BRT-MEL-PE-200021	
9		AK81522	B	S/T GENERATOR COOLING WATER PIPING				B 1 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
10		AK81523	B	GENERATOR H2 & CO2 GAS PIPING (1/3) (FOR STEAM TURBINE)				B 1 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	

/12

DEF-19FL-FUEL-012682

DECLASSIFIED

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11		AK81524	B	GENERATOR H2 & CO2 GAS PIPING (2/3) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
12		AK81525	B	GENERATOR H2 & CO2 GAS PIPING (3/3) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
13		AK81526	B	GENERATOR SEAL OIL PIPING (1/4) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
14		AK81527	B	GENERATOR SEAL OIL PIPING (2/4) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
16		AK81528	B	GENERATOR SEAL OIL PIPING (3/4) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
15		AK81529	B	GENERATOR SEAL OIL PIPING (4/4) (FOR STEAM TURBINE)		[redacted]	[redacted]	0 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077	
17		AK81530	0	PLAN OF SCAFFOLDING FOR INSPECTION (FOR STEAM TURBINE)	07-1-31	[redacted]			
18		AK81531	A	S/T GENERATOR TERMINAL BOX & CONDUITS		[redacted]	A 1 : 06-10-17 BRT-MEL-PE-200015 2 : 06-11-16 202-077		
19		AK78071	0	TURBINE GENERATOR TERMINAL AND CT ASSEMBLY (FOR STEAM TURBINE)	06-12-28	[redacted]			
20		AL74344	0	TURBINE GENERATOR ANCHOR FOR PULLING OUT ROTOR (FOR STEAM TURBINE)		[redacted]	0 : "STAMPED" 2 : 06-10-03 202-048		

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21		AK76842	0	TURBINE GENERATOR METHOD OF MOUNTING (1/2) (FOR STEAM TURBINE)		[redacted]	Q : "STAMPED" 2 : 06-10-03 202-048		
22		AK76843	0	TURBINE GENERATOR METHOD OF MOUNTING (2/2) (FOR STEAM TURBINE)		[redacted]	0 : "STAMPED" 4 : 06-10-03 202-048 1 : 06-10-02 202-053		
23		A33K449	A	TURBINE GENERATOR CONDUITS ARRANGEMENT (FOR STEAM TURBINE)		[redacted]	[redacted]	A : "STAMPED" 2 : 06-10-17 202-060	
24		AL74378	0	TURBINE GENERATOR GROUND RETAINER ARRANGEMENT (FOR STEAM TURBINE)		[redacted]	0 : "STAMPED" 2 : 06-10-03 202-048		
25		AL75211	0	TURBINE GENERATOR GROUND CONNECTION TERMINALS ARRANGEMENT (FOR STEAM TURBINE)		[redacted]	0 : "STAMPED" 1 : 06-09-25 202-047		
26		AK76890	A	TURBINE GENERATOR OUTLINE (FOR STEAM TURBINE)		[redacted]	[redacted]	A : "STAMPED" 2 : 06-10-17 202-060	
27		A33T318	0	TURBINE GENERATOR LOOP SEAL TANK OUTLINE (FOR STEAM TURBINE)		[redacted]	0 : "STAMPED" 2 : 06-10-17 202-060		
28		A33K491	A	TURBINE GENERATOR LOAD ON FOUNDATION (FOR STEAM TURBINE)		[redacted]	[redacted]	A : "STAMPED" 1 : 06-10-03 202-048	
29		AK80380	B	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (1/3)		[redacted]	A 1 : 06-09-22 BRT-MEL-PE-200003 B : 06-09-18 202-035	B 1 : 06-09-25 BRT-MEL-PE-200013	
30		AK80381	C	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (2/3)		[redacted]	[redacted]	B 1 : 06-09-22 BRT-MEL-PE-200003 1 : 06-09-18 202-035	C 1 : 06-09-25 BRT-MEL-PE-200013

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<CLASS> A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
<STATUS> 1:APP; APPROVED, 2: AAN; APPROVED AS NOTED, 3: INF; INFORMATION ONLY, 4: RTC; RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | ORDER-NAME: PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-GEN I

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
31		AK80362	C	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (3/3)				B I : 06-09-02 BRT-MEL-PE-200003 2 : 06-09-19 282-035	C I : 06-09-25 BRT-MEL-PE-200015
32		AK76841	A	TURBINE GENERATOR FOUNDATION BOLT ARRANGEMENT (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-03 282-048	
33		A38T258	B	TURBINE GENERATOR FOUNDATION BOLT AND COVER (FOR STEAM TURBINE)			0 : "STAMPED" 2 : 06-10-03 282-048		
34		AK80363	B	S/T GENERATOR FOUNDATION CONDUIT LAYOUT			A I : 06-09-02 BRT-MEL-PE-200003 2 : 06-09-19 282-035	B I : 06-09-25 BRT-MEL-PE-200015	
35		AK76872	D	TURBINE GENERATOR METHOD OF INSTALLING ROTOR (FOR STEAM TURBINE)			0 : "STAMPED" 2 : 06-10-17 282-050		
36		AK78069	C	TURBINE GENERATOR INSTRUMENT WIRING ARRANGEMENT (1/2) (FOR STEAM TURBINE)			0 : "STAMPED" 1 : 06-09-25 282-047		
37		AK78070	B	TURBINE GENERATOR INSTRUMENT WIRING ARRANGEMENT (2/2) (FOR STEAM TURBINE)			0 : "STAMPED" 1 : 06-09-25 282-047		
38		AK77200	A	TURBINE GENERATOR COOLING WATER DIAGRAM (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-17 282-050	
39		AK77201	A	TURBINE GENERATOR H2 & CO2 GAS DIAGRAM (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-17 282-050	
40		AK77202	A	TURBINE GENERATOR SEAL OIL DIAGRAM (FOR STEAM TURBINE)				A : "STAMPED" 2 : 06-10-17 282-050	

/ST

CONFIDENTIAL

<CLASS> A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
<STATUS> 1.APP: APPROVED, 2. AAN: APPROVED AS NOTED, 3. INF: INFORMATION ONLY, 4. RTC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-GEN I

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
41		AK77204	A	TURBINE GENERATOR SEAL OIL SUPPLY UNIT OUTLINE (FOR STEAM TURBINE)		[redacted]	[redacted]	A : "STAMPED"	
								2 : 06-10-17 202-050	
42		AL74627	A	TURBINE GENERATOR H2 GAS SUPPLY UNIT OUTLINE (FOR STEAM TURBINE)				A : "STAMPED"	
								2 : 06-10-17 202-050	
43		A33X499	A	TURBINE GENERATOR WATER DETECTOR OUTLINE (FOR STEAM TURBINE)				A : "STAMPED"	
								1 : 06-10-17 202-050	

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DECLASSIFIED

DEF-19FL-FUEL-012686

(CLASS) A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
(STATUS) 1.APP: APPROVED, 2. AAN: APPROVED AS NOTED, 3. INF: INFORMATION ONLY, 4. RFC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-GEN II

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		ART-T-5032	0	SHOP TEST PROCEDURE FOR STEAM TURBINE GENERATOR		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
2		ART-T-5033	0	SHOP TEST PROCEDURE FOR BRUSHLESS EXCITER & PMG OF STEAM TURBINE GENERATOR		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
3		ART-T-5034	0	SHOP TEST PROCEDURE FOR SEAL OIL SUPPLY UNIT OF STEAM TURBINE GENERATOR		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
4		ART-0-0965	0	SHOP TEST PROCEDURE FOR DC MOTOR		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
5		ART-T-5347	0	SITE TEST PROCEDURE FOR STEAM TURBINE GENERATOR AND AUXILIARIES		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
6		AWF802-012	0	INSTALLATION PROCEDURE OF STEAM TURBINE GENERATOR		[redacted]	0 : "STAMPED" RET : 06-10-10 202-056		
7		AWF802-013	0	SEAL OIL FLUSHING PROCEDURE (STG)		[redacted]	0 : "STAMPED" 3 : 06-10-10 202-058		
8		02EVMA01T267	0	SHOP TEST REPORT FOR STEAM TURBINE GENERATOR		0 : 06-08-18 SRT-MEL-PE-280011 3 : 06-10-10 202-065			
9		02EVMA10T268	0	SHOP TEST REPORT FOR BRUSHLESS EXCITER AND PMG OF STEAM TURBINE GENERATOR		0 : 06-08-18 SRT-MEL-PE-280011 3 : 06-10-10 202-065			
10		02EVMA04T269	0	SHOP TEST REPORT FOR SEAL OIL SUPPLY UNIT OF STEAM TURBINE GENERATOR		0 : 06-08-18 SRT-MEL-PE-280011 3 : 06-10-10 202-065			

(CLASS) A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
(STATUS) 1:APP, APPROVED, 2: AAN, APPROVED AS NOTED, 3: INF: INFORMATION ONLY, 4: RFC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		GAE-EC-E140	B	SUB VENDOR LIST				B F : 06-09-13 BRT-MEL-PE-200097 1 : 06-10-02 202-051	
2		GAE-EC-E145	C	ELECTRICAL EQUIPMENT LIST (MELCO PORTION)					C F : 06-09-13 BRT-MEL-PE-200097 1 : 06-09-15 202-054 1 : 06-10-02 202-051
3		GAE-EC-E150	B	GENERAL SPECIFICATION OF ELECTRICAL PANEL (MELCO PORTION)				B F : 06-09-13 BRT-MEL-PE-200097 2 : 06-10-2 202-051	
4		GAE-EC-E162	C	PAINTING COLOR LIST (MELCO PORTION)					C F : 06-09-13 BRT-MEL-PE-200097 1 : 06-10-02 202-051
5		GAE-EC-E163	C	PAINTING PROCEDURE (MELCO PORTION)					C F : 06-09-13 BRT-MEL-PE-200097 1 : 06-10-02 202-051
6		GAE-EC-E220	A	STUDY OF GENERATOR SURGE PROTECTION EQUIPMENT			A F : 06-09-15 BRT-MEL-PE-200099 1 : 06-10-05 202-059		
7		GAE-EC-E230	A	STUDY OF GENERATOR NGR SYSTEM			A F : 06-09-07 BRT-MEL-PE-200095 1 : 06-09-25 202-042		
8		GAE-EC-E511	D	ALARM LIST GENERATOR CONTROL PANEL AND SEAL OIL CONTROL PANEL FOR STG			0 : "STAMPED" 1 : 06-10-02 202-054		
9		GAE-EC-E520	A	INSTRUMENT TRANSFORMER LIST			A F : 06-09-15 BRT-MEL-PE-200099 1 : 06-10-05 202-059		
10		GAE-EC-E531	B	STUDY OF GARDEN FOR INSTRUMENT TRANSFORMER FOR STG			0 : "STAMPED" 2 : 06-10-02 202-054		

<CLASS> A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
<STATUS> 1.APP: APPROVED, 2.AAN: APPROVED AS NOTED, 3.INF: INFORMATION ONLY, 4.RPO: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
21		JEJ17882	2	OUTLINE DRAWING OF GENERATOR CONTROL PANEL (FOR ST GENERATOR)				2 : "STAMPED" 1 : 05-09-25 202-047	
22		JEJ17884	2	OUTLINE DRAWING OF GENERATOR AUXILIARY PANEL (FOR ST GENERATOR)					2 : "STAMPED" 1 : 05-09-25 202-047
23		JEJ17885	2	OUTLINE DRAWING OF SEAL OIL CONTROL PANEL (FOR ST GENERATOR)					2 : "STAMPED" 2 : 05-09-25 202-047
24		JEM61988	2	ASSEMBLY DRAWING OF ST GENERATOR BUSHING CT TERMINAL BOX				1 : "STAMPED" 1 : 05-09-25 202-047	2 F : 06-11-06 BRT-MEL-PE-200018
25		JEM09929	0	PANEL ARRANGEMENT OF GENERATOR PROTECTION RELAY PANEL FOR STG			0 : "STAMPED" 1 : 05-09-25 202-047		
26		JEJ17888	2	PANEL ARRANGEMENT OF GENERATOR CONTROL PANEL FOR STG					2 : "STAMPED" 1 : 05-09-25 202-047
27		JEJ17891	1	PANEL ARRANGEMENT OF SEAL OIL CONTROL PANEL FOR STG				1 : "STAMPED" 1 : 05-09-25 202-047	
28		JEK59074	C	EXTERNAL TERMINAL WIRING DIAGRAM OF GENERATOR CONTROL PANEL FOR STG (1/5)			0 : "STAMPED" 4 : 05-10-2 202-046	C F : 06-11-01 BRT-MEL-PE-200018	
29		JEK59065	B	EXTERNAL TERMINAL WIRING DIAGRAM OF GENERATOR PROTECTION PANEL FOR STG (5/5)			A : "STAMPED" 4 : 05-10-2 202-046	B F : 06-11-01 BRT-MEL-PE-200019	
30		JEK59080	C	EXTERNAL TERMINAL WIRING DIAGRAM OF GENERATOR AUXILIARY PANEL FOR STG (4/4)			0 : "STAMPED" 4 : 05-10-2 202-046	C F : 06-11-01 BRT-MEL-PE-200019	

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CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
31		JEK50055	B	EXTERNAL TERMINAL WIRING DIAGRAM OF SEAL OIL CONTROL PANEL FOR STG (A/B)		[redacted]	A : "STAMPED" 4 : 06-10-2 202-045	B F : 06-11-01 BRT-MEL-PE-200019	
32		JEK50056	A	EXTERNAL TERMINAL WIRING DIAGRAM OF SEAL OIL CONTROL PANEL FOR STG (B/A)		[redacted]	A : "STAMPED" 4 : 06-10-2 202-045		
33		JEK44567	B	ELECTRICAL EQUIPMENT GENERAL ARRANGEMENT (MELCO PORTION)		[redacted]	[redacted]	B I : 06-09-62 BRT-MEL-PE-200002 3 : 06-09-20 202-040	
34		GAE-EC-E500	0	INSTRUMENT LIST (MELCO PORTION)		0 F : 06-11-01 BRT-MEL-PE-20016			
35		GAE-EC-E120	C	DRAWING LIST		2 : 06-10-02 202-041			

DEF-19FL-FUEL-012690

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<STATUS> 1.APP: APPROVED, 2. AAN: APPROVED AS NOTED, 3. INF: INFORMATION ONLY, 4. RTC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-AVR

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY -SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		JEJ24669	B	OUTLINE DRAWING OF AVR CUBICLE (FOR STG)				B : "STAMPED" I : 06-09-25 282-047	
2		JEK60869	B	ASSEMBLY DRAWING OF AVR CUBICLE (FOR STG)			D : "STAMPED" I : 06-09-25 282-047		
3		JEZ10567	B	SCHEMATIC DIAGRAM OF AUTOMATIC VOLTAGE REGULATOR (FOR STG)				A : "STAMPED" 4 : 06-10-2 282-046	B F : 06-11-07 DRT-MEL-PE-200020
4		JEZ10565	A	SPECIFICATION DIAGRAM OF AUTOMATIC VOLTAGE REGULATOR			A I : 06-09-28 DRT-MEL-PE-200014 3 : 06-10-17 282-061		
5		JEN13529 (1/2)	C	WIRING DIAGRAM (7/11) EXTERNAL TERMINAL STG AVR PANEL (1/2)			B : "STAMPED" 4 : 06-10-2 282-046	C F : 06-11-20 DRT-MEL-PE-200022	
6		JEN13526 (2/2)	B	WIRING DIAGRAM (8/11) EXTERNAL TERMINAL STG AVR PANEL (2/2)			A : "STAMPED" 4 : 06-10-2 282-046	B F : 06-11-20 DRT-MEL-PE-200022	

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CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | ORDER-NAME: PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-GMCS

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		[redacted]	0	RATING PLATE OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	0 : "STAMPED" 3 : 06-10-10 202-056	
2		HSU1635	0	FOUNDATION BASE OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	0 : "STAMPED" 2 : 06-10-03 202-048	
3		HSU1636	A	INDICATION NAME PLATE OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	A : "STAMPED" 1 : 06-10-17 202-050	
4		HSU1637	0	OUTLINE OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	0 : "STAMPED" 2 : 06-10-17 202-050 2 : 06-11-11 202-070	
5		H1NB419	0	ASSEMBLY DRAWING OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	0 : "STAMPED" 2 : 06-10-17 202-050 2 : 06-11-11 202-070	
6		H1NB420	A	WIRING DIAGRAM OF PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	A : "STAMPED" 4 : 06-10-02 202-046	
7		HKT-05065	0	SHOP TEST AND INSPECTION PROCEDURE FOR PT&SA CUBICLE (FOR ST GENERATOR)		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
8		HKT-01114	0	SHOP TEST AND INSPECTION PROCEDURE OF CURRENT TRANSFORMER FOR GENERATOR BUSHING		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
9		2D-84571	0	SITE TEST PROCEDURE FOR PT & SA CUBICLE (FOR STG)		[redacted]	0 : "STAMPED" 3 : 06-10-04 202-055		
10		4E-004502	0	TEST REPORT FOR PT & SA CUBICLE		0 1 : 06-09-08 BRT-MEL-PE-28012 4 : 06-10-17 202-056			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-NGR

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		01JW27401B01	B	OUTLINE AND ARRANGEMENT DRAWING OF GENERATOR GROUNDING CUBICLE (FOR ST GENERATOR)		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-03 282-048
2		01JW27401Q	0	SHOP TEST AND INSPECTION PROCEDURE FOR GENERATOR GROUNDING CUBICLE (FOR ST GENERATOR)		[redacted]	0 : "STAMPED" 3 : 06-10-04 282-055		
3		XS-Y-2089	0	SITE TEST AND INSPECTION PROCEDURE FOR GENERATOR NEUTRAL GROUNDING CUBICLE (FOR STG)		[redacted]	0 : "STAMPED"		
4		01JW27401T	A	SHOP TEST REPORT FOR GENERATOR GROUNDING CUBICLE (FOR ST GENERATOR)		A F : 06-09-19 BRT-MEL-PE-280018 3 : 06-10-05 282-064			

DEF-19FL-FUEL-012693

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<STATUS> 1.APP: APPROVED, 2. AAN: APPROVED AS NOTED, 3. INF: INFORMATION ONLY, 4. RFC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

(05-26-06)

ORDER | ORDER-NAME: PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		JEVH-8877-02	A	SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT (MELCO PORTION)			A 1 : 06-09-15 BRT-MEL-PE-060006 4 : 06-10-05 202-052		
2		JEVH-8833-01	A	SHOP TEST AND INSPECTION PROCEDURE FOR CONTROL PANELS				A : "STAMPED" 3 : 06-10-04 202-055	
3		JEVH-8833-02	A	SHOP TEST AND INSPECTION PROCEDURE FOR EXCITATION CUBICLE				A : "STAMPED" 3 : 06-10-04 202-055	
4		JEVH-8833-03	A	SHOP TEST AND INSPECTION PROCEDURE FOR GENERATOR PROTECTION RELAY PANEL				A : "STAMPED" 3 : 06-10-04 202-055	
5		QJA-02-034	0	SHOP TEST REPORT FOR GA-ST SEAL OIL CONTROL PANEL			0 : "STAMPED" 3 : 06-10-04 202-055		
6		QJA-02-035	0	SHOP TEST REPORT FOR GA-ST GENERATOR AUXILIARY PANEL			0 : "STAMPED" 3 : 06-10-04 202-055		
7		QJA-02-036	0	SHOP TEST REPORT FOR GA-ST GENERATOR CONTROL PANEL			0 : "STAMPED" 3 : 06-10-04 202-055		
8		QJA-02-037	0	SHOP TEST REPORT FOR GA-ST PROTECTION RELAY PANEL			0 : "STAMPED" 3 : 06-10-04 202-055		
9		QJA-02-038	0	SHOP TEST REPORT FOR GA-ST BCT TERMINAL BOX			0 : "STAMPED" 3 : 06-10-04 202-055		
10		JEVH-8839-21	0	SITE TEST PROCEDURE FOR GENERATOR SEAL OIL CONTROL PANEL (FOR STG)	07-03-31				

<CLASS> A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
<STATUS> 1:APP: APPROVED, 2: AAN: APPROVED AS NOTED, 3: INF: INFORMATION ONLY, 4: RTN: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

(05-26-06) Page = 2

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
11		JEVH-8999-22	0	SITE TEST PROCEDURE FOR GENERATOR CONTROL PANEL (FOR STG)	07-03-31				
12		JEVH-8999-23	0	SITE TEST PROCEDURE FOR GENERATOR AUXILIARY PANEL (FOR STG)	07-03-31				
13		JEVH-8999-24	0	SITE TEST PROCEDURE FOR GENERATOR PROTECTION RELAY PANEL (FOR STG)	07-03-31				
14		JEVH-8999-25	0	SITE TEST PROCEDURE FOR POLARITY CHECK OF PT'S AND CT'S (FOR STG)	07-03-31				
15		JEVH-8999-26	0	SITE TEST PROCEDURE FOR PHASE RELATION TEST (FOR STG)	07-03-31				
16		JEVH-8999-27	0	SITE TEST PROCEDURE FOR GENERATOR INTERLOCK TEST (FOR STG)	07-03-31				
17		JEVH-8999-28	0	SITE TEST PROCEDURE FOR GENERATOR BUSHING CT (FOR STG)	07-03-31				
18		JEVH-8999-29	0	SITE TEST PROCEDURE FOR LOAD REJECTION TEST (FOR STG)			0 : "STAMPED" 3 : 05-10-04 202-005		
19		JEVH-8999-30	0	SITE TEST PROCEDURE FOR EXCITATION SYSTEM (FOR STG)	07-03-31				
20		GSO-01-146	0	SHOP TEST AND INSPECTION REPORT FOR BRUSHLESS EXCITATION SYSTEM FOR STG			0 : "STAMPED" 3 : 05-10-04 202-005		

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(CLASS) A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
(STATUS) 1:APP; APPROVED, 2: AAN; APPROVED AS NOTED, 3: INF; INFORMATION ONLY, 4: RFC; RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-MOTOR

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY -SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		C4T4790	A	SPECIFICATION OF THREE PHASE INDUCTION MOTOR		[redacted]	[redacted]	A : "STAMPED" 1 : 05-09-26 202-057	
2		C4T4791	0	OUTLINE		[redacted]	[redacted]	0 : "STAMPED" 1 : 06-10-02 202-054	
3		C4T4792	0	TERMINAL BOX CONSTRUCTION FOR STATOR		[redacted]	[redacted]	0 : "STAMPED" 1 : 06-10-02 202-054	
4		C4T4793	A	TERMINAL BOX CONSTRUCTION FOR SPACE HEATER		[redacted]	[redacted]	A : "STAMPED" 1 : 06-10-02 202-054	
5		BC16083	B	OUTLINE DIMENSIONS OF AC MOTOR CONTROL OIL PUMP		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-17 202-050
6		BC16084	B	OUTLINE DIMENSIONS OF AC MOTOR MAIN OIL TANK VAPOR EXTRACTOR		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-17 202-050
7		BC16085	A	OUTLINE DIMENSIONS OF AC MOTOR TURNING GEAR MOTOR		[redacted]	[redacted]	A : "STAMPED" 1 : 06-10-17 202-050	
8		BC16086	B	OUTLINE DIMENSIONS OF AC MOTOR LUBE OIL CONDITIONER CIRCULATING PUMP		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-17 202-050
9		BC16087	B	OUTLINE DIMENSIONS OF AC MOTOR EH HIGH PRESSURE OIL PUMP		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-17 202-050
10		BC16088	B	OUTLINE DIMENSIONS OF AC MOTOR POLISHING OIL PUMP		[redacted]	[redacted]	[redacted]	B : "STAMPED" 1 : 06-10-17 202-050

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<CLASS> A: APPROVAL, RA: REAPPROVAL, F: FINAL, C: CONSTRUCTION, I: INFORMATION, R: REFERENCE, Z: OTHER
<STATUS> 1.APP: APPROVED, 2. AAR: APPROVED AS NOTED, 3. INF: INFORMATION ONLY, 4. RFC: RETURNED FOR CORRECTION

CUSTOMER APPROVAL DRAWING CONTROL LIST

ORDER | | ORDER-NAME | PROGRESS ENERGY / BARTOW REPOWERING PROJECT | MELCO-MOTOR

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MELCO DRAWING-NO	REV	DRAWING-NAME	DELIVERY-SCHEDULE	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
11		8C16089	C	OUTLINE DIMENSIONS OF AC MOTOR GRAND STEAM CONDENSER EX. FAN					
						C : "STAMPED"			
						1 : 06-10-17 202-050			
12		A33J738	C	DC MOTOR OUTLINE FOR ST EMERGENCY OIL PUMP					
13							C : "STAMPED"		
							2 : 06-10-03 202-048		
14		A33J739	A	MOTOR TERMINALS FOR ST EMERGENCY OIL PUMP					A : "STAMPED"
									1 : 06-09-25 202-047

APPENDIX I
Field Services Rates
Attachment B-1 (Schedule of Changes)
(Revised January 2, 2008)

CONFIDENTIAL

Mitsubishi Power Systems Americas, Inc. / 100 Colonial Center Parkway / Lake Mary, Florida 32746 USA / Tel: (407) 688-6100 Fax: (407) 688-6460

ATTACHMENT B-1

2007 - 2008

FIELD SERVICE RATES

LOCATION	STANDARD RATE
U.S.A.	USD 185.00 / HR

SCHEDULE OF CHARGES

A. APPLICATIONS

1) Travel Day — 8 hours Standard Rate

Note 1: The above rate is net receivable amount and does not include any kind of tax and duties levied in the U.S.A. which shall be compensated at actual cost by purchaser.

Note 2: All subcontracted specialists will be billed to purchaser at cost plus 15% administration.

Note 3: Standby Time means any non-working hours from Monday to Friday except holidays in case working hours of a certain day do not reach eight (8) hours.

Note 4: Per Contract Article 19.1, all hours in excess of 40 hours per work week shall be equivalent to 1.5 work hours for purposes of tracking usage of 142 work week base allocation; and for invoicing calculations for supplementary TFA services authorizations.

B. EXPENSES

1) Travel Expenses such as Airfare (Business class for International flights), Taxi, Rental car, car expenses are invoiced at cost plus 5% handling fee.

2) Lodging is invoiced at cost plus 5% handling fee.

3) A per diem of $70.00 / day is charged to cover for food and incidentals.

4) Telephone and telefax, and mobile phone communications shall be invoiced at cost.

5) Expenses (Passport, Visa, etc.) in connection with supervisor's preparation for departure will be charged at cost plus 10% handling fee.

Mitsubishi Power Systems Americas, Inc. / 100 Colonial Center Parkway / Lake Mary, Florida 32746 USA / Tel: (407) 688-6100 Fax: (407) 688-6460

ATTACHMENT B-1

2007 - 2008

SCHEDULE OF CHARGES

C. TERMS

1) **Validity:**
This rate is firm to December 31, 2008. After that, rate shall be adjusted by escalation.

2) **Payment:**
100% cash payment within 30 days after receipt of seller's invoice.

3) **Time Sheet:**
The Seller's Supervisor will submit the time sheet daily to purchaser's representative at the field who shall approve time sheets daily. If purchaser has any questions per time sheets, purchaser shall assess and clarify with seller's representative at the field and determine the approved time sheet within a week.

If Purchaser fails to make the approved time sheet within a week, the seller is entitled to claim the service fee based on the time sheet which the seller's supervisor writes.

4) **Special Hardship Premium:**
Seller reserves the right to assess special hardship premium for assignments deemed by seller to entail unusual or extreme environmental working conditions.

5) **Labor Permit:**
Purchaser shall secure any labor permit or any other authorization which may be required to permit supervisor to perform the services and any loss of supervisor's services pending the procurement of any such permit or authorization shall be for Purchaser's account.

6) **Notice of Request / Cancellation:**
In order to assure availability of Field Service Representative for installation/ service, Seller requires a minimum of twenty-one (21) working days notice except in cases of emergency breakdowns/forced outages. Cancellation of a previously confirmed assignment within three (3) normal working days of the scheduled starting date shall be subject to a cancellation charge equivalent to the value of two (2) regular working days.

MITSUBISHI POWER SYSTEMS

Mitsubishi Power Systems Americas, Inc. / 100 Colonial Center Parkway / Lake Mary, Florida 32746 USA / Tel: (407) 688-6100 Fax: (407) 688-6460

ATTACHMENT B-1

2007 - 2008

SCHEDULE OF CHARGES

7) **Facilities and Service:**

Purchaser shall, at his expenses, provide supervisor with the following facilities and services.

a) Supply of Safety equipment
b) Adequate first aid & medical services
c) Communications facilities for the performance of supervisor's duty
d) Office with desk, chair, locker, etc.
e) Necessary labor & direct labor supervision
f) Installation equipment

APPENDIX L
Inspection and Test Plan at Shop
(Revised January 2, 2008)

FOR APPROVAL

PROGRESS ENERGY FLORIDA BARTOW REPOWERING PROJECT

INSPECTION AND TEST PLAN AT SHOP

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2007. 01. 23

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS

CONTENT		REMARKS	PURCHASER	ORDER No. / ITEM No.	Quality Assurance Department Nuclear & Thermal Power Plant Quality Assurance Section
DESCR.	— PAGES		Progress Energy Florida Bartow	6704301	APPROVED BY
FIGURE	— PAGES				
TOTAL	14 PAGES			6100	CHECKED BY
COPY TO CUSTOMER					DESIGNED BY
	*				1st ISSUE: Jan.23,2007
					DWG. No.: AD-11766 R-0
				PA. CODE: P-00010	C. CODE: T01-600-02

REVISION SHEET		Dwg.No.	AD-11766 Rev.0
Rev.No.	CONTENTS	DATE	SIGNATURE
R-0	• Issued for proposal.	Jan.23th,2007	Approved by Checked by Drawn by
			Approved by Checked by Drawn by
			Approved by Checked by Designed by Drawn by
			Approved by Checked by Designed by Drawn by
			Approved by Checked by Designed by Drawn by
			Approved by Checked by Designed by Drawn by

GENERAL DISCRIPTION

This Inspection and Test Plan, hereinafter called "ITP", covers the inspection and testing items for each manufacturing stage of major mechanical components and/or systems for the STEAM TURBINE supplied to the Progress Energy Florida Bartow Repowering Project.

The items remarked as "Stocked Item" have been tested at the Shop of MHI TAKASAGO and/or at the shop of its Sub-Vendors. For the project, owner's witness will not be available.
Inspection and test report will be submitted in line with the ITP.

Abbreviations of Non-Destructive Examinations in this ITP is as follows :

RT: Radiographic Examination
UT: Ultrasonic Examination
MT: Magnetic Particle Examination
PT: Liquid Penetrant Examination

TABLE OF CONTENTS

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

SUBSYSTEM : 1.1 STEAM TURBINE

DOC. No. : AD-11766 Rev.0

PAGE : 1 OF 9

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
1.1.1	HIP Turbine Rotor Shaft (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (UT) (at Drum Profile)	MHI Standard	MHI Standard	Test Certificate	
		Non-Destructive Examination (MT) (after machining)	MHI Standard	MHI Standard	Test Certificate	
1.1.2	LP Turbine Rotor Shaft (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (UT) (at Drum Profile)	MHI Standard	MHI Standard	Test Certificate	
		Non-Destructive Examination (MT) (after machining)	MHI Standard	MHI Standard	Test Certificate	
1.1.3	HIP Turbine Casing (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (PT)	MHI Standard	MHI Standard	Test Certificate	For machined surfaces
		Non-Destructive Examination (MT)	MHI Standard	MHI Standard	Test Certificate	
		Non-Destructive Examination (UT)	MHI Standard	MHI Standard	Test Certificate	
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	
1.1.4	LP Turbine Casing (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination on Welds (MT)	MHI Standard	MHI Standard	Test Certificate	For pressure retaining welds
1.1.5	Journal Bearings and Thrust Bearings (Stocked Item)	Chemical Composition Check for White Metal	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination for Adhesion Check (UT & PT)	MHI Standard	MHI Standard	Test Certificate	
1.1.6	Overspeed Trip Device (Stocked Item)	Function Test	MHI Standard	MHI Standard	Test Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

SUBSYSTEM : 1.1 STEAM TURBINE

DOC. No. : AD-11766 Rev.0

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
1.1.7	Stationary Blades (Mill Out & Forged Blades) (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination(MT) (After Final Machining)	MHI Standard	MHI Standard	Test Certificate	
1.1.8	Stationary Blades (Cast Blades) (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination(PT)	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
1.1.9	Rotating Blades (Mill Out & Forged Blades) (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination(MT) (After Final Machining)	MHI Standard	MHI Standard	Test Certificate	
1.1.10	Assembled Rotor (Stocked Item)	Runout Check	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		High Speed Balance Test and Overspeed Test	As per applicable Procedure	As per applicable Procedure	Test Report	
1.1.11	Turbine Assembly (Stocked Item)	Clearance Check between rotating and stationary parts	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		Overhaul Inspection	MHI Standard	MHI Standard	Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

SUBSYSTEM : 1.2 MAIN VALVES

DOC. No. : AD-11766 Rev. 0

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
1.2.1	HP Stop Valve and Control Valve (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (MT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Non-Destructive Examination (UT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	For HP SV & CV Assembly
		Actuator Function Test	MHI Standard	MHI Standard	Test Certificate	Actuators will be tested on their own.
		Overhaul Inspection	MHI Standard	MHI Standard	Certificate	
1.2.2	IP Stop Valve and Control Valve (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (MT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Non-Destructive Examination (UT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	For IP SV & CV Assembly
		Actuator Function Test	MHI Standard	MHI Standard	Test Certificate	Actuators will be tested on their own.
		Overhaul Inspection	MHI Standard	MHI Standard	Certificate	
1.2.3	LP Stop Valve and Control Valve	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	
		Non-Destructive Examination (MT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Non-Destructive Examination (UT)	MHI Standard	MHI Standard	Test Certificate	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	For LP SV & CV Assembly
		Actuator Function Test	MHI Standard	MHI Standard	Test Certificate	Actuators will be tested on their own.

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 2. STEAM TURBINE

DOC. No. : AD-11766 Rev. 0

SUBSYSTEM : 2.1 LUBE OIL & CONTROL OIL SYSTEM

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
2.1.1	Main Lube Oil Pump (driven by turbine rotor) (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	For Impeller
		Static Balance Test	JIS B0905 (G6.3) or equivalent	JIS B0905 (G6.3) or equivalent	Test Report	For Impeller
		Overhaul Inspection	MHI Standard	MHI Standard	Certificate	
2.1.2	Control Oil Pump Emergency Oil Pump Turning Oil Pump (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	For Impeller & shaft
		Hydrostatic Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Performance Test	JIS B8301/ JIS B8306 or equivalent	JIS B8301/ JIS B8306 or equivalent	Test Report	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	
2.1.3	Lube Oil Reservoir (Stocked Item)	Fill Water Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	
2.1.4	Lube Oil Cooler (Stocked Item)	Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	
2.1.5	Vapour Extractor (Stocked Item)	Performance Test	JIS B8330 or equivalent	JIS B8330 or equivalent	Test Report	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	
2.1.6	Oil Purifier (Stocked Item)	Fill Water Test	Manufacturer's Std.	No Leakage is acceptable	Test Certificate	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 2. STEAM TURBINE

SUBSYSTEM : 2.2 Gland Steam System

DOC. No. : AD-11766 Rev. 0

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
2.2.1	Gland Steam Condenser	Chemical Composition Check and Mechanical Properties Test	As per applicable Dwg.	As per applicable Dwg.	Mill Certificate (Mill Sheet)	
		Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Visual & Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	
2.2.2	Exhaust Fan for Gland Steam Condenser (Stocked Item)	Running Test	Manufacturer's Standard	Manufacturer's Standard	Test Report	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 3. COMMON AUXILIARIES

SUBSYSTEM : 3.1 VALVES

DOC. No. : AD-11766 Rev.0

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
3.1.1	Motor Operated Valve (Stocked Item)	Chemical Composition Check and Mechanical Properties Test	Applicable Code/ Standard	Applicable Code/ Standard	Mill Certificate (Mill Sheet)	Mill Sheet is maintained over 600 LB
		Shell Test	ANSI B16.34 para 7.1 or equivalent	ANSI B16.34 para 7.1 or equivalent	Test Certificate	
		Seat Leakage Test	ANSI B16.104 or equivalent	ANSI B16.104 or equivalent	Test Certificate	
		Function Test	Manufacturer's Std.	Manufacturer's Std.	Test Certificate	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 3. COMMON AUXILIARIES

SUBSYSTEM : 3.2 PIPING

DOC. No. : AD-11766 Rev.0

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
3.2.1	Main Pipes (LP Main Reheat Steam Inlet Pipes) (Stocked Item)	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	
3.2.2	LO/CO Pipes (Stocked Item)	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	
		Hydrostatic or Pneumatic Test	ANSI B31.1, Para. 137.4	ANSI B31.1, Para. 137.4	Test Certificate	Only applies to pipes fabricated in the shop
3.2.3	Main Pipes (HP Main Reheat Steam Inlet Pipes) (Stocked Item)	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	
3.2.4	Cross Over Pipe (Stocked Item)	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	
		Hydrostatic or Pneumatic Test	ANSI B31.1, Para. 137.4	ANSI B31.1, Para. 137.4	Test Certificate	
		Overhaul Inspection	Manufacturer's Standard	Manufacturer's Standard	Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 4. CONTROL SYSTEMS

SUBSYSTEM :

DOC. No. : AD-11766 Rev. 0

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
4.1	Steam Turbine Controller	I/O and System Check	MHI Standard	MHI Standard	Test Certificate	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 5. LOCAL INSTRUMENTS

SUBSYSTEM :

DOC. No. : AD-11766 Rev. 0

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	REMARKS
5.1	Pressure Switch	Visual & Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Function Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
5.2	Pressure Gauge (Stocked Item)	Visual & Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Re-Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
5.3	Thermocouple	Visual & Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
5.4	Pressure / Differential Press. / Level Transmitter	Visual & Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	

御注文元 PROJECT	Progress Energy Florida Bartow Repowering Project
項 目 TITLE	SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT(MELCO PORTION)

ENERGY SYSTEMS CENTER
SEP. 14 2006
MITSUBISHI ELECTRIC CORP. JAPAN

FOR INFORMATION

REV	DATE	DRAWN	CHECKED	APPROVED	DESCRIPTION
A	14-Sep-06				Revised title block

REMARKS :

作 成 DRAWN	照 査 CHECKED	検 認 APPROVED
T.Yamamoto	H.Kato H.Takata	K.Miyamoto

ENERGY SYSTEMS CENTER
ENERGY PLANT & SYSTEMS DEPARTMENT
QUALITY ASSURANCE SECTION

日付 DATE	図 番 DWG.No	REV
18-May-06	JEVM-8D77-02	A
オーダ ORDER		

MITSUBISHI ELECTRIC CORPORATION

1. General
This list covers shop test and inspection for the electrical equipment supplied by Mitsubishi Electric Corporation(MELCO), and shows shop test and inspection items, test method, test type and place of testing.

2. Ranking
Following symbols show in the column of Ranking denote as follows.
R: Routine test
S: Special test
T: Type test

3. Method and Procedure
"M" shown in the column of method and procedure denotes manufacturer's standard and is applied in case that international standard is not applicable.

4. Test type
Following marks denotes test types.
-: No test will be done.
NRS: Test will be done but test report will not be issued.
RS: Test will be done by MELCO or Sub-vendor alone and test report will be issued. (No witness by purchaser's inspector)
W: Test will be witnessed by purchaser's inspector and test report will be issued.
NA: Not Applicable

5. Place
The "Place" column shows the abbreviations of the following works.

ESC: MELCO, Energy Systems Center (KOBE in Japan)
ITA: MELCO, Transmission & Distribution Systems Center (ITAMI in Japan)
NGO: MELCO, Nagoya works
PDSC: MELCO, Power Distribution Systems Center (Marugame in Japan)
ES: Equipment supplier or Material supplier

6. Equipment List

1) Generator	4	回品
2) Seal Oil Supply Unit	4	回品
3) Brushless Exciter	4	回品
4) Excitation Cubicle	5	エネ品
5) Control Panels a. Generator Control Panel b. Seal Oil Control Panel c. Generator Auxiliary Panel d. Gen. Bushing CT Box	5	エネ品
6) Generator Protection Relay Panel	5	エネ品
7) Generator NGR Equipment	7	配電
8) Transformer for Generator NGR Cubicle	7	名電
9) PT & SA Cubicle	6	(伊)系電
10) AC Motor (460V)	7	TMEIC/名電
11) DC Motor	7	回品

Progress Energy Florida – Bartow Repowering Project: SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT (MELCO PORTION)

Electrical Equipment

No.	Equipment	Manufacturing stage for testing	Test and inspection items	Rank-ing	Method and Procedure	Test Type For ST	Place	Remarks
1	Generator	Pre-Assembled	1. Rotor (1) Dynamic balance and over-speed test with brushless exciter	R	ANSI	RS	ESC	
		Assembled	2. Completed Generator (1) Inspection assembly (Dimensional Inspection) (2) Measurement of Winding resistance of armature and field windings (3) Measurement of insulation resistance of armature and field windings (4) Dielectric test of armature and field windings	 R R R R	 M ANSI ANSI ANSI	 RS RS RS RS	 ESC	
			(5) Bushing CT test	R	ANSI	RS	ITA	
2	Seal Oil Supply Unit	Assembled	1. Inspection assembly (Dimensional Inspection) 2. Wiring check 3. Measurement of insulation resistance for Motor 4. Dielectric test for Motor	R R R R	M M M M	RS RS RS RS	ESC	
3	Brushless Exciter	Assembled	1. Inspection assembly (Dimensional Inspection) 2. Measurement of Winding resistance of armature and field windings 3. Measurement of insulation resistance of armature and field windings 4. Dielectric test of armature and field windings	R R R R	M ANSI ANSI ANSI	RS RS RS RS	ESC	

Drawing No. JEVM-8D77-02

Progress Energy Florida – Bartow Repowering Project: SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT (MELCO PORTION)

Electrical Equipment

No.	Equipment	Manufacturing stage for testing	Test and inspection items	Ranking	Method and Procedure	Test Type For ST	Place	Remarks
4	Excitation Cubicle	Assembled	1. Inspection of construction 2. Wiring check 3. Measurement of insulation resistance 4. Dielectric test (except electronics components) 5. Sequence and alarm test 6. Characteristics test 7. Meter and transducer calibration test	R R R R R R R	M M M ANSI M M M	RS RS RS RS RS RS RS	ESC	
5	Control Panels a. Generator Control Panel b. Seal Oil Control Panel c. Generator Auxiliary Panel	Assembled	1. Inspection of construction 2. wiring check 3. Measurement of insulation resistance 4. Dielectric test (except electronics components) 5. Sequence test 6. Meter and Transducer test	R R R R R R	M M M ANSI M M	RS RS RS RS RS RS	ESC	
	d. Gen. Bushing CT Box	Assembled	1. Inspection of construction 2. Measurement of insulation resistance 3. Dielectric test	R R R	M M ANSI	RS RS RS	ESC	
6	Generator Protection Relay Panel	Assembled	1. Inspection of Construction 2. Wiring check 3. Measurement of insulation resistance 4. Dielectric test (except electronics components) 5. Sequence test 6. Function test	R R R R R R	M M M ANSI M M	RS RS RS RS RS RS	ESC	
7	NGR Equipment	Assembled	1. Inspection of construction 2. Measurement of insulation resistance 3. Measurement of NGR resistance 4. Power frequency withstand test	R R R R	M M M ANSI	RS RS RS RS	PDSC	

Drawing No. JEVM-8D77-02

Progress Energy Florida – Bartow Repowering Project: SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT (MELCO PORTION)

Electrical Equipment

No.	Equipment	Manufacturing stage for testing	Test and Inspection Items	Ranking	Method and Procedure	Test Type For ST	Place	Remarks
8	Transformer for NGR Equipment	Assembled	1. Inspection of construction	R	M	RS	NGO	
			2. Measurement of insulation resistance	R	ANSI	RS		
			3. Measurement of winding resistance	R	ANSI	RS		
			4. Measurement of voltage ratio	R	ANSI	RS		
			5. Check of polarity or vector-group symbol	R	ANSI	RS		
			6. Measurement of no-load current and no-load loss	R	ANSI	RS		
			7. Measurement of load loss and impedance voltage	R	ANSI	RS		
			8. Separate-source voltage withstand test	R	ANSI	RS		
			9. Induced over-voltage withstand test	R	ANSI	RS		
9	PT & SA Equipment	Assembled	1. Assembled Equipment					
			(1) Inspection of construction	R	M	RS	ITA	for ST
			(2) Power frequency withstand voltage test	R	ANSI	RS		
			(3) Wiring check	R	M	RS		
			2. Voltage Transformer					
			(1) Appearance inspection	R	M	RS		
			(2) Applied potential dielectric test	R	ANSI	RS		
			(3) Induced potential test	R	ANSI	RS		
			(4) Routine accuracy test	R	ANSI	RS		
			(5) Polarity test	R	ANSI	RS		
			3. Surge Arrester					
			(1) Appearance inspection	R	M	RS		
			(2) Reference voltage test	R	M	RS		
			(3) Leakage current measurement	R	M	RS		
			(4) Discharge voltage test	R	ANSI	RS		
			(5) Internal ionization voltage test	R	ANSI	RS		
			4. Surge Capacitor					
			(1) Appearance inspection	R	M	RS		
			(2) Capacitor measurement	R	ANSI	RS		
			(3) Capacitor losses measurement	R	ANSI	RS		
			(4) Dielectric test	R	ANSI	RS		
			(5) Leak test	R	M	RS		

Drawing No. JEVM-8D77-02

Progress Energy Florida – Bartow Repowering Project: SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT (MELCO PORTION)

Electrical Equipment

No.	Equipment	Manufacturing stage for testing	Test and Inspection Items	Ranking	Method and Procedure	Test Type For ST	Place	Remarks
10	AC Motors (460V)	Assembled	1.Outline and layout check	R	M	RS	NGO	
			2.Winding resistance measurement	R	JEC-37	RS	ESC	
			3.Insulation resistance measurement	R	JEC-37	RS		
			4.High voltage test	R	JEC-37	RS		
			5.Locked rotor test	T	JEC-37	RS		
			6.No-load test	R	JEC-37	RS		
			7.Check of rotating direction	R	M	RS		
			8.Vibration measurement and observance of bearing and mechanical operation	R	M	RS		
			9.Temperature rise test	T	JEC-37	RS		
			10.Performance calculation	T	JEC-37	RS		
			11.Sound level measurement	T	JEC-37	RS		
11	DC Motors	Assembled	1.Winding resistance measurement	R	NEMA MG-1	RS	ESC	
			2.Insulation resistance measurement	R	NEMA MG-1	RS		
			3.High voltage test	R	NEMA MG-1	RS		
			4.Vibration measurement	R	NEMA MG-1	RS		
			5.No-load characteristic test	R	NEMA MG-1	RS		
			6.Over speed test (125% rated speed)	R	NEMA MG-1	RS		

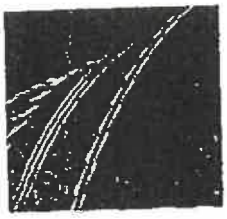
Drawing No. JEVM-6D77-02

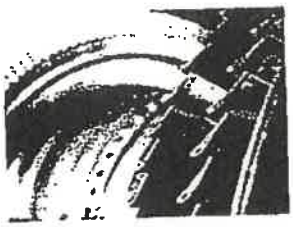
TENASKA® INC.

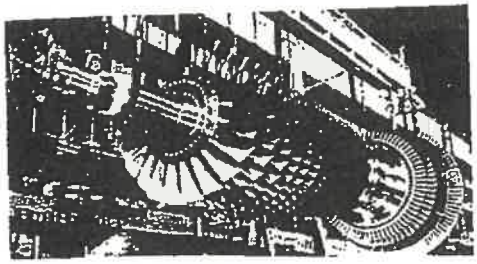
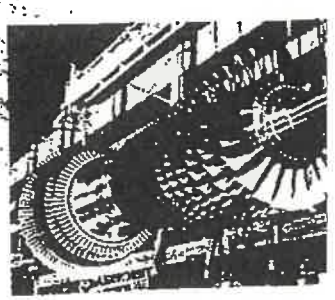
Tenaska Power Equipment, LLC

MITSUBISHI POWER SYSTEMS

Contract for Purchase
Steam Turbine Generator
Between
Tenaska Power Equipment, LLC
and
Mitsubishi Power Systems, Inc.
dated May 2002





Volume 1

CONFIDENTIAL

CONTRACT FOR PURCHASE OF STEAM TURBINE GENERATOR

between

TENASKA POWER EQUIPMENT, LLC

and

MITSUBISHI POWER SYSTEMS, INC.

TABLE OF CONTENTS

CONTRACT FOR PURCHASE OF STEAM TURBINE GENERATOR

This Contract, effective this 10th day of May, 2002, is between Tenaska Power Equipment, LLC, a Delaware limited liability company ("Buyer") and Mitsubishi Power Systems, Inc., a Delaware corporation ("Seller"). Buyer and Seller may be referred to individually as a "Party" and collectively as "Parties".

ARTICLE 1. DEFINITIONS

The following defined terms used in this Contract have the meanings specified in this Section.

Acceptance Test means, with respect to the Steam Turbine Generator, each of the Performance Tests, Demonstrations Tests, or the Availability Test, all of which are to be performed in accordance with the requirements set forth in Appendix C.

Acceptance Testing means, with respect to the Steam Turbine Generator, the performance of one or more of the Acceptance Tests.

Affiliate means, with respect to a Party, any person or entity that directly or indirectly controls, is controlled by, or is under common control with such Party. For the purposes of this definition "control" shall mean the power and authority to direct the management and operations of the controlled person or entity either through ownership of or control of 50% or more of the voting interests thereof or otherwise through control of the managing group.

Applicable Insurance Policies means all policies of insurance, procured or obtained by Seller in accordance with Section 21 and policies of insurance procured or obtained by Buyer in accordance with Section 21, copies of which Buyer has delivered to Seller prior to the date of this Contract or thereafter to enable Seller to comply with such policies.

Applicable Laws means all laws, ordinances, rules, regulations, orders, interpretations, requirements, standards, codes, resolutions, licenses, permits, judgments, decrees, injunctions, writs and orders of any court, arbitrator, or governmental (federal, national, state, municipal, local or other, having jurisdiction over a Party and the location where a particular element of the Services is performed or where any part of the Steam Turbine Generator is situated) agency, body, instrumentality or authority that are applicable to either or both of the Parties, the Facility, the Project Site, the Services or the terms of this Agreement, including the Codes and Standards described in Section 8.21 of Appendix A and all environmental and hazardous materials laws which are applicable to the Project Site or the Steam Turbine Generator and which are at any time

applicable to performing the Services, except to the extent that such Applicable Laws (i) pertain to conditions (construction, operation or maintenance) within the control of Buyer or (ii) pertain to sound level emissions, in which case Seller's obligations shall be as set forth in Section 16.1(b) of this Contract.

Availability Test means the test conducted by Buyer or on Buyer's behalf in accordance with the requirements of Section 2.3 of Appendix C to demonstrate that the Steam Turbine Generator satisfies the Availability Guarantee of Section 3.2.4 of Appendix A.

Business Days mean all calendar days except Saturdays, Sundays and all legal holidays of Japan.

Buyer's Inspector(s) has the meaning set forth in Section 5.1.

Buyer's Security means the aggregate amount of the letter(s) of credit provided by Seller to Buyer as security for the completion of the obligations of Seller under this Contract, as provided in Section 3.5.

Cancellation Charge has the meaning set forth in Sections 3.6.

Computer Programs means the software programs provided by Seller to Buyer under this Contract.

Contract means this contract, including Appendices A through M.

Contract Coordinators has the meaning set forth in Section 18.1.

Contract Price has the meaning set forth in Section 3.1.

DDP means Delivered Duty Paid to the Delivery Point, as described in INCOTERMS 2000.

Delivery has the meaning set forth in Section 4.1(c).

Delivery Payment means the payment due to Seller upon Delivery of the Steam Turbine Generator as set forth in Section 3.5.

Delivery Point means, with respect to Domestically-Sourced Items, the location designated by Buyer in Mobile, Alabama, unless changed by Buyer in accordance with Section 4.1.

Demonstration Tests means the tests conducted by Buyer or on Buyer's behalf in accordance with the requirements of Sections 2.2 and 3.2 of Appendix C to demonstrate that the Steam Turbine Generator satisfies the Demonstration Test Guarantees for (i) Minimum Load, (ii) Generator Operations (Lead/Lag), (iii) Steam Turbine Load Ramp Rate and (iv) Unit Trip Capability, as set forth in Section 3.2.3 of Appendix A.

DEQ means "Delivery Ex Quay Port of Entry," U.S.A., as described in INCOTERMS 2000.

Directed Order has the meaning set forth in Section 2.2.

Dispute Notice has the meaning set forth in Section 22.10.

Documentation has the meaning set forth in Section 20.1.

Domestically-Sourced Items means all equipment and materials in the Steam Turbine Generator which are manufactured within the United States.

EPC Agreement means the Engineering, Procurement and Construction Agreement of Buyer for the Project, when executed.

EPC Contractor means the entity or entities which execute the EPC Agreement with Buyer, or its permitted assignee for the Project.

Equipment means all of the engineered, manufactured and produced items, materials, goods, supplies and equipment, as described in Appendix A, which are included in Steam Turbine Generator covered by this Contract.

Facility means the power generation facility, including the Steam Turbine Generator, located at the Project Site.

Final Acceptance means that (a) the Steam Turbine Generator has achieved Substantial Completion, (b) all Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, Demonstration Test Guarantees and the Availability Test Guaranty are satisfied, or are deemed satisfied in accordance with Section 1.0 of Appendix C, and (c) all Equipment is delivered and Services performed, including delivery of as-built drawings, except Punch List.

Final Test Value has the meaning set forth in Section 16.1 and shall always be considered with respect to the most recent applicable test.

Force Majeure Event has the meaning set forth in Section 7.1.

GTG Contract means the agreement between Tenaska, Inc., a Delaware corporation, and Seller, dated May 10, 2002, for the purchase, or option to purchase, from Seller of three (3) Gas Turbine Units.

Guaranteed Delivery Date has the meaning set forth in Section 4.1.

Initial Synchronization means the date on which the generator breaker for the Steam Turbine Generator is first closed and the Steam Turbine Generator is connected to the electric grid.

Internationally-Sourced Items means all Equipment which is manufactured outside the United States.

Liquidated Damage Performance Guarantees has the meaning set forth in Section 16.1(a).

Month means a period of time beginning on a certain day of the month and ending on the day before the same date in the following calendar month, provided that when determining periods of one or more Months if the calendar month which should contain the end date does not have a date corresponding to the end date then the end of the period shall be the last day of such calendar month.

Noise Emission Guarantee has the meaning set forth in Section 16.1(b).

Noise Emission Tests means the tests conducted by Buyer or on Buyer's behalf in accordance with the requirements of Section 3.1 of Appendix C to demonstrate that the Steam Turbine Generator satisfies the Emission Guarantee for Noise Levels set forth in Section 3.2.2.2 of Appendix A.

Normal Carriage means carriage by barge, highway transport or rail transport, or a combination of such transportation means, as selected by Seller, on normal routing to the Delivery Point.

Owner Caused Delay has the meaning set forth in Section 7.2.

Performance Minimums mean, for MPS Net Steam Turbine Electrical Output, ninety five percent (95%) of the guaranteed MPS Net Steam Turbine Electrical Output set forth in Section 16.1(a)(i); and for MPS Net Steam Turbine Maximum Electrical Output, ninety five percent (95%) of the guaranteed MPS Net Steam Turbine Maximum Electrical Output set forth in Section 16.1(a)(ii).

Performance Tests means tests conducted by Buyer or on Buyer's behalf in accordance with Appendix C to determine if the Steam Turbine Generator has satisfied the Liquidated Damage Performance Guarantees and Performance Minimums.

Port of Entry means the Port of Mobile, Alabama, U.S.A., unless changed by Buyer in accordance with Section 4.1.

Power Plant means the Steam Turbine Generator together with all other equipment in the Facility necessary for the normal generation of power.

Project means the construction of a power generation facility for Buyer or its permitted assignee, including related and associated facilities, at the Project Site.

Project Site means the location of the Facility which shall be designated by Buyer, in writing.

Punch List means unfinished items which do not affect the operation, safety or integrity of the Steam Turbine Generator at the Facility, but are included in the scope of Seller's obligations under the Contract.

Scheduled Date of Substantial Completion means fifty-seven (57) days after the earlier of (i) the day of the initial roll of the Steam Turbine Generator or (ii) the day such Steam Turbine Generator is ready for the initial roll and the cause for such failure of the initial roll to occur is solely attributable to Seller. If the Steam Turbine Generator is utilized for the same project as those certain Gas Turbine Units which may be purchased from Seller pursuant to the GTG Contract, then if the Scheduled Date of Substantial Completion, as defined in the GTG Contract, including any changes to such date made pursuant to the terms and conditions of the GTG Contract, is scheduled to occur later than the Scheduled Date of Substantial Completion for the Steam Turbine Generator determined under the definition set forth above, then a change shall be made in the Scheduled Date of Substantial Completion for the Steam Turbine Generator by extending such Scheduled Date of Substantial Completion for the Steam Turbine Generator to coincide with the actual calendar date of the Schedule Date of Substantial Completion as determined in the GTG Contract.

Section(s) means sections of this Contract, not including Appendices, unless otherwise stated.

Services means all work or services to be performed by Seller in accordance with this Contract, including all services to be performed in relation to transportation of Domestically-Sourced Items to the Delivery Point and Internationally-Sourced Items to the Port of Entry.

Shipment means the placement of a Domestically-Sourced Item or an Internationally-Sourced Item, as applicable, in the carrier's custody for shipment in accordance with this Contract.

Specifications means: Appendices A, C and G and, all other obligations of Seller as described in Articles 1 through 22 of this Contract.

Steam Turbine Generator means the Mitsubishi Heavy Industries Steam Turbine Generator, fully equipped with ancillary equipment, as described in Appendix A, which is the subject of this Contract.

Subcontractor(s) or Supplier(s) shall mean any licensor, subcontractor or supplier of any tier supplying material, Equipment, documentation, labor, goods or Services to Seller or Buyer in connection with the obligations of Seller or Buyer under the Contract.

Substantial Completion has the meaning set forth in Section 17.1(b).

Unit means the Steam Turbine Generator.

Vendor Coordination Meeting has the meaning set forth in Section 18.4.

Witness Tests has the meaning set forth in Section 5.2.

All prices and payments are in United States dollars.

ARTICLE 2. SCOPE OF SUPPLY

2.1 **Scope.** Tenaska, Inc., a Delaware corporation ("Tenaska"), has previously purchased from Seller certain materials and equipment associated with a Mitsubishi Heavy Industries Steam Turbine Generator, which Seller has held for Tenaska. Tenaska has assigned to Buyer all of its interest in such materials and equipment. Using such equipment and materials, which Buyer is transferring to Seller pursuant to Section 3.1, Seller shall supply to Buyer a complete Steam Turbine Generator in accordance with the Specifications, including all Documentation, Equipment and Services, and shall meet the performance requirements and guarantees set forth in this Contract in accordance with the Specifications. The Seller's scope of supply of Documentation, Equipment and Services is abased upon the location of the Project Site at Talladega, Alabama. Any change in the location of the Project Site, or any change in the scope of supply of Documentation, Equipment and Services which Buyer requests as the result of a decision by Buyer to use the Steam Turbine Generator at a location other than Talladega, Alabama, shall be subject to the issuance of change order pursuant to Section 9.1 to equitably reflect the increased or decreased costs and expenses to Seller of such change and, if necessary, the schedule for Seller's performance under the Contract will be revised for the reasonable period necessary to comply with such change. Seller has supplied to Buyer the drawings listed in Appendix G. In the event of any conflict between the provisions of this Contract, including the Appendices, and such drawings regarding the scope of this Contract or the Specifications, the drawings shall prevail. Seller shall revise such drawings when necessary to accurately describe the Equipment as a result of any change referenced in this Section 2.1.

2.2 **Directed Order.** If Buyer determines that Documentation, Equipment or Services to be provided by Seller under this Contract do not comply with Applicable Laws and Seller disagrees as to the Documentation, Equipment or Services to be provided by Seller under this Contract, Buyer may issue a Directed Order to Seller covering such Documentation, Equipment or Services so long as such Directed Order is reasonably capable of being performed by Seller and is intended solely to cause such Documentation, Equipment or Services to comply with Applicable Laws. If Buyer issues a Directed Order, Seller shall proceed without undue delay to provide the Documentation, Equipment or Service which Buyer has directed, as set out in such order. Within ten (10) days after Buyer's issuance of a Directed Order, if Seller disagrees with such order, Seller shall submit a Dispute Notice to Buyer setting out the reasons for Seller's disagreement with Buyer's position and the Parties shall resolve such disagreement in accordance with the procedures of Section 22.10.

2.3 **Obligation of Buyer.** Buyer shall have the responsibility for obtaining all environmental, construction, and operating permits or licenses required to construct, commission, start-up, test and operate the Equipment or related facilities comprising the Project.

2.4 **Not Used.**

2.5 **Pre-Assembly.** All Equipment, including the following Major Components, shall be shipped pre-fabricated and/or pre-assembled as described in Section 8.1 of Appendix A.

Major Components for Steam Turbine Generator:

(a) Package of Base plates required for installation of Major Components
(b) HP/IP rotor, inner and outer casings
(c) HP front pedestal assembly and seating plate
(d) LP turbine seating plate and turning gear assembly
(e) LP rotor, inner and outer casings
(f) Main Steam Turbine and generator bearings
(g) Steam Turbine enclosure
(h) Steam Turbine main steam valves and piping leads
(i) Generator stator
(j) Generator rotor
(k) Special installation tools required for Major Components

ARTICLE 3. PRICE AND TERMS OF PAYMENT

3.1 **Contract Price.** The total price for the Equipment, Documentation and Services is TWO MILLION SIX HUNDRED FORTY FIVE THOUSAND NINE HUNDRED SEVENTY FIVE DOLLARS ($2,645,975) (the "Contract Price"). In addition to the Contract Price, as a part of the consideration for this Contract, Buyer hereby transfers to Seller all of Buyer's right, title and interest in the materials and equipment for a Mitsubishi Heavy Industries Steam Turbine Generator, previously obtained by Tenaska from Seller and currently being held by Seller. Buyer warrants to Seller that Buyer has acquired from Tenaska all of its right, title and interest to such materials and equipment, and that the transfer of such interest to Seller is free and clear of any and all liens and security interests which may arise by or through Tenaska or Buyer.

3.2 **Taxes.** The Contract Price does not include any federal, state or local sales, use, excise, value added, or similar taxes, provided that Buyer shall not be responsible for any foreign taxes of any kind, including excise taxes, value added taxes, sales or use taxes, which may arise as a result of the foreign manufacture of any of the Equipment; provided that Buyer shall be responsible for the payment of all charges of customs clearing and local duties, taxes or similar charges with respect to Internationally-Sourced Items. Consequently, in addition to the Contract Price, the amount of any present or future sales, use, excise, value added, or other similar tax applicable to the sale or use of the Equipment, Documentation or Services hereunder (exclusive of taxes based on the income of Seller) shall be paid by Buyer, or in lieu thereof Buyer shall provide Seller with a tax-exemption certificate (or similar documentation) acceptable to the taxing authorities. Seller agrees to cooperate within reason with Buyer in connection with any proceeding or other action undertaken by Buyer for the purpose of eliminating, reducing or deferring the payment of any such taxes. Seller will cooperate with Buyer to provide such information to Buyer or applicable taxing authorities so as to appropriately mitigate Buyer's taxes; however, Seller will not be obligated to provide proprietary cost information to taxing authorities, or to provide audit information to taxing authorities beyond that which Seller determines to be reasonable.

3.3 **Not Used.**

3.4 **Changes in Contract Price.** In the event that a change in the Contract scope pursuant to Section 9.1 results in either an increase or a decrease in the Contract Price, the Contract Price shall be adjusted accordingly, as mutually agreed by the Parties.

3.5 **Payment.** The Delivery Payment for the Steam Turbine Generator, equal to the full amount of the Contract Price, shall be due and payable within thirty (30) days after Seller's receipt of notice from Buyer that the last Major Component of such Unit has been placed in storage. In the event payment is not received by the due date, interest shall accrue on such amount at an annual rate of interest equal to the prime rate of The Chase Manhattan Bank, in effect on

the due date, plus one percent (1%). Buyer may withhold payment of the disputed portion of any invoice until such dispute is resolved. If it is determined that Buyer was justified in withholding payment or if the dispute is settled in favor of Buyer, Buyer shall not pay interest on the amounts withheld. If it is determined that Buyer was not justified in withholding such amounts or if the dispute is settled in favor of Seller, Buyer shall pay interest at the rate provided above, from the time the withheld amount was due. Prior to the payment of the Delivery Payment by Buyer, Seller shall deliver to Buyer a letter of credit, to be effective only upon receipt of the Delivery Payment for such Unit, in an amount equal to TWO MILLION DOLLARS ($2,000,000) in form reasonably acceptable to Buyer, issued by a financial institution reasonably acceptable to Buyer as Buyer's Security for the completion by Seller of all obligations required under this Contract, including any liquidated damages which may become due under this Contract until Final Acceptance is achieved. Upon achievement of Substantial Completion, Buyer shall release from the letter of credit an amount equal to ONE MILLION DOLLARS ($1,000,000) and Buyer will continue to hold the letter of credit for the remaining amount of the Contract Price until Final Acceptance is achieved. Notwithstanding the achievement of Final Acceptance, Buyer may continue to hold a portion of the Buyer's Security equal to 1.5 times the value of any Punch List items for the Steam Turbine Generator until such Punch List items are completed. Buyer and Seller shall mutually agree upon an estimated cost for each item included by Buyer on the Punch List, and Buyer shall, on a monthly basis, release such amounts from such Buyer's Security as correspond to 1.5 times the value of those items on the Punch List which Seller has completed and when all remaining Punch List items are complete and approved by Buyer, Buyer shall release the entire amount of Buyer's Security.

3.6 **Cancellation Charge.** If Buyer elects to terminate this Contract in accordance with Section 14.1, Buyer shall pay the amount shown in Appendix B to Seller (the "Cancellation Charge"), provided that upon the payment of the Cancellation Charge, Seller shall transfer to Buyer title to all materials and equipment associated with such Steam Turbine Generator which are supplied under this Contract, EX Works (manufacturer's factory) (as described in INCOTERMS 2000) free of any and all warranties of any type.

ARTICLE 4. SHIPMENT AND DELIVERY

4.1 **Shipment of Equipment.** Each Internationally-Sourced Item shall be shipped by Seller so that such Item will be delivered DEQ to the Port of Mobile, Alabama, U.S.A., in accordance with the details set forth in Appendix J. If Buyer desires to change the Port of Entry for the Internationally-Sourced Items, it may notify Seller of the proposed change prior to the anticipated shipment date and Buyer and Seller shall mutually agree upon changes for price and the Guaranteed Delivery Date. Each Domestically-Sourced Item shall be shipped by Seller so that such Item will be delivered, DDP, to the Delivery Point, in accordance with the details set forth in Appendix J. If Buyer desires to change the Delivery Point for the Domestically-Sourced Items to a location other than the location initially designated by Buyer, and if such change is possible, Buyer and Seller shall mutually agree upon changes for price and the Guaranteed Delivery Date. Seller shall cooperate with Buyer to minimize the effect of a proposed change on price or the Guaranteed Delivery Date which results from a change of the Port of Entry or Delivery Point, and shall, in determining any price adjustments and changes to the Guaranteed Delivery Date, be entitled to increase or decrease the price by the actual direct costs incurred as a result of such change and shall delay or accelerate the Guaranteed Delivery Date by the documented additional or reduced time for delivery which will be required as a result of such change.

(a) **Guaranteed Delivery Date.** Subject to the provisions of Section 4.1(c), the Guaranteed Delivery Date for the Steam Turbine Generator shall be as follows:

	Guaranteed Delivery Date
Steam Turbine Generator	October 1, 2002

(b) **Guaranteed Delivery Date.** The term "Guaranteed Delivery Date" as used in this Contract shall mean the date all of the Major Components of such Unit which are Internationally-Sourced Items are guaranteed to be delivered to the Port of Entry pursuant to the terms of this Contract, provided that all Major Components of a Unit which are Domestically-Sourced Items are guaranteed to be delivered to the Delivery Point by such Guaranteed Delivery Date. All Equipment, other than Major Components, shall be delivered to the Delivery Point within sixty (60) days after the Guaranteed Delivery Date.

(c) **Delivery.** For the purposes of this Contract, delivery of the Unit occurs on the date when the last of the Major Components of the Unit has been delivered on the quay (wharf) at the Port of Entry as evidenced by a bill of lading signed by the carrier ("Delivery"). Seller is not required to release the Major Components of the Steam Turbine Generator until the Delivery Payment for such Unit has been received by Seller. Solely for the purposes of determining liquidated damages pursuant to Section 17.1(a), and not for payment purposes under Section 3.5, if any Equipment

related to the Steam Turbine Generator (other than Major Components) remains undelivered more than sixty (60) days after the Guaranteed Delivery Date for such Unit and such undelivered Equipment delays the installation or safe operation of such Unit, then any additional days, beyond such sixty (60) days that such Equipment remains undelivered, shall result in the accrual of liquidated damages due from Seller in accordance with the schedule set forth in Section 17.1(a). Delivery of the Steam Turbine Generator requires that such Unit, as otherwise delivered, substantially conforms to the Specifications and requirements of this Contract.

4.2 **Method of Shipment.** Seller shall, at Seller's expense, arrange for Shipment of all Internationally-Sourced Items by ship to the Port of Entry and for Shipment of all Domestically-Sourced Items by Normal Carriage to the Delivery Point. Buyer shall be responsible for the transport of all Internationally-Sourced Items from the Port of Entry to the Project Site and the Domestically-Sourced Items from the Delivery Point to the Project Site unless Buyer elects to have Seller store the Internationally-Sourced Items and the Domestically-Sourced Items in accordance with Section 4.5, in which case Buyer shall remain responsible for the transport of all Internationally-Sourced Items from the Port of Entry to the Project Site but the Delivery Point will be changed to the Project Site rather than Mobile, Alabama and, unless the Project Site is Talladega, Alabama, a Change Order for any increased or decreased costs or schedule shall be applicable.

4.3 **Early Delivery.** Except as otherwise specifically agreed upon by Buyer in writing, Buyer shall not be required to accept early delivery of any Major Component of the Steam Turbine Generator if such delivery would result in delivery of any Major Component of such Unit earlier than two (2) Months prior to the Guaranteed Delivery Date for such Unit.

4.4 **Inspection of Equipment.** Payment for Equipment provided hereunder, or inspection or testing thereof by Buyer, shall not constitute acceptance or relieve Seller of its obligations under this Contract. Buyer may inspect the Equipment delivered and, upon prompt notification (within ten (10) days after discovery) to Seller, identify any and all such Equipment which is defective or does not conform to the Specifications or the requirements of this Contract. Equipment which is defective, or does not conform to the Specifications or the requirements of this Contract shall be corrected, repaired, or replaced by Seller, such that the Equipment is no longer defective and conforms to the Specifications and requirements of this Contract. Upon the Buyer's identification to Seller (with reasonable specificity) of any defective or non-conforming Equipment or workmanship, Seller will promptly submit to Buyer a proposed plan for the correction of such defect or non-conformity. Upon Buyer's receipt of such plan, the Parties will meet and agree upon the final plan for such correction. Seller will thereafter promptly commence to cure such defect or nonconformity in accordance with such final plan. In the event of any disagreement, Seller may proceed with Seller's proposed cure without Buyer's agreement, but Seller shall not by reason of proceeding without Buyer's

agreement, be relieved of any obligation under this Contract. If Buyer receives Equipment with a defect or nonconformity not reasonably apparent on inspection, then Buyer reserves the right to require prompt correction, repair, or replacement by Seller in accordance with Seller's warranty obligations under Article 10 following the discover of such defect or nonconformity.

4.5 **Storage.** The Steam Turbine Generator shall be stored by Seller at the factory in Takasago, Japan, until Buyer releases such Unit for Shipment from storage. Buyer shall have the right to inspect such Steam Turbine Generator at the factory in Takasago, Japan, upon reasonable notice to Seller, to verify compliance with the requirements for special and periodic preservation during storage. Buyer shall reimburse Seller for the expense of storage thereby incurred, including but not limited to preparation for, placement into, and removal from storage, in accordance with the prices set forth in Appendix D. Seller shall be deemed to have accomplished Delivery for the purposes of Sections 3.5, 6.1, 10.2 and 17.1 upon placing such Unit in storage, provided that upon Buyer's direction to release such Unit for Shipment from storage, such Unit shall be delivered to the applicable Port of Entry or Delivery Point within five (5) Months after written notification from Buyer, plus the time required for refurbishment (on an expedited basis), if refurbishment is required. Upon submission to Buyer of documentation establishing any increased costs for shipping such Unit over the cost included in this Contract, Seller shall be entitled to receive from Buyer payment for such increased costs. If Buyer has not released the Steam Turbine Generator for Shipment from storage within two (2) years after the date on which such Unit was originally placed into storage, then the Liquidated Damage Performance Guarantees, Noise Emission Guarantee, Demonstration Test Guarantees, the Availability Test Guaranty and the liquidated damage provisions under Section 17.1 of this Contract related to such Unit shall be considered voided, Final Acceptance of such Unit shall be deemed to have occurred, and Seller will not have any further liability under this Contract, except that Seller shall provide technical advisory services to Buyer in accordance with Section 19.1 regardless of the period that such Unit remains in storage. Notwithstanding the immediately preceding sentence, in the event that Seller performs an inspection and refurbishment of the Steam Turbine Generator, as provided in Section 10.2, then the Liquidated Damage Performance Guarantees, Noise Emission Guarantee, Demonstration Test Guarantees, the Availability Test Guaranty and the liquidated damage provisions under Section 17.1 of this Contract related to such Unit shall remain in effect, and Final Acceptance shall not be deemed to have occurred, if Substantial Completion of the Unit occurs prior to the later of (a) thirty three (33) Months after the actual date of completion of refurbishment, if Seller performs refurbishment prior to Shipment from storage, or (b) thirty (30) Months from the actual date of completion of refurbishment, if Seller performs refurbishment after Shipment from storage. If Substantial Completion of the Unit occurs after the later of (a) thirty three (33) Months after the actual date of completion of refurbishment, if Seller performs refurbishment prior to Shipment from storage, or (b) thirty (30) Months from the actual date of completion of refurbishment, if Seller performs refurbishment after Shipment from storage, then the Liquidated Damage Performance Guarantees, Noise Emission Guarantee, Demonstration Test Guarantees, the

Availability Test Guaranty and the liquidated damage provisions under Section 17.1 of this Contract related to such Unit shall be considered voided, Final Acceptance of such Unit shall be deemed to have occurred, and Seller will not have any further liability under this Contract, except that Seller shall provide technical advisory services to Buyer in accordance with Section 19.1 regardless of the period that such Unit remains in storage. Any technical advisory services required following such storage in addition to those which are provided at no additional cost pursuant to Section 19.1 shall be charged at the then current rates charged by Seller for the provision of such technical advisory services.

ARTICLE 5. INSPECTION AND FACTORY TESTS

5.1 **Inspection Rights.** Buyer, its agents (including but not limited to Buyer's engineering and construction contractors and employees and consultants of Tenaska) as well as the employees and agents for the purchasers of the electrical output of the Facility and Buyer's lenders (collectively, "Buyer's Inspector(s)") will be provided access to Seller's facilities and production records for purposes of obtaining information on production progress, quality control, determining status, and observing tests and inspections. To the extent that such Buyer's Inspector(s) are not employees of Buyer, Seller shall have the right to approve of such Buyer's Inspector(s), such approval not to be unreasonably withheld. Such access may be conditioned upon the execution by such inspectors of confidentiality agreements acceptable to Seller, in its reasonable discretion; provided that Seller may withhold access to or deny access to Buyer's Inspector(s) to work that is proprietary in such areas. In the event that certain tests or inspections have been completed prior to the date of this Contract, Buyer will waive the rights of Buyer's Inspectors to witness such tests or inspections, upon Seller providing documentation to Buyer certifying that such test or inspection has been completed and the results of such test or inspection.

5.2 **Witness Tests.** All factory testing described in Appendix L shall be successfully completed by Seller prior to Shipment. Subject to the provisions of Section 5.1, Seller and Buyer shall mutually agree upon a specific list of factory tests ("Witness Tests") which Buyer's Inspector(s) shall witness, provided that such list may be supplemented at Buyer's request to permit Buyer to witness additional factory tests which Seller intends to conduct, upon reasonable advance notice to Seller. Such Witness Tests shall be initially identified as such in Appendix L.

5.3 **Notification of Testing.** Subject to the provisions of Section 5.1, Seller shall advise Buyer as to the schedule for testing and Buyer's Inspector(s) will be given an opportunity to observe work during regular working hours. Neither completion of production work nor Shipment of any part of the Equipment will be delayed to accommodate Buyer's Inspector(s). The conditions of any tests shall be as set forth in the Specifications and Buyer shall be notified at least ten (10) Business Days prior to the commencement of all Witness Tests. Buyer will be informed of Seller's methods of reporting production progress. Appropriate office facilities will be provided where Buyer's Inspector(s) may conduct their work in connection with the above.

5.4 **Consequences of Inspection.** Buyer's inspection of the work or Buyer's failure to inspect any work in no way relieves Seller of its obligation to fulfill the requirements of this Contract nor is it to be construed as acceptance by Buyer.

5.5 **Insurance Inspections.** Prior to the Shipment of any Major Component of the Steam Turbine Generator, Buyer's insurers may require the right to inspect the loading, handling

and storage of such Major Component on the means of transportation from the point of manufacture to the Port of Entry. Seller shall cooperate with such inspection and provide Buyer or its designated agent with at least ten (10) days advance notice of the Shipment of such Major Component, provided that if Buyer shall have assigned this Contract as permitted by Section 22.1, Seller shall, in addition to providing such notice to such assignee, also provide a copy of such notice to Tenaska. Buyer shall have no right to delay Shipment, provided that any Shipment by Seller without the required advance notification of Shipment shall result in Seller being responsible for any loss incurred by Buyer as a result of any denial of insurance coverage to Buyer resulting from the failure to provide such notification, notwithstanding any provision to the contrary in Article 21.5.

ARTICLE 6. DELIVERY, TITLE, AND RISK OF LOSS

6.1 **Risk of Loss.** Risk of loss for all Internationally-Sourced Items will transfer from Seller to Buyer upon delivery, DEQ, to the designated Port of Entry. Risk of loss for all Domestically-Sourced Items will transfer from Seller to Buyer upon delivery, DDP, to the Delivery Point. Risk of loss to any Unit placed in storage pursuant to Section 4.5 shall transfer upon the delivery of such Unit to storage.

6.2 **Passage of Title.** Title to the Steam Turbine Generator shall transfer to Buyer upon receipt by Seller of the Delivery Payment for such Unit. Upon transfer of title to the Steam Turbine Generator to Buyer, Seller shall promptly execute and deliver to Buyer written documentation which shall be effective to confirm in Buyer good and marketable title to such Unit, free and clear of all obligations, mortgages, liens, pledges, custodianships, security interests, or any other encumbrances, claims, or charges of any kind whatsoever, except those relating to any payments remaining due Seller under this Contract. Upon written request of Buyer, Seller shall execute and deliver such documents as are reasonably required by Buyer to subordinate the lien, security interest, or claim of Seller relating to any payments remaining due under this Contract, to the interests (including any lien and/or security interests) of the lenders for the Project. Seller shall indemnify Buyer and hold Buyer harmless with respect to any foreign (non United States) taxes, including excise taxes, value added taxes, sales or use taxes, customs, fees or duties which may arise as a result of the foreign manufacture or import of any of the Equipment, except that Buyer shall be responsible for all customs, fees or duties associated with the Internationally-Sourced Items.

6.3 **Computer Programs.** Title to and right of possession of any Computer Programs licensed hereunder shall remain with Seller, or its licensor, except that Buyer shall have the right of possession and use of the Computer Programs provided hereunder at no cost for the term of the license set forth in Section 6.4. Nothing in this Contract shall be construed as limiting Seller, or its licensors, from using and licensing the Computer Programs to any third party.

6.4 **License of Computer Programs.** Seller grants to Buyer, and any party under contract with Buyer to operate the Steam Turbine Generator, a nontransferable, nonexclusive license (the "License"), without sublicensing rights, to use the computer programs provided to Buyer under this Contract (the "Computer Programs") solely in connection with the Steam Turbine Generator for which such Computer Programs are supplied, subject to the conditions and restrictions contained in this Contract. The term of the License shall extend until the decommissioning of the Steam Turbine Generator for which such Computer Programs are licensed. The License does not grant any right to the background technology from which the Computer Programs were generated or to the source code underlying the Computer Programs, except to the extent specifically identified in this Contract. Except as specifically set forth in this Contract, Buyer is

granted no right to modify the Computer Programs or merge the Computer Programs with other computer programs, provided that the use of the Computer Programs with other programs or the sharing of data between the Computer Programs and other programs is not prohibited. Notwithstanding the foregoing provisions of this Section 6.4, in the event of the sale or transfer of the Steam Turbine Generator or the sale or transfer of the Facility, such License will automatically transfer to the transferee, subject to the terms of this Section 6.4. In the event that Seller updates, revises or enhances the Computer Programs governed by the License, Seller shall make all such updates, revisions or enhancements to the Computer Programs available to Buyer on reasonable terms and conditions.

ARTICLE 7. DELAY OF SELLER

7.1 **Force Majeure.** Seller shall not be liable for delays in delivery or other failures to perform the terms of this Contract caused by events beyond its reasonable control which Seller is unable to overcome by the exercise of reasonable diligence, including acts of God, acts of civil or military authority, governmental priorities, transportation delays, fires, floods, epidemics, strike or labor disturbance, war, or riot, (collectively, "a Force Majeure Event"); provided, however, that such Force Majeure Event must directly, adversely, and materially affect a specific portion of the manufacture of the Steam Turbine Generator or Seller's obligations under this Contract with respect to such Unit. Strikes and labor slowdowns or stoppages directed specifically against Seller, its Affiliates or direct Subcontractors, shall not be considered a Force Majeure Event. Seller shall establish that a Force Majeure Event will cause a delay in Delivery as set forth in Article 4 or a required performance date in this Contract. In the event of Force Majeure Event, Seller will use commercially reasonable efforts to mitigate the effects of the Force Majeure Event on its performance of the Contract, including, if applicable, Seller making available replacement Equipment at the earliest possible date; provided that such efforts do not cost more than would otherwise be anticipated pursuant to the terms of this Contract; and provided further that the Parties may mutually agree to perform additional work, such as acceleration of the efforts, at additional cost to Buyer. In the event that a Force Majeure Event is established by Seller with respect to the Steam Turbine Generator, the Guaranteed Delivery Date, and any performance requirement or other date of required performance, shall be extended by that amount of delay demonstrated by Seller to have been caused by such Force Majeure Event, or Seller shall be excused as the cause of any day of delay in achieving Substantial Completion, as applicable. Seller shall give Buyer written notice of the occurrence of any Force Majeure Event within seven (7) days after Seller becomes aware of such Force Majeure Event, which notice shall include a good faith estimate of the expected impact that such event will have on Delivery or the performance of Seller under this Contract.

7.2 **Owner Caused Delay.** Any failure of Buyer, its agents, representatives or Subcontractors of any tier, to timely perform any of the obligations of Buyer set forth in this Contract or any breach by Buyer, its agents, representatives or Subcontractors of any tier, of any duty under this Contract (including any good faith duty not to hinder or interfere with Seller's performance), which failure or breach shall materially adversely affect the performance of Seller shall be an "Owner Caused Delay." In the event of an Owner Caused Delay, Seller shall be entitled to an extension of the Guaranteed Delivery Date by that amount of delay demonstrated by Seller to have been caused by such Owner Caused Delay, or shall with respect to such Owner Caused Delay be excused as the cause of any resulting day(s) of delay in achieving Substantial Completion, as applicable, and Seller shall further be entitled to be paid the direct costs incurred by Seller which result from such Owner Caused Delay.

ARTICLE 8. COMPLIANCE WITH LAWS, CODES AND STANDARDS

8.1 **Compliance with Applicable Laws.** Seller warrants that the Equipment, Documentation and Services under this Contract shall comply, at the time of Delivery and in the case of Services at the time of performance, with all Applicable Laws. Buyer shall advise Seller of any local laws, codes, standards and regulations materially affecting the Equipment. In the event of any unreasonable delay by Buyer in advising the Seller of a breach of the warranty set forth in Section 8.1, Seller shall be relieved of its warranty obligations hereunder only to the extent of any additional loss or expense directly resulting from such delay.

8.2 **Change in Applicable Laws.** In the event that compliance under Section 8.1 with respect to any Applicable Laws requires any modifications to the scope set forth in Appendix A or any changes in Seller's design, manufacturing processes and procedures, or quality assurance, then the Contract Price will be adjusted by change order to equitably reflect the added costs and expense to Seller of such change and, if necessary, the schedule for Seller's performance under the Contract will be revised for the reasonable period necessary to comply with such modification, change or revision. Any other provisions of this Contract will be modified as is required by such change or revision in Applicable Laws. In the event Buyer elects any modifications to the scope set forth in Appendix A or any changes in Seller's design, manufacturing processes and procedures, or quality assurance program are required as a result of any change of location, including changes required for compliance under Section 8.1, then the Contract Price will be adjusted by change order to equitably reflect the added or reduced costs and expenses to Seller of such change and, if necessary, the schedule for Seller's performance under the Contract will be revised for the reasonable period necessary to comply with such modification, change or revision, and any other provisions of this Contract will be modified as are required by any changes in the Applicable Laws. Notwithstanding the foregoing, no modification in the Contract Price, schedule or other provisions of this Contract shall be made as a result of any general change in the manufacturing facilities of Seller or a change in Seller's work force not specifically limited to the Equipment, Documentation or Services for this Contract, resulting from any change of Applicable Laws.

8.3 **Compliance with Applicable Insurance Policies.** Seller shall perform all Services under this Contract in accordance with and fulfill the requirements of any and all Applicable Insurance Policies.

8.4 **Indemnification.** Seller shall indemnify and hold harmless Buyer against all claims, demands, suits or actions of every kind and nature presented or brought by third parties for any claim or liability arising from or based on the violation of any Applicable Laws by Seller or its Subcontractors or the agents, servants, representatives or employees of Seller or its Subcontractors. Buyer shall indemnify and hold harmless Seller against all

claims, demands, suits or actions of every kind and nature presented or brought by third parties for any claim or liability arising from or based on the violation of any Applicable Laws by Buyer or its Subcontractors (other than Seller) or the agents, servants, representatives or employees of Buyer or its Subcontractors (other than Seller). For purposes of this Section 8.4, "third parties" shall not include Buyer, Affiliates of Buyer, or their respective partners and Affiliates or Seller, Affiliates of Seller, or their respective partners and Affiliates.

ARTICLE 9. CHANGES; ADDITIONAL EQUIPMENT

9.1 **Changes.** Buyer may, by written change order, make mutually agreed to changes to the Equipment, Documentation and/or Services. If any such change results in an increase or decrease in the cost of the Equipment or to the cost or time required for the performance of the Services or changes to any other pertinent provisions under this Contract, then there shall be an equitable adjustment to the Contract Price and time of delivery and any other pertinent provisions of the Contract. Any such change in the Equipment, Documentation and/or Services and in the Contract Price or the Guaranteed Delivery Date or any other pertinent provisions of the Contract, shall be indicated on the change order. If Buyer and Seller do not agree upon the price of such change or its effect on the Guaranteed Delivery Date or its effect on any other pertinent provisions of the Contract, Buyer may issue a Directed Change Order, so long as such Directed Change Order is reasonably capable of being performed by Seller and is intended solely to cause the Documentation, Equipment or Services to comply with Applicable Laws, and Seller shall proceed without undue delay to perform the change described in the Directed Change Order, as set out in such order and consistent with this Section 9.1. Within ten (10) days after Buyer's submission of a Directed Change Order, Seller shall submit a Dispute Notice to Buyer setting out the reasons for Seller's disagreement with the price of such change or its effect on the Guaranteed Delivery Date or its effect on any other pertinent provisions of this Contract, and the Parties shall resolve such disagreement in accordance with the procedures of Section 22.10.

ARTICLE 10. WARRANTY

10.1 Limited Warranties.

(a) Seller warrants to Buyer that the Equipment to be delivered hereunder shall be as described in the Specifications; shall be in accordance with the Specifications; shall be new; shall be free from defects in material and workmanship; and that the Services shall be performed in a competent, diligent, workmanlike manner in accordance with this Contract, and in the absence of specific requirements under this Contract in accordance with generally accepted industry standards. Seller further warrants to Buyer that the Documentation and materials which are to be provided to Buyer under this Contract, will faithfully and accurately reflect the Equipment provided under this Contract.

(b) Seller warrants to Buyer that Seller will have good and indefeasible title, and will at the time of transfer of title under this Contract, convey to Buyer good and indefeasible title to the Equipment, free and clear of any and all liens and security interests which may arise by or through Seller or any Subcontractor of Seller.

10.2 Warranty Period. The warranties for the Equipment as set forth in Section 8.1 and 10.1 shall apply to defects which appear prior to Substantial Completion of the Steam Turbine Generator and during a period of either (i) twelve (12) Months following the date the Steam Turbine Generator achieves Substantial Completion; or (ii) thirty (30) Months from the actual date of Delivery of the Steam Turbine Generator to Buyer, whichever period expires first ("Warranty Period"); provided that in the event that Substantial Completion of the Steam Turbine Generator occurs, or is expected to occur, more than eighteen (18) Months after the actual date of Delivery of the Steam Turbine Generator to Buyer, through no fault of Seller, Buyer may elect to pay to Seller the reasonable cost of any inspections and necessary refurbishments for the Equipment, in which event Seller shall provide an extension of the Warranty Period to the later of thirty three (33) Months from the actual date of completion of refurbishment if Seller performs refurbishment prior to Shipment from storage or thirty (30) Months from the actual date of completion of refurbishment if Seller performs refurbishment after Shipment from storage, but in no event shall the Warranty Period extend more than twelve (12) Months following the date the Steam Turbine Generator achieves Substantial Completion. Notwithstanding the immediately preceding sentence, the Warranty Period, as extended, shall in no event extend beyond the end of the fifty eighth (58th) Month after the actual date of Delivery of the Steam Turbine Generator to storage. "Substantial Completion" has the meaning set forth in Section 17.1.

10.3 General Conditions of Warranty. The warranties and remedies set forth herein are conditioned upon the following:

(a) The proper receipt, handling, storage, installation, use, inspection, operation and

maintenance of the Equipment by Buyer in accordance with the written service manuals and written advisories (to the extent such service manuals and advisories are not inconsistent with the terms of this Contract, including the Specifications) provided by Seller pursuant to the Contract, and, in the absence thereof, Buyer following generally accepted industry practices in regard to the above activities.

(b) The Equipment not being subjected to accident, alteration, abuse or misuse by Buyer, which causes a defect in the Equipment.

(c) Buyer shall allow Seller the reasonable opportunity to review operating and maintenance records relating to the Facility and shall provide Seller's representatives reasonable access to the Project Site for the purpose of observing the Facility and the operation and maintenance thereof.

10.4 Warranty Obligations.

(a) If during the applicable Warranty Period, the Equipment or Documentation delivered and/or Services performed under this Contract do not meet the above warranties, then Buyer shall promptly notify Seller, not later than thirty (30) days after the expiration of the Warranty Period, and make the Equipment or Documentation available promptly for correction; provided that Buyer may elect to defer the correction for a reasonable period of time to permit Buyer's continued use of the Equipment, but Buyer assumes the risk and expense of any additional damage which may arise from the deferral of such correction. Seller, at its expense, shall thereupon correct any defect, at its option, by (i) re-performing the defective Service, (ii) modifying or repairing any Equipment or Documentation not in compliance with Section 8.1, and/or (iii) repairing, replacing, or modifying any defective parts of the Equipment, or any defects in the Documentation. Seller shall provide technical advisory services reasonably necessary for any such repair or replacement. If required to avoid or mitigate a forced outage, warranty work and services by Seller shall be performed on a twenty-four (24) hours a day, seven (7) days a week basis. Such warranty work and services are limited to the Equipment supplied and do not include removal and replacement of structures or other parts of the Facility reasonably necessary to conduct the warranty work.

(b) Seller shall perform its warranty obligations under this Contract without materially changing the performance of the Steam Turbine Generator to the detriment of Buyer. In repairing, replacing, or modifying any Equipment, Seller shall not materially change the functionality or performance of the Equipment to the detriment of Buyer. In the event of a material breach by Seller of the provisions of this Section 10.4(b) which is not cured by Seller within thirty (30) days after written notice of such material breach to Seller or, if such breach is not curable within such thirty (30) day period, Seller fails to initiate and diligently

pursue to completion a cure, Buyer shall, subject to Article 13, have available all of its rights and remedies, at law or in equity, for such material breach.

10.5 Extension of Warranty Period. Any modified, repaired or replaced part of the Equipment, revised Documentation and/or Service furnished in connection therewith and any Service re-performed under the aforesaid warranty shall carry warranties on the same terms as set forth above except that the warranty period shall be for a period of one (1) year from the date of such modification, repair or replacement, revision, or reperformance. Seller's warranty obligations, if not terminated earlier pursuant to this Article 10, shall terminate for the Steam Turbine Generator on and shall be subject to the overall warranty limit of, the lesser of three (3) years after Substantial Completion of the Steam Turbine Generator or four (4) years from the actual date of Delivery of the Steam Turbine Generator.

10.6 Exclusive Warranties. The warranties set forth in this Contract are exclusive and in lieu of all other warranties, whether written, oral, statutory or express. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. The remedies set forth in this Article 10, Article 14 and Article 17 are the only remedies of Buyer for claims based on defect in or failure of Equipment or Services, whether said claims are designated as arising in contract, warranty (other than with respect to infringement which shall be governed by Article 12), tort (including negligence), strict liability, indemnity (except for third party claims under Section 15.1), or otherwise, whether arising before or after Delivery, and however instituted.

10.7 Warranty Exclusion. Seller does not warrant the Equipment or any repaired or replaced part against normal wear and tear.

ARTICLE 11. CONFIDENTIALITY PROVISIONS

11.1 **Confidentiality.** Seller and Buyer, and their Affiliates, directors, officers, employees, contractors, Subcontractors, Suppliers and representatives (the foregoing, collectively, the "Representatives") shall take reasonable precautions to ensure that any Confidential Information disclosed by Buyer or Seller (the "Disclosing Party") to the other party (the "Receiving Party") remains confidential unless the Disclosing Party consents in writing to the release of such Confidential Information; provided, however, that the Receiving Party may disclose such Confidential Information (but only to the extent necessary) (i) to its Representatives who have a need to know such Confidential Information; (ii) to its counsel; (iii) to any government authority to the extent required to be disclosed; (iv) in connection with any arbitration, mediation or litigation; (v) to lenders or potential lenders in connection with the financing of the Project; (vi) to investors or potential investors in Buyer or any special purpose entity formed for the development of the Project; (vii) to any insurer or consultant of Buyer; (viii) to the purchaser(s) of the electrical output generated by the Facility; and (ix) to any proposed good faith purchaser of the Equipment or the Power Plant; provided, further, that any Confidential Information disclosed to a Representative pursuant to (i) through (ix) above shall only be disclosed so long as (w) such Representative is not a competitor of either Party; (x) such Representative is informed as to the confidential nature of such Confidential Information; (y) such Representative agrees to be bound to this Section 11.1 as a condition to the receipt of such Confidential Information; and (z) the Receiving Party remains liable for any breach of this Section 11.1 by such Representative. The Parties' respective obligations with respect to Confidential Information hereunder shall survive the termination of the Parties' liability under this Contract.

11.2 **Confidential Information.** Confidential Information shall include all tangible information, in written, recorded, graphical or other tangible form, including, financial analyses, compilations, forecasts, studies, balance sheets, income statements, financial data, and financial plans, drawings, procedures and other information considered by the Disclosing Party to be proprietary.

11.3 **Exclusions from Confidentiality.** The foregoing restrictions do not apply to information which: (i) is contained in a printed publication which was released to the public by the Disclosing Party prior to the date of this Contract or is disclosed by the Disclosing Party without restriction either prior to or subsequent to the receipt by the Receiving Party of such information; (ii) is, or becomes, publicly known otherwise than through a wrongful act of the Receiving Party or its Representatives; (iii) is in the possession of the Receiving Party or its Representatives prior to receipt from the Disclosing Party, provided that the person or persons providing the same have not had access to the information from the Receiving Party or its Representatives; (iv) is developed independently by the Receiving Party or its Representatives without use of the Disclosing Party's Confidential Information; or (v) is approved in writing by the

Disclosing Party for disclosure by the Receiving Party, or its Representatives to a third party not bound by the confidentiality obligations afforded to the Disclosing Party under Section 11.1 above.

11.4 **No Adequate Remedy.** In the event of a breach or threatened breach by Buyer or Seller of the provisions of this Article 11, the aggrieved Party will have no adequate remedy in money or damages and, accordingly, shall be entitled to an injunction against such breach. However, no specification in this Section 11.4 of any specific legal or equitable remedy shall be construed as a waiver or prohibition against any other legal or equitable remedies in the event of a breach of a provision of this Article 11.

11.5 **Confidentiality of Contract.** The Parties deem this Contract, and information concerning price, warranty, performance guarantees, and delivery cycles exchanged by the Parties during the negotiations of this Contract, to be Confidential Information and subject to the provisions of this Article 11.

ARTICLE 12. INTELLECTUAL PROPERTY

12.1 **Intellectual Property Indemnification.** Seller agrees to defend and to handle at its own cost and expense any claim or action against Buyer for actual or alleged infringement of any patent or copyright, or similar proprietary right, including but not limited to misappropriation of trade secrets, based upon the Equipment, Documentation, materials and/or Services furnished to Buyer by Seller, or the use thereof by Buyer. Seller shall, at Seller's sole expense, conduct the defense of any such claim or action and all negotiations for the settlement or compromise, unless otherwise mutually agreed to, in writing, by Buyer and Seller; provided that if such claim or action seeks an injunction or other equitable relief against Buyer, counsel retained by Buyer at the expense of Buyer shall be permitted to participate in such defense. Seller agrees to further indemnify and hold Buyer harmless from and against any and all liabilities, losses, settlements, judgments, reasonable costs and expenses (including but not limited to reasonable legal fees and expenses and costs of settlement) incurred by Buyer associated with any such claim or action. Seller will not be responsible for any settlement of such suit or proceeding made without its prior written consent, subject to Seller's compliance with the foregoing provisions of this Section 12.1.

12.2 **Remedy for Infringement.** If any Equipment, Documentation, materials and/or Services furnished hereunder are held to constitute infringement, and the use thereof is temporarily or permanently enjoined, then Seller shall, at its own expense, in such manner as to minimize the disturbance to Buyer's business activities, either: (i) obtain for Buyer the right to continue using such Equipment, Documentation, materials and/or Services or (ii) modify such Equipment, Documentation, materials and/or Services to become non-infringing (provided that such modification does not affect Buyer's intended use of the same as contemplated hereunder); or (iii) replace such Equipment, Documentation, materials and/or Services with equally suitable, non-infringing Equipment, Documentation, materials and/or Services, provided such replacement Equipment does not degrade the operation of the Steam Turbine Generator or affect Seller's warranty. Sections 12.1 and 12.2 state the entire liability of Seller for infringement of any patent, copyright or similar proprietary right with respect to any Equipment, Documentation, materials and/or Services.

12.3 **Exception to Indemnification.** Sections 12.1 and 12.2 shall not apply to the extent that a claim is caused by any Equipment (i) modified by Buyer or its contractors after Delivery and by reason of said design, use or modification a suit is brought against Buyer or (ii) furnished under this Contract and used by Buyer in conjunction with any other apparatus or material not reasonably anticipated or specified by Seller. To the extent of a claim described in the preceding sentence, Seller assumes no liability whatsoever for infringement.

ARTICLE 13. LIMITATION OF LIABILITY

13.1 Limitation of Liability.

(a) Notwithstanding anything in this Contract to the contrary, except for Seller's indemnification obligation for third party injury (including death) to persons under Section 15.1, the total liability of Seller on all claims, whether in contract, warranty, tort (including negligence), strict liability, indemnity, or otherwise, arising out of the performance of this Contract with respect to the Steam Turbine Generator or from the manufacture, sale, delivery, resale, repair, installation, technical direction of installation, replacement, or use of any Equipment, shall not exceed TWENTY MILLION DOLLARS ($20,000,000). All liability of Seller with respect to the Steam Turbine Generator shall terminate upon the first to occur of: (a) three (3) years after Substantial Completion of the Steam Turbine Generator, or (d) four (4) years after Delivery of the Steam Turbine Generator.

(b) Seller shall not be liable or otherwise obligated for the costs of repair or replacement of property of Buyer, including the Equipment, which is damaged as a result of Equipment or Services which are faulty or defective or otherwise fail to conform to the warranty provisions of Article 10 ("Collateral Damage"); provided that Seller will be liable for the costs of repair or replacement as a result of any Collateral Damage to the Equipment, caused due to defective Services or due to a defect in the Equipment, but in no event shall such Collateral Damage liability exceed the lesser of (a) the actual deductible applicable to such occurrence under the applicable insurance maintained by Buyer that covers such property damage, or (b) $750,000 per occurrence; provided that Seller shall not be responsible for more than two (2) such occurrences of Collateral Damage and the aggregate liability of Seller for Collateral Damage for all such occurrences shall not exceed $1,500,000 in the aggregate. Any and all liability of Seller arising under this Contract for Collateral Damage shall be limited to occurrences prior to the expiration of the Warranty Period and Seller shall be released from such liability for occurrences after the expiration of the Warranty Period. Nothing in this Section 13.1(b) shall relieve Seller from its obligations under Articles 16 or Article 17 of this Contract.

13.2 Consequential Damages Exclusion. Notwithstanding anything in this Contract to the contrary, except for the payment of liquidated damages as specified in this Contract, in no event, whether as a result of breach of contract, warranty, tort (including negligence), strict liability, indemnity, or otherwise, shall Seller or its Subcontractors or Suppliers be liable for any special, consequential, incidental, indirect, punitive or exemplary damages. Notwithstanding anything in this Contract to the contrary, in no event shall Buyer be liable to Seller for any special, consequential, incidental, indirect, punitive or exemplary

damages. The total liability of Buyer on all claims, whether in contract, tort (including negligence), strict liability, indemnity or otherwise arising out of this Contract shall not exceed the Contract Price, provided that the limitations set forth in this sentence shall not apply to Buyer's indemnification obligations for third party injury (including death) to persons under Section 15.2. This section shall not limit Seller's obligation to provide the express warranties set forth in Article 10 of this Contract.

13.3 **Retention of Remedies.** The remedies expressly provided for in this Contract shall be the sole and exclusive remedies for any failure to comply with any provision of this Contract, provided that in the event that a remedy is not expressly provided with respect to a failure to comply with any provision of this Contract, the non-breaching Party shall retains all of its rights and remedies, at law or in equity, for such failure to comply with such provision of this Contract.

13.4 **Further Limitations.** For the purpose of this Article 13, the term "Seller" shall mean Seller, its Affiliates, Subcontractors and Suppliers of any tier, and their respective agents and employees, whether individually or collectively. For the purposes of this Article 13, "Buyer" shall mean Buyer, any assignees of this Contract under Section 22.1, their Affiliates, Subcontractors and Suppliers of any tier, and their respective agents and employees, whether individually or collectively.

ARTICLE 14. TERMINATION

14.1 Termination. Buyer may terminate this Contract with respect the Steam Turbine Generator at any time upon written notice to Seller and payment to Seller of the Cancellation Charge for such Unit.

14.2 Termination by Seller. In the event that Buyer fails to timely pay to Seller any undisputed amounts due pursuant to the terms of this Contract, Buyer shall be in default under this Contract and Buyer shall be allowed thirty (30) days from receipt of a written notice of such default from Seller in which to cure such default, after which Seller may immediately terminate this Contract by written notice to Buyer. Any amount disputed by Buyer to be due under this Contract must be disputed in good faith. Upon Seller's termination of this Contract in accordance with this Section 14.2, Buyer shall pay Seller the applicable Cancellation Charge for the Steam Turbine Generator.

14.3 Termination by Buyer for Material Breach. In the event that Seller breaches a material provision of this Contract other than as provided in Section 14.4, Seller shall be in default under this Contract and Seller shall be allowed thirty (30) days from receipt of a written notice of such default from Buyer in which to cure such default, or initiate and diligently pursue to completion a cure, after which Buyer shall immediately have the right to terminate this Contract, without payment of any Cancellation Charge, by written notice to Seller. In the event of such termination Buyer shall be entitled, subject to Article 13, to recover from Seller the monetary damages arising to Buyer as a result of such breach and termination, provided that if Buyer elects to complete, or have another party complete, the Seller's supply of the Documentation, Equipment, and Services under this Contract, then, subject to Article 13, Buyer may recover from Seller the costs arising to Buyer to complete such Documentation, Equipment, and Services, but only to the extent such costs exceed the sum which remains due to Seller under this Contract at the date of termination. Any liquidated damages which have accrued pursuant to Sections 17.1 or 17.2 of this Contract at the date of such termination shall remain the obligation of Seller and shall not be extinguished as a result of any termination pursuant to this Section 14.3, provided that prior to the achievement by the Steam Turbine Generator of Performance Minimums, Buyer is not entitled to liquidated damages under Section 17.2 with respect to such Unit. In the event the Contract sets forth a specific remedy for any breach, Buyer shall not have the right to terminate the Contract for such breach.

14.4 Termination for Failure to Achieve Performance Minimums or Substantial Completion.

(a) In the event that Seller or the Equipment provided by Seller is the primary cause of the failure of the Steam Turbine Generator to achieve the Performance Minimums within a period one hundred eighty (180) days or more after the Scheduled Date of Substantial Completion for the Steam Turbine Generator (the

"Cure Period"), for whatever reasons, including delay in Delivery of the Steam Turbine Generator, Seller shall be in material breach for substantial nonperformance of this Contract; provided that Seller may be afforded additional time after the Cure Period in which to achieve Substantial Completion of the Steam Turbine Generator (the "Permitted Time") if the Steam Turbine Generator achieves the Performance Minimums with the Cure Period.

(b) The "Permitted Time" for the Steam Turbine Generator shall be determined as follows:

(i) Upon the achievement by the Steam Turbine Generator of Performance Minimums, if such Unit has not achieved Substantial Completion within the Cure Period, potential liquidated damages for performance shall be calculated based upon the most recent Performance Tests by calculating the amount of liquidated damages which would be applicable pursuant to the requirements of Section 17.2, based upon the most recent measurements of MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output ("Potential Liquidated Damages").

(ii) The Potential Liquidated Damages shall then be subtracted from an amount equal to $4,500,000 and the remaining amount shall be referred to as the "Remaining Liquidated Damages."

(iii) The Permitted Time in Days shall equal the Remaining Liquidated Damages divided by $150,000, and any remainder of less than a full day shall be disregarded.

(c) Upon a material breach for substantial nonperformance pursuant to this Section 14.4, Buyer may pursue any and all remedies available to Buyer under this Contract, including termination of this Contract at any time after such material breach without payment of any Cancellation Charge, and Buyer shall also be entitled to recover damages caused by such material breach in accordance with the provisions of Section 14.3, in addition to any previously accrued liquidated damages arising pursuant to Section 17.1 or 17.2 (liquidated damages under Section 17.2 only being available after the achievement of Performance Minimums by the Steam Turbine Generator) subject only to the limitation of liability set forth in Section 13.1(a) for the Steam Turbine Generator and the exclusion of damages set forth in Section 13.2, provided that Section 13.2 shall not restrict Buyer from the recovery of damages for any additional costs arising from the completion of the performance required under this Contract, whether by another party or by Buyer. For the avoidance of doubt, the Parties agree that if Buyer terminates this Contract due to material breach prior to the achievement by the Steam Turbine Generator of Performance Minimums, then Buyer will not be

entitled to any liquidated damages under Section 17.2, it being understood that such amounts are only available as liquidated damages to Buyer once Seller has achieved the Performance Minimums.

ARTICLE 15. INDEMNIFICATION

15.1 **Indemnification of Buyer.** Seller shall indemnify and hold harmless Buyer, Affiliates of Buyer, their respective partners and Affiliates, a Section 22.1 third party assignee and the officers and directors of Buyer, Affiliates of Buyer and such partners, Affiliates and assignee ("Buyer's Indemnified Parties"), from any losses, liabilities, judgments or damages arising from third party claims (excluding claims of third parties due to electric service interruption or frequency fluctuation) for damage to tangible property, or for injury (including death) to persons (including employees of Seller and employees of the Buyer's Indemnified Parties) to the extent that such claim is based upon or attributable to the negligence or willful misconduct of Seller or its servants, agents, or employees. In the event any damage or injury is caused jointly or concurrently by the negligence of Buyer and Seller, such loss shall be borne proportionately by the Parties to their degree of negligence. For purposes of this Section 15.1, "third party claims" shall not include claims of Buyer, Affiliates of Buyer, their respective partners and Affiliates.

15.2 **Indemnification of Seller.** Buyer shall indemnify and hold harmless Seller and Affiliates of Seller, and the officers and directors of such Seller and such Affiliates ("Seller's Indemnified Parties"), from any losses, liabilities, judgments or damages arising from third party claims for damage to tangible property, or for injury (including death) to persons (including employees of Buyer and employees of the Seller's Indemnified Parties) to the extent that such claim is based upon or attributable to the negligence or willful misconduct of Buyer or its servants, agents, or employees. In the event any damage or injury is caused jointly or concurrently by the negligence of Buyer and Seller, such loss shall be borne proportionately by the Parties to their degree of negligence. For purposes of this Section 15.2, "third party claims" shall not include claims of Seller, Affiliates of Seller, their respective partners and Affiliates.

ARTICLE 16. ACCEPTANCE TEST GUARANTEES

16.1 Performance and Noise Emission Guarantees.

(a) **Liquidated Damage Performance Guarantees.** Each individual performance guarantee specified in subsection (i) and (ii) of this Section 16.1(a) is herein referred to as a "Liquidated Damage Performance Guarantee". The respective guaranteed values referenced below are identified in Section 3.2.1 of Appendix A, and the contract conditions which apply to such guaranteed values are identified in Section 3.2.5 of Appendix A. The guarantees for MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output will each have a commercial test tolerance determined in accordance with Section 3.2.5.1 and Section 3.2.5.2, respectively, of Appendix A. The commercial test tolerance includes measurement uncertainty.

Seller guarantees that:

(i) MPS Net Steam Turbine Electrical Output of the Steam Turbine Generator, determined in accordance with the test procedures set forth in Section 2.1.1 of Appendix C, shall not be less than the value set forth in Section 3.2.1.1 of Appendix A, when such value is measured and corrected to the contract conditions set forth in Section 3.2.5.1 of Appendix A; and

(ii) MPS Net Steam Turbine Maximum Electrical Output of the Steam Turbine Generator, determined in accordance with the test procedures set forth in Section 2.1.2 of Appendix C, shall not be less than the value set forth in Section 3.2.1.2 of Appendix A, when such value is measured and corrected to the contract conditions set forth in Section 3.2.5.2 of Appendix A;

(hereinafter "Final Test Value(s)"). If, after correction to the applicable contract conditions set forth in Section 3.2.5 of Appendix A, any of the Final Test Values for MPS Net Steam Turbine Electrical Output or MPS Net Steam Turbine Maximum Electrical Output of the Steam Turbine Generator is at or above the guaranteed output (as reduced by the commercial test tolerance), the applicable guarantee shall have been satisfied.

(b) **Noise Emission Guarantee.** (Noise Levels) The emission guarantee specified in this Section 16.1(b) is herein referred to as a "Noise Emission Guarantee".

Seller guarantees that the "Final Test Value" for Noise Levels from the Steam Turbine Generator shall not exceed the guaranteed limits set forth in Section 3.2.2.2 of Appendix A when the actual value for such emissions is measured in accordance with the test procedures specified in Section 3.1.1 of Appendix C in

accordance with the conditions set forth in Section 3.2.5.4 of Appendix A.

16.2 Satisfaction of Liquidated Damage Performance Guarantees and Noise Emission Guarantee.

(a) **Satisfaction of Liquidated Damage Performance Guarantees.** The Liquidated Damage Performance Guarantees set forth in subsections (i) and (ii) of Section 16.1(a) shall be conclusively deemed satisfied and Seller shall be relieved of any and all obligations with respect to such Liquidated Damage Performance Guarantees after the condition(s) of the applicable subsection of each of (i) and (ii) below has occurred.

(i) The Liquidated Damage Performance Guarantee for MPS Net Steam Turbine Electrical Output will be satisfied if:

(A) the Final Test Value for the MPS Net Steam Turbine Electrical Output of the Steam Turbine Generator is equal to or greater than the guaranteed electrical output set forth in Section 3.2.1.1 of Appendix A after reduction by the commercial test tolerance, or

(B) Seller has exercised all reasonable efforts and diligently taken appropriate corrective actions to achieve the guaranteed electrical output set forth in Section 3.2.1.1 of Appendix A during any testing and retesting of the MPS Net Steam Turbine Electrical Output conducted by Buyer or on Buyer's behalf and having achieved the Performance Minimum for MPS Net Equipment Electrical Output but having failed to achieve the guaranteed electrical output, Seller has paid liquidated damages to Buyer pursuant to Section 17.2(b), or

(C) Buyer provides written notice to Seller that it has satisfied this portion of the Liquidated Damage Performance Guarantee; and

(ii) The Liquidated Damage Performance Guarantee for MPS Net Steam Turbine Maximum Electrical Output will be satisfied if:

(A) the Final Test Value for the MPS Net Steam Turbine Maximum Electrical Output of the Steam Turbine Generator is equal to or greater than the guaranteed electrical output set forth in Section 3.2.1.2 of Appendix A after reduction by the commercial test tolerance, or

(B) Seller has exercised all reasonable efforts and diligently taken appropriate corrective actions to achieve the guaranteed output set forth in Section 3.2.1.2 of Appendix A during any testing and retesting of the MPS Net Steam Turbine Maximum Electrical Output conducted by Buyer

or on Buyer's behalf and having failed to achieve the guaranteed electrical output, Seller has paid liquidated damages to Buyer pursuant to Section 17.2(b), or

(C) Buyer provides written notice to Seller that it has satisfied this portion of the Liquidated Damage Performance Guarantee.

(b) **Satisfaction of Noise Emission Guarantee.** The Noise Emission Guarantee set forth in Section 16.1(b) shall be conclusively deemed satisfied and Seller shall be relieved of any and all obligations with respect to such Noise Emission Guarantee after the condition(s) of the applicable subsection below has occurred:

(i) the Final Test Values for the Noise Levels from the Steam Turbine Generator are equal to or less than the guaranteed limits set forth in Section 3.2.2.2 of Appendix A, or

(ii) Buyer provides written notice to Seller that it has satisfied such Noise Emission Guarantee.

16.3 Demonstration Test Guarantees. Seller guarantees that the Steam Turbine Generator shall satisfy the performance described in Section 3.2.3 of Appendix A for each of the following demonstration tests:

Minimum Load*
Generator Operations (Lead/Lag)*
Unit Trip Capability
Steam Turbine Load Ramp Rate*

(the "Demonstration Test Guarantees"). Those Demonstration Test Guarantees listed above with an asterisk are required to be satisfied as a condition to achieving Substantial Completion of the Steam Turbine Generator, and all other Demonstration Test Guarantees must be satisfied prior to Final Acceptance of the Steam Turbine Generator. Satisfaction of each Demonstration Test Guarantee shall be determined in an applicable Demonstration Test as described in Section 2.2 or Section 3.2 of Appendix C and in accordance with the applicable conditions for such guarantee as set forth in the applicable subsection of Section 3.2.5 of Appendix A;

Each Demonstration Test Guarantee as set forth in Section 3.2.3 of Appendix A shall be conclusively deemed satisfied and Seller shall be relieved of any and all obligations with respect to such Demonstration Test Guarantee upon the occurrence of the following:

(i) the performance of the Steam Turbine Generator in such Demonstration Test equals or exceeds the performance guaranteed for such test in Section 3.2.3 of Appendix A, or

(ii) Buyer provides written notice to Seller that it has satisfied such Demonstration Test Guarantee.

16.4 **Availability Test Guarantee.** Seller guarantees that the Steam Turbine Generator shall satisfy the Availability Test performance set forth in Section 3.2.4 of Appendix A (the "Availability Test Guarantee") when measured in the Availability Test performed in accordance with Section 2.3 of Appendix C.

The Availability Test Guarantee set forth in Section 3.2.4 of Appendix A shall be conclusively deemed satisfied and Seller shall be relieved of any and all obligations with respect to such Availability Test Guarantee upon the occurrence of the following:

(i) the performance of the Steam Turbine Generator in such Availability Test equals or exceeds the performance guaranteed for such test in Section 3.2.4 of Appendix A, or

(ii) Buyer provides written notice to Seller that it has satisfied such Availability Test Guarantee.

16.5 **Failure to Complete Performance Testing.** If performance of all of the Acceptance Testing for the Steam Turbine Generator is not completed, through no fault of Seller, within eighteen (18) months from the Scheduled Date of Substantial Completion for the Steam Turbine Generator or within thirty (30) months from the date of Delivery (other than placement in storage pursuant to Section 4.5) of the Steam Turbine Generator, which ever occurs first, then each of the Liquidated Damage Performance Guarantees, Noise Emission Guarantee, Demonstration Test Guarantees and the Availability Test Guarantee for the Steam Turbine Generator shall be deemed satisfied, Seller shall be relieved of any and all obligations with respect to such guarantees and the liquidated damage provisions (other than under Section 17.1(a)) of this Contract related to the Steam Turbine Generator shall be considered voided, and Final Acceptance of the Steam Turbine Generator shall be deemed to have occurred.

ARTICLE 17. LIQUIDATED DAMAGES AND ACCEPTANCE TESTING

17.1 **Schedule Liquidated Damages.** In the event of a delay in Delivery of the Steam Turbine Generator, or if Seller's failure to comply with the requirements of this Contract with respect to Equipment and Services causes a delay in the achievement of Substantial Completion of the Steam Turbine Generator, the Parties agree that Buyer's loss would be difficult to determine. Each Party acknowledges and agrees, after taking into account the terms of this Contract and all relevant circumstances at the date hereof, that the liquidated damages payable under this Section 17.1 represent a reasonable and genuine pre-estimate of the damages which would be suffered by Buyer in the event of a delay in Delivery of the Steam Turbine Generator, or a delay in the achievement of Substantial Completion of the Steam Turbine Generator and does not constitute a penalty. Accordingly, Seller and Buyer agree, as a predetermined reasonable and exclusive remedy for any such loss, to the following liquidated damages:

(a) **Delivery.**

In the event that Delivery (as defined in Section 4.1(c)) of the Steam Turbine Generator is not made on or before the Guaranteed Delivery Date as set forth in Section 4.1(a) due to causes not excused by the provisions of this Contract, daily liquidated damages shall accrue at the following rate for each full day that Delivery occurs after the Guaranteed Delivery Date:

Days 1-14	$0/day
Days 15-30	$10,000/day
Days 31-45	$20,000/day
Days 46-60	$40,000/day
Days 61-75	$60,000/day
Days 76+	$150,000/day

If the Steam Turbine Generator is utilized for the same project as those certain Gas Turbine Units, which may be purchased from Seller pursuant to the GTG Contract, the maximum amount of liquidated damages which may accrue for any calendar day with respect to the Gas Turbine Units and the Steam Turbine Generator, regardless of the number of Units undelivered on such date or the number of days such Units are late, shall be $150,000.

(b) **Substantial Completion.** "Substantial Completion" of the Steam Turbine Generator means that installation of the Steam Turbine Generator is complete; the Steam Turbine Generator has satisfied each of the Liquidated Damage Performance Guarantees in accordance with Section 16.2(a), each of the Demonstration Test Guarantees which are required to be satisfied for Substantial Completion in accordance with Section 16.3, and the Availability Test Guarantee

in accordance with Section 16.4; and the Steam Turbine Generator has demonstrated to be capable of safe and reliable operation without material defects throughout the period of performance of the Acceptance Tests; provided that if the Steam Turbine Generator has achieved all of the requirements for Substantial Completion except that the Steam Turbine Generator has not satisfied all of the Liquidated Damage Performance Guarantees, but has achieved the Performance Minimums, Seller may achieve Substantial Completion by electing to proceed in accordance with Section 17.2(d) of this Contract. To the extent that Seller or the Steam Turbine Generator is the primary cause of a delay in the achievement of Substantial Completion of the Steam Turbine Generator by the Scheduled Date of Substantial Completion for the Steam Turbine Generator and such cause of delay is not excused by the provisions of this Contract, Seller agrees to pay to Buyer liquidated damages at the rate of One Hundred Fifty Thousand Dollars ($150,000) per day. If the Steam Turbine Generator is utilized for the same project as those certain Gas Turbine Units, which may purchased from Seller pursuant to the GTG Contract, then to the extent that on any calendar day, Seller is the primary cause of a delay in the achievement of Substantial Completion of the Steam Turbine Generator by the Scheduled Date of Substantial Completion for the Steam Turbine Generator and on the same calendar day Seller is the primary cause of a delay in the achievement of Substantial Completion of the Gas Turbine Units by the Scheduled Date of Substantial Completion for the Gas Turbine Units (as such terms are defined in the GTG Contract), then the maximum liquidated damages due to Buyer from Seller for such failures to achieve Substantial Completion, under both this Contract and the GTG Contract, shall be $150,000 for such day.

Seller shall have reasonable access to the Steam Turbine Generator during the startup, commissioning and testing of the Steam Turbine Generator, beginning on the date on which the installation of the Steam Turbine Generator is complete. Seller shall cooperate with the EPC Contractor and Buyer shall direct the EPC Contractor to cooperate with Seller, with respect to the inspection of the Steam Turbine Generator and its installation, the performance of pre-testing, startup, commissioning, correction of discovered problems, tuning, verification that the Steam Turbine Generator is in proper adjustment and condition to begin Acceptance Testing and the completion of Acceptance Testing. In connection with Seller's performance of Services, Seller shall work in conjunction with the EPC Contractor to coordinate all of their respective activities, including the performance tests for the cooling system and the auxiliary balance of plant performance tests (none of which tests is a requirement for the Substantial Completion of the Steam Turbine Generator), in order to minimize the total time required for the commissioning and testing of the Power Plant.

In the event that liquidated damages are to be paid to Buyer pursuant to this Section 17.1(b), such liquidated damages shall continue to accrue for each day

until Substantial Completion of the Steam Turbine Generator is achieved.

(c) **Accrual of Liquidated Damages under Section 17.1.** Liquidated damages shall accrue subject to, and in accordance with, the provisions to Section 17.1(a) beginning on the Guaranteed Delivery Date for the Steam Turbine Generator. Liquidated damages, if any, applicable pursuant to Section 17.1(b) shall be determined by Buyer within thirty (30) days after Substantial Completion of the Steam Turbine Generator and shall be deemed to have accrued upon the notification to Seller, in accordance with Section 22.7, of the amount of such liquidated damages and the basis for such determination; provided that in the event that Substantial Completion of the Steam Turbine Generator is delayed more than ninety (90) after the Scheduled Date of Substantial Completion or if Substantial Completion fails to occur within twelve (12) months after the Guaranteed Delivery Date of the Steam Turbine Generator, Buyer may, at any time thereafter, notify Seller of the amount of liquidated damages, if any, applicable to Seller under Section 17.1(b) and such liquidated damages shall be deemed to have accrued on such date of notification.

(d) **Aggregation of Liquidated Damages.** The amounts specified in the schedule set forth in Section 17.1(a), when aggregated for all days of late Delivery of the Steam Turbine Generator, plus the amounts specified in Section 17.1(b) when aggregated for all days of delay in the achievement of Substantial Completion of the Steam Turbine Generator, represent the aggregate maximum liability of Seller for late Delivery with respect to such Unit under Section 17.1(a) and for delay in achieving Substantial Completion of the Steam Turbine Generator under Section 17.1(b).

(e) **Limitation.** Notwithstanding Section 17.1(d), Seller's total aggregate maximum liability for liquidated damages under this Section 17.1 with respect to the Steam Turbine Generator, together with any Modified Liquidated Damages applicable under Section 17.2 for the Steam Turbine Generator, shall not exceed FOUR MILLION FIVE HUNDRED THOUSAND DOLLARS ($4,500,000).

17.2 Performance.

(a) **Guarantees.** The performance of the Steam Turbine Generator and the compliance of the Steam Turbine Generator with the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, and the Availability Test Guarantee shall be measured by Acceptance Testing performed in accordance with Appendix C. Seller may observe any preliminary tests including standard start-up tests made by Buyer, for the purpose of verifying that the Steam Turbine Generator is in proper adjustment and condition to undergo Acceptance Testing.

(b) **Performance Liquidated Damages.** With respect to the Liquidated Damage Performance Guarantees, it is agreed that Buyer's loss would be difficult to determine in the event the Steam Turbine Generator fails to satisfy the Liquidated Damage Performance Guarantees. Accordingly, Seller and Buyer agree as a predetermined reasonable, sole and exclusive remedy (provided that with respect to MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output, the Steam Turbine Generator must achieve the Performance Minimums before liquidated damages become the sole and exclusive remedy) for any such loss, that Seller shall pay to Buyer as liquidated damages and not as a penalty, sums based upon the following items:

(i) **MPS Net Steam Turbine Electrical Output** - Five Hundred Dollars ($500) for each kilowatt that the Final Test Value of MPS Net Steam Turbine Electrical Output of the Steam Turbine Generator is less than the guaranteed MPS Net Steam Turbine Electrical Output set forth in Section 16.1(a)(i) as reduced by the commercial test tolerance.

(ii) **MPS Net Steam Turbine Maximum Electrical Output** - Five Hundred Dollars ($500) for each kilowatt that the Final Test Value of MPS Net Steam Turbine Maximum Electrical Output of the Steam Turbine Generator is less than the guaranteed MPS Net Steam Turbine Maximum Electrical Output set forth in Section 16.1(a)(ii) as reduced by the commercial test tolerance.

(iii) **MPS Net Steam Turbine Electrical Output (Impact on Heat Rate)** - One Thousand Two Hundred Dollars ($1,200) for each kilowatt that the Final Test Value of MPS Net Steam Turbine Electrical Output of the Steam Turbine Generator is less than the guaranteed of MPS Net Steam Turbine Electrical Output set forth in Section 16.1(a)(i) as reduced by the commercial test tolerance.

After liquidated damages, if any, have been calculated with respect to the Liquidated Damage Performance Guarantees for MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output of the Steam Turbine Generator pursuant to Section 17.2(b)(i) and Section 17.2(b)(ii), the greater of such liquidated damage amounts shall be paid by Seller to Buyer, and the lesser of such amounts shall not be charged against Seller as liquidated damages. Liquidated damages for the impact on heat rate resulting from the failure to satisfy the Liquidated Damage Performance Guarantee with respect to MPS Net Steam Turbine Electrical Output of the Steam Turbine Generator shall be separately calculated pursuant to Section 17.2(b)(iii) and Seller shall pay to Buyer such liquidated damages, if any, in addition to all other payments for liquidated damages. Upon payment of all liquidated damages due under this Section 17.2(b), the requirements for liquidated damages with respect to Sections

16.2(a)(i)(B) and 16.2(a)(ii)(B) for the Steam Turbine Generator shall be fully satisfied.

(c) **Acceptance Testing.**

(i) **Testing Procedures.** Buyer may conduct Acceptance Testing in order to determine whether the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, and the Availability Test Guarantee for the Steam Turbine Generator have been satisfied. Such testing shall be conducted by Buyer or by the EPC Contractor on Buyer's behalf, and may be witnessed by Seller. Seller shall develop an initial draft of the detailed test procedures for Acceptance Testing, including potential retesting, to be submitted to Buyer within 120 days of when requested by Buyer for Buyer's review and comment. The final procedures shall be completed and approved by both Buyer and Seller not later than 180 days after the initial request by Buyer. For all Acceptance Testing performed under this Contract, Buyer (or, as applicable, the EPC Contractor on Buyer's behalf) shall at no cost to Seller: (i) make the Units available at the times, loads and conditions necessary for proper testing, (ii) provide all instrumentation, labor, operators, technicians, steam, consumables and other utilities required to perform Acceptance Testing and to read and record the test data, (iii) provide steam and consumables in accordance with the Specifications and (iv) conduct the Performance Tests, Demonstration Tests, Noise Emission Tests, and Availability Test in accordance with test procedures approved by Buyer and Seller, and calculate the test results. Seller will perform the Services under this Contract so as to minimize the potential use of fuel in generating steam. Seller shall (i) have the right of representation at all Acceptance Testing, (ii) have access to all data resulting from the Acceptance Testing, and (iii) be promptly furnished with a copy of the test data and have the right to review and comment on the calculations used to determine the test results.

(ii) **Diagnostic Testing and Remedy.** If results of any Acceptance Testing indicate that any of the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, or the Availability Test Guarantee for the Steam Turbine Generator have not been satisfied, Seller will conduct diagnostic tests to determine the cause(s) of the failure and the expedient remedial action. With respect to such diagnostic tests, Seller will, at Seller's expense, (i) provide test instrumentation for the period of the tests, (ii) provide engineering direction and labor for installation of the test instrumentation and for conducting the tests, and (iii) analyze the test data from such tests. With respect to such diagnostic tests, Buyer (or the EPC Contractor on Buyer's

behalf) will, at Buyer's expense (i) provide steam, consumables and other utilities for the tests, (ii) provide sufficient load during the tests, (iii) operate the Unit during the tests, and (iv) read and record the test data. Seller shall, at its expense, using all reasonable efforts, attempt to remedy the failure by repair, adjustment or replacement of the Equipment as Seller deems necessary to correct such failure.

(iii) **Retesting.** If Seller has completed its attempt to remedy the failure of the Steam Turbine Generator to satisfy the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, or the Availability Test Guarantee, the Parties shall as soon as practicable after the date of re-synchronization following completion of Seller's remedial activities, reperform any applicable Acceptance Tests. Reperformance of applicable Acceptance Tests shall occur as soon as reasonably possible following notice from Seller during the Retest Period that the Steam Turbine Generator is again ready for Acceptance Testing; provided that if Acceptance Testing does not begin within twenty-four (24) hours after such notice, Seller shall not incur liquidated damages pursuant to Section 17.1(b) during the period beginning twenty four (24) hours after such notice and ending on the commencement of Acceptance Testing. With respect to such Acceptance Tests, Seller will (i) provide test instrumentation for the period of the tests, (ii) provide technical guidance and assistance during the tests, and (iii) calculate the tests results. With respect to such Acceptance Tests, Buyer (or the EPC Contractor on Buyer's behalf) will, at Buyer's expense (i) provide steam, consumables and other utilities for the tests, (ii) provide sufficient load during the tests, (iii) operate the Unit during the tests, and (iv) read and record the test data. Following any failure of the Steam Turbine Generator to satisfy any of the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, or the Availability Test Guarantee, Seller shall continue to use all reasonable efforts to satisfy the Liquidated Damage Performance Guarantees, the Noise Emission Guarantee, the Demonstration Test Guarantees, and the Availability Test Guarantee in accordance with the preceding procedures of this Section 17.2(c), provided that if the Steam Turbine Generator has achieved all of the requirements for Substantial Completion except that the Steam Turbine Generator has not satisfied all of the Liquidated Damage Performance Guarantees, but has achieved the Performance Minimums, Seller may elect to proceed in accordance with Section 17.2(d). Notwithstanding any provision in this Contract to the contrary, Buyer reserves the right to reconduct any of the Acceptance Tests listed in Section 4.0 of Appendix C which Buyer reasonably deems necessary after any changes, adjustments or modifications are made to the Steam Turbine Generator by Seller, in order to confirm or establish the final test results. Subject to the

right of Seller to elect pursuant to Section 17.2(d), and Buyer's right to terminate this Contract pursuant to Section 14.4, Seller shall be required to continue diagnostic testing, remedy and retesting of the Unit until all of the Noise Emission Guarantee, the Demonstration Test Guarantees, the Availability Test Guarantee, and the Performance Minimums have been satisfied.

(d) **Seller's Election to Reduce Liquidated Damages for Substantial Completion.** In the event that after completion of Acceptance Testing, the Steam Turbine Generator has achieved all of the requirements for Substantial Completion except that the Steam Turbine Generator has not satisfied all of the Liquidated Damage Performance Guarantees, but has achieved the Performance Minimums, Seller may elect to stop the accrual of liquidated damages under Section 17.1(b) by delivering written notice to Buyer under this Section 17.2(d) of such election, accompanied by payment to Buyer of all liquidated damages under Section 17.1 of this Contract, accrued through the date of such election, and delivery to Buyer of a letter of credit in form reasonably acceptable to Buyer, issued by a financial institution reasonably acceptable to Buyer, for the amount of liquidated damages which would otherwise be due pursuant to Section 17.2 of this Contract based upon the most recent Acceptance Tests. After making an election under this Section 17.2(d), Seller shall use all reasonable efforts to satisfy all of the Liquidated Damage Performance Guarantees, making such changes and adjustments to the Steam Turbine Generator as Seller deems necessary, and diligently performing diagnostic testing, remedy and retesting activities until all of the Liquidated Damage Performance Guarantees have been satisfied or until one hundred eighty (180) days have expired from the date of the notification, whichever occurs first ("Retest Period"). Seller's diagnostic testing, remedy and retesting activities will not unreasonably interfere with the operation of the Steam Turbine Generator during the Retest Period and the cost of all diagnostic testing, changes, adjustments and modifications to the Steam Turbine Generator (including the cost of Seller's personnel and the diagnostic test equipment) shall be at Seller's expense. If the Retest Period has elapsed and the Steam Turbine Generator has failed to satisfy all of the Liquidated Damage Performance Guarantees, Seller may request an additional period of up to one hundred eighty (180) days to continue diagnostic testing, remedy and retesting activities under the same provisions and procedures which governed the Retest Period ("Extended Retest Period") and Buyer shall not unreasonably refuse to grant such Extended Retest Period. If Buyer terminates Seller's diagnostic testing, remedy and retesting activities, liquidated damages relating to the Liquidated Damage Performance Guarantees shall finally be determined in accordance with Section 17.2(f). If Buyer extends the time for diagnostic testing, remedy and retesting activities, Seller shall make changes and adjustments to the Steam Turbine Generator as Seller deems necessary to satisfy the Liquidated Damage Performance Guarantees and shall use all reasonable efforts and shall diligently

perform diagnostic testing, remedy and retesting activities until all of the Liquidated Damage Performance Guarantees are satisfied or until such Extended Retest Period has expired, whichever comes first. The cost of any diagnostic testing, changes, adjustments and modifications (including the cost of Seller's personnel and the diagnostic test equipment) shall be at Seller's expense. If at the end of such Extended Retest Period, the Steam Turbine Generator has failed to satisfy all of the Liquidated Damage Performance Guarantees, Buyer shall terminate retesting and liquidated damages relating to the Liquidated Damage Performance Guarantees shall be finally determined in accordance with Section 17.2(f).

(e) **Modified Liquidated Damages.** During any Retest Period and Extended Retest Period pursuant to Section 17.2(d), Buyer and Seller shall, in good faith, coordinate the availability of the Unit for diagnostic testing, remedy or retesting activities. Buyer shall, in good faith, make the Steam Turbine Generator available for diagnostic testing, remedy or retesting activities, provided that if any outage or reduction in power is solely attributable to the Steam Turbine Generator, Seller shall pay Modified Liquidated Damages to Buyer, unless excused, as follows:

If the Steam Turbine Generator is not available for the generation of power for reasons not attributable to diagnostic testing, remedy or retesting activities by Seller, Seller may access the Steam Turbine Generator during such period of unavailability to correct any electric power output or other Acceptance Test items and retest in accordance with the terms of this Contract and any Modified Liquidated Damages which might otherwise be applicable under this Contract shall be waived.

For those periods when Modified Liquidated Damages are applicable, Seller shall be required to pay Modified Liquidated Damages at the rate of $150,000 per day; provided that the applicable amount shall be prorated by the total hours used, with Seller being charged to the next largest whole hour for any partial hour used greater than one-half hour. Notwithstanding the immediately preceding sentence, in the event that the Steam Turbine Generator is utilized for the same project as those certain Gas Turbine Units, which may be purchased from Seller pursuant to the GTG Contract, the maximum Modified Liquidated Damages applicable to Seller with respect to both the Gas Turbine Units and the Steam Turbine Generator shall be $150,000 per day. After the end of the Retest Period or Extended Retest Period, or the earlier completion of all diagnostic testing, remedy or retesting activities, the Steam Turbine Generator shall be retested and final liquidated damages pursuant to Section 17.2(b) shall be calculated and paid. Immediately following the end of the Retest Period or any Extended Retest Period, Buyer reserves the right to reconduct those Acceptance Tests subject to reperformance listed in Section 4.0 of Appendix C which Buyer reasonably deems necessary, after any adjustments or remedial actions are made, in order to

confirm or establish the final test results of any Acceptance Test. Buyer shall pay for such reperformance with respect to all tests which are passed, provided that in the event that any such test is not passed, Seller shall pay for the reperformance of the test (the direct cost of personnel and test equipment used to perform the test) and shall promptly at Seller's expense make any modifications or take such remedial actions as are necessary to pass such test. Buyer reserves the right following the completion of such modifications or remedial actions to reperform any of the Acceptance Tests listed in Section 4.0 of Appendix C as being subject to reperformance.

(f) **Failure of Performance Tests.** If Seller has achieved the Performance Minimums but failed to satisfy all of the Liquidated Damage Performance Guarantees, Seller's liability for Liquidated Damage Performance Guarantees shall be calculated by Buyer in accordance with Section 17.2(b) based upon the test results from the most recent Performance Tests. Liquidated damages (based upon the most recent Performance Tests) for failure to satisfy any Liquidated Damage Performance Guarantees, if not previously satisfied, shall accrue under this Contract on the earlier of (i) such time as Seller has notified Buyer that it accepts the results of the most recent Performance Test as the Final Test Values, (ii) if written notice is delivered to Buyer pursuant to Section 17.2(d), at the end of any Retest Period or Extended Retest Period allowed pursuant to Section 17.2(d), or (iii) ninety (90) days having passed since the Scheduled Date of Substantial Completion and Seller, having satisfied the Performance Minimums but having failed to achieve the Liquidated Damage Performance Guarantees, has not elected to proceed pursuant to Section 17.2(d).

(g) **Limitation.** Seller's total aggregate liability for liquidated damages under this Section 17.2 with respect to performance guaranties for the Steam Turbine Generator shall not exceed FOUR MILLION FIVE HUNDRED THOUSAND DOLLARS ($4,500,000).

17.3 **Limitation of Liquidated Damages.** Seller's total aggregate liability for liquidated damages under this Contract with respect to the Steam Turbine Generator shall not exceed FIVE MILLION DOLLARS $5,000,000.

17.4 **Exclusive Remedy.** Subject to Buyer's rights of termination pursuant to Section 14.4, Buyer's exclusive remedy and Seller's sole liability for delay in Delivery of the Steam Turbine Generator is Buyer's receipt of liquidated damages pursuant to Section 17.1(a). If the Steam Turbine Generator achieves Substantial Completion within the Permitted Time as set forth in Section 14.4, liquidated damages under Section 17.1 shall be the sole and exclusive remedy for any delay in achieving Substantial Completion of the Steam Turbine Generator. If the Steam Turbine Generator achieves all of the Performance Minimums, notwithstanding anything to the contrary in this Contract, Seller's liability for liquidated damages pursuant to Section 17.2 shall be the sole and exclusive remedy

of Buyer and the sole and exclusive liability of Seller for an unexcused failure of the Seller to comply with the Liquidated Damage Performance Guarantees, whether based in contract, in tort (including negligence and strict liability), or otherwise. In the event liquidated damages for failure to meet all of the Liquidated Damage Performance Guarantees are paid by Seller in accordance with Section 17.5, Seller's Liquidated Damage Performance Guarantees shall be deemed met at the level of performance actually achieved and Seller's obligations with respect to such Liquidated Damage Performance Guarantees shall terminate. Payment of liquidated damages shall not relieve Seller of its warranty obligations to repair or replace as provided in Section 10.4 except, after Acceptance Testing is completed, with respect to those specific defects or deficiencies for which such liquidated damages have been paid.

17.5 **Application of Contract Price Reductions.** As any liquidated damages accrue pursuant to Article 17, Buyer may invoice Seller for the amount of such liquidated damages and Seller shall pay to Buyer the amount invoiced within thirty (30) days of the date invoiced by Buyer, provided that Buyer, upon written notice to Seller of the amount of liquidated damages which have accrued for late Delivery under Section 17.1(a), may withhold such amount of liquidated damages from any payments remaining due to Seller under this Contract. Any amount of liquidated damages which is not paid when due shall accrue interest at an annual rate of interest equal to the prime rate of The Chase Manhattan Bank, in effect on the due date plus one percent (1%). The term Contract Price, for the purposes of determining all limitations on liquidated damages or liability as provided in this Contract, shall mean the Contract Price set forth in Section 3.1 unless the Contract Price is modified pursuant to Article 9, in which case the Contract Price shall automatically be adjusted to reflect such modifications.

ARTICLE 18. CONTRACT MANAGEMENT

18.1 **Contract Coordinators.** Seller and Buyer each agree to appoint a qualified staff member or members, at no additional charge, to function as overall Contract Coordinator(s). The Seller and Buyer Contract Coordinators will act as the principal points of interface between the Parties.

18.2 **Continuity of Seller's Employees.** Seller agrees to use its reasonable efforts to insure the continuity of all Seller employees assigned to perform Services hereunder. All persons furnished by Seller to perform Services at Buyer's premises shall be deemed solely Seller's employees or agents and Seller shall have sole responsibility for them. Seller shall use its best efforts to notify Buyer at least fourteen (14) days prior to the reassignment of any such personnel. In the event Seller reassigns any such personnel, Seller will use its best efforts to provide a qualified replacement as soon as reasonably possible. In the event that any Seller employee performing Services contemplated by this Contract is found to be unacceptable to Buyer, based upon Buyer's reasonable judgment, Buyer shall notify Seller and Seller shall immediately take appropriate corrective action to remove the objectionable employee and to provide a qualified replacement.

18.3 **Contract Coordination.** Buyer and Seller shall participate in mandatory coordination meetings and weekly site/design conference calls. In the event that clarification or resolution of delay and impact issues are not promptly reached, either Party may invoke the Dispute procedure set forth in Section 22.10 in order to resolve such issues.

18.4 **Status Reports.** Seller shall submit to Buyer's Contract Coordinator(s), each month during the term of the work effort contemplated by this Contract, written status reports fully describing the activities and accomplishments of Seller during the preceding month, in order to timely report Seller's continuous progress so that timely corrective action can be taken as necessary. The status reports will include, but not be limited to, the following: (a) current status of Seller's activities, together with an explanatory narrative where appropriate; (b) indication of the progress on the work being performed by Seller; (c) a detailed report of the number of man-weeks of technical advisory services provided to the current date; and (d) identification of actual and anticipated problem areas, their impact on the work effort of Seller and on the delivery schedule, and present action being taken (or suggested alternative action to be taken) in order to reduce the impact of such problems. If Buyer requests, Seller shall hold status meetings with Buyer management in order to review the status of Seller's activities. Such meetings will be conducted at such locations as are mutually agreed to by Buyer and Seller. Any participation by Buyer in the Vendor Coordination Meeting is for the purpose of being advised of scheduling dates and Buyer shall have no responsibility with respect to the coordination of Seller's work and Buyer shall have no responsibility for the adequacy of Seller's design and/or engineering.

ARTICLE 19. TECHNICAL ADVISORY SERVICES

19.1 **Technical Advisory Services.** Seller shall provide technical advisory services to Buyer, at no additional cost, in accordance with Appendix I for up to a total of one hundred forty two (142) man-weeks for the installation of the Steam Turbine Generator; provided that at such time as Buyer shall have utilized more than one hundred forty two (142) man-weeks of technical advisory services, Seller shall provide additional technical advisory services at the rate set forth in Appendix I. During the pre-installation meeting, Buyer and Seller will jointly develop a weekly manpower schedule for technical advisory services based upon the EPC Schedule. Any technical advisory services provided by Seller as a result of any defects in the Equipment or Services provided by Seller shall not be charged against such allowance. A man-week shall mean forty (40) hours of technical advisory services, provided that there shall be no use of equivalent hours for overtime or coverage during double shifts, it being the obligation of Seller to provide a sufficient number of technicians to satisfy the construction schedule and avoid overtime charges. Notwithstanding the limitations of the immediately preceding sentence, for staffing purposes, at the request of Buyer, Seller shall make its technical advisory services personnel available for more than forty (40) hours per calendar week but not more than sixty (60) hours per calendar week; provided that all hours for a technician in excess of forty (40) hours per calendar week shall be equivalent to 1.5 hours for the purpose of calculating man-weeks of technical advisory services provided under this Contract. The provision of such services shall be scheduled to correspond to the construction schedule for the Project.

ARTICLE 20. TRAINING AND DOCUMENTATION

20.1 **Documentation.** Seller agrees to provide, at no charge to Buyer, copies of all documentation for the Steam Turbine Generator described in Appendix G by no later than the applicable dates set forth in Appendix G and such other written materials, including manuals, which are to be provided to Buyer by Seller in accordance with any other Sections of this Contract and the Appendices. Buyer acknowledges the receipt, prior to the execution of this Contract, of the items of Documentation listed in Appendix G; provided that in the event that the Documentation previously supplied by Seller no longer accurately describes the Steam Turbine Generator to be supplied by Seller as a result of changes to the Steam Turbine Generator which are made by Seller for reasons other than as a result of a Change Order issued under this Contract, Seller shall promptly issue revised Documentation to Buyer correcting all inaccuracies in the Documentation. All such Documentation shall be in accordance with Seller's standard format and include, but not be limited to, the following: user, operator/attendant and supervisory reference manuals and guides, operational and technical bulletins, Equipment schematics, parts listings and other documentation and operating instructions sufficient to enable Buyer to use, operate, and maintain the Equipment.

20.2 **Reproduction of Documentation.** Buyer may copy the Documentation provided hereunder in order to satisfy its own internal requirements subject to the confidentiality requirements of Article 11. If Buyer requests Seller to furnish additional copies of any such Documentation, Seller shall furnish the same at its standard published prices.

20.3 **Training.** Seller shall provide a familiarization training program in the use, operation, technical, and maintenance aspects of the Equipment sufficient for personnel of Buyer or its permitted assignee, to use, operate, and maintain the Equipment. The extent and timing of such familiarization training is described in Appendix E.

ARTICLE 21. INSURANCE

21.1 Seller's Insurance Requirements. Seller shall procure and, at all times prior to completion of the obligations of Seller under this Contract, shall maintain, with insurers reasonably acceptable to Buyer, the following insurance protecting Seller and Buyer against liability from damages because of injuries, including death suffered by persons, including employees of Seller, and from damages to property arising from or resulting out of Seller's negligence in performance, including its Subcontractors and Suppliers, of Services. Seller shall (1) include as additional insureds on all such insurance policies, except Workers' Compensation Insurance and Employer's Liability Insurance, Buyer, all assignees of this Contract under Section 22.1 of this Agreement, Buyer's lender and their consultants, as required, and (2), obtain waiver of subrogation endorsements on all such insurance policies for the benefit of Buyer, all assignees of this Contract under Section 22.1 of this Agreement, Buyer's lender and their consultants, as required.

(a) Workers' Compensation Insurance in accordance with statutory requirements and Employer's Liability Insurance with limits of not less than $1,000,000 each accident.

(b) Commercial General Liability Insurance with bodily injury and property damage limits of not less than $1,000,000 combined single limit each occurrence/annual ~~aggregate.~~

(c) Automobile Liability Insurance with bodily injury and property damage limits of not less than $1,000,000 combined single limit each accident.

(d) Umbrella Liability Insurance with a combined single limit of not less than $4,000,000 each occurrence/annual ~~aggregate.~~

21.2 Additional Requirements for Seller's Insurance. All insurance required to be maintained by Seller shall be primary as respects the performance of Seller's obligations under this Contract, to any insurance carried by Buyer that might apply on the same basis. Prior to the performance of any Services, Seller shall furnish Buyer with a certificate of insurance evidencing the coverages set forth in Section 21.1. The certificate shall indicate that such insurance shall not be canceled or materially changed without at least thirty (30) days advance written notice to Buyer, with the exception of non-payment of premium in which case ten (10) advance written notice shall be given to Buyer. Nothing contained in this Article 21 shall be construed as a limitation of the liability of Seller for damage or injury, including death, which arises out of Seller's obligations under Section 15.1 of this Contract.

21.3 Buyer's Insurance Requirements. Buyer shall procure and, at all times prior to completion of the obligations of Seller under this Contract, shall maintain, with insurers reasonably acceptable to Seller, the following insurance protecting Seller and Buyer against liability from damages because of injuries, including death suffered by persons,

including employees of Buyer, and from damages to property arising from or resulting out of the negligence of Buyer or Buyer's assignee in performance, including its contractors and Subcontractors. Buyer shall (1) include as additional insureds on all such insurance policies, except Workers' Compensation Insurance, Seller and its Subcontractors, as required, and (2), obtain waiver of subrogation endorsements on all such insurance policies for the benefit of Seller and its Subcontractors, as required.

(a) Workers' Compensation Insurance in accordance with statutory requirements and Employer's Liability Insurance with limits of not less than $1,000,000 each accident.

(b) Commercial General Liability Insurance with bodily injury and property damage limits of not less than $1,000,000 combined single limit each occurrence/annual ~~aggregate.~~

(c) Automobile Liability Insurance with bodily injury and property damage limits of not less than $1,000,000 combined single limit each accident.

(d) Umbrella Liability Insurance with a combined single limit of not less than $4,000,000 each occurrence/annual ~~aggregate.~~

21.4 **All Risk Builder's Risk Insurance.** Buyer shall pay for and provide All Risk Builder's Risk insurance, including coverage of the Equipment at the Project Site during startup and testing, against risk of direct physical loss or damage to property of every kind and description to be used in the fabrication, assembly, installation, erection, or alteration of the Equipment. The All Risk Builder's Risk coverage shall be provided under an all risk builder's risk form, including the perils of fire and lightning, the perils included in the standard extended coverage endorsement, and the perils of lifting, collapse, earthquake, flood, debris removal and testing, and subject to standard policy exclusions. Seller shall be included as an additional insured under the All Risk Builder's Risk policy and shall be provided a waiver of subrogation; provided that Seller and its Suppliers will not be provided a waiver of subrogation for defects in materials or workmanship. To the extent Buyer procures Delay in Start-up or equivalent coverage for the risks associated with All Risk Builder's Risk coverage, Buyer shall cause its insurers to waive all rights of subrogation in favor of the Seller and Subcontractors of the Seller.

21.5 **Ocean Transit, Air Cargo and Delay in Start-up Insurance.** Buyer shall procure Ocean Transit and Air Cargo insurance for the benefit of Seller, Subcontractors of Seller, Buyer and lenders, providing coverage reasonably acceptable to Seller which protects from risks which are attributable to the ocean transit or air shipment of the Internationally-Sourced Items from the warehouse to the jobsite. Material Damages deductibles shall not exceed Twenty Five Thousand Dollars ($25,000) and shall be for the account of Seller. Seller's liability for loss or damage to the Steam Turbine Generator and ancillary equipment while in transit shall be limited to the aforementioned deductible. To the extent Buyer procures Delay in Start-up or equivalent coverage for the risks associated with Ocean Transit and Air Cargo insurance, Buyer shall cause its insurers to waive all rights of subrogation in favor of the Seller and Subcontractors of the Seller.

21.6 **Effect on Liquidated Damages.** If any loss or damage, which is covered by the All Risk Builder's Risk policy or any Ocean Transit and Air Cargo policy maintained by Buyer, causes Seller to be subject to liquidated damages under Section 17.1 for any delay in Delivery of the Steam Turbine Generator, and such delay is covered under Delay in Start-up insurance maintained by Buyer, then, except for liquidated damages due from Seller during the Delay in Start-up insurance deductible/waiting period, such liquidated damages paid by Seller for the period of delay caused by such covered loss or damage shall, to the extent of Buyer's recovery from the insurer for such period of delay, be reimbursed to Seller promptly after the final delay claim amount has been received by the Buyer. The payment of liquidated damages by Seller which are otherwise due under this Contract shall not be delayed beyond the time specified in this Contract because of any delay in the receipt of any proceeds from Delay in Start-up insurance, provided that Seller shall be promptly reimbursed upon the receipt by Buyer of such insurance proceeds.

21.7 **Additional Requirements for Buyer's Insurance.** All insurance required to be maintained by Buyer shall be primary as respects the performance of the obligations of Buyer or Buyer's assignee under this Contract, to any insurance carried by Seller that might apply on the same basis. Buyer shall furnish Seller with a certificate of insurance evidencing the coverages set forth in Section Sections 21.3 and 21.4. The certificate shall indicate that the coverages set forth in Section Sections 21.3 and 21.4 shall not be canceled or materially changed without at least thirty (30) days advance written notice to Seller, with the exception of non-payment of premium in which case ten (10) advance written notice shall be given to Seller. Nothing contained in this Article 21 shall be construed as a limitation of the liability of Buyer for damage or injury, including death, which arises out of the obligations of Buyer or Buyer's assignee under Section 15.2 of this Contract.

ARTICLE 22. GENERAL CLAUSES

22.1 Assignment.

(a) Buyer may assign any or all of its rights or obligations under this Contract, including rights and obligations with respect to one or more Units, to an assignee, provided such assignee has adequate resources (as determined by Seller in the exercise of its reasonable judgment) to fulfill those obligations of Buyer which are assigned, and further provided such assignment shall not be to a competitor of Seller. Upon completion of such assignment and the delivery of an assumption agreement (in a form reasonably satisfactory to Seller) executed by such assignee to Seller, Buyer shall be released from any and all obligations and liabilities therefor under this Contract which are assumed by the assignee, provided, however, Buyer shall not be released from those obligations, if any, which Buyer elects to reserve from such assignment nor shall Buyer be released from any of the confidentiality obligations under Article 11 of this Contract. Notwithstanding any provision of this Contract to the contrary, Buyer and Buyer's assignee, if applicable, shall have the absolute right, without the consent of Seller, to assign this Contract, or any rights reserved by Buyer after assignment, including any licenses granted hereunder pursuant to Section 6.4, to the Project lenders for collateral security purposes. For the avoidance of doubt, upon any assignment of rights or delegation of duties under this Contract, all waivers and limitations of liability set forth in this Contract shall remain applicable to Buyer and Buyer's assignee and shall not be affected by such assignment or delegation.

(b) In addition to the rights of assignment under Section 22.1(a), Buyer or Buyer's assignee under Section 22.1(a), may assign this Contract, including rights and obligations with respect to one or more Units, to a third party contractor that has entered into an agreement with Buyer or such assignee for the construction of the Facility ("Contractor Assignee"), provided such Contractor Assignee has adequate resources (as determined by Seller in the exercise of its reasonable judgment) to fulfill those duties or rights of Buyer or Buyer's assignee under Section 22.1(a) which are assigned, including payment obligations, but only to the extent that such Contractor Assignee has payment obligations to Seller and further provided such assignment shall not be to a competitor of Seller. Those rights which are reserved to Buyer or Buyer's assignee under Section 22.1(a) pursuant to the terms of this Contract and Appendix M may not be assigned to such Contractor Assignee. Upon the delivery of an assumption agreement (in a form reasonably satisfactory to Seller) executed by such Contractor Assignee to Seller, Buyer or Buyer's Assignee under Section 22.1(a), as the case may be, shall be released from any and all obligations and liabilities therefor under this Contract which are assumed by the Contractor Assignee, provided, however, Buyer or Buyer's assignee under Section 22.1(a) is not released from those

obligations which are identified in this Contract and in Appendix M as obligations retained by Buyer nor shall Buyer or Buyer's assignee be released from any of the confidentiality obligations under Article 11 of this Contract. In the event of the delay or cancellation of the Project after this Contract is assigned to a Contractor Assignee, Seller consents to the reassignment of this Contract to Buyer, or any assignee of Buyer under Section 22.1(a), by such Contractor. For the avoidance of doubt, upon any assignment of rights or delegation of duties under this Contract, all waivers and limitations of liability set forth in this Contract shall remain applicable to Buyer and Buyer's assignee and shall not be affected by such assignment or delegation.

(c) Seller shall not assign or transfer its obligations under this Contract without the written consent of Buyer which shall not be unreasonably withheld.

22.2 **Third Party Beneficiaries.** The provisions of this Contract are for the benefit of the Parties hereto and are not for any other third party, except as provided in Section 22.1.

22.3 **Entire Agreement.** This Contract represents the entire agreement between the Parties and no modification, amendment, rescission, waiver or other change shall be binding on either Party unless assented to in writing by such Party's authorized representative. Any oral or written representation or warranty not contained or referenced herein shall not be binding on either Party. Each Party agrees that it has not relied on, or been induced by, any representations of the other Party not contained in this Contract or the attachments hereto. A failure or delay of either Party to this Contract to enforce any of the provisions hereof, or to exercise any option which is herein provided, or to require at any time performance of any of the provisions hereof shall in no way be construed to be a waiver of such provision.

22.4 **Severability.** In the event any one or more provisions of this Contract shall for any reason be held to be invalid, illegal or unenforceable, the remaining provisions of this Contract shall be unimpaired, and the invalid, illegal or unenforceable provision shall be replaced by a mutually acceptable provision, which, being valid, legal and enforceable, reflects the intention of the Parties regarding the invalid, illegal or unenforceable provision.

22.5 **Independent Contractor.** In performing services pursuant to this Contract, Seller is acting as an independent contractor and except as specified in this Contract, neither Party has any authority to bind or otherwise obligate the other Party in any manner whatsoever. Buyer shall not be responsible for payment of workers' compensation, disability or other similar benefits, unemployment or other similar insurance, or for the withholding of income taxes or other taxes and social security for any Seller employees, and such responsibility shall be that of Seller. Seller shall not be responsible for payment of workers' compensation, disability or other similar benefits, unemployment or other similar insurance, or for the withholding of income taxes or other taxes and social

security for any Buyer employees, and such responsibility shall be that of Buyer.

22.6 **Governing Law.** This Contract shall be governed by and construed according to the laws of the State of New York, excluding any conflict of laws provisions which would result in the application of the laws of another jurisdiction. Seller and Buyer irrevocably agree that the United States District Court of the Southern District of New York and the courts of New York sitting in the Borough of Manhattan in New York City shall have jurisdiction to hear and determine any action on this Contract, irrevocably submit to the jurisdiction of such courts and irrevocably waive any objection which either of them might have to such courts being nominated as the forum to hear and determine any action relating to such this Contract and agree not to claim that any such court is not a convenient or appropriate forum.

22.7 **Notice.** All notices or other communications shall be in writing and shall be sufficient if delivered personally, dispatched by overnight courier service, mailed by registered or certified mail, return receipt requested, proper postage prepaid, or sent by facsimile machine to the following addresses:

If to Buyer: Tenaska Power Equipment, LLC
1044 North 115th Street
Omaha, Nebraska 68154
Attention: Michael C. Lebens
Facsimile Number: (402) 691-9530

If to Seller: Mitsubishi Power Systems, Inc.
100 Colonial Center Parkway
Lake Mary, Florida 32746
Attention: Yoshihiro Shiraiwa
Facsimile Number: (407) 688-6481

or such other address or addresses as either Party may from time to time designate to the other by written notice. Any such notice or other official communication shall be deemed to have been delivered as of the date it is personally delivered, when received if placed in the mails in the manner specified or sent by overnight courier or when sent if by facsimile.

22.8 **Construction.** The headings and captions in this Contract are inserted for convenient reference only and shall not limit or construe the articles, paragraphs or sections to which they apply. Where the context requires, all singular words in this Contract shall be construed to include their plural and all words of neuter gender shall be construed to include the masculine and feminine forms of such words. The terms "include," "including" and similar terms shall be construed as if followed by the phrase "without limitation." Notwithstanding the fact that this Contract has been prepared by one of the Parties, all of the Parties confirm that they and their respective counsel have reviewed, negotiated and adopted this Contract as the joint agreement and understanding of the

Parties. Accordingly, this Contract is to be construed as a whole and any presumption that ambiguities are to be resolved against the primary drafting Party shall not apply. In the event any conflict exists between the provisions of this Contract and the provisions of any Appendix or attachment to this Contract, the provisions of the Contract, excluding the Appendices and any attachments hereto, shall control.

22.9 **Written Guarantees.** Within ten (10) business days after the Notification Date, Seller shall deliver to Buyer a written guaranty, in a form reasonably satisfactory to Buyer from a financially acceptable guarantor reasonably acceptable to Buyer for all payments and performance due from Seller under this Option Agreement; and Buyer shall provide to Seller a written guaranty from Buyer in a form reasonably satisfactory to Seller from a financially acceptable guarantor reasonably acceptable to Seller for the aggregate differential between the total cancellation charge for the Steam Turbine Unit and the total amount paid to Seller, including amounts that will be paid to Seller for such Steam Turbine Unit under this Option Agreement.

22.10 **Dispute Resolution.** The Parties agree to use good faith attempts to resolve any disputes which may arise between the Parties regarding the application or interpretation of any provision of this Contract. In case of a dispute, the aggrieved Party shall promptly notify the other Party of the existence of a dispute subject to resolution pursuant to Section 22.10 of the Contract and shall describe the nature of the dispute in reasonable detail ("Dispute Notice"). If the Parties shall have failed to resolve the dispute within ten (10) days after delivery of the Dispute Notice, each Party shall nominate a senior member of its management to attempt to resolve the dispute. Should the Parties still be unable to resolve the dispute to their mutual satisfaction within thirty (30) days after delivery of the Dispute Notice, the parties agree to proceed to mediation under the Construction Industry Mediation Rules of the American Arbitration Association and to conclude such mediation within sixty (60) Days following the date of the Dispute Notice. If the parties are unable to agree upon a mutually convenient place for the mediation, the mediation shall take place at a neutral site in Atlanta, Georgia. Each party will pay its own costs, plus an equal share of the cost of the mediator and mediation facilities. If any dispute is not resolved by mediation, then either party in its sole discretion may invoke litigation, provided that failure to invoke litigation shall not be a waiver of any such dispute except as otherwise provided in this Agreement. Pending final resolution of any dispute, the Parties shall continue to fulfill their respective obligations hereunder.

22.11 **Disclosure of Information.** Seller covenants to Buyer that as of the date of this Contract, all technical information letters issued by Seller relative to maintenance or reliability issues with the Equipment have been provided to Buyer and Seller has disclosed to Buyer all material maintenance and reliability issues with the Equipment which Seller has learned through user groups or directly from users and which have not yet been addressed by Seller by the release of technical information letters. From the date of this Contract until Substantial Completion the Steam Turbine Generator, Seller shall promptly disclose to Buyer (a) all newly issued technical information letters issued by

Seller relative to maintenance or reliability issues with the Equipment and (b) shall use its best efforts to promptly disclose all material maintenance and reliability issues with the Equipment which Seller learns through user groups or directly from users and which have not yet been addressed by Seller by the release of technical information letters. In the event that Buyer notifies Seller that Seller has failed to provide Buyer with the information required by this Section, Seller shall within ten (10) days of receipt of such notice provide Buyer with copies of the relevant technical information letters previously issued by Seller or summaries of maintenance and reliability issues identified and shall schedule a conference call and/or meeting between representatives of Buyer and Seller to review the technical findings and recommendations cited in such technical information, letters and summaries.

IN WITNESS WHEREOF, the Parties have executed this Contract by their duly authorized representatives as of the date first above written.

Seller

MITSUBISHI POWER SYSTEMS, INC.,
a Delaware corporation

By: _____
Yoshihiro Shiraiwa

Title: General Manager

Buyer
TENASKA POWER EQUIPMENT, LLC,
a Delaware limited liability company

By: _____
Michael C. Lebens

Title: Vice President

APPENDIX B

PRICING

NA

APPENDIX B

PRICING

NA

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Acceptance Test Guidelines, Procedures and Specifications

APPENDIX C

Acceptance Test Guidelines, Procedures and Specifications

All Section references in this Appendix C shall be to Sections in this Appendix C unless otherwise specifically stated. All capitalized terms used in this Appendix C shall have the same meaning as set forth in the terms and conditions of the Contract unless specifically identified to the contrary.

Section 1.0 Introduction and General Requirements

This Appendix C describes the procedures, guidelines and specifications for Acceptance Testing of the Steam Turbine Generator Unit (STG). Acceptance Testing of the STG will be conducted using the additional equipment and systems supplied by the EPC Contractor. Procedures, guidelines, and specifications that directly relate to guarantees defined in Section 3.2 of Appendix A, will be applied to the STG. This Appendix also includes, where applicable, procedures, guidelines, and specifications for the operation of the additional equipment and systems supplied, installed, tuned and operated by the EPC Contractor. Seller may provide data and advice to the EPC Contractor for the equipment and systems supplied by the EPC Contractor, but the responsibility of providing adequate equipment and systems with adequate design philosophy for the STG is that of the EPC Contractor.

The Acceptance Tests described in this Appendix C fall into two (2) categories: Acceptance Tests Required to Achieve Substantial Completion of the STG, and Additional Acceptance Tests Required to Achieve Final Acceptance of the STG. These Acceptance Tests are directed or conducted for Buyer by the EPC Contractor. With respect to each Acceptance Test, Seller is responsible only for the performance of the STG.

The Acceptance Tests Required to achieve Substantial Completion of the STG, which are covered under Section 2.0, consist of:

(a) Performance Tests to measure MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output; and

(b) Demonstration Tests for Minimum Load, Generator Operations (Lead/Lag), Steam Turbine Load Ramp Rate; and

(c) an Availability Test.

The Additional Acceptance Tests Required to Achieve Final Acceptance of the STG, which are covered under Section 3.0, consist of:

(a) Emission Tests for Noise Levels; and

(b) Demonstration Test for STG Unit Trip Capability.

The Demonstration Test for STG Unit Trip Capability (sometimes referred to as "Steam Turbine Demonstration Test"), shall be deemed satisfied for purposes of achieving Final Acceptance of the STG, if either: (1) through no fault of Seller, the performance of such Steam Turbine Demonstration Test has not been competed within six (6) months after the Scheduled Date for Substantial Completion; or (2) such Steam Turbine Demonstration Test has been failed three (3) times through no fault of Seller. For each such Steam Turbine Demonstration Test that has been deemed satisfied in accordance with this paragraph, upon the request of Buyer, Seller shall provide technical, diagnostic and/or test equipment support, at Buyer's expense, to support the performance of any further Steam Turbine Demonstration Tests by the EPC Contractor.

The EPC Contractor is responsible for documentation of all Acceptance Test results for the STG. A matrix of Acceptance Testing division of responsibility is shown in Attachment I to this Appendix C. Attachment I also shows how the Acceptance Tests are broken down into four (4) main categories of Performance Tests, Demonstration Tests, an Availability Test, and Emission Tests.

During all Acceptance Testing, the STG will be operated within design limits of the Equipment and in a manner consistent with normal practices, methods, acts, standards and industry codes, and the steam turbine inlet temperatures shall not exceed manufacturer's recommendation for continuous long-term operation. During testing, the STG will be operated from the control room with systems normally operated in automatic mode operating in the automatic mode.

The Acceptance Tests will be conducted after completion of installation of the STG, including the Power Block. Subject to normal wear and tear, all systems must be free of material defects and ready for safe and reliable operation. The use of temporary equipment will not be allowed unless approved by Buyer. Temporary instrumentation will be used if permanent plant instrumentation is not available and if increased accuracy data is required. During Acceptance Testing the Power Block, including the STG, will operate with normal plant staffing (typically 1 control room operator and 2 assistant plant operators). All operating functions will be conducted by competent permanent operating

staff provided by Buyer and the EPC Contractor's personnel will provide supervision only and will not perform any hands-on operating functions. The STG will run in a normal manner with no required equipment shutdown to reduce auxiliary load. Only equipment required for normal operation will be in operation.

Buyer and the EPC Contractor will cooperate with Seller to attempt to complete the Performance Tests as timely as possible without sacrificing the reasonable test periods required for the STG.

The general methods outlined in the applicable ASME Performance Test Codes (ASME PTC) will be used as a guide to the extent such methods are not specified in the requirements of the Contract.

MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output for the STG will be calculated by subtracting the measured auxiliary power consumption for the STG (based on equipment loads listed in Section 4.4 of Appendix A) from the measured electrical output at the generator terminals as defined in Section 3.3 of Appendix A. The metering equipment will meet the accuracy standards in the ASME PTC. Adjustments for auxiliary equipment power consumption for the STG must be accurately determined during the Performance Tests.

Within 30 days following the submission of the Acceptance Test procedure, Seller will submit corrections factors or curves to be used with the performance calculations. The Acceptance Test procedure will be established mainly based on ASME PTC 6, dated 1997. In the event that the Acceptance Tests are not carried out in accordance with the agreed Acceptance Test procedure, the Seller will not be responsible for the result of the Acceptance Test. If the Acceptance Tests will be carried out later than eighteen (18) months from the last substantial shipment of the STG or thirty (30) days from the date of the Power Plant being ready for Acceptance Testing, whichever is earlier, the Seller shall have the right to open the turbine casing and check the internal parts before the Acceptance Test or to correct the Acceptance Test result by the authorized degradation curve.

Section 2.0 Acceptance Tests Required to Achieve Substantial Completion of the STG

2.1 Performance Tests

2.1.1 Performance Test to Determine MPS Net Steam Turbine Electrical Output

A single Performance Test will be performed to determine the MPS Net Steam Turbine Electrical Output with no duct firing and all gas turbines operated at base load. Test results will be corrected to the appropriate rating condition set forth in Section 3.2.5.1 of Appendix A. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A. ASME PTC 6 shall be used as a guideline for developing test procedures for this Performance Test.

The appropriate rating conditions and factors are listed below:

1. Feedwater Flow
    a. High Pressure (HP) Steam Flow
    b. Intermediate Pressure (IP) Steam Flow at IP Superheater Outlet
    c. Low Pressure (LP) Admission Steam Flow
2. HP Steam Pressure at HPSV inlet
3. HP Steam Temperature at HPSV inlet
4. Reheat Steam Temperature at RSV inlet
5. LP Steam Pressure at LPSV inlet
6. LP Steam Temperature at LPSV inlet
7. Reheater and Reheat Steam Piping Pressure Drop
8. Steam Turbine Back Pressure
9. Make-up Flow
10. Auxiliary Steam Flow (if any)
11. Generator Power Factor
12. Generator Hydrogen Gas Pressure
13. Degradation of Steam Turbine (if applicable)

2.1.2 Performance Test to Determine MPS Net Steam Turbine Maximum Electrical Output

A Performance Test will be performed to determine the MPS Net Steam Turbine Maximum Electrical Output for the STG. The Performance Test for MPS Net Steam Turbine Maximum Electrical Output will be performed with duct firing. Test results will be corrected to the appropriate rating condition set forth in Section 3.2.5.2 of Appendix A. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A. ASME PTC 6 shall be used as a guideline for developing test procedures for this Performance Test.

The appropriate rating conditions and factors are listed below:

1. Feedwater Flow
    a. HP Steam Flow
    b. IP Admission Steam Flow at IP Superheater Outlet
    c. LP Admission Steam Flow
2. HP Steam Pressure at HPSV inlet
3. HP Steam Temperature at HPSV inlet
4. Reheat Steam Temperature at RSV inlet
5. LP Steam Pressure at LPSV inlet
6. LP Steam Temperature at LPSV inlet
7. Reheater and Reheat Steam Piping Pressure Drop
8. Steam Turbine Back Pressure
9. Make-up Flow
10. Auxiliary Steam Flow (if any)
11. Generator Power Factor
12. Generator Hydrogen Gas Pressure
13. Degradation of Steam Turbine (if applicable)

2.2 Demonstration Tests

2.2.1 Minimum Load Test

A test shall be performed for the STG with one (1) Gas Turbine Unit and the associated HRSG to demonstrate stable operation at a minimum load (50% of Gas Turbine Unit base load with natural gas) for a duration of two (2) hours with the Steam Turbine Unit in operation in accordance with Appendix A.

2.2.2 Generator Operations Test (Lead / Lag)

The Steam Turbine Unit generator shall demonstrate the capability of operating at power factors of 0.95 leading for a period of one (1) hour and 0.90 lagging for a period of one

(1) hour, subject to any limits in adjustment to the 0.90 lagging value imposed by the generator reactive capability curve in Appendix A.

2.2.3 Steam Turbine Load Ramp Rate Test

The maximum allowable load rate changes ("ramp rates") (gross increase or decrease in output of the STG in service per minute) for the STG shall be demonstrated over two operating modes. The two operating modes are: 1) part load on the Gas Turbine Units from 50% to 100% base load without duct firing, 2) duct firing for incremental loading on the Steam Turbine Unit. The Steam Turbine Load Ramp Rate for part load operation on the Gas Turbine Units (mode 1) shall be demonstrated to be equal to or greater than 9 MW/minute in accordance with Appendix A. The Steam Turbine Load Ramp Rate for duct firing operation (mode 2) shall be demonstrated to be equal to or greater than 9 MW/minute in accordance with Appendix A. The design of the Power Plant equipment supplied by the EPC Contractor and/or other Party will affect the ramp rates. Seller shall not be responsible for any failure of this test in the event that the ramp rates are not met because of the influence of the equipment supplied by the EPC Contractor and/or other Party.

2.3 Availability Test

An Availability Test of the STG, including the Power Block, will be conducted to determine if the availability of the STG over a 96-hour continuous operating period satisfies the requirement of Section 3.2.4 of Appendix A. Availability is defined as test energy (with limitations and corrections defined below) divided by the energy represented by 96 hours of operation at Rated Capacity. Rated Capacity is defined as the result of the Performance Test to determine MPS Net Steam Turbine Maximum Electrical Output, as described in Section 2.1.2 of this Appendix C and Section 3.2.5.2 of Appendix A. Credit for electrical output from the STG above the Rated Capacity in any hour during the test period will not be allowed. The Availability Test will be conducted fi the HP steam flow rate is equal or greater than 95% of the measured value of the Performance Test (Rated Capacity). If the HP steam flow rate during the Availability Test should fall into less than 95% of the measured value of the Performance Test (Rated Capacity), the measured electrical output during that period will be regarded as equal to Rated Capacity without any correction. If, following the completion of the Availability Test, the STG has not satisfied the requirement of Section 3.2.4 of Appendix A, the test results will be corrected as follows: If during any hour, the STG fails to reach Rated Capacity, the test results will be corrected to design conditions, and if the corrected test energy for such hour is greater than the measured test energy for such hour, the Seller shall use the corrected test energy, up to but not exceeding the Rated Capacity, for such

hour for the accumulation of test energy for the 96 hour Availability Test period. If the STG achieves Rated Capacity during any hour, no correction shall be made for the design conditions for such hour. The accumulation of these corrected or non-corrected amounts of hourly test energy will be utilized to determine if the STG satisfies the Availability requirement of Section 3.2.4 of Appendix A.

During the test all systems shall be in final configuration.

If electrical output of the STG is reduced due to an interruption of utilities, or equipment not supplied or installed under the Contract, or acts or omissions of parties other than Seller or its agents, the test may be stopped by the EPC Contractor. Once the problem is remedied, the EPC Contractor may continue the interrupted test or start a new test and the Scheduled Date of Substantial Completion shall be extended by the period of such suspension, or if the test is terminated, the Scheduled Date of Substantial Completion shall be extended by the period from the start of the old test until the new test is started (subject to any adjustment if other Acceptance Tests required for Substantial Completion are performed during such interval). However, if electrical output is reduced on more than two occasions due to acts or omissions of Buyer and the reduction causes the STG to fail the Availability Test, then beginning on the third such occasion, Seller may elect to have the affected test suspended and continue the affected test after stable operation is re-established; provided that interruptions of testing not caused by STG Equipment shall cause the Scheduled Date of Substantial Completion to be extended by the period of such interruption. In any event, if the STG has completed one hundred ninety-two (192) hours of operation and would satisfy the requirements of Section 3.2 of Appendix A, if interruptions not caused by STG Equipment were disregarded, then the STG shall be deemed to have satisfied the Availability Test; provided that interruptions of testing not caused by STG equipment shall cause the Scheduled Date of Substantial Completion to be extended by the period of such interruption.

The commercial test tolerance for the test energy during the Availability Tests will have a range from a minimum of 1.8% to a maximum of 2.0% as determined during the MPS Net Electrical Output Test as outlined in Appendix A, Section 3.2. The commercial test tolerance includes measurement uncertainty and will be based on actual instruments used during the testing.

Test output may be corrected based on the Degradation Curve in Section 8.9 of Appendix A for degradation to correlate the results of the Availability Test relative to the results of the Performance Test to determine MPS Net Steam Turbine Maximum Electrical Output.

At Seller's option, the Performance Tests (Sections 2.1.1 and 2.1.2 of this Appendix) may be conducted during the Availability Test.

Section 3.0 Additional Acceptance Tests Required to Achieve Final Acceptance of the STG

3.1 Emissions Tests

3.1.1 Noise Levels

The noise emanating from the STG at all loads shall not exceed 85 dBA when measured 1 meter from the equipment surface (or acoustic enclosure) and 1.2 meters from the actual finished floor (AFF), except as indicated below. The sound levels shall be corrected to exclude the contribution of background noise, including noise from equipment supplied by others.

For specific equipment listed in Section 8.11 of Appendix A with sound pressure levels which exceed 85 dBA, the guaranteed sound pressure levels shall not exceed those sound pressure levels listed in Section 8.11 of Appendix A when measured 1 meter from the equipment surface (or acoustic enclosure) and 1.2 meters from the AFF. The sound levels shall be corrected to exclude the contribution of background noise, including noise from equipment supplied by others.

Start up, shut down, and transients, such as load changes, and operation at other than normal conditions, such as trips, are excluded from the guarantees.

Intermittent noises such as safety valve blow off are not included in the guarantees.

3.2 Demonstration Tests

3.2.1 Unit Trip Capability (STG)

The STG shall demonstrate the capability of sustaining one full load STG trip to verify proper operation without damaging the STG and auxiliaries provided by Seller. This test shall not be performed at a time when the power grid or other part of the electrical network is not capable of sustaining a trip.

Section 4.0 Acceptance Tests Subject to Reperformance

Upon completion of remedy or retuning activities during any Retest Period or Extended Retest Period, Buyer shall have the right to require reperformance of one or more of the following tests to confirm that such remedy or retuning activities have not adversely affected the prior results from such tests. Any tests selected by Buyer for reperformance will be selected based upon reasonable consideration of the kind of impact such remedy or retuning would have on each of the tests listed below:

MPS Net Steam Turbine Electrical Output
MPS Net Steam Turbine Maximum Electrical Output
Noise Levels

All of the requirements and conditions applicable to such tests as originally performed shall remain applicable. Buyer will direct the EPC Contractor as to which tests must be redone.

Section 5.0 Acceptance Testing Additional Requirements

5.1 Performance Tests—Specific Requirements

5.1.1 Concepts and Objectives

5.1.1.1 The objective of the Performance Tests will be to determine if the STG achieves the guarantees for MPS Net Steam Turbine Electrical Output, and MPS Net Steam Turbine Maximum Electrical Output set forth in Section 16.1(a) of the Contract.

5.1.1.2 Concurrent with the Performance Tests, as long as there is no adverse impact on the schedule of the Acceptance Tests, the EPC Contractor will be allowed to take measurements of additional parameters to allow calculation of component performance for the cooling tower, condenser, and balance of plant electrical loads.

5.1.2 General Requirements

5.1.2.1 Data for each Performance Test will consist of instrument readings taken at no greater than ten-minute intervals over a two (2) hour continuous time span after steady-state conditions have been established and following a one (1) hour pretest stabilization period. Results shall be computed separately for each hour of the two (2) hour test, the average of which will be used to

determine the MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output.

5.1.2.2 The STG will be considered to be in a steady-state condition when the total steam flow and other parameters do not change more than the amount specified in ASME PTC 6 prior to the test point.

The STG will be considered to be in a steady-state condition when measured output changes by less than the amount specified in ASME PTC 6 prior to the test point.

5.1.2.3 Total steam (feedwater) flow will be measured using the flow element based on ASME PTC 6 requirements. The feedwater flow element will be located downstream of the gland steam condenser outlet. Feedwater flow will be divided according to the flow rate of each steam line. Flow elements shall be tested and calibrated by Buyer.

5.1.2.4 Steam pressure may be measured using temporary pressure transmitters on the Buyer side of terminal point between Buyer and Seller interconnection points. The steam turbine back pressure will be measured using four (4) absolute transmitters through the basket tips installed in the LP turbine casing.

5.1.2.5 Steam temperature may be measured using two (2) temporary thermocouples per steam line.

5.1.2.6 Electrical power output will be measured using a temporary kilowatt-hour meter on the generator terminals defined in Section 3.3 of Appendix A. Buyer shall have the right to have these meters tested and calibrated.

5.1.2.7 If Buyer requires Seller to provide and calibrate the Performance Test instruments, Seller may execute this option as a Change Order. However, installation of these instruments will be by Buyer.

5.1.3 Performance Test Data

5.1.3.1 MPS Net Steam Turbine Electrical Output and MPS Net Steam Turbine Maximum Electrical Output will be determined based on zero percent (0%) HRSG drum blowdown.

5.1.3.2 A post test uncertainty analysis must be performed to determine the resulting precision error effect contribution to the overall test uncertainty.

The metering system/configuration (including CT's and PT's) of the temporary kWh meter(s) will have an accuracy of ± 0.50% or less. The steam and feedwater flow elements will have an accuracy of ± 1.25% or less.

5.1.4 STG Test Final Report

The reports on all Acceptance Tests Required for Substantial Completion and Final Acceptance shall be prepared by Seller and will be presented to Buyer to show the results of the Acceptance Tests Required to achieve Substantial Completion and Final Acceptance as listed in Section 1.0. A report will be prepared within two (2) days of the completion of each such Acceptance Test and reviewed by Buyer within two (2) days after the submission of the report. The evaluation of the Acceptance Tests shall be on a mutually agreed basis. If all of the Acceptance Tests Required to achieve Substantial Completion are verified by mutual agreement to have been passed, Substantial Completion shall occur as of the date on which the last test required for Substantial Completion was completed. If all of the Acceptance Tests Required to achieve Final Acceptance are verified by mutual agreement to have been passed and all other requirements for Final Acceptance are satisfied, Final Acceptance shall occur as of the date on which the last test required for Final Acceptance was completed. Each report shall include:

5.1.4.1 Date and time of the test start and finish.

5.1.4.2 Names of the parties who witnessed the test.

5.1.4.3 Description of the conditions under which the tests were performed including meteorological information.

5.1.4.4 Summary of instrument calibration data including signed and approved instrument calibration forms.

5.1.4.5 Summary of all test data and results including any tests conducted on individual components.

5.1.4.6 Summary of test instrument measurement uncertainties.

5.1.4.7 Comparison of test results to the performance guarantees.

5.1.4.8 Conclusions from the test results.

5.2 Availability Test—Specific Requirements

The Availability Test results will be collected and tabulated on an hour by hour basis. The results for each hour shall be corrected as indicated in Section 2.3. Auxiliary power for the ancillary equipment in the STG will be measured as listed in Section 4.4 of Appendix A.

Test electrical output for the STG will be calculated by subtracting the auxiliary power consumption for the STG as measured (equipment loads are listed in Section 4.4 of Appendix A) from the measured electric output at the generator terminals as defined in Section 3.3 of Appendix A.

APPENDIX C

ATTACHMENT I

Acceptance Test Summary

MPS Contract Test Category	Who Develops First Draft of Detailed Procedure	Who Directs the Test	Do Performance LD's Apply?	Is Test Required prior to Substantial Completion?	Are Air Emissions to be Verified by CEMS during Test?	Is Test Subject to Retest after Substantial Completion?
Performance Tests						
MPS Net Steam Turbine Electrical Output	Seller	EPC	Yes--MPS	Yes	Yes	Yes
MPS Net Steam Turbine Maximum Electrical Output	Seller	EPC	Yes--MPS	Yes	Yes	Yes
Demonstration Tests						
Demo Tests prior to Substantial Completion						
Minimum Load	EPC	EPC	No	Yes	Yes	No
Generator Operations - Lead/Lag	EPC	EPC	No	Yes	Yes	No
Steam Turbine Load Ramp Rate	EPC	EPC	No	Yes	No	No
Demo Tests after Substantial Completion						
Unit Trip	EPC	EPC	No	No	No	No
Availability Test	EPC	EPC	No	Yes	Yes during steady state	No
Emission Tests						
Near Field Noise Levels	EPC	EPC	No	No	n/a	Yes

Appendix D

Storage Charge of Steam Turbine Generator

APPENDIX D
STORAGE CHARGE of STEAM TUBINE GENERATOR

	STORAGE at Manufactured Location				
Stored Item	LP and HIP	ST Auxiliary	Generator	ST Control Panel	TOTAL
	Store HIP as dis-assembled style and ship in fully assembled style	(stored in sub-vendor shop or Third Country')			
Storage Preparation Fees					
1) Transportation to Storage Area	US$30,900		US$109,700		US$140,600
2) Special Preservation Fee	US$48,900		US$23,700		US$72,600
3) Manufacture Storage Container	US$20,600		(included in 2)		US$20,600
4) Build Storage Tent	US$61,900		NA		US$61,900
5) Waterproof cover	(included in 2)		(included in 2)		US$0
Sub-total (*1)	US$162,300	US$0	US$133,400	US$0	US$295,700
Monthly Storage Charge (*2)	US$0	US$5,400	US$4,500	US$630	US$10,530
Insurance during Storage (*2, 3)	0.3%/year X $23,443,000				
Maintenance fees during storage					
1) Periodic Preservation (*4)	US$3,700		US$9,900		
2) Change Water proof cover (*4)	US$0		US$22,000		
Inspection and Refurbishment	Price to be advised before commencement of inspection and Refurbishment	Price to be advised before commencement of inspection and Refurbishment	Price to be advised before commencement of inspection and Refurbishment	Price to be advised before commencement of inspection and Refurbishment	

General Note:
MPS will use all reasonable efforts to provide proper storage of the Steam Turbine Generator in accordance with all manufacturer's storage and equipment care recommendations.

Notes:

*1. This amount will be paid by Buyer upon placing of all equipment into storage.

*2. This amount will be paid by Buyer on a monthly baisis. Once all equipment is placed in storage, each monthly payment will be paid on the 25th day of each month.

*3. Buyer will evaluate and advise if they need this insurance before starting storage (expected to start from Aug.1,02).

*4. Seller will inform Buyer when this work becomes necessary during storage period. Amount shown is for each occurrence of each service being provided.

S

APPENDIX E

TRAINING PROGRAM

1. General

A class room training of Steam Turbine Generator (including Steam Turbine and Generator for Steam Turbine) will be provided by Seller to Buyer once during the Contract period.

Seller shall dispatch necessary trainers to provide the training mentioned in Items 2, 3, and 4 hereafter. Any fees related to the Seller's trainer such as traveling fee, lodging fee, meals, etc. are at Seller's expense. Buyer shall provide Seller classroom facility to provide training.

2. Outline

Time duration: 4 days

Numbers of Trainee: 40 operators

(20 operators / one group x 2 sessions)

3. Time & Place of Training

Time: Before pre-commissioning

Place: At the classroom of Buyer's facility

4. Training Proposal

4.1 Training Menu

1) Steam Turbine Design (One Trainer x One Day/Group)

1)-1 Steam Turbine Outline

1)-2 Steam Turbine Major Components

1)-3 P&I Diagram (Gland Steam and Piping System)

1)-4 Steam Valves

1)-5 EH Control Fluid System (including P&ID)

2) Generator for Steam Turbine (One Trainer x One Day/Group)

2)-1 Generator Principles

2)-2 Generator Description

2)-3 Seal Oil System Description - Operation

APPENDIX E

TRAINING PROGRAM

2)-4 Generator Gas System Description - Operation

2)-5 Stator Water System Description - Operation

2)-6 Commissioning Procedures - Presentation

3)Steam Turbine Generator Operation (including both Steam Turbine("ST") and Generator for Steam Turbine) (One Trainer x Two Days/Group)

3)-1 Outline of Unit Start-Up (ST)

-General

-Condenser Evacuation

-Spin Test

-Initial Light-Off and No Load Operation

-Unit Load Operation

-Over-Speed Trip Test

-Load Rejection Test

3)-2 Pre-Operational Check (ST)

-Control Oil System

-Lube Oil System

-Steam Turbine & it's Auxiliaries

-Generator for ST & it's Auxiliaries

3)-3 Load Operation for ST

3)-4 Overspeed Test for ST

3)-5 Load Rejection Test for ST

4.2 Training Time Schedule Proposal

As per Attachment 1 to Appendix E.

ATTACHMENT 1
to
APPENDIX E

Operator Training (Class Room) Time Schedule for Steam Turbine Generator
(including Steam Turbine ("ST") and Generator for ST)

Running Days

		1	2	3	4	5	6	7	8	9	10	11	12
Group 1													
1) Steam Turbine	AM												
	PM												
2) Generator for ST	AM												
	PM												

Running Days

		1	2	3	4	5	6	7	8	9	10	11	12
Group 2													
1) Steam Turbine	AM												
	PM												
2) Generator for ST	AM												
	PM												

Appendix F

NOT USED

Appendix G

Documentation

Only drawings pertaining to Steam Turbine Generator apply
Any drawings pertaining to Gas Turbine Units are for Reference Only

Drawing for L/D

Drawing for L/D is as follows;

(1) GT & ST portion

Drawing No.	Drawing Name	First Issue Date
D4-G6883	INTERFACE SIGNAL LIST FOR DCS (GT PORTION)	3.0 Month from signing contract
N2-00220	FOUNDATION OF GT ELECTRICAL AND CONTROL PACKAGE	3.5 Month from signing contract
G1-68094	FOUNDATION OUTLINE OF GAS TURBINE 1/4	3.0 Month from signing contract
G1-68095	FOUNDATION OUTLINE OF GAS TURBINE 2/4	3.0 Month from signing contract
G1-68096	FOUNDATION OUTLINE OF GAS TURBINE 3/4	3.0 Month from signing contract
G1-68097	FOUNDATION OUTLINE OF GAS TURBINE 4/4	3.0 Month from signing contract
G1-68108	GROUT RETAINER ARRANGEMENT FOR GENERATOR (1/2)	3.0 Month from signing contract
G1-68109	GROUT RETAINER ARRANGEMENT FOR GENERATOR (2/2)	3.0 Month from signing contract
G1-68104	EMBEDDED PLATE ARRANGEMENT FOR STARTING UNIT	3.0 Month from signing contract
G1-68092	M501F GAS TURBINE FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR 1/2	3.0 Month from signing contract
G1-68093	FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR 2/2	3.0 Month from signing contract
G1-65790	LOADING DATA OF G/T AIR INTAKE SYSTEM	3.0 Month from signing contract
G4-52647	LOGIC & WIRING DIAGRAM OF G/T AIR INTAKE FILTER	10.0 Month from signing contract
G1-65791	LOADING DATA OF G/T EXHAUST DUCT	3.0 Month from signing contract
G1-65789	GENERAL ARRANGEMENT OF G/T EXHAUST DUCT	2.5 Month from signing contract
T1-Y4423	STEAM TURBINE AND GENERATOR LOADS ON FOUNDATION	3.5 Month from signing contract
T1-Y4422	OUTLINE OF T/G FOUNDATION DECK	4.0 Month from signing contract

CUSTOMER APPROVAL DRAWING CONTROL LIST (FOR L/D)

(08-28-01)

ORDER | ORDER-NAME: アメリカ TENASKA # 1 | SECTION-CODE

SEQ-NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)
59	*	G1-68092 (B-38260)	R00	M501F GAS TURBINE FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR (1/2)	(05-26-01)	001 :05-23-01 DG-0028			
60	*	G1-68093 (B-38260)	R00	FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR (2/2)	(05-26-01)	001 :05-23-01 DG-0026			
97	*	G1-65790 (C-00002B)	R00	LOADING DATA OF G/T AIR INTAKE SYSTEM	(05-26-01)	001 :05-23-01 DG-0027			
99	*	G4-52647 (C-00012B)		LOGIC & WIRING DIAG. OF G/T AIR INTAKE SYSTEM	(12-26-01) 12-26-01	001 :12-13-01 DG-0219			
101	*	G1-65791 (C-00102B)	R00	LOADING DATA OF G/T EXHAUST DUCT	(05-26-01)	001 :05-23-01 DG-0027			
100	*	G1-65789 (C-00101B)	R00	GENERAL ARRANGEMENT OF G/T EXHAUST DUCT	(05-12-01) 07-30-01	00A :05-09-01 DG-0013			
80	*	T1-Y4423 (T-10Y01-112)	R01	STEAM TURBINE AND GENERATOR LOADS ON FOUNDATION	(06-12-01)	00A :04-23-01 DG-0009	011 :09-03-01 DG-0084		
78		T1-Y4422 (T-10Y01-019)	R00	OUTLINE OF T/G FOUNDATION DESK	(06-26-01)	00A :04-23-01 DG-0009			

Drawing name is same as the attached drawing list

DECLASSIFIED

<CLASS>
A — APPROVAL DWG
F — FINAL DWG
I — INFORMATION DWG
RA — REAPPROVAL DWG
C — CONSTRUCTION DWG
R — REFERENCE DWG
Z — AS BUILT DWG

<STATUS>
1 — APPROVED WITHOUT COMMENT
2 — APPROVED WITH COMMENT
3 — NOT APPLICABLE
4 — INFORAMATION ONLY
5 — NO COMMENT AND NO PRINT INCLUDED
6 — APPROVED WITH COMMENT AND RESUBMIT THE REVISED DRAWING
7 — NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST (FOR L/D)

ORDER		ORDER-NAME	アメリカ TENASKA #1	SECTION -CODE	

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
4	*	D4-G6883 (E-00610)	R00	INTERFACE SIGNAL LIST FOR DCS (GT PORTION)	(05-26-01)	001 :05-21-01 DG-0019			
54	*	N2-00220 (F-70100)	R00	FOUNDATION OF GT ELECTRICAL AND CONTROL PACKAGE	(06-12-01)	001 :06-08-01 DG-0034			
45	*	G1-68094 (B-38000)	R00	FOUNDATION OUTLINE OF GAS TURBINE 1/4	(05-26-01)	001 :05-23-01 DG-0026			
46	*	G1-68095 (B-38000)	R00	FOUNDATION OUTLINE OF GAS TURBINE 2/4	(05-26-01)	001 :05-23-01 DG-0026			
47	*	G1-68096 (B-38000)	R00	FOUNDATION OUTLINE OF GAS TURBINE 3/4	(05-26-01)	001 :05-23-01 DG-0026			
48	*	G1-68097 (B-38000)	R00	FOUNDATION OUTLINE OF GAS TURBINE 4/4	(05-26-01)	001 :05-23-01 DG-0026			
55	*	G1-68108 (B-38100)	R00	GROUT RETAINER ARRANGEMENT FOR GENERATOR (1/2)	(05-26-01)	001 :05-23-01 DG-0026			
56	*	G1-68109 (B-38100)	R00	GROUT RETAINER ARRANGEMENT FOR GENERATOR (2/2) page changed	(05-26-01)	001 :05-23-01 DG-0026			
88	*	G1-68104 (B-38170)	R00	EMBEDDED PLATE ARRANGEMENT FOR STARTING UNIT	(05-26-01)	001 :05-23-01 DG-0026			

<CLASS>
A — APPROVAL DWG
F — FINAL DWG
I — INFORMATION DWG
RA — REAPPROVAL DWG
C — CONSTRUCTION DWG
R — REFERENCE DWG
Z — AS BUILT DWG

<STATUS>
1 — APPROVED WITHOUT COMMENT
2 — APPROVED WITH COMMENT
3 — NOT APPLICABLE
4 — INFORAMATON ONLY
5 — NO COMMENT AND NO PRINT INCLUDED
6 — APPROVED WITH COMMENT AND RESUBMIT THE REVISED DRAWING
7 — NOT APPROVED

(2) STG & GTG portion

Drawing No.	Drawing Name	First Issue Date
E1-7 AK76890	TURBINE GENERATOR OUTLINE (FOR STEAM TURBINE)	2.0 Month from signing contract
E1-9 A33K491	TURBINE GENERATOR LOAD ON FOUNDATION (FOR STEAM TURBINE)	2.0 Month from signing contract
E3-01 DIJNH 774018D	GENERATOR NEUTRAL GROUNDING CUBICLE FOR STG ARRANGEMENT AND OUTLINE	3.5 Month from signing contract
E4-02 JEK44552	SINGLE LINE DIAGRAM S/T GENERATOR CIRCUIT	2.0 Month from signing contract
E4-15 JEK44567	ELECTRICAL EQUIPMENTS GENERAL ARRANGEMENT	2.0 Month from signing contract
E1-07 AK76818	TURBINE GENERATOR LOAD ON FOUNDATION (FOR GAS TURBINE)	2.0 Month from signing contract
E3-05 JEK44551	SINGLE LINE DIAGRAM (G/T GENERATOR CIRCUIT)	2.0 Month from signing contract

First issue date should be guaranteed.

DRAWING LIST (FOR L/D)

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 115 (仲)遠電 発計設

Kind of drawings
A :For Approval
AD :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
A :For Approval
AD :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Returned Sta.
A :Approved
ACC :Approved with Comment
C :Certified and Issued for Construction
I :Informational only no Approval needed
N :New Issue Not Approved
R :Returned to Manufacturer for Correction
T :Transmitted for Approval

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be Issued Kind	To be Issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark	
	AK76990	TURBINE GENERATOR OUTLINE (FOR STEAM TURBINE)	A	01/04/27	0	MEL/TEI-DG-0009	01/04/25	A		01/08/13	ACC	0	88
					A	MEL/TEI-DG-0097	02/04/22	RA					
	A33K491	TURBINE GENERATOR LOAD ON FOUNDATION (FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0009	01/04/25	I				0	89
					A	MEL/TEI-DG-0097	02/04/22	I					
	01JNH274018B1	OUTLINE AND ARRANGEMENT DRAWING OF GENERATOR GROUNDING CUBICLE (FOR ST GENERATOR)	A	01/06/12	0	MEL/TEI-DG-0016	01/06/08	A				0	148
					A	MEL/TEI-DG-0068	01/11/28	RA					
					B	MEL/TEI-DG-0081	02/03/18	F					
	JEK44552	SINGLE LINE DIAGRAM ST GENERATOR	A	01/04/27	A	MEL/TEI-DG-0006	01/04/23	A				0	24
					B	MEL/TEI-DG-0033	01/08/02	RA	TR/010229-STGE002S	01/08/08	R		
					D	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		
	JEK44567	ELECTRICAL EQUIPMENT GENERAL ARRANGEMENT(MELCO PORTION)	I	01/04/28	0	MEL/TEI-DG-0003	01/04/23	I		01/08/14	ACC	0	65
					A	MEL/TEI-DG-0037	01/08/07	I					
	AK70010	FOUNDATION OF TURBINE GENERATOR (FOR GAS TURBINE)	I	01/04/27	0	MEL/TEI-DG-0010	01/04/25	I				0	119
					A	MEL/TEI-DG-0092	01/11/20	I	TR/010229-00346	02/01/28	A		
	JEK44551	SINGLE LINE DIAGRAM GT GENERATOR	A	01/04/27	A	MEL/TEI-DG-0006	01/04/23	A				0	23
					B	MEL/TEI-DG-0033	01/08/02	RA	TR/010229-STGE002S	01/08/08	R		
					D	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		

TENASKA ALABAMA IV PARTNERS, L.P.

TENASKA TALLADEGA GENERATING STATION

DRAWING LIST
(for GT&ST PORTION)

PA-CODE : A-12050A

CONTENT		REMARKS	PURCHASER	ORDER No.	DATE	POWER PLANT ENGINEERING	DEPARTMENT
DESCRIPTION	PAGE			ITEM No.	REFERENCE	COMBINED CYCLE POWER PLANT ENGINEERING	SECTION
FIGURE	SHEET		TENASKA TALLADEGA ALABAMA	6547575	MAR.15.2001	APPROVED BY	H. Kumazaki
TOTAL	96 SHEET			6000	S.I.	CHECKED BY	Y. Masuda
						DESIGNED BY	S.Ishikawa
						DATE	Mar.15.2001

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS

Combined Cycle Power Plant Engineering

COPY OR	TENASKA	MPS	MELCO	機器管	ガ技	P/M	プ総管G	建設	計電	ガ設	タ設	制シ設	電計設	配設	プ機設	プ品管	試験	配設(技)	基本計画	技	ガ計
	*	1	*	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

DRAWING No. **S4-70824**

REV .No. R-8

CODE

1 General

This document describes the Drawing List for TENASKA ALABAMA IV PARTNERS, L.P. TENASKA TALLADEGA GENERATING STATION.
All drawings shall be submitted to Contractor in accordance with this procedure. This procedure shall be applicable to all drawings, calculations, specifications, data sheets, lists, reports or any other document ("Drawings" shall be used as general term) to be issued to Contractor. The design review will be done by Contractor during the detailed design stage. The review procedure is also described in this document.

2 Drawing Submittal Procedure

The drawings shall be submitted under following categories.

(1) For Approval / For Re-approval
(2) For Information
(3) Final
(4) As Built
(5) For Reference

The definition of the category is as follows.

(1) "For Approval" or "For Re-approval" drawings
: that indicate the design data required for Contractor's engineering works
: that indicate the terminal condition between Contractor and MPS
: that need confirmation from Contractor for contractual requirements
: that contain various test procedure / report as per contractual requirements

(2) "For Information" drawings
: to inform the detailed data which will not significantly affect the engineering works of Contractor
: related to MPS standard equipment such as main equipment and its standard associated equipment

(3) "Final" drawings
: to be made after Contractor's approval of MPS's "For Approval" or " For Re-approval" drawings and to be applied for manufacturing and / or construction

(4) "As Built" drawings
: to be submitted after the completion of the construction / commissioning, based on the marked up drawings received from Contractor if there are any changes on "Final" drawings.

(5) "For Reference" drawings
: to be submitted based on Contractor's requirement for their reference purpose and not for engineering work.

Six(6) sets of each drawing will be submitted to Contractor in any category. All drawings shall be submitted with applicable category stamp for identification.

3 Drawing Review / Return Procedure

(1) "For Approval" drawings
Contractor shall return all "For Approval" drawings to MPS after their review. The review result shall be returned not later than 2 weeks after receipt of the submitted drawing with one of the following notation.

Cat.1 – Approved without comments
Cat.2 – Approved with comments
Cat.3 – Not Approved *
Cat.4 – For Information only**

* In case MPS don't comply with the contractual requirements for major parts or made serious mistake on the drawing, Contractor can categorize as Cat.3.

**In case Contractor judge the drawing shall be "For Information" not "For Approval" category, the drawings will be returned in Cat.4.

If drawings are not returned within 2 weeks, then MPS have the right to assume that the drawing has been duly approved and proceed with manufacturing / construction.

(2) "For Information" drawings

Generally, Contractor need not return the "For Information" drawing after their review. However, if Contractor have some comments, then they shall communicate the same to MPS.

The receipt confirmation shall be notified to MPS.

Contractor can ask any clarification for the "For Information" drawings and MPS will clarify accordingly.

(3) Other drawings

No need to return the drawings.

[Note]

Revision number or alphabet should be changed when the drawing is re-submitted, even though there is no modification, when submitting "Final" and / or "As Built" drawings.

4 The action after return of "For Approval" drawing

MPS will make following arrangement after receiving of returned drawing.

Cat.1 – "Final" drawing will be submitted.

Engineering / manufacturing / construction works will be proceeded.

Cat.2 – MPS will re-submit drawings as "Final" when those comments are fully complied.

If Contractor's comments can not be complied by MPS or if MPS feel Contractor's comments are not correct, then the following action will be taken by MPS.

(1) MPS will issue a fax or letter explaining why Contractor's comments cannot be complied. Based on that Contractor to approve the drawing through a fax or letter.

(2) When complying Contractor's comments partially, MPS will resubmit the drawing for "Re-approval" and issue a fax or letter explaining why some comments cannot be complied.

The area returned without any comments would be

considered as "Final" if no revision from MPS are made, and engineering / manufacturing / construction will be proceeded.

Cat.3 – MPS shall comply with the contractual requirement or correct the mistake and re-submit as "Re-approval"

Cat.4 – MPS shall submit the same drawing "For Information" drawing from next revision.

5 Drawing Title Block and Drawing Number

MPS will comply with Contractor 's requirements for the drawing title block and drawing number, as much as they can. If there is no specific requirements for the drawing title block and drawing number, MPS will use their standard title block and drawing number.

6 Drawing Submittal and Return Route

(1) Drawings

All drawings should be submitted to Contractor by MPS and should be returned to MPS by Contractor.

The drawing submittal letter number of MPS is as follows:

MPS/TEI-DG-xxxx

(Note) xxxx is a serial number taken by MPS.

(2) Letters and Faxes

The correspondence number of MPS is as follows:

MPS/ TEI -yyyy

(Note) yyyy is a serial number taken by MPS.

7 Drawing Submittal Schedule

MPS drawing submittal schedule is indicated in the following pages. Each indicated month is counted from the Contractor signing date of May.01, 2002.

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 5520

EQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		AD-10895 (P-00010)	R02	INSPECTION AND TEST PLAN AT SHOP (FOR STEAM TURBINE)	(05-12-01)	011 :01-12-01 HC	02F :07-03-01 DG-0050		
							1 :07-18-01 TR-00026		
2		AD-10896 (P-00010)	R02	INSPECTION AND TEST PLAN AT SHOP (FOR GAS TURBINE AND STEAM TURBINE AUXILIARIES)	(05-12-01)	011 :01-12-01 HC	02F :07-03-01 DG-0050		
							1 :07-18-01 TR-00026		
3		AD-20634 (P-00010)	R03	INSPECTION AND TEST PLAN AT SHOP	(05-12-01)	011 :01-12-01 HC	02F :07-03-01 DG-0050	03F :11-26-01 DG-0188	
							1 :07-18-01 TR-00026	1 :01-24-02 TR-00325	
4		AD-20637 (P-00010)	R02	INSPECTION AND TEST PLAN AT SHOP (FOR I&C, ELECTRICAL)	(05-12-01)	011 :01-12-01 HC	02F :07-03-01 DG-0050		
							1 :07-18-01 TR-00026		
5									

<CLASS>
A—APPROVAL DWG
F—FINAL DWG
I—INFORMATION DWG
RA—REAPPROVAL DWG
C—CONSTRUCTION DWG
R—REFERENCE DWG
Z—AS BUILT DWG

<STATUS>
1—APPROVED WITHOUT COMMENT
2—APPROVED WITH COMMENT
3—NOT APPLICABLE
4—INFORAMATON ONLY
5—NO COMMENT AND NO PRINT INCLUDED
6—APPROVED WITH COMMENT AND RESUBMIT THE REVISED DRAWING
7—NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	5530

SQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		AC-10329	R00	HYDROSTATIC TEST PROCEDURE OF HP STOP VA LVE AND CONTROL VALVE (HP-SV & CV) & IP	(09-21-01) 11-12-01	00A :09-21-01 DG-0103 1 :10-29-01 TR-00153			
2		AR-201798	R00	TEST RECORDS FOR GT ASSEMBLED ROTOR HIGH SPEED BALANCE & OVERSPEED TEST	(12-07-01)	001 :12-07-01 DG-0216 1 :01-24-02 TR-00326			
3		AR202223	R00	TEST RECORDS FOR GT UNIT-2 ASSEMBLED ROT OR HIGH SPEED BALANCE & OVERSPEED TEST	(04-08-02)	001 :04-08-02 DG-0305			

<CLASS>
A—APPROVAL DWG
F—FINAL DWG
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RA—REAPPROVAL DWG
C—CONSTRUCTION DWG
R—REFERENCE DWG
Z—AS BUILT DWG

<STATUS>
1—APPROVED WITHOUT COMMENT
2—APPROVED WITH COMMENT
3—NOT APPLICABLE
4—INFORAMATON ONLY
5—NO COMMENT AND NO PRINT INCLUDED
6—APPROVED WITH COMMENT AND RESUBMIT THE REVISED DRAWING
7—NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7302

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	(A-16010)		OPERATION AND MAINTENANCE MANUAL	[redacted]				

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A—APPROVAL DWG
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I—INFORMATION DWG
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C—CONSTRUCTION DWG
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Z—AS BUILT DWG

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7320

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		D4-G6885 (E-00100)	R00	GT CONTROL, INDICATING & ALARM SCHEDULE	(07-26-01)	001 :07-09-01 DG-0055			
2		D4-S6490 (E-00100)	R00	CONTROL, INDICATING & ALARM SCHEDULE (ST PORTION)	(07-26-01)	00F :07-17-01 DG-0058 1 :08-07-01 TR-00059			
3	*	D3-G4925 (E-00400)	R00	STANDARD LOGIC DIAGRAM FOR AUXILIARIES (GT & ST PORTION)	(06-26-01)	00A :05-17-01 DG-0017			
4	*	D4-G6883 (E-00610)	R01	INTERFACE SIGNAL LIST FOR DCS (GT PORTIO N)	(05-26-01)	001 :05-21-01 DG-0019	011 :11-21-01 DG-0185 1 :12-03-01 TR-00221		
5		D4-S6573 (E-00610)	R01	INTERFACE SIGNAL LIST FOR DCS (ST PORTIO N)	(07-26-01)	001 :05-31-01 DG-0030	011 :11-21-01 DG-0184 1 :12-03-01 TR-00222		
6	*	D4-S6492 (E-10100)	R00	SPECIFICATION OF ST CONTROLLER	(06-26-01)	001 :06-27-01 DG-0047 1 :07-18-01 TR-00029			
7	**	D3-S5085 (E-10200)	R01	INSTRUMENT LOOP DIAGRAM (ST PORTION)	(06-26-01)	001 :06-26-01 DG-0045	011 :11-29-01 DG-0203 1 :01-29-02 TR-00360		
8	*	D3-S5086 (E-10300)	R01	INSTRUMENT LIST (ST PORTION)	(07-26-01)	001 :07-19-01 DG-0060	011 :11-29-01 DG-0203 1 :01-29-02 TR-00360		
9	*	D3-S5054 (E-10400)	R01	UNIT INTERLOCKDIAGRAM (ST PORTION)	(06-26-01)	001 :06-21-01 DG-0042	011 :11-21-01 DG-0184 1 :12-03-01 TR-00222		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7320

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
10	*	D3-S5151	R00	CONTROL LOGIC DIAGRAM (STEAM TURBINE POR	(12-14-01)	001 :12-17-01 DG-0221			
		(E-10410)		TION)		1 :01-28-02 TR-00349			
11	*	D3-S4313	R00	GOVERNOR CONTROL DIAGRAM (ST PORTION)	(11-26-01)	001 :11-19-01 DG-0176			
		(E-10420)							
12	*	D3-S5067	R00	GENERAL LOGIC DIAGRAM (REFERENCE FLOW CH	(09-17-01)	001 :09-20-01 DG-0100			
		(E-10510)		ART OF APS)		1 :10-29-01 TR-00148			
13		D1-S4267	R01	ARRANGEMENT OF TURBINE CONDUIT FOR T/G F	(06-09-01)	001 :06-11-01 DG-0035	011 :07-16-01 DG-0057		
		(E-10600)		OUNDATION		1 :08-07-01 TR-00060			
14	*	D3-S5087	R00	WIRING DIAGRAM OF TERMINAL BOX (ST PORTI	(11-26-01)	001 :11-29-01 DG-0199			
		(E-10700)		ON)		1 :01-14-02 TR-00283			
15	*	D1-S4268	R01	LOCATION PLAN OF INSTRUMENT AND PANEL (S	(10-26-01)	001 :10-26-01 DG-0146	011 :11-29-01 DG-0200		
		(E-10800)		T PORTION)		1 :11-21-01 TR-00210	1 :01-28-02 TR-00354		
16	*	D4-S6553	R01	LOCAL RACK & STANCHION LIST (ST PORTION)	(12-12-01)	001 :10-05-01 DG-0120	011 :11-29-01 DG-0201		
		(E-10800)				1 :10-29-01 TR-00168	1 :01-29-02 TR-00358		
17	*	D4-S6638	R01	SPECIFICATION OF SUPERVISORY INSTRUMENT	(10-26-01)	001 :10-04-01 DG-0116	011 :11-28-01 DG-0194		
		(E-12010)		(ST PORTION)		1 :11-26-01 TR-00213	1 :01-29-02 TR-00361		
18	*	D4-S6651	R01	SPECIFICATION OF LVDT (ST PORTION)	(10-04-01)	001 :10-04-01 DG-0117	011 :11-29-01 DG-0201		
		(E-12020)				1 :10-29-01 TR-00143	1 :01-29-02 TR-00358		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7320

EQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)
19	*	D4-S6642	R01	SPECIFICATION OF SPEED PICK UP (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116	011 :11-29-01 DG-0201		
		(E-12030)				1 :11-07-01 TR-00169	1 :01-29-02 TR-00358		
20	*	D4-S6643	R01	SPECIFICATION OF PRESSURE TRANSMITTER (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116	011 :11-29-01 DG-0201		
		(E-12050)				1 :11-07-01 TR-00169	1 :01-29-02 TR-00358		
21	*	D4-S6639	R01	SPECIFICATION OF PRESSURE SWITCH (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116	011 :11-29-01 DG-0201		
		(E-12110)				1 :11-07-01 TR-00169	1 :01-29-02 TR-00358		
22	*	D4-S6640	R01	SPECIFICATION OF LIMIT SWITCH (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116	011 :11-29-01 DG-0201		
		(E-12140)				1 :11-07-01 TR-00169	1 :01-29-02 TR-00358		
23	*	D4-S6641	R01	SPECIFICATION OF SOLENOID VALVE (ST PORTION)	(10-26-01)	001 :10-04-01 DG-0116	011 :11-29-01 DG-0201		
		(E-12170)				1 :11-07-01 TR-00169	1 :01-29-02 TR-00358		
24	*	D4-G6884	R00	SPECIFICATION OF GAS TURBINE CONTROLLER	(06-26-01)	001 :05-23-01 DG-0022			
		(E-20100)				1 :07-18-01 TR-00028			
25	*	D3-G4973	R00	INSTRUMENT LOOP DIAGRAM	(06-26-01)	001 :06-14-01 DG-0038			
		(E-20200)				1 :10-29-01 TR-00156			
26	*	D3-G4974	R00	INSTRUMENT LIST	(07-26-01)	001 :06-14-01 DG-0038			
		(E-20300)				1 :10-29-01 TR-00157			
27		D1-G4874	R00	UNIT INTERLOCK DIAGRAM (GT PORTION)	(05-16-01)	00A :05-21-01 DG-0019			
		(E-20400)							

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7320

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
28	*	D3-G4927	R00	CONTROL LOGIC DIAGRAM (GAS TURBINE PORTI	(11-26-01)	001 :11-29-01 DG-0202			
		(E-20410)		ON)		1 :01-23-02 TR-00299			
29		D1-G4873	R00	M501F GAS TURBINE GOVERNOR CONTROL DIAGR	(05-16-01)	001 :05-21-01 DG-0019			
		(E-20420)		AM					
30		D1-G4872	R00	M501F GAS TURBINE GENERAL LOGIC DIAGRAM	(05-16-01)	001 :05-21-01 DG-0019			
		(E-20460)							
31	*	D3-G4993	R00	WIRING DIAGRAM OF TERMINAL BOX (GT PORTI	(11-26-01)	001 :11-06-01 DG-0155			
		(E-20700)		ON)	12-17-01	6 :12-03-01 TR-00224			
32	*	D3-G4994	R02	WIRING DIAGRAM OF TERMINAL BOX (LIGHTING	(01-26-02)	001 :10-24-01 DG-0142	011 :12-21-01 DG-0229	021 :03-12-02 DG-0286	
		(E-20710)		& F/F)		1 :11-21-01 TR-00211	6 :01-28-02 TR-00345		
33	*	D1-G4901	R00	LOCATION PLAN OF INSTRUMENT AND PANEL (G	(09-17-01)	001 :09-20-01 DG-0101			
		(E-20800)		T PORTION)		1 :10-29-01 TR-00149			
34	*	D4-G7155	R00	LOCAL RACK AND STANCHION LIST (GT PORTIO	(12-12-01)	001 :10-02-01 DG-0111			
		(E-20800)		N)		1 :10-29-01 TR-00166			
35	*	D4-G7109	R00	SPECIFICATION OF VIBRATION	(10-26-01)	001 :09-21-01 DG-0104			
		(E-22010)				1 :10-29-01 TR-00150			
36	*	D4-G7110	R00	SPECIFICATION OF SPEED PICK UP	(10-26-01)	001 :08-27-01 DG-0079			
		(E-22040)							

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7320

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
37	*	D4-G7102	R00	SPECIFICATION OF PRESSURE TRANSMITTER	(10-26-01)	001 :08-27-01 DG-0079			
		(E-22050)							
38	*	D4-G7101	R01	SPECIFICATION OF THERMOCOUPLE	(10-26-01)	001 :08-27-01 DG-0079	011 :10-09-01 DG-0122		
		(E-22090)					1 :11-21-01 TR-00204		
39	*	D4-G7105	R00	SPECIFICATION OF ORIFICE	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22100)				1 :10-29-01 TR-00143			
40	*	D4-G7106	R00	SPECIFICATION OF PRESSURE SWITCH	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22110)				1 :10-29-01 TR-00143			
41	*	D4-G7107	R00	SPECIFICATION OF LEVEL SWITCH	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22130)				1 :10-29-01 TR-00143			
42	*	D4-G7104	R00	SPECIFICATION OF PRESSURE GAUGE	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22150)				1 :10-29-01 TR-00143			
43	*	D4-G7099	R00	SPECIFICATION OF TEMPERATURE GAUGE	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22160)				1 :10-29-01 TR-00143			
44	*	D4-G7108	R00	SPECIFICATION OF SOLENOID VALVE	(10-26-01)	001 :09-21-01 DG-0102			
		(E-22170)				1 :10-29-01 TR-00143			
45	*	D4-G7100	R00	SPECIFICATION OF GAS DETECTOR	(10-26-01)	001 :08-27-01 DG-0079			
		(E-22510)							

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7320

SEQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
46	*	D4-G7103	R00	SPECIFICATION OF FLAME DETECTOR	(10-26-01)	001 :08-27-01 DG-0079			
		(E-22520)							
47	*	N4-51060	R00	SPECIFICATION OF MOTOR CONTROL CENTER	(08-26-01)	001 :08-10-01 DG-0074			
		(F-65300)							
48	*	N4-51062	R00	SPECIFICATION OF DC SYSTEM	(10-12-01)	001 :10-09-01 DG-0124			
		(F-65500)				1 :11-21-01 TR-00209			
49	*	N4-51064	R01	SPECIFICATION OF BOLT HEATER DISTRIBUTIO	(10-12-01)	001 :10-09-01 DG-0124	011 :03-26-02 DG-0298		
		(F-65800)		N BOARD		1 :11-21-01 TR-00209			
50	*	N4-51061	R00	SPECIFICATION OF AC DISTRIBUTION PANEL	(10-12-01)	001 :09-03-01 DG-0085			
		(F-65900)				1 :10-02-01 TR-00255			
51	*	N4-51063	R01	SPECIFICATION OF DC STARTER PANEL	(10-12-01)	001 :10-09-01 DG-0124	011 :03-26-02 DG-0298		
		(F-66100)				1 :11-21-01 TR-00209			
52	*	N4-51065	R01	SPECIFICATION OF GT TURNING MOTOR JOG SW	(10-12-01)	001 :10-09-01 DG-0124	011 :03-26-02 DG-0298		
		(F-66200)		ITCH		1 :11-21-01 TR-00209			
53	*	N4-00856	R00	LAYOUT OF ELECTRICAL AND CONTROL PACKAGE	(08-26-01)	001 :08-09-01 DG-0071			
		(F-67400)							
54	*	N2-00220	R00	FOUNDATION OF GT ELECTRICAL AND CONTROL	(06-12-01)	001 :06-08-01 DG-0034			
		(F-70100)		PACKAGE					

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7320

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
55	*	N4-51059	R00	SPECIFICATION OF GT ELECTRICAL AND CONTR	(11-12-01)	001 :11-09-01 DG-0161			
		(F-70200B)		OL PACKAGE					
56	*	N4-00792	R00	CABLE CONNECTION DIAGRAM FOR GT ELECTRIC	(02-26-02)	001 :02-27-02 DG-0269			
		(F-70900)		AL AND CONTROL PACKAGE					

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ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7360

SQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	D3-E1118 (I-00110)	R00	SCHEMATIC DIAGRAM OF GT CONTROL SYSTEM	(12-26-01)	001 :11-16-01 DG-0170			
2	*	D3-E1119 (I-00120)	R00	SCHEMATIC DIAGRAM OF ST CONTROL SYSTEM	(12-26-01)	001 :11-16-01 DG-0170			
3	*	D4-E3065 (I-00240)	R00	SPECIFICATION OF GRAPHIC SCREENS	(02-26-02) 04-11-02	00A :03-04-02 DG-0276 6 :03-28-02 TEN-MPS-420			
4		D3-E2196 (I-03010)	R00	OUTLINE OF GT CONTROL SYSTEM	(06-22-01) 11-12-01	00A :06-25-01 DG-0044 1 :10-29-01 TR-00155			
5		D3-E2197 (I-03020)	R00	OUTLINE OF ST CONTROL SYSTEM	(06-22-01) 11-12-01	00A :06-25-01 DG-0044 1 :10-29-01 TR-00155			
6		D3-E1121 (I-03170)	R00	SCHEMATIC DIAGRAM OF OPERATOR STATION DESK	(11-15-01)	001 :11-16-01 DG-0170			
7		D3-E1122 (I-03190)	R00	SCHEMATIC DIAGRAM OF ENGINNERING MAINTENANCE STATION DESK	(11-15-01)	001 :11-16-01 DG-0170			
8	*	D4-E2872 (I-03210)	R00	HARDWARE SPECIFICATION OF GT/ST CONTROL SYSTEM	(08-26-01)	00A :08-02-01 DG-0066			
9	*	D4-E2873 (I-03221)	R00	HARDWARE SPECIFICATION OF OPERATOR STATION	(08-02-01)	00A :08-02-01 DG-0066			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7360

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)
10	*	D4-E2874 (I-03223)	R00	HARDWARE SPECIFICATION OF ENGINEERING MA INTENACE STATION	(08-02-01)	00A :08-02-01 DG-0066			
11	*	D4-E2871 (I-03251)	R00	PLAN OF OPERATOR STATION	(08-26-01)	00A :08-02-01 DG-0066			
12	*	D4-E2875 (I-03253)	R00	SPECIFICATION OF ENGINEERING MAINTENANCE STATION	(12-26-01)	00A :08-02-01 DG-0066			
13		D3-E1120	R00	SCHEMATIC DIAGRAM OF GT SUPERVISORY INSTRUMENT PANEL	(11-15-01)	001 :11-16-01 DG-0170			

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(04-24-02)

SECTION —CODE 7370

ORDER | ORDER-NAME TENASKA #1

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1	*	S4-70815 (A-12030)	R02	EQUIPMENT LIST	(04-26-01)	011 :04-20-01 DG-0007	021 :12-05-01 DG-0211		
							1 :01-24-02 TR-00328		
2	*	S4-70823 (A-12040)	R00	PLANT IDENTIFICATION NUMBERING SYSTEM	(04-26-01)	00A :03-27-01 DG-0002			
3	*	S4-70824 (A-12050A)	R08	DRAWING LIST (FOR GT&ST PORTION)	(04-26-01)	001 :03-21-01 DG-0001	011 :03-30-01 DG-0003	021 :09-11-01 DG-0094	031 :10-12-01 DG-0125
								1 :10-02-01 –	1 :11-21-01 TR-00208
						04R :11-08-01 DG-0160	051 :12-11-01 DG-0217	061 :01-16-02 DG-0238	071 :02-20-02 DG-0262
						1 :12-18-01 TR-00259	1 :01-24-02 TR-00318		
						081 :03-15-02 DG-0291			
4		S4-70884 (A-12060)	R01	CONTRACT INTERFACE	(04-26-01)	00A :04-20-01 DG-0007	011 :12-05-01 DG-0211		
							1 :01-24-02 TR-00328		
5		S4-70827 (A-12070A)	R01	ELECTRICAL LOAD LIST	(04-26-01)	001 :04-19-01 DG-0006	01R :11-07-01 DG-0157		
						1 :07-18-01 TR-00025	1 :12-18-01 TR-00257		
6		S4-70882 (A-12110)	R03	UTILITY LIST	(04-26-01)	001 :04-19-01 DG-0006	011 :11-16-01 DG-0173	021 :02-04-02 DG-0253	031 :03-06-02 DG-0278
						1 :07-18-01 TR-00025	1 :12-18-01 TR-00261	1 :02-19-02 TEN-MPS-381	
7		S4-71312 (A-12130)	R01	LUBRICATING OIL LIST	(10-23-01)	001 :10-23-01 DG-0141	011 :02-21-02 DG-0266		
						1 :11-21-01 TR-00187			

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(04-24-02)

SECTION —CODE 7370

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8	*	S4-71412 (A-12160)	R01	SPECIAL TOOL LIST	(12-26-01)	001 :12-20-01 DG-0228 1 :01-29-02 TR-00369	011 :02-20-02 DG-0262		
9	*	S4-71249 (A-13020)	R01	OPERATING PROCEDURE	(09-26-01)	011 :09-27-01 DG-0108 1 :10-29-01 TR-00152			
10	*	S4-70822 (A-13030)	R01	HAZARDOUS AREA CLASSIFICATION	(04-26-01)	00A :03-27-01 DG-0002	01RA:08-06-01 DG-0069		
11		S4-71477 (A-13080)	R00	COMPRESSOR BLADES WATER WASHING PROCEDURE	(02-08-02)	001 :02-08-02 DG-0258			
12	*	(A-15010)		PERFORMANCE TEST PROCEDURE	[redacted]	A			
13		S1-62486 (A-21010A)	R00	P & I DIAGRAM LEGEND	(04-26-01)	001 :04-27-01 DG-0010			
14		S0-60387 (A-21020A)	R01	P&I DIAGRAM LUBE OIL SYSTEM FOR GT	(05-12-01)	001 :04-27-01 DG-0010	011 :12-14-01 DG-0220 1 :01-25-02 TR-00331		
15		S0-60388 (A-21030A)	R01	P&I DIAGRAM CONTROL OIL SUPPLY SYSTEM	(04-26-01)	001 :04-27-01 DG-0010	011 :12-14-01 DG-0220 1 :01-25-02 TR-00331		
16		S1-62487 (A-21060A)	R01	P&I DIAGRAM FUEL GAS SYSTEM	(05-12-01)	001 :04-27-01 DG-0010	01R :11-26-01 DG-0189 1 :01-29-02 TR-00367		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7370

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17		S1-62488 (A-21070A)	R01	P&I DIAGRAM FUEL GAS SYSTEM IN A RACK	(04-26-01)	001 :04-27-01 DG-0010	01R :11-26-01 DG-0189		
							1 :01-29-02 TR-00367		
18		S0-60389 (A-21080A)	R01	P&I DIAGRAM AIR AND FLUE GAS SYSTEM	(05-12-01)	001 :04-27-01 DG-0010	011 :12-14-01 DG-0220		
							1 :01-25-02 TR-00331		
19		S1-62491 (A-21090A)	R01	P&I DIAGRAM GT INSTRUMENT AIR SYSTEM	(04-26-01)	001 :04-27-01 DG-0010	01R :11-26-01 DG-0189		
							1 :01-29-02 TR-00367		
20		S1-62493 (A-21130A)	R00	P&I DIAGRAM CLOSED COOLING WATER SYSTEM	(04-26-01)	001 :04-27-01 DG-0010			
21		S1-62494 (A-21140A)	R01	P&I DIAGRAM COMPRESSOR BLEED ANTI-ICING SYSTEM	(05-12-01)	001 :04-27-01 DG-0010	01R :11-26-01 DG-0189		
							1 :01-29-02 TR-00367		
22		(A-22020)		CONTROL SETTING FOR GT	9-5 months from Silent Key contract	1			
23		S4-71313 (A-25010)	R01	TORQUE CONVERTER DRAWING	(11-26-01)	001 :10-19-01 DG-0135	011 :12-18-01 DG-0227		
						1 :11-21-01 TR-00202	1 :01-24-02 TR-00321		
24		S4-71316 (A-25020)	R00	ELECTROSTATIC CLEANING EQUIPMENT FOR CONTROL OIL UNIT DRAWING (FOR M501F GT)	(11-26-01)	001 :11-27-01 DG-0190			
						1 :01-24-02 TR-00316			
25		S4-71314 (A-25030)	R00	CONTROL VALVE FOR GT PORTION DRAWING (FOR M501F GT)	(11-26-01)	001 :10-19-01 DG-0136			
						1 :11-21-01 TR-00200			

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(04-24-02)

SECTION -CODE: 7370

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26		S4-71315 (A-25040)	R00	SERVO ACTUATOR DRAWING (FOR M501F GT)	(11-26-01)	001 :10-19-01 DG-0135			
27	*								
28	*								
29	*								
30	*								
31	*								
32									
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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7380

Q O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	G2-56725 (B-18000)	R00	GAS TURBINE NAME PLATE	(07-26-01)	00A :07-30-01 DG-0062			
2		G2-56726 (B-18010)	R01	LOCATION OF GAS TURBINE NAME PLATE	(08-29-01)	001 :08-28-01 DG-0081	01R :01-11-02 DG-0237		
3	*	G3-18324 (B-27000B)	R00	MAIN LUBE OIL PUMP (FOR GAS TURBINE)	(11-26-01)	001 :11-19-01 DG-0175			
4	*	G3-18325 (B-27010B)	R00	AUXILIARY LUBE OIL PUMP(FOR GAS TURBINE)	(11-15-01)	001 :11-19-01 DG-0175			
5	*	G3-18326 (B-27020B)	R00	EMERGENCY LUBE OIL PUMP(FOR GAS TURBINE)	(11-26-01)	001 :11-19-01 DG-0175			
6	*	G2-56845 (B-27070)	R00	LUBE OIL FILTER	(10-26-01)	001 :10-26-01 DG-0147 1 :01-15-02 TR-00294			
7		G2-56717 (B-27080)	R00	LUBE OIL HEATER	(07-13-01)	001 :07-16-01 DG-0056 1 :08-06-01 TR-00055			
8	*	G1-70132 (B-28000C)	R01	CONTROL OIL UNIT	(11-26-01)	001 :10-26-01 DG-0147 1 :01-15-02 TR-00294	011 :01-21-02 DG-0239		
9	*	G1-68094 (B-38000)	R01	FOUNDATION OUTLINE OF GAS TURBINE (1/4)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205 1 :01-29-02 TR-00364		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

SECTION -CODE 7380

ORDER . ORDER-NAME TENASKA #1

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0	*	G1-68095 (B-38000)	R01	FOUNDATION OUTLINE OF GAS TURBINE (2/4)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
11	*	G1-68096 (B-38000)	R01	FOUNDATION OUTLINE OF GAS TURBINE (3/4)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
12	*	G1-68097 (B-38000)	R01	FOUNDATION OUTLINE OF GAS TURBINE (4/4)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
13		G1-70018 (B-38010)	R00	M501F GAS TURBINE EARTH TERMINAL ARRANGEMENT FOR GAS TURBINE AND STARTING UNIT	(10-26-01)	001 :10-26-01 DG-0147			
						1 :01-15-02 TR-00294			
14		G1-68112 (B-38030)	R00	M501F GAS TURBINE ARRANGEMENT OF EMBEDDED CONDUIT PIPE	(10-26-01)	001 :10-26-01 DG-0147			
						1 :01-15-02 TR-00294			
15		G1-68105 (B-38060)	R01	EMBEDDED PLATE ARRANGEMENT FOR GENERATOR FOUNDATION (1/3)	(05-21-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
16		G1-68106 (B-38060)	R00	EMBEDDED PLATE ARRANGEMENT FOR GENERATOR FOUNDATION (2/3)	(05-21-01)	001 :05-23-01 DG-0026			
17		G1-68107 (B-38060)	R01	EMBEDDED PLATE ARRANGEMENT FOR GENERATOR FOUNDATION(3/3)	(05-21-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
18	*	G1-68101 (B-38090)	R01	ARRANGEMENT OF EMBEDDED HARDWARE FOR G/T FOUNDATION (1/3)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		

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(04-24-02)

RDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7380

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9	*	G1-68102 (B-38090)	R01	ARRANGEMENT OF EMBEDDED HARDWARE FOR G/T FOUNDATION (2/3)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
10	*	G1-68103 (B-38090)	R01	ARRANGEMENT OF EMBEDDED HARDWARE FOR G/T FOUNDATION (3/3)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
21	*	G1-68108 (B-38100)	R01	GROUT RETAINER ARRANGEMENT FOR GENERATOR(1/2)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-23-02 TR-00301		
22	*	G1-68109 (B-38100)	R01	GROUT RETAINER ARRANGEMENT FOR GENERATOR(2/2)	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-23-02 TR-00301		
23	*	G1-68098 (B-38110)	R00	FOUNDATION OUTLINE OF STARTING UNIT	(05-26-01)	001 :05-23-01 DG-0026			
24	*	G1-68104 (B-38170)	R01	EMBEDDED PLATE ARRANGEMENT FOR STARTING UNIT	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
25	*	G1-68092 (B-38260)	R00	M501F GAS TURBINE FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR (1/2	(05-26-01)	001 :05-23-01 DG-0028			
26	*	G1-68093 (B-38260)	R00	FOUNDATION OUTLINE AND LOADING DATA FOR G/T AND GENERATOR (2/2)	(05-26-01)	001 :05-23-01 DG-0026			
27	*	G1-68099 (B-38280)	R01	FOUNDATION OUTLINE OF CONTROL OIL UNIT	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		

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6—APPROVED WITH COMMENT AND RESUBMIT THE REVISED DRAWING
7—NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

SECTION -CODE: 7380

RDER | ORDER-NAME: TENASKA #1

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
28	*	G1-68100 (B-38280)	R01	FOUNDATION OUTLINE OF OIL CLEANING UNIT	(05-26-01)	001 :05-23-01 DG-0026	011 :11-30-01 DG-0205		
							1 :01-29-02 TR-00364		
29		G1-68113 (B-38501)	R00	M501F GAS TURBINE FOUNDATION OUTLINE OF STAIRWAY	(10-26-01)	001 :10-26-01 DG-0147			
						1 :01-15-02 TR-00294			
30	*	G1-71055 (B-45000C)	R00	COMPRESSOR BLADE WASHING UNIT	(12-11-01)	001 :01-08-02 DG-0234			
						1 :01-24-02 TR-00320			
31		G1-68950 (B-45500)	R02	ASS'Y AND DETAIL OF EXHAUST DUCT DRAIN PIPING	(01-29-02)	011 :03-01-02 DG-0274	021 :04-04-02 DG-0301		
32	*	G1-68707 (B-62040)	R01	WALKWAY ARRANGEMENT AROUND GAS TURBINE AND GENERATOR (1/2)	(07-26-01)	001 :07-31-01 DG-0064	01R :12-17-01 DG-0223		
							1 :01-23-02 TR-00312		
33	*	G1-68708 (B-62040)	R01	WALKWAY ARRANGEMENT AROUND GAS TURBINE AND GENERATOR (2/2)	(07-26-01)	001 :07-31-01 DG-0064	01R :12-17-01 DG-0223		
							1 :01-23-02 TR-00312		
34		G1-69375 (B-67020B)	R01	STARTING UNIT ENCLOSURE PLAN 1/3	(10-01-01)	001 :10-01-01 DG-0110	01R :11-20-01 DG-0182		
						1 :11-26-01 TR-00216	1 :01-14-02 TR-00288		
35		G1-69376 (B-67020B)	R01	STARTING UNIT ENCLOSURE PLAN 2/3	(10-01-01)	001 :10-01-01 DG-0110	01R :11-20-01 DG-0182		
						1 :11-26-01 TR-00216	1 :01-14-02 TR-00288		
36		G1-69377 (B-67020B)	R01	STARTING UNIT ENCLOSURE PLAN 3/3	(10-01-01)	001 :10-01-01 DG-0110	01R :11-20-01 DG-0182		
						1 :11-26-01 TR-00216	1 :01-14-02 TR-00288		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7380

SEQ -NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
37	*	G1-69369 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 1/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
38	*	G1-69370 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 2/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
39	*	G1-69371 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 3/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
40	*	G1-69372 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 4/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
41	*	G1-69373 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 5/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
42	*	G1-69374 (B-67100B)	R00	GAS TURBINE ENCLOSURE PLAN 6/6	(09-26-01)	001 :10-01-01 DG-0110 / 1 :11-26-01 TR-00216			
43	*	G1-68788 (B-76000)	R00	GENERAL ARRANGEMENT OF STARTING UNIT (1/4)	(06-12-01)	001 :08-03-01 DG-0067			
44	*	G1-68789 (B-76000)	R00	GENERAL ARRANGEMENT OF STARTING UNIT (2/4)	(06-12-01)	001 :08-03-01 DG-0067			
45	*	G1-68790 (B-76000)	R00	GENERAL ARRANGEMENT OF STARTING UNIT (3/4)	(06-12-01)	001 :08-03-01 DG-0067			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7380

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) STATUS:DATE LETTER-NO (RETURN)
46	*	G1-68791 (B-76000)	R00	GENERAL ARRANGEMENT OF STARTING UNIT (4/4)	(06-12-01)	001 :08-03-01 DG-0067			
47		G1-68932 (B-76020)	R00	LAYOUT OF LIFTING AND MAINTENANCE SERVICE FOR STARTING UNIT EQUIP. 1/4	(11-30-01)	001 :11-30-01 DG-0205 1 :01-23-02 TR-00301			
48		G1-68933 (B-76020)	R00	LAYOUT OF LIFTING AND MAINTENANCE SERVICE FOR STARTING UNIT EQUIP. 2/4	(11-30-01)	001 :11-30-01 DG-0205 1 :01-23-02 TR-00301			
49		G1-68934 (B-76020)	R00	LAYOUT OF LIFTING AND MAINTENANCE SERVICE FOR STARTING UNIT EQUIP. 3/4	(11-30-01)	001 :11-30-01 DG-0205 1 :01-23-02 TR-00301			
50		G1-68935 (B-76020)	R00	LAYOUT OF LIFTING AND MAINTENANCE SERVICE FOR STARTING UNIT EQUIP. 4/4	(11-30-01)	001 :11-30-01 DG-0205 1 :01-23-02 TR-00301			
51		G1-70559 (B-76200)	R00	LAYOUT OF MAINTENANCE SERVICE FOR GENERATOR ROTOR 1/4	(12-06-01)	001 :12-06-01 DG-0214 1 :01-23-02 TR-00310			
52		G1-70560 (B-76200)	R00	LAYOUT OF MAINTENANCE SERVICE FOR GENERATOR ROTOR 2/4	(11-30-01)	001 :12-06-01 DG-0214 1 :01-23-02 TR-00310			
53		G1-70561 (B-76200)	R00	LAYOUT OF MAINTENANCE SERVICE FOR GENERATOR ROTOR 3/4	(11-30-01)	001 :12-06-01 DG-0214 1 :01-23-02 TR-00310			
54		G1-70562 (B-76200)	R00	LAYOUT OF MAINTENANCE SERVICE FOR GENERATOR ROTOR 4/4	(11-30-01)	001 :12-06-01 DG-0214 1 :01-23-02 TR-00310			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7380

Q O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
55		G1-68134 (B-76400)	R01	GAS TURBINE, GEN. AND AUX. EQUIP. OUTLINE (1/4)	(05-18-01)	001 :05-21-01 DG-0020 6 :06-21-01 M010229-	001 :05-21-01 DG-0020 1 :06-22-01 TR-00009	011 :11-07-01 DG-0156 1 :01-23-02 TR-00303	
56		G1-68135 (B-76400)	R01	GAS TURBINE, GEN. AND AUX. EQUIP. OUTLINE (2/4)	(05-18-01)	001 :05-21-01 DG-0020 1 :06-22-01 TR-00009	011 :11-07-01 DG-0156 1 :01-23-02 TR-00303		
57		G1-68136 (B-76400)	R01	GAS TURBINE, GEN. AND AUX. EQUIP. OUTLINE (3/4)	(05-18-01)	001 :05-21-01 DG-0020 1 :06-22-01 TR-00009	011 :11-07-01 DG-0156 1 :01-23-02 TR-00303		
58		G1-68137 (B-76400)	R01	GAS TURBINE, GEN. AND AUX. EQUIP. OUTLINE (4/4)	(05-18-01)	001 :05-21-01 DG-0020 1 :06-22-01 TR-00009	011 :11-07-01 DG-0156 1 :01-23-02 TR-00303		
59		G1-69353 (B-76700)	R00	LIFTING PLAN OF AROUND GAS TURBINE 1/3	(11-20-01)	00R :11-20-01 DG-0182 1 :01-14-02 TR-00288			
60		G1-69354 (B-76700)	R00	LIFTING PLAN OF AROUND GAS TURBINE 2/3	(11-20-01)	00R :11-20-01 DG-0182 1 :01-14-02 TR-00288			
61		G1-69355 (B-76700)	R00	LIFTING PLAN OF AROUND GAS TURBINE 3/3	(11-20-01)	00R :11-20-01 DG-0182 1 :01-14-02 TR-00288			
62		G1-68429 (B-77000)	R02	GAS TURBINE COOLING AIR PIPING & SUPPORT PLAN (1/4)	(06-21-01)	001 :06-25-01 DG-0043	011 :08-10-01 DG-0073 1 :12-17-01 TR-00252	02R :02-27-02 DG-0270	
63		G1-68430 (B-77000)	R02	GAS TURBINE COOLING AIR PIPING & SUPPORT PLAN (2/4)	(06-21-01)	001 :06-25-01 DG-0043	011 :08-10-01 DG-0073 1 :12-17-01 TR-00252	02R :02-27-02 DG-0270	

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(04-24-02)

SECTION -CODE 7380

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4	*	G1-68431 (B-77000)	R02	GAS TURBINE COOLING AIR PIPING & SUPPORT PLAN (LOADING DATA) (3/4)	(07-26-01)	001 :06-25-01 DG-0043	011 :08-10-01 DG-0073	02R :02-27-02 DG-0270	
							1 :12-17-01 TR-00252		
5	*	G1-68432 (B-77000)	R02	GAS TURBINE COOLING AIR PIPING & SUPPORT PLAN (4/4)	(07-26-01)	001 :06-25-01 DG-0043	011 :08-10-01 DG-0073	02R :02-27-02 DG-0270	
							1 :12-17-01 TR-00252		
6		G1-68459 (B-77050)	R01	ANTI-ICING PIPING PLAN & SUPPORT PLAN FOR AIR INTAKE FILTER (1/2)	(11-12-01)	001 :11-12-01 DG-0163	01R :03-01-02 DG-0273		
						1 :12-18-01 TR-00268			
7		G1-68460 (B-77050)	R01	ANTI-ICING PIPING PLAN & SUPPORT PLAN FOR AIR INTAKE FILTER (2/2)	(11-12-01)	001 :11-12-01 DG-0163	01R :03-01-02 DG-0273		
						1 :12-18-01 TR-00268			
8		G1-69356 (B-77400)	R01	ARRANGEMENT OF G/T LOCAL PIPING 1/3	(08-31-01)	001 :08-08-01 DG-0070	01R :11-21-01 DG-0186		
							1 :01-14-02 TR-00285		
9		G1-69357 (B-77400)	R01	ARRANGEMENT OF G/T LOCAL PIPING 2/3	(08-31-01)	001 :08-08-01 DG-0070	01R :11-21-01 DG-0186		
							1 :01-14-02 TR-00285		
0		G1-69358 (B-77400)	R01	ARRANGEMENT OF G/T LOCAL PIPING 3/3	(09-28-01)	001 :08-08-01 DG-0070	01R :11-21-01 DG-0186		
							1 :01-14-02 TR-00285		
1		G1-69150 (B-77980)	R00	ARRANGEMENT OF TERMINAL POINT AROUND G/T (1/2)	(08-10-01)	001 :09-28-01 DG-0109			
						1 :11-21-01 TR-00205			
2		G1-69151 (B-77980)	R00	ARRANGEMENT OF TERMINAL POINT AROUND G/T (2/2)	(08-10-01) 12-05-01	001 :09-28-01 DG-0109			
						6 :11-21-01 TR-00205			

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(04-24-02)

RDER | ORDER-NAME TENASKA #1 | SECTION -CODE 7380

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
2		L4-71051 (D-00015C)	R03	PAINTING SPECIFICATION	(04-26-01)	01A :05-07-01 DG-0012	02RA:06-27-01 DG-0046	03F :10-17-01 DG-0130	
							1 :07-18-01 TR-00022	1 :11-19-01 TR-00176	
3		L4-74740 (D-00351-000)	R01	OUTLINE DRAWING OF STRAINER (FOR FUEL GAS HEATER OUTLET)	(09-04-01)	00A :12-05-01 DG-0212	01F :03-15-02 DG-0290		
						1 :01-24-02 TR-00323			
4		L4-74741 (D-00351-000)	R02	OUTLINE DRAWING OF VALVE (FOR GLAND STEAM CONDENSER EXHAUST PIPING)	(09-04-01)	00A :09-06-01 DG-0090	01F :10-19-01 DG-0134	02F :03-12-02 DG-0284	
						6 :12-17-01 TR-00255	1 :11-21-01 TR-00206		
5		L1-93756 (D-11020-006)	R00	MONORAIL PLAN FOR GENERATOR CLR. BEARING & AUX. PACKAGE	(07-04-01)	001 :07-06-01 DG-0053			
6		L2-67745 (D-20041-000)	R00	FOUNDATION OUTLINE OF LUBE OIL COOLER	(11-27-01)	001 :11-28-01 DG-0193			
7		L1-73451 (D-20042-000)	R00	FOUNDATION OUTLINE OF TURBINE COOLING AIR COOLER WITH FUEL GAS HEATER	(11-28-01)	001 :11-29-01 DG-0197			
						1 :01-29-02 TR-00366			
8		L3-62887 (D-33211-060)	R01	NO. 1, NO. 2, NO. 3 GT FUEL GAS STRAINER DRAIN PIPING	(11-27-01)	00A :11-28-01 DG-0193	01F :03-15-02 DG-0289		
9		L4-74742 (D-61100-000)	R01	OUTLINE DRAWING OF EXPANSION JOINT (FOR GLAND STEAM CONDENSER EXHAUST PIPING)	(10-19-01)	00A :10-22-01 DG-0139	01F :03-15-02 DG-0290		
0		L1-93754 (D-63010-00)	R02	REMOVAL PROCEDURE FOR GENERATOR ROTOR	(06-12-01)	001 :06-13-01 DG-0037	011 :10-18-01 DG-0133	02F :03-15-02 DG-0290	
							6 :11-21-01 TR-00197		

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01		L2-67739 (D-82101)	R02	GLAND STEAM CONDENSER FAN EXHAUST PIPING	(09-01-01)	00A :09-25-01 DG-0106 I :10-29-01 TR-00151	01RA:11-19-01 DG-0174 I :12-18-01 TR-00270	02F :03-15-02 DG-0289	
02		G1-68558	R00	FOUNDATION OUTLINE OF G/T AIR INTAKE SYSTEM 1/2	(05-22-01)	001 :05-23-01 DG-0027			
03		G1-68559	R00	FOUNDATION OUTLINE OF G/T AIR INTAKE SYSTEM 2/2	(05-22-01)	001 :05-23-01 DG-0027			
04		G1-68560	R00	FOUNDATION OUTLINE OF G/T EXHAUST DUCT	(05-22-01)	001 :05-23-01 DG-0027			
05		G4-52365	R00	FOUNDATION DESIGN OF EXHUST SYSTEM	(06-05-01)	001 :06-06-01 DG-0032			

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(04-24-02)

RDER | ORDER-NAME | TENASKA #1 | SECTION -CODE | 7710

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1		CG-54313	R04	EQUIPMENT DELIVERY SCHEDULE	(03-26-01)	011 :05-22-01 DG-0021	021 :06-20-01 DG-0040	031 :07-18-01 DG-0059	041 :08-10-01 DG-0076
		(Q-00005)					1 :07-18-01 TR-00032		
2				INSULATION PROCEDURE FOR PLANT PIPING	(10-01Month From signing contract)	R			
		(Q-00050)							
3		CG-54831	R00	AUXILIARY EQUIPMENT ERECTION PROCEDURE	(05-27-02)	001 :02-04-02 DG-0252			
		(Q-00090)							
4		CG-54826	R00	M501F GAS TURBINE & STEAM TURBINE GROUT	(03-25-02)	001 :02-04-02 DG-0252			
		(Q-00120)		PROCEDURE					
5		CG-54873	R00	SITE EQUIPMENT RECEIVING PROCEDURE (SHIP	(02-12-02)	001 :02-14-02 DG-0259			
		(Q-00130)		PING NOTIFICATION & DOCUMENT TO SITE)	03-05-02	G :02-19-02 TEN-MPS-390			
6		CG-54889	R00	MAIN EQUIPMENT DELIVERY CONDITION (GAS T	(04-27-02)	001 :03-01-02 DG-0272			
		(Q-00135)		URBINE AND STEAM TURBINE)					
7		CG-54890	R00	TEMPORARY STORAGE PLAN	(04-27-02)	001 :03-01-02 DG-0272			
		(Q-00140)							
8				INSULATION PROCEDURE FOR EXHAUST DUCT	(10-01Month From signing contract)	R			
		(Q-00165)							
9		CG-54723	R01	M501F GAS TURBINE G/T AND G/T GENERATOR	(11-07-01)	001 :11-20-01 DG-0177	011 :12-27-01 DG-0232		
		(Q-00200)		ARRANGEMENT OF TEMPLATE (1/5)			1 :01-25-02 TR-00333		

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7—NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7710

Q O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
10		(Q-00215)		RECORD SHEETS FOR GAS TURBINE	10.0 Month from signing contract	R			
11		(Q-00225)		ERECTION PROCEDURE FOR GT INLET DUCT	8.0 Month from signing contract	R			
12		CG-54828 (Q-00230)	R00	M501F GAS TURBINE ERECTION PROCEDURE	(03-25-02)	001 :02-04-02 DG-0252			
13		(Q-00235)		ERECTION PROCEDURE FOR EXHAUST DUCT	13.0 Month from signing contract	R			
14		(Q-00245)		INSULATION INSTRUCTION FOR GAS TURBINE	10.0 Month from signing contract	R			
15		(Q-00260)		LUBE OIL LINE FLUSHING PROCEDURE FOR GT SYSTEM	10.0 Month from signing contract	R			
16		(Q-00265)		CONTROL OIL LINE FLUSHING PROCEDURE FOR GT SYSTEM	10.0 Month from signing contract	R			
17		CG-54728 (Q-00400)	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (1/8)	(11-15-01)	001 :11-20-01 DG-0177			
18		(Q-00425)		LUBE OIL LINE FLUSHING FOR ST SYSTEM	10.0 Month from signing contract	R			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7710

EQ NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
19		(Q-00430)		CONTROL OIL LINE FLUSHING FOR ST SYSTEM	[redacted]	R			
20		(Q-00440)		ERECTION PROCEDURE FOR STEAM TURBINE	[redacted]	R			
21		(Q-00485)		INSULATION PROCEDURE FOR STEAM TURBINE	[redacted]	R			
22		(Q-00800)		GT & ST GENERATOR ERECTION PROCEDURE	[redacted]	R			
23		(Q-00805)		GT & ST GENERATOR SEAL OIL FLUSHING PROCEDURE	[redacted]	R			
24		CG-54724	R01	M501F GAS TURBINE G/T AND G/T GENERATOR ARRANGEMENT OF TEMPLATE (2/5)	(11-15-01)	001 :11-20-01 DG-0177	011 :12-27-01 DG-0232 1 :01-25-02 TR-00333		
25		CG-54725	R01	M501F GAS TURBINE G/T AND G/T GENERATOR ARRANGEMENT OF TEMPLATE (3/5)	(11-15-01)	001 :11-20-01 DG-0177	011 :12-27-01 DG-0232 1 :01-25-02 TR-00333		
26		CG-54726	R01	M501F GAS TURBINE G/T AND G/T GENERATOR ARRANGEMENT OF TEMPLATE (4/5)	(11-15-01)	001 :11-20-01 DG-0177	011 :12-27-01 DG-0232 1 :01-25-02 TR-00333		
27		CG-54727	R01	M501F GAS TURBINE G/T AND G/T GENERATOR ARRANGEMENT OF TEMPLATE (5/5)	(11-15-01)	001 :11-20-01 DG-0177	011 :12-27-01 DG-0232 1 :01-25-02 TR-00333		

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7710

Q O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
18		CG-54729	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (2/8)	(11-15-01)	001 :11-20-01 DG-0177			
19		CG-54730	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (3/8)	(11-15-01)	001 :11-20-01 DG-0177			
10		CG-54731	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (4/8)	(11-15-01)	001 :11-20-01 DG-0177			
1		CG-54732	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (5/8)	(11-15-01)	001 :11-20-01 DG-0177			
2		CG-54733	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (6/8)	(11-15-01)	001 :11-20-01 DG-0177			
3		CG-54734	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (7/8)	(11-15-01)	001 :11-20-01 DG-0177			
4		CG-54735	R00	S/T AND S/T GENERATOR ARRANGEMENT OF TEM PLATE (8/8)	(11-15-01)	001 :11-20-01 DG-0177			
5									
6									

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7750

Q O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		CF-56294 (N-01230)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTI NG & FIRE FIGHTING SYSTEM FOR FG-RACK	(02-28-02)	001 :03-20-02			
2	*	CF-56230 (N-00010)	R01	ERECTION MANUAL OF INSTRUMENT WORK	(09-26-01) 02-07-02	00A :07-03-01 DG-0052	01RA:12-07-01 DG-0215		
							1 :01-24-02 TR-00319		
3	*	CF-56231 (N-00020)	R02	SPECIFICATION OF INSTRUMENT CABLE (INSID E OF GT&ST PACKAGE)	(09-26-01)	00A :08-24-01 DG-0078	01RA:10-31-01 DG-0150	02F :12-17-01 DG-0222	
						6 :09-17-01 TR-00106	6 :11-21-01 TR-00198	1 :01-15-02 TR-00290	
4	*	CF-56236 (N-00070)	R01	OUTLINE OF LOCAL INSTRUMENT RACK & STANC HION FOR GT	(11-15-01)	001 :11-15-01 DG-0168	011 :02-18-02 DG-0260		
						1 :12-20-01 TR-00275	--		
5	*	CF-56237 (N-00080)	R01	OUTLINE OF TERMINAL BOX FOR GT	(11-15-01)	001 :11-12-01 DG-0162	011 :02-18-02 DG-0260		
						1 :12-18-01 TR-00256			
6	*	CF-56238 (N-00090)	R00	HOOK-UP DRAWING FOR GT	(11-15-01)	001 :11-15-01 DG-0168			
						1 :12-20-01 TR-00275			
7	*	CF-56239 (N-00100)	R00	SUPPLY & CONTROL AIR TUBING DIAGRAM FOR GT	(11-30-01)	001 :11-20-01 DG-0181			
						1 :01-29-02 TR-00370			
8	*	CF-56240 (N-00110)	R00	CONDUIT DIAGRAM FOR GAS TURBINE INSTRUME NT	(01-26-02)	001 :12-26-01 DG-0231			
						1 :01-29-02 TR-00363			
9		CF-56291 (N-00120)	R00	CABLE LIST FOR GAS TURBINE	(01-31-02)	001 :01-30-02 DG-0246			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7750

Q'TY	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY-SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
10	*	CF-56242 (N-00130)	R00	ARRANGEMENT OF CONDUIT PIPING FOR AROUND GAS TURBINE	(01-26-02)	001 :02-18-02 DG-0261			
11		CF-56292 (N-00210)	R00	ARRANGEMENT OF INSTRUMENT PIPING FOR AROUND GAS TURBINE	(02-23-02)	001 :02-26-02 DG-0267			
12		CF-56260 (N-00310)	R00	ARRANGEMENT OF CONDUIT PIPING FOR A-RACK	(01-26-02)	001 :01-31-02 DG-0247			
13		CF-56264 (N-00350)	R00	ARRANGEMENT OF INSTRUMENT PIPING FOR A-RACK	(01-26-02)	001 :01-31-02 DG-0247			
14		CF-56266 (N-00370)	R01	ARRANGEMENT OF CONDUIT PIPING FOR STARTING UNIT	(01-26-02)	001 :01-31-02 DG-0247	011 :03-22-02 DG-0297		
15		CF-56270 (N-00410)	R01	ARRANGEMENT OF INSTRUMENT PIPING FOR STARTING UNIT	(01-26-02)	001 :01-31-02 DG-0247	011 :04-09-02 DG-0307		
16		CF-56274 (N-00450)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTING & FIRE FIGHTING SYSTEM FOR GAS TURBIN	(01-26-02)	001 :03-06-02 DG-0277			
17		CF-56279 (N-00500)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTING & FIRE FIGHTING SYSTEM FOR B-RACK	(01-26-02)	001 :03-19-02 DG-0293			
18		CF-56283 (N-00540)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTING & FIRE FIGHTING SYSTEM FOR A-RACK	(01-26-02)	001 :03-18-02 DG-0292			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7750

NO	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
19		CF-56287 (N-00580)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTI NG & FIRE FIGHTING SYSTEM FOR STARTING U	(01-26-02)	001 :03-11-02 DG-0281			
20		CF-56309 (N-00800)	R00	OUTLINE OF TERMINAL BOX FOR ST	(01-26-02)	001 :11-30-01 DG-0204 1 :01-28-02 TR-00355			
21	*	CF-56311 (N-00820)	R00	SUPPLY & CONTROL AIR TUBING DIAGRAM FOR ST	(01-26-02)	001 :12-26-01 DG-0231 1 :01-29-02 TR-00363			
22		CF-56317 (N-00830)	R00	CABLE LIST FOR STEAM TURBINE	(02-28-02)	001 :02-01-02 DG-0251			
23		CF-56318 (N-00842)	R00	CONDUIT DIAGRAM FOR STEAM TURBINE INSTRU MENT	(02-28-02)	001 :02-26-02 DG-0267			
24		CF-56314 (N-00850)	R00	APR. OF CABLE DUCT & CONDUIT FOR ST INTER NAL	(03-26-02)	001 :02-01-02 DG-0251			
25	*	CF-56293 (N-01200)	R00	ARRANGEMENT OF CONDUIT PIPING FOR FG-RAC K	(01-25-02)	001 :01-31-02 DG-0247			
26		CF-56294 (N-01230)	R00	ARRANGEMENT OF CONDUIT PIPING FOR LIGHTI NG & FIRE FIGHTING SYSTEM FOR FG-RACK	(02-28-02)	001 :03-20-02 DG-0294			
27		CF-56295 (N-01290)	R00	ARRANGEMENT OF INSTRUMENT PIPING FOR FG- RACK	(01-25-02)	001 :01-31-02 DG-0247			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

SECTION -CODE 7750

:DER | ORDER-NAME TENASKA #1

CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
	CF-56296 (N-01350)	R00	ARRANGEMENT OF CONDUIT PIPING FOR AROUND EXHAUST GAS DUCT	(02-09-02)	001 :01-30-02 DG-0244			
	CF-56297 (N-01690)	R00	ARRANGEMENT OF SENSOR CABLE FOR DYNAMIC PRESS. MONITORING SYSTEM (FOR THE COMBUST	(02-16-02)	001 :02-21-02 DG-0264			

:LASS>
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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

RDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7760

CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
	CB-12856 (L-00101)	R00	DESIGN NOTE FOR T/G FOUNDATION	(02-27-01)	001 :02-27-01 / 1 :08-06-01 TR-00056			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

ORDER		ORDER-NAME	TENASKA #1	SECTION --CODE	73A0

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1	*	32-32269 (H-16020)	R00	OUTLINE DRAWING OF LUBE OIL COOLER FOR S /T	(05-26-01)	00A :05-29-01 DG-0029			
2		32-32299 (H-16030)	R03	OUTLINE DRAWING OF THREE WAY VALVE FOR S /T LUBE OIL COOLER	(05-18-01) 02-11-02	00A :05-29-01 DG-0029	01A :09-05-01 DG-0087	02A :09-26-01 DG-0107 6 :10-29-01 TR-00146	03RA:11-13-01 DG-0165 1 :01-28-02 TR-00356
3		32-32431 (H-16040)	R00	PIPING ASSEMBLY DRAWING OF LUBE OIL COOLER FOR S/T	(08-31-01) 11-12-01	00A :09-18-01 DG-0099 1 :10-29-01 TR-00147			
4	*	32-32292 (H-19020)	R01	OUTLINE DRAWING OF GLAND STEAM CONDENSER	(07-20-01) 02-11-02	00A :07-06-01 DG-0054	01RA:10-31-01 DG-0152 1 :01-28-02 TR-00352		
5	*	32-32426 (H-19050)	R00	OUTLINE DRAWING OF GLAND STEAM CONDENSER EXHAUST FAN	(07-20-01)	00A :08-28-01 DG-0082			
6	*	32-32270 (H-80020)	R00	OUTLINE DRAWING OF TURBINE COOLING AIR COOLER WITH FUEL GAS HEATER	(05-18-01)	00A :05-29-01 DG-0029			
7	*	32-32271 (H-80130)	R00	OUTLINE DRAWING OF LUBE OIL COOLER FOR G /T	(05-18-01)	00A :05-29-01 DG-0029			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

RDER | ORDER-NAME TENASKA #1 | SECTION -CODE 7T30

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
1		T0-A4203 (T-01A01-01A)	R03	420,000KW STEAM TURBINE STEAM TURBINE & GENERATOR OUTLINE	(06-26-01)	00A :04-23-01 DG-0009	01A :11-13-01 DG-0164	02F :03-20-02 DG-0295	03I :04-22-02 DG-0309
							1 :01-15-02 TR-00295		
2		T4-A5835 (T-01A01-043)	R00	MAINTENANCE NOTES INCLUDING MAIN COMPONE NT DIMENSION AND WEIGHT FOR LAY DOWN (FO	(05-31-01)	00I :06-04-01 DG-0031			
						1 :07-18-01 TR-00031			
3		T0-A4206 (T-01A01-066)	R03	420,000KW STEAM TURBINE TERMINAL POINTS OF STEAM TURBINE PIPING 1/2	(06-12-01)	00A :06-13-01 DG-0036	01I :09-17-01 DG-0098	02I :12-05-01 DG-0209	03I :04-05-02 DG-0302
							1 :10-24-01 TR-00143	1 :01-23-02 TR-00307	
4		T0-A4207 (T-01A01-066)	R03	420,000KW STEAM TURBINE TERMINAL POINTS OF STEAM TURBINE PIPING 2/2	(06-26-01)	00A :06-13-01 DG-0036	01I :09-17-01 DG-0098	02I :12-05-01 DG-0209	03I :04-05-02 DG-0302
							6 :10-24-01 TR-00143	1 :01-23-02 TR-00307	
5		T0-A4215 (T-01A02-01A)	R00	STEAM TURBINE LONGITUDINAL SECTION	(02-26-02)	00I :12-21-01 DG-0230			
						1 :01-23-02 TR-00313			
6		T0-A4226 (T-01A03-02A)	R00	STEAM TURBINE HIP TURBINE ROTOR CLEARANC E TABLE 1/2	(04-26-02)	00I :02-21-02 DG-0263			
7		T0-A4227 (T-01A03-02A)	R00	STEAM TURBINE HIP TURBINE ROTOR CLEARANC E TABLE 2/2	(02-19-02)	00I :02-26-02 DG-0268			
8		T4-A5961 (T-01A03-03A)	R00	HIP, LP TURBINE RADIAL CLEARANCE TABLE	(04-26-02)	00I :03-08-02 DG-0280			
9		T1-A3862 (T-01A03-153)	R00	STEAM TURBINE AND GENERATOR BEARING ALIG NMENT	(09-05-01)	00I :09-07-01 DG-0092			
						1 :10-03-01			

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CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

RDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7T30

	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
0		T0-A4842	R01	STEAM TURBINE LP TURBINE ROTOR CLEARANCE	(02-25-02)	001 :02-26-02 DG-0268	011 :04-09-02 DG-0306		
		(T-03A03-02A)		TABLE 1/2					
1		T0-A4843	R01	STEAM TURBINE LP TURBINE ROTOR CLEARANCE	(03-25-02)	001 :03-12-02 DG-0282	011 :04-09-02 DG-0306		
		(T-03A03-02A)		TABLE 2/2					
2		T1-M4307	R02	STEAM TURBINE RSV&ICV OUTLINE	(10-01-01)	001 :10-04-01 DG-0118	011 :10-12-01 DG-0128	021 :12-28-01 DG-0233	
		(T-06M01-01A)				7 :11-21-01 TR-00203	6 :11-21-01 TR-00199	1 :01-28-02 TR-00342	
3		T2-M4655	R00	RSV ATTACHMENT PARTS FOR BLOW DOWN	(04-04-02)	001 :04-05-02 DG-0303			
		(T-06M04-01A)							
4		T1-M4312	R02	RSV BALANCE VALVE CONTROL DIAGRAM	(10-02-01)	011 :10-18-01 DG-0132	021 :11-21-01 DG-0183		
		(T-06M23-041)				1 :11-26-01 TR-00218	1 :01-23-02 TR-00302		
5		T1-R5449	R02	STEAM TURBINE HPSV&HPCV OUTLINE	(10-01-01)	001 :10-04-01 DG-0118	011 :10-12-01 DG-0128	021 :12-28-01 DG-0233	
		(T-06R05-01A)				7 :11-21-01 TR-00203	6 :11-21-01 TR-00199	1 :01-28-02 TR-00342	
6		T1-R5454	R02	STEAM TURBINE LPSV&LPCV OUTLINE	(10-01-01)	001 :10-04-01 DG-0118	011 :03-12-02 DG-0288	021 :04-03-02 DG-0300	
		(T-06R06-01A)				1 :11-21-01 TR-00203			
17		T1-R5521	R00	HPSV, LPSV&CV ATTACHMENT PARTS FOR BLOW D	(04-04-02)	001 :04-05-02 DG-0303			
		(T-06R26-01A)		OWN					
18		T0-N3914	R02	STEAM TURBINE MAIN OIL TANK OUTLINE	(09-26-01)	00A :04-20-01 DG-0008	01RA:07-26-01 DG-0061	021 :10-26-01 DG-0144	
		(T-07N01-01A)					6 :12-13-01 TR-00233	1 :12-18-01 TR-00263	

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9		T4-N5611	R00	MAIN OIL TANK ELECTRICAL HEATER	(10-02-01)	001 :10-04-01 DG-0115			
		(T-07N02-30Y)				1 :10-29-01 TR-00167			
0		T4-N5645	R00	CONTROL OIL PUMP	(01-26-02)	001 :08-28-01 DG-0080			
		(T-07N04-01Y)							
1		T4-N5647	R00	EMERGENCY OIL PUMP	(01-26-02)	001 :08-28-01 DG-0080			
		(T-07N04-05Y)							
2		T4-N5646	R00	TURNING OIL PUMP	(08-27-01)	001 :08-28-01 DG-0080			
		(T-07N04-07Y)							
3		T4-N5648	R00	MAIN OIL TANK VAPOR EXTRACTOR	(01-26-02)	001 :10-02-01 DG-0112			
		(T-07N06-03Y)				1 :11-19-01 TR-00171			
4		T4-N5614	R01	STEAM TURBINE OIL PURIFIER	(10-30-01)	001 :10-31-01 DG-0151	011 :01-28-02 DG-0243		
		(T-07N08-02Y)				1 :12-19-01 TR-00273			
5		T1-N6252	R02	STEAM TURBINE LUBE OIL PURIFICATION SYST	(07-26-01)	00A :05-02-01 DG-0011	01A :11-13-01 DG-0164	021 :12-18-01 DG-0226	
		(T-07N10-011)		EM DIAGRAM			1 :01-15-01 TR-00295	1 :01-29-02 TR-00371	
26		T1-N6289	R01	STEAM TURBINE OIL PIPING ASS'Y AROUND MA	(10-18-01)	001 :10-19-01 DG-0137	011 :12-18-01 DG-0226		
		(T-07N10-02A)		IN OIL TANK 1/2		1 :11-26-01 TR-00214	1 :01-29-02 TR-00371		
27		T1-N6290	R00	STEAM TURBINE OIL PIPING ASS'Y AROUND MA	(10-18-01)	001 :10-19-01 DG-0137			
		(T-07N10-02A)		IN OIL TANK 2/2		1 :11-26-01 TR-00214			

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(04-24-02)

SECTION -CODE: 7T30

DER | ORDER-NAME: TENASKA #1

CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
	T4-N5662 (T-07N10-04Y)	R01	STEAM TURBINE LUBE OIL FILTER	(10-31-01)	001 :11-01-01 DG-0153 1 :01-28-02 TR-00350	011 :11-29-01 DG-0195 1 :01-28-02 TR-00351		
	T0-P3388 (T-07P01-02)	R02	STEAM TURBINE EH FLUID PIPING ASSEMBLY 1 /5	(07-27-01)	001 :08-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :01-19-02 TR-00271	021 :03-12-02 DG-0287	
	T1-P4713 (T-07P01-02A)	R02	STEAM TURBINE EH FLUID PIPING ASSEMBLY 2 /5	(07-27-01)	001 :08-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	
	T1-P4714 (T-07P01-02A)	R02	STEAM TURBINE EH FLUID PIPING ASSEMBLY 3 /5	(07-27-01)	001 :08-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	
	T1-P4715 (T-07P01-02A)	R02	STEAM TURBINE EH FLUID PIPING ASSEMBLY 4 /5	(01-26-02)	001 :08-01-01 DG-0065 6 :09-18-01 -	011 :10-30-01 DG-0148 1 :12-19-01 TR-00271	021 :03-12-02 DG-0287	
	T1-P4782 (T-07P01-02A)	R00	STEAM TURBINE EH FLUID PIPING ASSEMBLY 5 /5	(07-27-01)	001 :10-30-01 DG-0148 1 :12-19-01 TR-00271			
	T0-U4532 (T-07U01-45A)	R02	STEAM TURBINE OIL DRAIN GUARD PIPING ASS 'Y 1/2	(05-07-01)	00R :05-10-01 DG-0016	011 :09-03-01 DG-0083 1 :10-03-01 -	021 :03-20-02 DG-0296	
	T1-U6659 (T-07U01-45A)	R01	STEAM TURBINE OIL DRAIN GUARD PIPING ASS 'Y 2/2	(05-07-01)	00R :05-10-01 DG-0016	011 :09-03-01 DG-0083 1 :10-03-01 -		
	T1-U6711 (T-07U01-70A)	R01	S/T AND GENERATOR OIL PIPING ASSEMBLY 1/ 2	(09-07-01)	001 :09-11-01 DG-0095 1 :10-03-01 -	011 :12-18-01 DG-0225 1 :01-23-02 TR-00311		

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(04-24-02)

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	T1-U6712	R01	S/T AND GENERATOR OIL PIPING ASSEMBLY 2/	(01-26-02)	001 :09-11-01 DG-0095	011 :12-18-01 DG-0225		
	(T-07U01-70A)		2		1 :10-03-01 -	1 :01-23-02 TR-00311		
	T4-U4612	R01	STEAM TURBINE VALVE LIST (FOR OIL PIPING	(10-22-01)	001 :10-23-01 DG-0140	011 :12-18-01 DG-0225		
	(T-07U08-012)		)		6 :11-21-01 TR-00186	1 :01-23-02 TR-00311		
	T1-S5881	R03	STEAM TURBINE GLAND STEAM AND DRAIN PIPI	(03-26-01)	00A :04-18-01 DG-0005	01A :10-19-01 DG-0138	02A :11-08-01 DG-0159	02A :11-08-01 DG-0159
	(T-08S01-011)		NG DIAGRAM 1/3			1 :11-20-01 TR-00190	1 :01-23-02 TR-00305	1 :01-23-02 TR-00308
					03F :03-20-02 DG-0295			
	T1-S5882	R04	STEAM TURBINE GLAND STEAM AND DRAIN PIPI	(03-26-01)	00A :04-18-01 DG-0005	01A :10-19-01 DG-0138	02A :11-08-01 DG-0159	02A :11-08-01 DG-0159
	(T-08S01-011)		NG DIAGRAM 2/3		6	6 :11-20-01 TR-00190	1 :01-23-02 TR-00305	1 :01-23-02 TR-00308
					03F :03-20-02 DG-0295	04RA:04-03-02 DG-0299		
	T1-S5883	R04	STEAM TURBINE GLAND STEAM AND DRAIN PIPI	(03-26-01)	00A :04-18-01 DG-0005	01A :10-19-01 DG-0138	02A :11-08-01 DG-0159	02A :11-08-01 DG-0159
	(T-08S01-011)		NG DIAGRAM 3/3		6 :11-21-01 TR-00206	6 :11-20-01 TR-00190	1 :01-23-02 TR-00305	1 :01-23-02 TR-00308
					03RA:12-12-01 DG-0218	04RA:04-03-02 DG-0299		
2	T1-S6021	R00	420,000KW STEAM TURBINE PRINCIPAL STEAM	(11-13-01)	001 :11-14-01 DG-0166			
	(T-08S01-02A)		PRESSURE PIPING ASS'Y		1 :12-18-01 TR-00264			

DECLASSIFIED

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ORDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7T30

Q'O	CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE / APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
13		T1-S5876	R01	420,000KW STEAM TURBINE STEAM TURBINE PI	(07-31-01)	001 :08-23-01 DG-0077	011 :12-05-01 DG-0210		
		(T-08S01-26P)		PING FOR VACUUM BREAKER VALVE		6 :09-17-01 TR-00114	1 :01-28-02 TR-00341		
44		T1-S5888	R01	STEAM TURBINE HP STEAM INLET PIPING ASS'	(07-27-01)	001 :07-31-01 DG-0063	011 :12-05-01 DG-0210		
		(T-08S02-01A)		Y		6 :12-13-01 TR-00235	1 :01-28-02 TR-00341		
45		T1-S5890	R01	STEAM TURBINE LP STEAM INLET PIPING ASS'	(07-27-01)	001 :07-31-01 DG-0063	011 :12-05-01 DG-0210		
		(T-08S02-11A)		Y		6 :12-13-01 TR-00235	1 :01-28-02 TR-00341		
46		T1-S5889	R02	STEAM TURBINE HOT REHEAT STEAM INLET PIP	(07-27-01)	001 :07-31-01 DG-0063	011 :12-05-01 DG-0210	021 :02-08-02 DG-0257	
		(T-08S03-01A)		ING ASS'Y		6 :12-13-01 TR-00235	1 :01-28-02 TR-00341		
47		T0-S4529	R02	420,000KW STEAM TURBINE CROSS OVER PIPIN	(10-02-01)	001 :10-04-01 DG-0114	011 :12-05-01 DG-0209	021 :02-07-02 DG-0256	
		(T-08S05-01A)		G ASS'Y		1 :11-26-01 TR-00215	1 :01-23-02 TR-00307		
48		T4-S4454	R01	STEAM TURBINE VALVE LIST (FOR STEAM PIPI	(11-01-01)	001 :11-05-01 DG-0154	011 :12-04-01 DG-0208		
		(T-08S10-012)		NG)		1 :11-20-01 TR-00189	1 :01-28-02 TR-00353		
49		T4-S4470	R00	STEAM TURBINE VENTILATOR VALVE (VALVE NO	(10-24-01)	001 :11-20-01 DG-0180			
		(T-08S10-01Y)		.:0ALBC01AA101)		1 :01-24-02 TR-00324			
50		T4-S4471	R02	STEAM TURBINE VACUUM BREAKER VALVE (VALV	(10-24-01)	001 :10-25-01 DG-0143	011 :11-22-01 DG-0187	021 :12-03-01 DG-0207	
		(T-08S10-01Y)		E NO.:0AMAC11AA901)		1 :11-20-01 TR-00188	1 :01-29-02 TR-00357	1 :01-25-02 TR-00334	
51		T1-V4623	R01	STEAM TURBINE ENCLOSURE ASS'Y 1/2	(09-03-01)	001 :09-04-01 DG-0086	011 :04-22-02 DG-0309		
		(T-10V01-01A)				1 :10-03-01 -			

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(04-24-02)

ORDER | ORDER-NAME: TENASKA #1 | SECTION-CODE: 7T30

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	T1-V4624	R01	STEAM TURBINE ENCLOSURE ASS'Y 2/2	(11-26-01)	001 :09-04-01 DG-0086	011 :04-22-02 DG-0309		
	(T-10V01-01A)				1 :10-03-01			
	T2-V4871	R00	STEAM TURBINE NAME PLATE	(01-07-02)	001 :01-09-02 DG-0235			
	(T-10V01-21D)				1 :01-23-02 TR-00306			
	T4-V4466	R01	STEAM TURBINE SPECIFICATION OF INSULATIO	(11-26-01)	001 :11-28-01 DG-0191	011 :03-04-02 DG-0275		
	(T-10V03-013)		N FOR PIPING AND EQUIPMENT					
	T1-Y4422	R00	OUTLINE OF T/G FOUNDATION DECK	(06-26-01)	00A :04-23-01 DG-0009			
	(T-10Y01-019)							
	T1-Y4439	R00	FOUNDATION OUTLINE OF EH OIL UNIT	(05-08-01)	001 :05-10-01 DG-0015			
	(T-10Y01-01A)							
	T1-Y4423	R01	STEAM TURBINE AND GENERATOR LOADS ON FOU	(06-12-01)	00A :04-23-01 DG-0009	011 :09-03-01 DG-0084		
	(T-10Y01-112)		NDATION					
	T1-Y4440	R00	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FO	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-05A)		R T/G FOUNDATION 1/3					
	T1-Y4441	R00	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FO	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-05A)		R T/G FOUNDATION 2/3					
	T1-Y4442	R01	ARRANGEMENT OF MAJOR EMBEDDED MEMBERS FO	(10-26-01)	001 :06-29-01 DG-0048	011 :04-05-02 DG-0304		
	(T-10Y02-05A)		R T/G FOUNDATION 3/3					

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(04-24-02)

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1		T1-Y4443 (T-10Y02-10A)	R00	S/T T/G FOUNDATION PIPING SUPPORT BACKIN G PLATE 1/5	(06-28-01)	001 :06-29-01 DG-0048			
2		T1-Y4444 (T-10Y02-10A)	R00	S/T T/G FOUNDATION PIPING SUPPORT BACKIN G PLATE 2/5	(06-28-01)	001 :06-29-01 DG-0048			
3		T1-Y4445 (T-10Y02-10A)	R00	S/T T/G FOUNDATION PIPING SUPPORT BACKIN G PLATE 3/5	(06-28-01)	001 :06-29-01 DG-0048			
4		T1-Y4446 (T-10Y02-10A)	R00	S/T T/G FOUNDATION PIPING SUPPORT BACKIN G PLATE 4/5	(06-28-01)	001 :06-29-01 DG-0048			
5		T1-Y4447 (T-10Y02-10A)	R00	S/T T/G FOUNDATION PIPING SUPPORT BACKIN G PLATE 5/5	(06-28-01)	001 :06-29-01 DG-0048			
6		T1-Y4448 (T-10Y02-23A)	R01	S/T ARRANGEMENT OF TRANSVERSE & AXIAL AN CHORS 1/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 1 :01-29-02 TR-00371		
7		T1-Y4449 (T-10Y02-23A)	R01	S/T ARRANGEMENT OF TRANSVERSE & AXIAL AN CHORS 2/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 1 :01-29-02 TR-00371		
8		T1-Y4450 (T-10Y02-23A)	R01	S/T ARRANGEMENT OF TRANSVERSE & AXIAL AN CHORS 3/4	(06-05-01)	001 :06-06-01 DG-0033	011 :12-18-01 DG-0226 1 :01-29-02 TR-00371		
9		T1-Y4451 (T-10Y02-23A)	R00	S/T ARRANGEMENT OF TRANSVERSE & AXIAL AN CHORS 4/4	(06-05-01)	001 :06-06-01 DG-0033			

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(04-24-02)

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	T1-Y4452	R00	STEAM TURBINE GROUTING AREA FOR T/G FOUN	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-31A)		DATION 1/2					
	T1-Y4453	R00	STEAM TURBINE GROUTING AREA FOR T/G FOUN	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-31A)		DATION 2/2					
	T1-Y4454	R00	STEAM TURBINE T/G FOUNDATION GROUT RETAI	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-34A)		NERS 1/2					
	T1-Y4455	R00	STEAM TURBINE T/G FOUNDATION GROUT RETAI	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-34A)		NERS 2/2					
	T1-Y4456	R00	STEAM TURBINE T/G FOUNDATION ENCLOSURE S	(09-03-01)	001 :09-06-01 DG-0088			
	(T-10Y02-37D)		UPPORT 1/3	10-17-01	6 :10-03-01 _			
	T1-Y4457	R00	STEAM TURBINE T/G FOUNDATION ENCLOSURE S	(09-03-01)	001 :09-06-01 DG-0088			
	(T-10Y02-37D)		UPPORT 2/3		1 :10-03-01 _			
	T1-Y4458	R00	STEAM TURBINE T/G FOUNDATION ENCLOSURE S	(09-03-01)	001 :09-06-01 DG-0088			
	(T-10Y02-37D)		UPPORT 3/3		1 :10-03-01 _			
	T1-Y4459	R02	ARRANGEMENT OF LEVELING PLATES FOR S/T F	(06-28-01)	001 :06-29-01 DG-0048	011 :09-11-01 DG-0093	021 :12-18-01 DG-0226	
	(T-10Y02-47D)		OUNDATION 1/2			6 :10-24-01 TR-00143	1 :01-29-02 TR-00371	
	T1-Y4460	R00	ARRANGEMENT OF LEVELING PLATES FOR S/T F	(06-28-01)	001 :06-29-01 DG-0048			
	(T-10Y02-47D)		OUNDATION 2/2					

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9		T2-Y3633 (T-10Y03-20D)	R00	STEAM TURBINE FOUNDATION OF MAIN OIL TAN K	(06-19-01)	001 :06-20-01 DG-0041			
0		T2-Y3634 (T-10Y03-20D)	R00	STEAM TURBINE FOUNDATION OF OIL PURIFIER UNIT	(06-19-01)	001 :06-20-01 DG-0041			
1		T2-Y3635 (T-10Y03-20D)	R00	STEAM TURBINE FOUNDATION OF LUBE OIL STR AINER	(06-19-01)	001 :06-20-01 DG-0041			
2		T1-E7898 (T-13E04-01AB)	R01	STEAM TURBINE EMERGENCY TRIP PANEL ASS'Y 1/2	(11-13-01)	001 :11-14-01 DG-0167 1 :12-18-01 TR-00269	011 :01-28-02 DG-0242		
3		T1-E7899 (T-13E04-01AB)	R01	STEAM TURBINE EMERGENCY TRIP PANEL ASS'Y 2/2	(11-13-01)	001 :11-14-01 DG-0167 1 :12-18-01 TR-00269	011 :01-28-02 DG-0242		
4		T1-E7769 (T-13E05-01AB)	R03	STEAM TURBINE PROTECTIVE DEVICE PANEL AS S'Y 1/2	(09-03-01)	001 :09-06-01 DG-0089 1 :10-03-01 -	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :11-08-01 DG-0158 1 :01-23-02 TR-00314	031 :01-28-02 DG-0242
5		T1-E7770 (T-13E05-01AB)	R04	STEAM TURBINE PROTECTIVE DEVICE PANEL AS S'Y 2/2	(09-03-01)	001 :09-06-01 DG-0089 1 :10-03-01 -	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :11-08-01 DG-0158 1 :01-23-02 TR-00314	031 :12-05-01 DG-0213 1 :01-23-02 TR-00309
						041 :01-28-02 DG-0242			
		T1-E7771 (T-13E06-01AB)	R03	STEAM TURBINE OIL PUMP AUTO START PANEL ASS'Y 1/2	(09-03-01)	001 :09-06-01 DG-0089 1 :10-03-01 -	011 :10-30-01 DG-0149 1 :01-14-02 TR-00287	021 :11-08-01 DG-0158 1 :01-23-02 TR-00314	031 :01-28-02 DG-0242

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37		T1-E7772	R01	STEAM TURBINE OIL PUMP AUTO START PANEL	(09-03-01)	001 :09-06-01 DG-0089	011 :10-30-01 DG-0149		
		(T-13E06-01AB)		ASS'Y 2/2		1 :10-03-01 -	1 :01-14-02 TR-00287		
38		T1-E7844	R02	STEAM TURBINE PROTECTIVE DEVICE RACK CON	(10-17-01)	011 :11-20-01 DG-0179	021 :12-18-01 DG-0226		
		(T-13E06-14P)		NECTION PIPING		1 :01-28-02 TR-00343	1 :01-29-02 TR-00371		
39		T1-E7845	R01	STEAM TURBINE OIL PUMP AUTO START RACK C	(10-17-01)	011 :12-18-01 DG-0226			
		(T-13E06-14P)		ONNECTION PIPING		1 :01-29-02 TR-00371			
90		T1-E7789	R04	STEAM TURBINE MAIN OIL TANK INSTRUMENT B	(09-03-01)	001 :09-06-01 DG-0089	011 :10-30-01 DG-0149	021 :11-08-01 DG-0158	031 :12-05-01 DG-0213
		(T-13E07-01AB)		OARD ASS'Y		1 :10-03-01 -	1 :01-14-02 TR-00287	1 :01-23-02 TR-00314	1 :01-23-02 TR-00309
						041 :01-28-02 DG-0242			
91		T1-E7831	R02	S/T GAUGE PIPING FOR LUBE OIL FILTER DIF	(09-20-01)	001 :09-25-01 DG-0105	021 :11-15-01 DG-0169		
		(T-13E07-14P)		F. PRESS.		1 :11-26-01 TR-00217	1 :12-18-01 TR-00266		
92		T1-E7841	R00	STEAM TURBINE PIPING OF AROUND HP PEDEST	(11-27-01)	001 :11-29-01 DG-0196			
		(T-13E09-02A)		AL 1/3		1 :01-23-02 TR-00304			
93		T1-E7842	R00	STEAM TURBINE PIPING OF AROUND HP PEDEST	(11-27-01)	001 :11-29-01 DG-0196			
		(T-13E09-02A)		AL 2/3		1 :01-23-02 TR-00304			
94		T1-E7843	R00	STEAM TURBINE PIPING OF AROUND HP PEDEST	(11-27-01)	001 :11-29-01 DG-0196			
		(T-13E09-02A)		AL 3/3		1 :01-23-02 TR-00304			

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5		T1-E7808 (T-13E11-083)	R01	LOCATION OF TEMPERATURE INSTRUMENTS FOR S/T	(09-05-01)	001 :09-07-01 DG-0091 6 :10-03-01 -	011 :01-22-02 DG-0240		
6		T1-E7809 (T-13E11-09D)	R01	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S 1/2 (NO.1-4 BRG. & THRUST BRG. OF S/T)	(09-10-01)	001 :09-11-01 DG-0095 1 :10-03-01 -	011 :01-22-02 DG-0240		
7		T1-E7810 (T-13E11-09D)	R00	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S 2/2 (NO.1-4 BRG.& THRUST BRG.OF S/T)	(09-10-01)	001 :09-11-01 DG-0095 1 :10-03-01 -			
8		T1-E7811 (T-13E11-09D)	R01	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S (AROUND STEAM TURBINE) 1/4	(09-10-01)	001 :09-11-01 DG-0093 1 :10-24-01 TR-00143	011 :01-22-02 DG-0240		
9		T1-E7812 (T-13E11-09D)	R00	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S (AROUND STEAM TURBINE) 2/4	(09-10-01)	001 :09-11-01 DG-0093 1 :10-24-01 TR-00143			
10		T1-E7813 (T-13E11-09D)	R00	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S (AROUND STEAM TURBINE) 3/4	(01-26-02)	001 :09-11-01 DG-0093 1 :10-24-01 TR-00143			
11		T1-E7814 (T-13E11-09D)	R00	MOUNTING ASS'Y OF TEMPERATURE INSTRUMENT S (AROUND STEAM TURBINE) 4/4	(01-26-02)	001 :09-11-01 DG-0093 1 :10-24-01 TR-00143			
12		T4-E4706 (T-13E12-012)	R01	STEAM TURBINE VALVE LIST (FOR TURBINE IN STRUMENTATION)	(10-22-01)	001 :10-23-01 DG-0140 6 :11-20-01 TR-00186	011 :12-18-01 DG-0225 1 :01-23-02 TR-00311		
13		T0-03890 (T-14G01-011)	R01	STEAM TURBINE CONTROL & LUBRICATION OIL SYSTEM DIAGRAM	(01-26-02) 12-03-01	00A :04-18-01 DG-0005	01RA:10-18-01 DG-0131 1 :11-19-01 TR-00177		

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04		T4-P4778	R00	EHC HYDRAULIC UNIT ASS'Y	(12-28-01)	00A :11-29-01 DG-0198			
		(T-14G40-11A)			02-07-02	1 :01-24-02 TR-00322			
05		T4-P4780	R00	NAME PLATE FOR EHC HYDRAULIC UNIT ASS'Y	(12-13-01)	00A :12-18-01 DG-0224			
		(T-14G40-20V)			01-29-02	1 :01-15-02 TR-00292			
06		T4-P4781	R00	NAME PLATE INSTALLING PROCEDURE FOR EHC	(02-08-02)	00A :01-31-02 DG-0248			
		(T-14G40-22V)		HYDRAULIC UNIT ASS'Y	03-05-02	1 :02-19-02 TEN-MPS-378			
07		T1-G6660	R00	DRAIN PIPING SUPPORT FOR ACTUATOR & OTHE	(03-06-02)	00R :03-07-02 DG-0279			
		(T-14G41-01V)		RS 1/2					
08		T2-G5020	R00	DRAIN PIPING SUPPORT FOR ACTUATOR & OTHE	(03-06-02)	00R :03-07-02 DG-0279			
		(T-14G41-01V)		RS 2/2					
09		T4-G4663	R00	NAME PLATE FOR CONTROL OIL SYSTEM ACTUAT	(11-30-01)	00A :11-16-01 DG-0171			
		(T-14G41-02V)		OR & SOLENOID BLOCK	12-17-01	1 :12-03-01 TR-00225			
10		T1-G6634	R00	NAME PLATE INSTALLING PROCEDURE FOR MAIN	(11-30-01)	00A :11-16-01 DG-0171			
		(T-14G41-03V)		VALVE ACTUATOR 1/2	12-17-01	1 :12-03-01 TR-00225			
11		T1-G6635	R00	NAME PLATE INSTALLING PROCEDURE FOR MAIN	(11-30-01)	00A :11-16-01 DG-0171			
		(T-14G41-03V)		VALVE ACTUATOR 2/2	12-17-01	1 :12-03-01 TR-00225			
12		T2-G5015	R01	NAME PLATE INSTALLING PROCEDURE FOR SOLE	(11-30-01)	01A :12-03-01 DG-0206			
		(T-14G41-06V)		NOID BLOCK		1 :12-14-01 TR-00242			

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3		T0-G3917	R01	HPSV ACTUATOR ARRANGEMENT	(10-15-01)	00R :10-09-01 DG-0121	01R :03-12-02 DG-0283		
		(T-14G42-91A)				1 :11-20-01 TR-00193			
4		T0-G3918	R00	HPCV ACTUATOR ARRANGEMENT	(10-15-01)	00R :10-09-01 DG-0123			
		(T-14G43-91A)				1 :11-20-01 TR-00194			
5		T0-G3919	R00	RSV ACTUATOR ARRANGEMENT	(10-15-01)	00R :10-09-01 DG-0121			
		(T-14G44-91A)				1 :11-20-01 TR-00193			
6		T0-G3920	R00	ICV ACTUATOR ARRANGEMENT	(10-15-01)	00R :10-09-01 DG-0123			
		(T-14G45-91A)				1 :11-20-01 TR-00194			
7		T0-G3922	R01	SOLENOID BLOCK ARRANGEMENT	(10-15-01)	00R :10-17-01 DG-0129	01R :03-12-02 DG-0283		
		(T-14G47-91A)				1 :11-20-01 TR-00192			
8		T0-G3921	R00	LP CONTROL BLOCK ARRANGEMENT	(10-01-01)	00R :10-12-01 DG-0127			
		(T-14G48-91A)				1 :11-20-01 TR-00195			
9		T1-G6613	R00	LPSV HYDRAULIC CYLINDER ARRANGEMENT	(10-01-01)	00R :10-04-01 DG-0113			
		(T-14G48-91A)				1 :11-20-01 TR-00191			
10		T1-G6614	R01	LPCV HYDRAULIC CYLINDER ARRANGEMENT	(10-01-01)	00R :10-04-01 DG-0113	01R :02-28-02 DG-0271		
		(T-14G49-91A)				1 :11-20-01 TR-00191			
11		T1-V4570	R00	ROTOR GROUNDING DEVICE	(07-26-01)	001 :05-17-01 DG-0018			
		(T-68V01-05B)							

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	T4-A5915	R00	HIGH SPEED BALANCING TEST PROCEDURE OF S	(12-26-01)	00A :10-26-01 DG-0145			
	(T-83A03-083)		TEAM TURBINE ROTOR	12-03-01	1 :11-19-01 TR-00179			

<CLASS>
A—APPROVAL DWG
F—FINAL DWG
I—INFORMATION DWG
RA—REAPPROVAL DWG
C—CONSTRUCTION DWG
R—REFERENCE DWG
Z—AS BUILT DWG

<STATUS>
1—APPROVED WITHOUT COMMENT
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3—NOT APPLICABLE
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7—NOT APPROVED

CUSTOMER APPROVAL DRAWING CONTROL LIST

(04-24-02)

RDER		ORDER-NAME	TENASKA #1	SECTION -CODE	7T50

CUSTOMER DRAWING-NO / CONSULTANT DRAWING-NO	MHI DRAWING-NO (PACODE)	REV	DRAWING-NAME	DELIVERY -SCHEDULE APPROVAL LIMIT	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)	REVISE:DATE LETTER-NO (SUBMISSION) / STATUS:DATE LETTER-NO (RETURN)
	G0-40261	R00	M501F GAS TURBINE LONGITUDINAL SECTION A	(01-08-02)	001 :01-10-02			
	(J-01A10-A0A)		SS'Y		DG-0236			
					1 :01-28-02			
					TR-00340			
	G1-34483	R01	M501F GAS TURBINE SPINDLE CLEARANCES (1/	(02-05-02)	001 :02-06-02	011 :04-12-02		
	(J-01A10-B00)		3)		DG-0254	DG-0308		
	G1-34484	R00	M501F GAS TURBINE SPINDLE CLEARANCES (2/	(02-05-02)	001 :02-06-02			
	(J-01A10-B00)		3)		DG-0254			
	G1-34485	R01	M501F GAS TURBINE SPINDLE CLEARANCES (3/	(02-05-02)	001 :02-06-02	011 :04-12-02		
	(J-01A10-B00)		3)		DG-0254	DG-0308		
	G2-07157	R00	M501F GAS TURBINE ROTOR ALIGNMENT	(01-24-02)	001 :01-25-02			
	(J-01A10-C00)				DG-0241			
	G4-00713	R00	TEST PROCEDURE FOR ROTOR HIGH SPEED BALA	(11-16-01)	001 :11-20-01			
	(J-02A10-B03)		NCE		DG-0178			
					1 :01-23-02			
					TR-00298			

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1		S4-B0004	R01	CO2 FIRE PROTECTION SYSTEM FOR G/T SPECI	(08-24-01)	001 :08-24-01 MPS/TEI-DGA-	011 :12-14-01 MPS/TEI-DGA-	021 :03-07-02 MPS/TEI-DGA-	
				FICATION & OUTLINE DRAWINGS	02-12-02		6 :01-29-02 TR/010229-		
2		S4-B0009	R00	CO2 FIRE PROTECTION SYS FOR G/T SPEC & O	(12-14-01)	001 :12-14-01 MPS/TEI-DGA-			
				UTLINE DWG		1 :01-29-02 TR/010229-			

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御注文元
PROJECT

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLADEGA GENERATING STATION

項　目
TITLE

DRAWING LIST (MELCO PORTION)

NO	DATE	DESCRIPTION
D	2002/4/23	Revised as lated. N.N. S.H
C	2002/4/15	Revised as lated. N.N. S.H
B	2002/2/19	Revised as per design progress. N.N. S.S. S.H
A	2001/4/17	Revised as per design progress. N.N. S.H

改 訂 REVISION

送 付 先 SEND TO

客先	TENASKA	D			(伊)系電	1	発品	1
					配電	1	発計設	1
					(徳)系電		TMA本社	1
					名電・新城	1	TMA中設	
MHI	原　技	-	MEPPI	1	タ設一	1	TMA大設	
	長　船	-			回連	1	海力営	1
	神　船	-			回品	1	(SH)	1
	高　製				回開発	1	(配電)	1
	広　船	-			調逐二		担 (輸出)	1
	MHI-A	1			(ﾊﾞ)電制技		合 計	14

MITSUBISHI ELECTRIC CORPORATION
POWER & INDUSTRIAL SYSTEMS CENTER
THERMAL POWER PLANT ENG. SECTION 1.

作　成 DRAWN	照　査 CHECKERD	課　長 APPROVED
N. Niki	-	S. Hino

日付 DATE	図　番 DWG. No	REV
2001/3/31	GAE-EC -E120	D
オーダ ORDER		
EVNF85		

MITSUBISHI ELECTRIC CORPORATION

1/26

Dr... ...LIST

Mitsubishi Electric Corp.
02/04/23

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TENASKA TALLADEGA GENERATING STATION

SEC. No. 201 (神)蔵電 タ設一

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued / Revised schedu.	Rev NO.	Issued / Letter No.	Issued / Date	Issued / Sta.	Returned / Letter No.	Returned / Date	Returned / Sta.	Maker mark	
	ABH-L8112	TURBINE GENERATOR TERMINAL POINT LIST	I		0	MEL/TEI-DG-0099	02/04/22	I				0	286
	A33S738	TURBINE GENERATOR HYDROGEN SIDE SEAL OIL DRAIN LEVEL SWICH UNIT OUTLINE (FOR STEAM TURBINE)	I		0	MEL/TEI-DG-0099	02/04/22	I				0	297
	AL77536	FOUNDATION OF GENERATOR ANCHOR BLOCK ASSEMBLY(FOR STEAM TURBINE)	I		0	MEL/TEI-DG-0063	01/11/20	I	TR/010229-00365	02/01/29	A	0	288
	A33L200	TURBINE GENERATOR VAPOR EXTRACTOR OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/26	I	TR/010229-00044	01/06/12	A	0	100
					A	MEL/TEI-DG-0099	02/04/22	I					
	AL74628	TURBINE GENERATOR H2 PRESSURE/PURITY MONITORING UNIT OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/26	I	TR/010229-00044	01/06/12	A	0	101
					A	MEL/TEI-DG-0099	02/04/22	I					
	A33L201	TURBINE GENERATOR GAS DRYER OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/26	I	TR/010229-00044	01/06/12	A	0	102
					A	MEL/TEI-DG-0099	02/04/22	I					
	AL74629	TURBINE GENERATOR CO2 GAS SUPPLY UNIT OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/26	I	TR/010229-00044	01/06/12	A	0	103
					A	MEL/TEI-DG-0099	02/04/22	I					
M010229-400E015	AK77203	TURBINE GENERATOR AUXILIARY EQIPMENT WIRING DIAGRAM(FOR STEAM TURBINE)	I	01/05/11	0	MEL/TEI-DG-0023	01/06/29	I	TR/010229-00043	01/07/19	A	0	104
					A	MEL/TEI-DG-0099	02/04/22	I					
	AK81522	S/T GENERATOR COOLING WATER PIPING	I	01/08/25	-	MEL/TEI-DG-0070	01/12/27	I	TR/010229-00332	02/01/25	A	0	105
					A	MEL/TEI-DG-0099	02/04/22	I					
	AK81523	GENERATOR H2&CO2 GAS PIPING (1/3) (FOR STEAM TURBINE)	I	01/08/25	-	MEL/TEI-DG-0070	01/12/27	I	TR/010229-00332	02/01/25	A	0	106
					A	MEL/TEI-DG-0099	02/04/22	I					

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Mitsubishi Electric Corp.
02/04/23

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TENASKA TALLADEGA GENERATING STATION

SEQ. No. 201 (神)座荒 夕段一

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be Issued: Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark
	AK81525	GENERATOR H2&CO2 GAS PIPINNG(3/3) (FOR STEAM TURBINE)	I	01/08/25	- A	MEL/TEI-DG-0070 MEL/TEI-DG-0096	01/12/27 I 02/04/22 I		TR/010229-00332	02/01/25	A	0 271
	AK81524	GENERATOR H2&CO2 GAS PIPINNG(2/3) (FOR STEAM TURBINE)	I	01/08/25	- A	MEL/TEI-DG-0070 MEL/TEI-DG-0096	01/12/27 I 02/04/22 I		TR/010229-00332	02/01/25	A	0 107
	AK81527	GENERATOR SEAL OIL PIPINNG(2/4) (FOR STEAM TURBINE)	I	01/08/25	- A	MEL/TEI-DG-0070 MEL/TEI-DG-0096	01/12/27 I 02/04/22 I		TR/010229-00332	02/01/25	A	0 109
	AK81528	GENERATOR SEAL OIL PIPINNG(3/4) (FOR STEAM TURBINE)	I	01/08/25	- A	MEL/TEI-DG-0070 MEL/TEI-DG-0096	01/12/27 I 02/04/22 I		TR/010229-00332	02/01/25	A	0 272
	AK81529	GENERATOR SEAL OIL PIPINNG(4/4) (FOR STEAM TURBINE)	I	01/08/25	-	MEL/TEI-DG-0070	01/12/27 I		TR/010229-00332	02/01/25	A	0 273
	AK81530	PLAN OF SCAFFOLDING FOR INSPECTION (FOR STEAM TURBINE)	I	01/08/25	-	MEL/TEI-DG-0070	01/12/27 I		TR/010229-00332	01/01/25	A	0 275
	AK81526	GENERATOR SEAL OIL PIPINNG(1/4) (FOR STEAM TURBINE)	I	01/08/25	- A	MEL/TEI-DG-0070 MEL/TEI-DG-0096	01/12/27 I 02/04/22 I		TR/010229-00332	02/01/25	A	0 108
	AK81531	S/T GENERATOR TERMINAL BOX & CONDUITS	I		0	MEL/TEI-DG-0070	01/12/27 I		TR/010229-00332	02/01/25	A	0 274
	AK78071	TURBINE GENERATOR TERMINAL AND CT ASSEMBLY(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0063	01/11/20 I		TR/010229-00365	02/01/29	A	0 110
	AL74344	TURBINE GENRATOR ANCHOR FOR PULLING OUT ROTOR(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0009	01/04/25 I					0 111

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TENASKA TALLADEGA GENERATING STATION

SEC. No. 201 (神)産電 タ設一

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	AK76842	TURBINE GENERATOR METHOD OF MOUNTING (1/2X(FOR STEAM TURBINE)	I	02/03/01	0	MEL/TEI-DG-0097	02/04/22	I				0	112
	AK76843	TURBINE GENERATOR METHOD OF MOUNTING (2/2X(FOR STEAM TURBINE)	I	02/03/01	0	MEL/TEI-DG-0097	02/04/22	I				0	113
	A33K449	TURBINE GENERATOR CONDUITS ARRANGEMENT (FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0044	01/09/06	I	M010229-STGE028	01/09/19	A	0	114
					A	MEL/TEI-DG-0097	02/04/22	I					
	AL74039	TURBINE GENERATOR GROUND RETAINER ARRANGEMENT(FOR STEAM TURBINE)	I		0	MEL/TEI-DG-0097	02/04/22	I				0	293
	AL75211	TURBINE GENERATOR GROUND CONNECTION TERMINALS ARRANGEMENT(FOR STEAM TURBINE)	I	02/03/01	0	MEL/TEI-DG-0097	02/04/22	I				0	115
	AK75887	OUTLINE DRAWING FOR TURBINE GENERATOR (INCLU DING MAIN LEAD TERMINAL)(FOR GAS TURBINE)	A	01/04/27	0	MEL/TEI-DG-0010	01/04/25	A				0	118
					A	MEL/TEI-DG-0062	01/11/20	A	TR/010229-00346	02/01/28	A		
					B	MEL/TEI-DG-0098	02/04/22	A					
	AK76818	FOUNDATION OF TURBINE GENERATOR (FOR GAS TURBINE)	I	01/04/27	0	MEL/TEI-DG-0010	01/04/25	I				0	119
					A	MEL/TEI-DG-0062	01/11/20	I	TR/010229-00346	02/01/28	A		
	AK76813	TURBINE GENERATOR METHOD OF PULLING OUT ROTOR (FOR GAS TURBINE)	I	01/04/27	0	MEL/TEI-DG-0040	01/08/23	I				0	120
	AK76821	TURBINE GENERATOR INSTRUMENT ARRANGEMENT (2/2)(FOR GAS TURBINE)	A	01/04/27	0	MEL/TEI-DG-0038	01/08/21	A	TR/010229-00116	01/09/17	R	0	259
					A	MEL/TEI-DG-0062	01/11/20	A	TR/010229-00346	02/01/28	A		
					A	MEL/TEI-DG-0098	02/04/22	A					
	AK76820	TURBINE GENERATOR INSTRUMENT ARRANGEMENT (1/2)(FOR GAS TURBINE)	A	01/04/27	0	MEL/TEI-DG-0038	01/08/21	A	TR/010229-00116	01/09/17	A	0	121
					0	MEL/TEI-DG-0062	01/11/20	A	TR/010229-00346	02/01/28	A		
					A	MEL/TEI-DG-0098	02/04/22	A					

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	AK78462	TURBINE GENERATOR COOLING WATER DIAGRAM (FOR GAS TURBINE)	A	01/04/27	0	MEL/TEI-DG-0038	01/08/21	A	TR/010229-00116	01/09/17	A	0 122
					A	MEL/TEI-DG-0090	02/04/22	A				
	AK82414	ARRANGEMENT OF GENERATOR MAIN LEAD AND CT(2/2)(FOR GAS TURBINE)	I	02/03/01	0	MEL/TEI-DG-0098	02/04/22	I				0 294
	AK82413	ARRANGEMENT OF GENERATOR MAIN LEAD AND CT(1/2)(FOR GAS TURBINE)	I	02/03/01	0	MEL/TEI-DG-0098	02/04/22	I				0 123
	AK78619	TURBINE GENERATOR BED PLATES ARRANGEMENT (FOR GAS TURBINE)	I	01/04/27	0	MEL/TEI-DG-0010	01/04/25	I				0 124
					A	MEL/TEI-DG-0062	01/11/20	I	TR/010229-00346	02/01/28	A	
	AK80413	GENERATOR OIL PIPES ARRANGEMENT (FOR GAS TURBINE)	I	01/08/25	0	MEL/TEI-DG-0062	01/11/20	I	TR/010229-00346	02/01/28	A	0 125
	AK78823	GENERATOR VAPOR PIPES ARRANGEMENT (FOR GAS TURBINE)	I	01/08/25	0	MEL/TEI-DG-0062	01/11/20	I	TR/010229-00346	02/01/28	A	0 126
	AL77539	GENERATOR WATER PIPES ARRANGEMENT (FOR GAS TURBINE)	I	01/08/25	0	MEL/TEI-DG-0062	01/11/20	I	TR/010229-00346	02/01/28	A	0 127
	AK76090	TURBINE GENERATOR OUTLINE (FOR STEAM TURBINE)	A	01/04/27	0	MEL/TEI-DG-0089	01/04/25	A		01/08/13	ACC	0 88
					A	MEL/TEI-DG-0097	02/04/22	RA				
	A33T319	TURBINE GENERATOR LOOP SEAL TANK OUTLINE (FOR STEAM TURBINE)	I		0	MEL/TEI-DG-0099	02/04/22	I				0 295
	A33K491	TURBINE GENERATOR LOAD ON FOUNDATION (FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0089	01/04/25	I				0 89
					A	MEL/TEI-DG-0097	02/04/22	I				

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	AK80380	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (1/3)	I		-	MEL/TEI-DG-0060	01/11/07	I	TR/010229-00244	01/12/14	A 0	264
	AK80381	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (2/3)	I		-	MEL/TEI-DG-0060	01/11/07	I	TR/010229-00244	01/12/14	A 0	265
					A	MEL/TEI-DG-0090	02/04/22	I				
	AK80382	S/T GENERATOR FOUNDATION EMBEDDED METALS LAYOUT (3/3)	I		-	MEL/TEI-DG-0060	01/11/07	I	TR/010229-00244	01/12/14	A 0	266
					A	MEL/TEI-DG-0096	02/04/22	I				
	AK76841	TURBINE GENERATOR FOUNDATION BOLT ARRANGEMENT(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0044	01/09/08	I	M010229-STGF030	01/09/19	A 0	90
					A	MEL/TEI-DG-0097	02/04/22	I				
	A33TZS8	TURBINE GENERATOR FOUNDATION BOLT AND COVER (FOR STEAM TURBINE)	I		0	MEL/TEI-DG-0097	02/04/22	I			0	292
	AK80383	S/T GENERATOR FOUNDATION CONDUIT LAYOUT	I		-	MEL/TEI-DG-0060	01/11/07	I	TR/010229-00244	01/12/14	A 0	267
	AK76072	TURBINE GENERATOR METHOD OF PULLING OUT ROTOR(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0009	01/04/25	I			0	91
	AK78069	TURBINE GENERATOR INSTRUMENT WIRING ARRANGEMENT(1/2)(FOR STEAM TURBINE)	A	02/03/01	0	MEL/TEI-DG-0082	02/03/18	A			0	92
	AK78070	TURBINE GENERATOR INSTRUMENT WIRING ARRANGEMENT(2/2)(FOR STEAM TURBINE)	A	02/03/01	0	MEL/TEI-DG-0082	02/03/18	A			0	283
	AK77200	TURBINE GENERATOR COOLING WATER DIAGRAM (FOR STEAM TURBINE)	A	01/05/11	0	MEL/TEI-DG-0015	01/06/08	A			0	93
					A	MEL/TEI-DG-0090	02/04/22	A				

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 201 (神)帝電 タ設一

Kind of drawings
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

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DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	AK77201	TURBINE GENERATOR H2 & CO2 GAS DIAGRAM (FOR STEAM TURBINE)	A	01/05/11	0	MEL/TEI-DG-0015	01/06/08	A				0	94
					A	MEL/TEI-DG-0099	02/04/22	A					
	AK77202	TURBINE GENERATOR SEAL OIL DIAGRAM (FOR STEAM TURBINE)	A	01/05/11	0	MEL/TEI-DG-0015	01/06/08	A				0	95
					A	MEL/TEI-DG-0099	02/04/22	A					
	AK77204	TURBINE GENERATOR SEAL OIL SUPPLY UNIT OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/28	I	TR/010229-00044	01/06/12	A	0	98
					A	MEL/TEI-DG-0098	02/04/22	A					
	AL74627	TURBINE GENERATOR H2 GAS SUPPLY UNIT OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/28	I	TR/010229-00044	01/06/12	A	0	98
					A	MEL/TEI-DG-0099	02/04/22	I					
	A13K499	TURBINE GENERATOR WATER DETECTOR OUTLINE(FOR STEAM TURBINE)	I	01/04/27	0	MEL/TEI-DG-0011	01/04/28	I	TR/010229-00044	01/06/12	A	0	99
					A	MEL/TEI-DG-0099	02/04/22	I					

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TENASKA TALLADEGA GENERATING STATION

SEC. No. 207 (神)渡邉 回品

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued / Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark
		SHOP TEST PROCEDURE FOR GAS TURBINE GENERATOR	I	2 months after signing the contract							0	132
	ART-D-0005	SHOP TEST PROCEDURE FOR DC MOTOR	I		0	MEI/TEI-DG-0075	02/02/15 I				0	279
	ART-T-5032	SHOP TEST PROCEDURE FOR STEAM TURBINE GENERATOR	I	01/09/24	0	MEI/TEI-DG-0072	02/02/06 I				0	133
	ART-T-5034	SHOP TEST PROCEDURE FOR SEAL OIL SUPPLY UNIT OF STEAM TURBINE GENERATOR	I		0	MEI/TEI-DG-0072	02/02/08 I				0	277
	ART-T-5033	SHOP TEST PROCEDURE FOR BRUSHLESS EXCITER & PMG OF STEAM TURBINE GENERATOR	I		0	MEI/TEI-DG-0072	02/02/08 I				0	278
		SITE TEST PROCEDURE FOR GAS TURBINE GENERATOR	I	4 months after signing the contract							0	134
		SITE TEST PROCEDURE FOR STEAM TURBINE GENERATOR	I	4 months after signing the contract							0	135

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Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 209 (神)産電 回注

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		ERECTION PROCEDURE FOR GASTURBINE GENERATOR	I	6 months after signing the contract								0	136
		ERECTION PROCEDURE FOR STEAM TURBINE GENERATOR	I	6 months after signing the contract								0	137

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

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TENASKA TALLADEGA GENERATING STATION

SEC. No. 103 (神)鹿電 火技術一(海外)

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be issued Kind	To be issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark	
	JEU00928	PANEL ARRANGMENT OF GENERATOR PROTECTION RELAY PANEL FOR GTG	I		0	MEL/TEI-DG-0036	01/08/07	I				0	258
	JEU00929	PANEL ARRANGMENT OF GENERATOR PROTECTION RELAY PANEL FOR STG	I		0	MEL/TEI-DG-0036	01/08/07	I				0	257
	JEJ17891	PANEL ARRANGMENT OF SEAL OIL CONTROL PANEL FOR STG	I		0 1	MEL/TEI-DG-0034 MEL/TEI-DG-0085	01/08/02 02/03/25	I I				0	256
	JEJ17887	PANEL ARRANGMENT OF GENARATOR CONTROL PANEL FOR GTG	I		0 1 2	MEL/TEI-DG-0034 MEL/TEI-DG-0064 MEL/TEI-DG-0085	01/08/02 01/11/20 02/03/25	I I I				0	254
	JEJ17888	PANEL ARRANGMENT OF GENARATOR CONTROL PANEL FOR STG	I		0 1 2	MEL/TEI-DG-0034 MEL/TEI-DG-0064 MEL/TEI-DG-0085	01/08/02 01/11/20 02/03/25	I I I				0	255
M010229-001Z003	GAE-EC-E120	DRAWING LIST (MELCO PORTION)	I	01/04/10	A B	MEL/TEI-DG-0001 MEL/TEI-DG-0076	01/04/19 02/02/19	I I	TR/010229-00023	01/07/18	A	0	1
M010229-001Z001	GAE-EC-E140	SUB VENDOR LIST	I	01/04/27	A	MEL/TEI-DG-0001	01/04/19	I	TR/010229-00027	01/07/18	A	0	4
	GAE-EC-E145	ELECTRICAL EQUIPMENT LIST (MELCO PORTION)	I	01/04/27	0 A B	MEL/TEI-DG-0003 MEL/TEI-DG-0037 MEL/TEI-DG-0087	01/04/23 01/08/07 01/12/06	I I I	TR/010229-00327	02/01/24	A	0	5
	GAE-EC-E150	GENERAL SPECIFICATION OF ELECTRICL PANEL (MELCO PORTION)	A	01/04/27	0 A	MEL/TEI-DG-0007 MEL/TEI-DG-0055	01/04/23 01/10/16	A RA	DGA-003 TR/010229-00260	01/06/14 01/12/18	ACC A	0	6
	GAE-EC-E162	PAINTING COLOR LIST (MELCO PORTION)	A	01/04/27	A B	MEL/TEI-DG-0001 MEL/TEI-DG-0028	01/04/19 01/07/16	A RA	DGA-001	01/08/03	A	0	8

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 103 (神)産電 火技係一(海外)

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	GAE-EC-E180	PAINTING PROCEDURE (MELCO PORTION)	A	01/04/27	A	MEL/TEI-DG-0001	01/04/19	A				0	9
					B	MEL/TEI-DG-0020	01/07/18	RA	DGA-081	01/08/03	A		
	GAE-EC-E220	STUDY OF GENERATOR SURGE PROTECTION EQUIPMENT(FOR GT & ST GENERATOR)	I	01/04/27	0	MEL/TEI-DG-0007	01/04/23	A				0	10
	GAE-EC-E230	STUDY OF GENERATOR NGR SYSTEM (FOR GT & ST GENERATOR)	I	01/04/27	0	MEL/TEI-DG-0007	01/04/23	A				0	11
	GAE-EC-E510	ALARM LIST GENERATOR CONTROL PANEL FOR GTG	I	01/08/25	0	MEL/TEI-DG-0051	01/10/11	I	TR/010229-00184	01/11/20	A	0	14
	GAE-EC-E511	ALARM LIST GENERATOR CONTROL PANEL AND SEAL OIL CONTROL PANEL FOR STG	I		0	MEL/TEI-DG-0051	01/10/11	I	TR/010229-00184	01/11/20	A	0	260
	GAE-EC-E520	INSTRUMENT TRANSFORMER LIST (FOR GT & ST GENERATOR)	A	01/06/11	0	MEL/TEI-DG-0057	01/10/19	A	TR/010229-00258	01/12/18	A	0	17
	GAE-EC-E531	STUDY OF BURDEN FOR INSTRUMENT TRANSFORMER FOR STG	A	01/05/27	0	MEL/TEI-DG-0057	01/10/19	A	TR/010229-00258	01/12/18	A	0	203
	GAE-EC-E530	STUDY OF BURDEN FOR INSTRUMENT TRANSFORMER FOR GTG	A	01/05/27	0	MEL/TEI-DG-0057	01/10/19	A	TR/010229-00258	01/12/18	A	0	18
	GAE-EC-E600	PROTECTION RELAY LIST (FOR GT & ST GENERATOR)	A	01/05/27	0	MEL/TEI-DG-0013	01/05/29	A				0	19
					1	MEL/TEI-DG-0073	02/02/07	F					
					2	MEL/TEI-DG-0078	02/02/28	RA					
	GAE-EC-E610	STUDY OF PROTECTION RELAY SETTING FOR GT GENERATOR	I	01/12/24	A	MEL/TEI-DG-0073	02/02/07	I				0	20

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Mitsubishi Electric Corp.
02/04/23

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TENASKA TALLADEGA GENERATING STATION

SEC. No. 103 (神)産電 火技術一(海外)

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	GAE-EC-E611	STUDY OF PROTECTION RELAY SETTING FOR ST GENERATOR	I		A	MEL/TEI-DG-0073	02/02/07	I				0	278
	JEK44551	SINGLE LINE DIAGRAM GT GENERATOR	A	01/04/27	A	MEL/TEI-DG-0006	01/04/23	A				0	23
					B	MEL/TEI-DG-0033	01/08/02	RA	TR/010229-STGE002S	01/08/08	R		
					D	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		
	JEK44552	SINGLE LINE DIAGRAM ST GENERATOR	A	01/04/27	A	MEL/TEI-DG-0006	01/04/23	A				0	24
					B	MEL/TEI-DG-0033	01/08/02	RA	TR/010229-STGE002S	01/08/08	R		
					D	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		
	JEK44553	UNIT PROTECTION DIAGRAM FOR GT GENERATOR	A	01/04/27	0	MEL/TEI-DG-0004	01/04/23	A				0	25
					1	MEL/TEI-DG-0047	01/10/02	RA	TR/010229-00159	01/10/29	A		
					C	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		
	JEK44554	UNIT PROTECTION DIAGRAM FOR ST GENERATOR	A	01/04/27	0	MEL/TEI-DG-0004	01/04/23	A				0	26
					1	MEL/TEI-DG-0047	01/10/02	RA	TR/010229-00159	01/10/29	A		
					C	MEL/TEI-DG-0074	02/02/08	RA	TEN-MPS-385	02/02/18	A		
	JEZ1L869	LOGIC DIAGRAM OF GENERATOR CONTROL (FOR GT GENERATOR)	A	01/06/20	0	MEL/TEI-DG-0052	01/10/11	A	TR/010229-00174	01/11/22	A	0	27
	JEZ1L870	LOGIC DIAGRAM OF GENERATOR CONTROL (FOR ST GENERATOR)	A	01/06/20	0	MEL/TEI-DG-0052	01/10/11	A	TR/010229-00174	01/11/19	A	0	28
	JEZ1L871	LOGIC DIAGRAM OF GENERATOR AUXILIARY (FOR ST GENERATOR)	A	01/06/20	0	MEL/TEI-DG-0052	01/10/11	A	TR/010229-00174	01/11/22	F	0	29
	JEZ1L873	SCHEMATIC DIAGRAM INSTRUCTION	I	01/04/27	0	MEL/TEI-DG-0000	01/04/23	I				0	30
	JEZ1L874	SCHEMATIC DIAGRAM OF GENERATOR CIRCUIT FOR GTG #1	A	01/10/11	B	MEL/TEI-DG-0053	01/10/11	A	TR/010229-00175	01/11/19	A	0	31

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02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 103 (神)東電 火技術一(海外)

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	JEZ1L875	SCHEMATIC DIAGRAM OF GENERATOR CIRCUIT FOR GTG #2, #3	A	01/10/11	B.	MEL/TEI-DG-0053	01/10/11	A	TR/010229-00175	01/11/19	A	0	281
	JEZ2A124	SCHEMATIC DIAGRAM OF GENERATOR CIRCUIT FOR STG	A	01/06/26	0	MEL/TEI-DG-0059	01/11/05	A				0	32
	JEZ1L870	SCHEMATIC DIAGRAM OF GENERATOR AUXILIARY FOR STG	A	01/06/26	0	MEL/TEI-DG-0058	01/10/22	A				0	35
	JEJ17881	OUTLINE DRAWING OF GENERATOR CONTROL PANEL (FOR GT GENERATOR)	A	01/05/27	0 1 2	MEL/TEI-DG-0035 MEL/TEI-DG-0064 MEL/TEI-DG-0084	01/08/02 01/11/20 02/03/25	A RA F	DGA-098	01/08/24	A	0	36
	JEJ17882	OUTLINE DRAWING OF GENERATOR CONTROL PANEL (FOR ST GENERATOR)	A	01/06/26	0 2	MEL/TEI-DG-0035 MEL/TEI-DG-0084	01/08/02 02/03/25	A F	DGA-098	01/08/24	A	0	37
	JEJ17884	OUTLINE DRAWING OF GENERATOR AUXILIARY PANEL(FOR ST GENERATOR)	A	01/06/26	0 1 2	MEL/TEI-DG-0035 MEL/TEI-DG-0064 MEL/TEI-DG-0084	01/08/02 01/11/20 02/03/25	A RA F	DGA-098	01/08/24	A	0	39
	JEJ17879	OUTLINE DRAWING OF GENERATOR PROTECTION RELAY PANEL(FOR GT GENERATOR)	A	01/04/27	0 1 2 3	MEL/TEI-DG-0004 MEL/TEI-DG-0036 MEL/TEI-DG-0064 MEL/TEI-DG-0084	01/04/23 01/08/07 01/11/20 02/03/25	A RA RA F	DGA-106	01/08/31	A	0	40
	JEJ17880	OUTLINE DRAWING OF GENERATOR PROTECTION RELAY PANEL(FOR ST GENERATOR)	A	01/06/26	0 1 2	MEL/TEI-DG-0036 MEL/TEI-DG-0064 MEL/TEI-DG-0084	01/08/07 01/11/20 02/03/25	A RA F	DGA-106	01/08/31	A	0	41
	JEJ17885	OUTLINE DRAWING OF SEAL OIL CONTROL PANEL(FOR ST GENERATOR)	A	01/06/26	0 1 2	MEL/TEI-DG-0035 MEL/TEI-DG-0064 MEL/TEI-DG-0084	01/08/02 01/11/20 02/03/25	A RA F	DGA-098	01/08/24	A	0	42
	JEM61988	ASSEMBLY DRAWING OF ST GENERATOR BUSHING GT TERMINAL BOX	I	01/06/26	0 1	MEL/TEI-DG-0035 MEL/TEI-DG-0064	01/08/02 01/11/20	I I				0	43

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		WIRING DRAWING OF GENERATOR CONTROL PANEL (1/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	51
		WIRING DRAWING OF GENERATOR CONTROL PANEL (2/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	52
		WIRING DRAWING OF GENERATOR CONTROL PANEL (1/2)(FOR ST GENERATOR)	I	2 months after signing the contract								0	53
		WIRING DRAWING OF GENERATOR CONTROL PANEL (2/2)(FOR ST GENERATOR)	I	2 months after signing the contract								0	54
		WIRING DRAWING OF GENERATOR AUXILIARY PANEL (1/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	55
		WIRING DRAWING OF GENERATOR AUXILIARY PANEL (2/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	56
		WIRING DRAWING OF GENERATOR AUXILIARY PANEL (1/2)(FOR ST GENERATOR)	I	2 months after signing the contract								0	57
		WIRING DRAWING OF GENERATOR AUXILIARY PANEL (2/2)(FOR ST GENERATOR)	I	2 months after signing the contract								0	58
		WIRING DRAWING OF GENERATOR PROTECTION RELAY PANEL(1/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	59
		WIRING DRAWING OF GENERATOR PROTECTION RELAY PANEL(2/2)(FOR GT GENERATOR)	I	2 months after signing the contract								0	60

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 103 (持)盛電 火技術一(海外)

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		WIRING DRAWING OF GENERATOR PROTECTION RELAY PANEL(1/2XFOR ST GENERATOR)	I	2 months after signing the contract								0	61
		WIRING DRAWING OF GENERATOR PROTECTION RELAY PANEL(2/2XFOR ST GENERATOR)	I	2 months after signing the contract								0	62
		WIRING DRAWING OF SEAL OIL CONTROL PANEL (1/2)(FOR ST GENERATOR)	I	2 months after signing the contract								0	03
		WIRING DRAWING OF SEAL OIL CONTROL PANEL (2/2XFOR ST GENERATOR)	I	2 months after signing the contract								0	64

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 105 (特)廃電 火技術一(起訳)

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DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark
	JEK44507	ELECTRICAL EQUIPMENT GENERAL ARRANGEMENT(MELCO PORTION)	I	01/04/28	0	MEL/TEI-DG-0003	01/04/23	I		01/06/14	ACC 0	85
					A	MEL/TEI-DG-0037	01/08/07	I				

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 115 (神)産電 発計設

Kind of drawing
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
A :For Approval
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Returned Sta.
A :Approved
ACC :Approved with Comment
C :Cetified and Issued for Construction
I :Informational only no Approval needed
N :New Issue Not Aproved
R :Returned to Manufacturer for Correction
T :Transeutted for Approval

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	JEJ24880	OUTLINE DRAWING OF AVR CUBICLE (FOR GTG)	A	01/05/28	0 B	MEL/TEI-DG-0025 MEL/TEI-DG-0087	01/07/11 02/04/02	A F				0	66
	JEJ24889	OUTLINE DRAWING OF AVR CUBICLE (FOR STG)	A	01/05/28	0 B	MEL/TEI-DG-0025 MEL/TEI-DG-0087	01/07/11 02/04/02	A F				0	67
	JEK50276	ASSEMBLY DRAWING OF AVR CUBICLE (FOR GTG)	I	02/03/01	0	MEL/TEI-DG-0077	02/02/21	I				0	68
	JEK50809	ASSEMBLY DRAWING OF AVR CUBICLE (FOR STG)	I	02/03/01	0	MEL/TEI-DG-0077	02/02/21	I				0	69
	JEZ1U557	SCHEMATIC DIAGRAM OF AUTOMATIC VOLTAGE REGULATOR(FOR STG)	A	01/05/28	0 A	MEL/TEI-DG-0054 MEL/TEI-DG-0086	01/10/15 02/04/02	A F	TR/010229-00185	01/11/20	A	0	70
	JEZ1U556	SCHEMATIC DIAGRAM OF AUTOMATIC VOLTAGE REGULATOR(FOR GTG)	A	01/05/28	0 A	MEL/TEI-DG-0054 MEL/TEI-DG-0086	01/10/15 02/04/02	A F	TR/010229-00185	01/11/20	A	0	71
	JEZ1U555	SPECIFICATION DIAGRAM OF AUTOMATIC VOLTAGE REGULATOR(FOR GTG&STG)	A	01/06/27	0	MEL/TEI-DG-0031	01/07/19	A	TR/010229-00058	01/08/07	A	0	72
	JEW13525(1/2)	WIRING DIAGRAM (6/11) EXTERNAL TERMINAL GTG AVR PANEL(1/2)	I	02/03/22	A	MEL/TEI-DG-0077	02/02/21	I				0	73
	JEW13525(2/2)	WIRING DIAGRAM (7/11) EXTERNAL TERMINAL GTG AVR PANEL(2/2)	I	02/03/22	B	MEL/TEI-DG-0077	02/02/21	I				0	74
	JEW13526(1/2)	WIRING DIAGRAM (7/11) EXTERNAL TERMINAL STG AVR PANEL(1/2)	I	02/03/22	B	MEL/TEI-DG-0077	02/02/21	I				0	280

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 115 (特)産電 発計設

Kind of drawings
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
A :For Approval
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Returned Sta.
A :Approved
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N :New Issue Not Approved
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T :Transmitted for Approval

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be issued: Kind	To be issued: Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark
	JEW13525(2/2)	WIRING DIAGRAM (8/11) EXTERNAL TERMINAL STG AVR PANEL(2/2)	I	02/03/22	A	MEL/TEI-DG-0077	02/02/21	I				0 281

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

Kind of drawing.
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Issued Sta.
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TENASKA TALLADEGA GENERATING STATION

SEC. No. 129 (神)産経 発品

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be Issued Kind	To be Issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark	
	QJA-02-040	SHOP TEST REPORT FOR 02-GT PROTECTION RELAY PANEL	I		0	MEL/TEI-DG-0089	02/04/15	I				0	287
	QS0-01-120	SHOP TEST AND INSPECTION REPORT FOR BRUSHLESS EXCITATION SYSTEM (GTG1)	I		0	MEL/TEI-DG-0088	02/04/02	I				0	285
	QJA-02-036	SHOP TEST REPORT FOR 0A-ST GENERATOR CONTROL PANEL	I		0	MEL/TEI-DG-0090	02/04/15	I				0	288
	QJA-02-074	SHOP TEST REPORT FOR 03-GT GENERATOR CONTROL PANEL	I		0	MEL/TEI-DG-0093	02/04/18	I				0	291
	QJA-02-037	SHOP TEST REPORT FOR 0A-ST PROTECTION RELAY PANEL	I		0	MEL/TEI-DG-0090	02/04/15	I				0	289
	QJA-02-039	SHOP TEST REPORT FOR 02-GT GENERATOR CONTROL PANEL	I		0	MEL/TEI-DG-0089	02/04/15	I				0	286
	QJA-02-035	SHOP TEST REPORT FOR 0A-ST GENERATOR AUXILIARY PANEL	I		0	MEL/TEI-DG-0091	02/04/15	I				0	290
	JEVM-8914	SHOP TEST AND INSPECTION LIST FOR ELECTRICAL EQUIPMENT(MELCO PORTION)	I	01/04/08	0	MEL/TEI-DG-0002	01/04/19	I	TR/010229-00024	01/07/18	A	0	75
					A	MEL/TEI-DG-0065	01/11/27	F	TR/010229-00317	02/01/24	A		
					B	MEL/TEI-DG-0068	01/12/17	I	TR/010229-00335	02/01/25	A		
					C	MEL/TEI-DG-0071	02/01/29	F	TR/010229-00338	02/01/28	A		
	JEVM-8912	QUALITY ASSURANCE PROGRAM (MELCO PORTION)	I	01/04/08	0	MEL/TEI-DG-0002	01/04/19	I	TR/010229-00024	01/07/18	A	0	76
	JEVM-8913	QUALITY CONTROL MANUAL (MELCO PORTION)	I	01/04/08	0	MEL/TEI-DG-0002	01/04/19	I	TR/010229-00024	01/07/18	A	0	77

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

Kind of drawing
A :For Approval
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Issued Sta.
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TENASKA TALLADEGA GENERATING STATION

SEC. No. 129 (神)産機 発品

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued / Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	JEVM-8933-01	SHOP TEST AND INSPECTION PROCEDURE FOR CONTROL PANELS	I	01/08/26	0 A	MEL/TEI-DG-0041 MEL/TEI-DG-0092	01/08/27 02/04/16	I F				0	78
	JEVM-8933-03	SHOP TEST AND INSPECTION PROCEDURE FOR GENERATOR PROTECTION RELAY PANEL	I	01/08/26	0 A	MEL/TEI-DG-0041 MEL/TEI-DG-0092	01/08/27 02/04/16	I F				0	79
	JEVM-8933-02	SHOP TEST AND INSPECTION PROCEDURE FOR EXCIATION CUBICLE	I	01/08/26	0 A	MEL/TEI-DG-0041 MEL/TEI-DG-0092	01/08/27 02/04/16	I F				0	80
	QJA-01-183	SHOP TEST REPORT FOR 01-GT GENERATOR PROTECTION RELAY PANEL	I	02/05/31	0	MEL/TEI-DG-0083	02/03/22	I				0	84
	QJA-01-182	SHOP TEST REPORT FOR 01-GT GENERATOR CONTROL PANEL	I		0	MEL/TEI-DG-0083	02/03/22	I				0	284
	QJA-02-034	SHOP TEST REPORT FOR 0A-ST SEAL OIL CONTROL PANEL	I	02/05/31	0	MEL/TEI-DG-0090	02/04/15	I				0	85
	QJA-02-038	SHOP TEST REPORT FOR 0A-ST DOT TERMINAL BOX	I	02/05/31	0	MEL/TEI-DG-0090	02/04/15	I				0	88
		SITE TEST PROCEDURE FOR ELECTRICAL EQUIPMENT(FOR MELCO PORTION)	I	4 months after signing the contract								0	87

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

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Issued Sta.
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I :Informational only no Approval needed
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TENASKA TALLADEGA GENERATING STATION

SEC. No. 301 (P)系統 図装設

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be issued Kind	To be issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark	
M010229-400E002	H1M8419	ASSEMBLY DRAWING OF PT&SA CUBICLE (FOR ST GENERATOR)	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	140
					0	MEL/TEI-DG-0061	01/11/16	F	TR/010229-00286	02/01/14	A		
M010229-400E004	H1M8420	WIRING DIAGRAM OF PT&SA CUBICLE (FOR ST GENERATOR)	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	141
					A	MEL/TEI-DG-0061	01/11/16	F	TR/010229-00286	02/01/14	A		
M010229-400F011	H6U1635	FOUNDATION BASE OF PT&SA CUBICLE (FOR ST GENERATOR)	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	142
					0	MEL/TEI-DG-0061	01/11/16	F	TR/010229-00286	02/01/14	A		
M010229-400E005	H6U1636	INDICATION NAME PLATE OF PT&SA CUBICLE (FOR ST GENERATOR)	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	143
					A	MEL/TEI-DG-0061	01/11/16	F	TR/010229-00286	01/01/14	A		
M010229-400E007	H0R3589	RATING PLATE OF PT&SA CUBICLE (FOR ST GENERATOR).	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	144
					0	MEL/TEI-DG-0061	01/11/16	F					
M010229-400E006	H6U1637	OUTLINE OF PT&SA CUBICLE (FOR ST GENERATOR)	A	01/06/26	0	MEL/TEI-DG-0022	01/06/27	A	TR/010229-00036	01/07/19	A	0	145
					0	MEL/TEI-DG-0061	01/11/16	F	TR/010229-00286	02/01/14	A		
M010229-400Y00	HKT-95065	SHOP TEST AND INSPECTION PROCEDURE FOR FOR PT&SA CUBICLE(FOR ST GENERATOR)	I	01/06/26	0	MEL/TEI-DG-0021	01/06/27	I	TR/010229-00033	01/07/18	A	0	146
	HKT-91114	SHOP TEST AND INSPECTION PROCEDURE OF CURRENT TRANSFORMER FOR GENERATOR BUSHING	I		0	MEL/TEI-DG-0079	02/03/04	I				0	282

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 405 配電 盤配計

Kind of drawing
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Returned Sta.
A :Approved
ACC :Approved with Comment
C :Certified and Issued for Construction
I :Informational only no Approval needed
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R :Returned to Manufacturer for Correction
T :Transcutted for Approval

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	To be issued Kind	To be issued Revised schedu.	Rev NO.	Issued Letter No.	Issued Date	Issued Sta.	Returned Letter No.	Returned Date	Returned Sta.	Maker mark	
	01JNH274011B01	OUTLINE AND ARRANGEMENT DRAWING OF GENERATOR GROUNDING CUBICLE (FOR ST GENERATOR)	A	01/06/12	0	MEL/TEI-DG-0016	01/06/08	A				0	148
					A	MEL/TEI-DG-0066	01/11/28	RA					
					B	MEL/TEI-DG-0081	02/03/18	F					
	01JNH274010	SHOP TEST AND INSPECTION PROCEDURE FOR GENERAT GROUNDING CUBICLE (FOR ST GENERATOR)	I	01/06/27	0	MEL/TEI-DG-0080	02/03/04	I				0	149

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

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TENASKA TALLADEGA GENERATING STATION .

SEC. No. 251 TMA 大設

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued / Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark
	C4T4550	TERMINAL BOX CONSTRUCTION FOR R. T. D.	A		0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	252
	C4T4546	TERMINAL BOX CONSTRUCTION FOR SPACE HEATER	A		0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	251
	C6H0881	TERMINAL BOX CONSTRUCTION FOR STATOR	A		0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	250
	CJ72158	OUTLINE	A	01/05/27	0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	249
	01-EJHZA0-GL-01(2/2)	MOTOR SPECIFICATION	A		0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	248
	01-EJHZA0-GL-01(1/2)	MOTOR SPECIFICATION AND DRAWING LIST	A		0	MEL/TEI-DG-0027	01/07/16	A	TR/010229-00062	01/08/07	A	247
	CNQ-TE01017	SHOP TEST AND INSPECTION PROCEDURE OF THREE PHASE INDUCTION MOTOR	I A		0 A	MEL/TEI-DG-0069 MEL/TEI-DG-0092	01/12/17 02/04/16	I F	TR/010229-00291	02/01/15	A	270

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 202 MEE 中国技

Kind of drawing
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
A :For Approval
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Returned Sta.
A :Approved
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DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	C4T4793	TERMINAL BOX CONSTRUCTION FOR SPACE HEATER	A		0	MEL/TEI-DG-0026	01/07/11	A				0	246
			A			MEL/TEI-DG-0043	01/09/06	RA	TR/010229-00170	01/11/19	A		
	C4T4792	TERMINAL BOX CONSTRUCTION FOR STATOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	245
					0	MEL/TEI-DG-0043	01/09/06	RA	TR/010229-00170	01/11/19	A		
	C4T4791	OUTLINE	A		0	MEL/TEI-DG-0026	01/07/11	A				0	244
					0	MEL/TEI-DG-0043	01/09/06	RA	TR/010229-00170	01/11/19	A		
	C4T4790	SPECIFICATION OF THREE PHASE INDUCTION MOTOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	243
					A	MEL/TEI-DG-0043	01/09/06	RA	TR/010229-00170	01/11/19	A		
	C4T4789	TERMINAL BOX CONSTRUCTION FOR STATOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	242
	C4T4788	OUTLINE	A		0	MEL/TEI-DG-0026	01/07/11	A				0	241
	C4T4787	SPECIFICATION OF THREE PHASE INDUCTION MOTOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	240
	C4T4786	TERMINAL BOX CONSTRUCTION FOR STATOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	239
	C4T4785	OUTLINE	A		0	MEL/TEI-DG-0026	01/07/11	A				0	238
	C4T4784	SPECIFICATION OF THREE PHASE INDUCTION MOTOR	A		0	MEL/TEI-DG-0026	01/07/11	A				0	237

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DRAWI[redacted]IST

Mitsubishi Electric Corp.
02/04/23

Kind of drawing
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TENASKA TALLADEGA GENERATING STATION

SEC. No. 205 (株)[redacted]

DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued: Revised schedu.	Rev. NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	A33J720	DC MOTOR OUTLINE FOR GT EMERGENCY LUBE. OIL PUMP	A	01/05/27	0	MEL/TEI-DG-0014	01/06/04	A				0	128
					A	MEL/TEI-DG-0020	01/08/27	RA	TR/010229-00041	01/07/19	A		
					B	MEL/TEI-DG-0042	01/08/29	RA	M010229-CTGE003	01/09/24	A		
					B	MEL/TEI-DG-0094	02/04/18	F					
	A33J721	MOTOR TERMINALS FOR GT EMERGENCY LUBE. OIL PUMP	A	01/05/27	0	MEL/TEI-DG-0014	01/06/04	A				0	129
					0	MEL/TEI-DG-0094	02/04/18	F					
M010229-400E020	A33J738	DC MOTOR OUTLINE FOR ST EMERGENCY OIL PUMP	A	01/05/27	0	MEL/TEI-DG-0024	01/07/04	A	TR/010229-00042	01/07/19	A	0	130
					A	MEL/TEI-DG-0042	01/08/29	RA	M010229-STGE020	01/09/24	A		
					B	MEL/TEI-DG-0045	01/09/10	RA					
					C	MEL/TEI-DG-0056	01/10/17	RA	TR/010229-00178	01/11/19	A		
					C	MEL/TEI-DG-0094	02/04/18	F					
M010229-400E021	A33J739	MOTOR TERMINALS FOR ST EMERGENCY OIL PUMP	A	01/05/27	0	MEL/TEI-DG-0024	01/07/04	A	TR/010229-00042	01/07/19	A	0	131
					A	MEL/TEI-DG-0049	01/10/04	RA	TR/010229-00160	01/10/29	A		
					A	MEL/TEI-DG-0094	02/04/18	F					

DRAWING LIST

Mitsubishi Electric Corp.
02/04/23

TENASKA TALLADEGA GENERATING STATION

SEC. No. 451 名追 追動徒設

Kind of drawings
A :For Approval
AB :As Built
C :For Comment
F :Construction
I :For Information
RA :Reapproval

Issued Sta.
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DWG. (Customer) / DWG. (Consultant)	DWG. (Mitsubishi)	Drawing title	Kind	To be issued / Revised schedu.	Rev NO.	Issued: Letter No.	Issued: Date	Issued: Sta.	Returned: Letter No.	Returned: Date	Returned: Sta.	Maker mark	
	BC16258	OUTLINE DIMENSIONS OF AC MOTOR FOR GT COMP. WASHING PUMP	A		0	MEL/TEI-DG-0030	01/07/19	A	TR/010229-00061	01/08/07	A	0	253
	BC16087	OUTLINE DIMENSIONS OF AC MOTOR EH HIGH PRESSURE OIL PUMP	A		0	MEL/TEI-DG-0018	01/06/20	A	TR/010229-00037	01/06/29	A	0	236
					A	MEL/TEI-DG-0032	01/07/30	RA					
					B	MEL/TEI-DG-0050	01/10/09	RA	TR/010229-00163	01/10/29	A		
	BC16089	OUTLINE DIMENSIONS OF AC MOTOR LUBE OIL CONDITIONER CIRCULATING PUMP	A		0	MEL/TEI-DG-0018	01/06/20	A	TR/010229-00037	01/06/29	A	0	235
					A	MEL/TEI-DG-0032	01/07/30	RA					
					B	MEL/TEI-DG-0046	01/09/17	RA	M010229-STGE011	01/09/19	A		
	BC16085	OUTLINE DIMENSIONS OF AC MOTOR TURNING GEAR MOTOR	A		0	MEL/TEI-DG-0018	01/06/20	A	TR/010229-00037	01/06/29	A	0	234
					A	MEL/TEI-DG-0032	01/07/30	RA					
	BC16004	OUTLINE DIMENSIONS OF AC MOTOR MAIN OIL TANK VAPOR EXTRACTOR	A		0	MEL/TEI-DG-0018	01/06/20	A	TR/010229-00037	01/06/29	A	0	233
					A	MEL/TEI-DG-0032	01/07/30	RA					
					B	MEL/TEI-DG-0046	01/09/17	RA	M010229-STGE009	01/09/19	A		
	BC16083	OUTLINE DIMENSIONS OF AC MOTOR CONTROL OIL PUMP	A		0	MEL/TEI-DG-0018	01/06/20	A	TR/010229-00037	01/06/29	A	0	232
					A	MEL/TEI-DG-0032	01/07/30	RA					
					B	MEL/TEI-DG-0046	01/09/17	RA	M010229-STGE008	01/09/19	A		
	BC16089	OUTLINE DIMENSIONS OF AC MOTOR GRAND STEAM CONDENSER EX. FAN	A		0	MEL/TEI-DG-0019	01/06/21	A	TR/010229-00039	01/06/29	A	0	231
					A	MEL/TEI-DG-0032	01/07/30	RA					
					B	MEL/TEI-DG-0039	01/08/21	RA					
					C	MEL/TEI-DG-0040	01/10/04	RA	TR/010229-00161	01/10/29	A		
M010229-300E005	BC16027	OUTLINE DIMENSIONS OF AC MOTOR FOR AC TURBINE MOTOR	A		0	MEL/TEI-DG-0010	01/05/14	A				0	229
					A	MEL/TEI-DG-0017	01/06/20	RA	TR/010229-00040	01/07/19	A		
					B	MEL/TEI-DG-0029	01/07/18	RA					
	BC16088	OUTLINE DIMENSIONS OF AC MOTOR POLISHING OIL PUMP	A		0	MEL/TEI-DG-0019	01/06/21	A				0	230
					A	MEL/TEI-DG-0032	01/07/30	RA	TR/010229-00039	01/06/29	A		
					B	MEL/TEI-DG-0050	01/10/09	RA	TR/010229-00163	01/10/29	A		

Appendix H

NOT USED

APPENDIX I

9 May, 2002

Commercial/Technical Conditions

For

The Provision Of Field Services
(Technical Direction Assistance)

For

The Installation And Commissioning Of
TENASKA POWER EQUIPMENT, LLC
CONTRACT FOR PURCHASE
STEAM TURBINE GENERATOR

Contents

Commercial Conditions – Section A

1.0 General

This document pertains to the supply of Technical Directional Advisors ("TA"s) supplied by Seller, Mitsubishi Power Systems, Inc. ("MPS", hereinafter referred as Seller), for the installation and start up of the Steam Turbine Generator for Tenaska Power Equipment, LLC ("Buyer"). An organization chart is attached to this document, for reference (see attachment A-1). Proposed dispatch schedule is based on the expected project schedule--see Attachment A-2(a). The recommended on-site dates may be re-scheduled or varied to suit project status as directed by Buyer/EPC Contractor. The personnel listed in this document is TAs for the Steam Turbine Generator supplied by Seller.

TAs supplied by Seller will provide guidance only during the installation and commissioning of Equipment supplied by Seller (see section B, 2.0). Where there is a conflict between any information provided by Seller, Buyer/EPC Contractor shall identify and consult with Seller to resolve such conflict. If there is conflict between verbal instruction and written instruction, the latter will take precedence over the former. The provision of TAs shall not relieve Buyer/EPC Contractor in any way from executing its contractual obligations.

The Buyer/EPC Contractor shall ensure that the latest revision of all necessary erection documents are available prior to erection of this Equipment.

2.0 Price

2.1 Price Schedule:

The number of TA included in the Contract is 142 man-weeks. The following chart shows TA man-weeks who will be assigned to Steam Turbine Generator erection and commissioning work.

Project Phase	Estimated man-weeks
Turbine Proper(MPS)	110.2
Generator	31.8
Overall Total:	**142**

2.2 Inclusions & Omissions:

Included in the above price are all of the following:

- Salaries/ Wages/ Bonuses
- Home office support
- Vacation Allowance
- Medical Insurance
- Personal Accident Insurance
- Workman's Compensation Insurance
- Personal protection equipment
- USA work visa charges
- International travel expenses(Economy class ticket)

- Domestic travel expenses
- Local accommodation
- Per diems
- Local transportation expenses
- Computer hardware and software to the extent required by Seller

Not included in the Contract Price are the following:

- Site accommodation – offices, furniture, water dispenser, heating & air conditioning
- Photocopy service
- Telephone, Telex and telecommunications service including equipment supply and consumable as required for the performance of services covered by this document at the job-site
- Stationary
- The number of TA man-weeks is based upon the Steam Turbine Generator being erected and commissioned at the same site and same time period as Gas Turbine Units purchased under the separate GTG Contract; should this work not be performed at the same site during the same time period, Seller may invoice Buyer for incremental reasonable travel expenses caused by such separation.

2.3 Additional TA:

If Buyer/EPC Contractor requires Seller to provide more than 142 man-weeks, Buyer shall be invoiced for the additional number of man-weeks based on the section 3.0 below. However, Buyer shall not be invoiced if additional TA personnel are dispatched to troubleshoot Seller's equipment, to re-perform non-compliant TA services, or for any other cause attributable to Seller. Buyer shall be invoiced for additional TA services, including expenses, incurred due to schedule extension not caused by Seller. Seller shall be responsible for additional TA services, including expenses, resulting from either schedule delay or additional commissioning support needed due to Seller supplied Equipment and system problems.

3.0 Terms & Conditions

3.1 Work Schedule:

Pursuant to the Contract, a man-week is forty (40) hours of technical advisory services.

3.2 Overtime:

Overtime shall be calculated pursuant to Section 19.1 of the Contract.

3.3 Adjustment of the TA:

In case that the additional TA dispatch is required for reasons outside of Seller's responsibility, the price will be adjusted in accordance with attachment B-1.

3.4 Time Sheet:

Seller's representative at job-site is responsible for the accuracy of Seller's TA time sheet. Seller will only submit its TA's time sheet with the monthly invoice for the additional TA dispatch and/or over time work.

3.5 Special Hardship Premium:

Seller reserves the right to assess special hardship premium for assignments, as mutually agreed between Seller and Buyer/EPC Contractor, which entail unusual or extreme environmental working conditions.

3.6 Labor Permit:

Buyer/EPC Contractor shall assist in securing any labor permit or any other authorization which may be required to permit Seller's personnel to perform the services and any loss of it's services pending the procurement of any such permit or authorization, which shall be for Seller's account.

3.7 Rotation:

Seller's TA is entitled to two consecutive weeks home visitation per six months of working assignment which, if taken, must be taken consecutively. All home visitation time will be specifically scheduled and approved in advance by site representatives of the Buyer/EPC Contractor. Home visitation time will not be billed to Buyer/EPC Contractor.

3.8 Travel time:

Eight (8) hours travelling time will be counted as working and/or charged for each event of mobilization, de-mobilization and home visitation travel. This travelling time for 142 man-week TAs is included in the Contract. As for additionally dispatched TA s, the travelling time shall be invoiced in the rate of attachment B-1.

3.9 Payment Terms for overtime and additional TA:

Seller will submit the invoice based on the certified time sheets. Payment terms are as follows:

- Monthly billing 100% of Billing value at the end of each month according to actual dispatch of additional TA and the overtime work.
- All invoice shall be paid by Buyer/EPC Contractor on a net 30 days basis after Seller's submission of invoice (non-payment for undisputed amount over 30 calendar days after the due date will create Seller's right to suspend the work).

Buyer/EPC Contractor shall not be obligated to reimburse Seller for any costs or expenses associated with replacing any of Seller's personnel that are discharged for cause.

4.0 Manpower Dispatch Schedule

Please refer to attachment A-1 and A-2 for an estimate of effective start and finish dates for all personnel relative to the project schedule.

4.1 TA Services of MPS Portion /ST:

No.	Candidate	Duration (Weeks)	Remark
A	**Erection Phase**		
1	Foundation TA	1.7	
2	Steam Turbine TA	38.3	
3	Piping TA	2.9	
4	I&C (ST) TA	15.8	
B	**Commissioning Phase**		
1	Lead Start Up TA	14.2	
2	Start Up TA (1)	9.4	
3	Start Up TA (2)	3.4	
4	I&C Commi. TA ((ST)	12.0	
5	Control TA (ST)	10.8	
6	Battery TA	1.7	
	Total	**110.2**	/ ST

4.2 TA Services of GENERATOR Portion:

No.	Candidate	Duration (Weeks)	Remark
A	**GENERATOR Portion**		MELCO
1	Gen. Ass'y TA	7.7	
2	AVR & Protection TA	3.4	
3	Mechanical Comm. TA	9.1	
4	Electrical Comm. TA	8.2	
5	Static Frequency TA	3.4	
	Total	**31.8**	

Section B – Technical Conditions

1.0 Project Schedule

1.1 Schedule of Construction and Start-Up:

For project, Seller has allocated one piping TA for the construction phase. This is a necessity to ensure pipe cleanliness during installation.

1.2 Duration – Commissioning Activities:

- Steam Turbine Generator Pre-commissioning (90 days)
- Steam Turbine Generator Commissioning performed in associated with Seller supplied equipment.

2.0 Technical Directional Advisors (TA's) role and responsibility on site

The following shall serve to clarify the specific role and responsibility of the Seller TA(s) on site:

TA(s) shall act in an advisory capacity to the Buyer/EPC Contractor during the performance of their services and shall be responsible only for the advice and/or instructions provided, which shall be given to the personnel who are appointed as an authorized representative engineer of Buyer/EPC Contractor.

TA(s) are not authorized to directly supervise foremen, technicians or other craft personnel belonging to or engaged by the Buyer/EPC Contractor, either in whole or in part, but are available solely as consultant(s) to the Buyer/EPC Contractor personnel concerned with the project.

The Buyer/EPC Contractor shall appoint an authorized representative who shall stay at the job site and act on behalf of the Buyer/EPC Contractor and all communications shall be made only between him, or his designee, and the TA(s).

Notwithstanding any other provision contained within this document, it is recognized that the responsibility for the installation of the Equipment in accordance with the terms of the supplemental agreements, remains with Buyer/EPC Contractor and its subcontractors other than Seller, and that it is the responsibility of Buyer/EPC Contractor to ensure that Buyer/EPC Contractor uses an adequate quantity of qualified engineers, foremen, supervisors and craftsmen to install the Equipment, in accordance with the Seller's installation instructions, specifications and drawings, provided, however that Seller shall be responsible for the advice and instructions given in support of the work as stated herein.

With specific regard to commissioning, it is recognized that although Seller will provide services and advice for the commissioning of the Equipment supplied by Seller, it is Buyer/EPC Contractor responsibility to provide an adequate number of suitably qualified technicians, foremen, supervisors and craftsmen as reasonably requested to assist Seller in the performances of Seller's duties.

It is also required that although Seller will supply such services and advice for the commissioning of the Equipment, Seller shall only do so in the context of Buyer/EPC Contractor having overall responsibility plus leadership for the commissioning of the entire plant.

Specifically Seller's TA(s) shall provide:

2.1 Installation phase:

- Support in analysis and sequencing of erection work and review of planning as required.
- Support in planning of the number and type of personnel required for satisfactory erection of the Equipment.
- Support in preparation of time schedules.
- Assistance in insurance procedures in the event of transport damages.
- Interpretation and clarification of any discrepancies in the technical documentation supplied by Seller.
- Assistance in assessing qualification of erection personnel.
- Support in assessment of the quality of workmanship of erection personnel.
- Review of erection completion.
- Support in checking readiness for pre-commissioning activities.
- Ensure correct protocols for recording installation measurements.
- Assist in inspection of received material(s).,
- Provide the acceptance criteria of pipe flushing in advance.

Accordingly these activities shall not comprise of engagement in manual work ("hands on") nor in basic training of personnel carrying out erection activities. It is assumed that personnel of both the Buyer/EPC Contractor and its erection sub-contractors are sufficiently experienced in the erection of similar Equipment and require only project specific instructions.

2.2 Start Up Phase (Pre-commissioning & commissioning activities):

- Interpretation and approval of pre-commissioning activity results for lubrication oil flushing and control oil flushing.
- Provide power up and software check out of the Seller DDC system.
- Advise the Buyer/EPC Contractor commissioning personnel on commissioning activities.
- Advise the Buyer/EPC Contractor commissioning personnel on correct start-up procedure for the Seller supplied Equipment.
- Advise Buyer/EPC Contractor on loop checking of Seller supplied instrumentation.
- Advise Buyer/EPC Contractor on function checking of Seller Equipment.
- Advise Buyer/EPC Contractor on interface with plant DCS system.
- Assist and advise Buyer/EPC Contractor commissioning personnel on start-up of the Seller supplied Equipment.
- Assist and advise Buyer/EPC Contractor commissioning personnel on integration of the Seller supplied plant with the balance of plant equipment.

3.0 Job Specification

Position: All Technical Advisers

The purpose of this document is to highlight general responsibilities, which apply in addition to the particular requirements detailed in the Job Specification for each TA. These are activities include but are not limited to the following:

3.1 Weekly report:

Written weekly report covering items within the TA's responsibility to be issued to Buyer/EPC Contractor Site Manager under the following headings (provided in Sections 3.2 and 3.3):

3.2 Progress:

- Provide summary notes of job status.
- Identify any construction issues and corrective actions taken.
- Identify any design problems and corrective actions taken.

3.3 Materials Supply:

It is expected that Buyer/EPC Contractor or its erection sub-contractor shall receive and inspect the Seller's Equipment upon arrival at port/ site or soon after (within a two weeks period) including inspection of inner parts for short-shipped items or damages. It is recommended that Buyer/EPC Contractor assign a full time experienced Seller material controller for this support work. Seller shall not be responsible any omission of equipment discovered after such period.

4.0 TA Specific Responsibilities - Construction Phase

4.1 Not used:

4.2 Steam Turbine TA:

- Technical advice on material receipt.
- Ensure all deliverables on site to support timely erection of Equipment.
- Procurement of replacement items identified as short falls – miscellaneous items.
- Technical advice on pre-erection works.
- Technical advice on turbine alignment and erection works.
- Advise on erection planning and co-ordination.
- Evaluate QC procedure control and their administration.
- Heavy lift review.
- Interface with Seller on material specification/ design.

4.3 Piping TA:

- Responsible for all technical advice on piping works for Seller scope of supply.
- Selectively witness field welding in order to ensure the compliance with Seller specifications, codes, cleanliness and international standards.
- Selectively witness tractability of welding works on Seller supplied Equipment.
- Review of welding procedures prepared by erection contractor.
- Ensure all deliverables on site to support timely erection of piping.
- Technical advice on associated piping hook up.
- Support on preparation work for system flush and blow out.
- Advise on field run piping for unit drains including steam lines.

5.0 TA Specific Responsibilities – Start Up Phase

5.1 Lead Start up TA:

- Review of commissioning procedures and protocols.
- Co-ordination of commissioning work on Seller supplied Equipment.
- Commissioning planning & support for Seller activities and responsibilities.
- Review of Seller scope of work for commissioning.
- Review system check out and cleanliness (oil flushing approval).

- Interface with Buyer/EPC Contractor on commissioning activities.
- Assist and advise Buyer/EPC Contractor commissioning personnel on integration of the Seller supplied Equipment with the balance of plant equipment.
- Advise Buyer/EPC Contractor on over speed trip test, load operation test, load rejection test, 96 Hours operation at base load.

5.2 Steam Turbine Control TA:

- Assist and advise Buyer/EPC Contractor personnel on power up and software check out of the Seller DDC system.
- Advise the Buyer/EPC Contractor commissioning personnel on correct start-up procedure for the Seller supplied Equipment.
- Advise Buyer/EPC Contractor on loop checking of Seller supplied instrumentation.
- Advise Buyer/EPC Contractor on function checking of Seller Equipment.
- Advise Buyer/EPC Contractor on interface with plant DCS system.
- Assist and advise Buyer/EPC Contractor commissioning personnel on start-up of the Seller supplied control Equipment.
- Update drawings for changes made in the control system, as-built drawing.

5.3 Generator Mechanical Commissioning TA – lead Generator Representative:

Provide technical advice on the following:

- Review of commissioning procedures and protocols.
- Co-ordination of commissioning work on generator supplied equipment.
- Commissioning planning & support for generator activities.
- Review system check out and cleanliness (seal oil flush approval).
- Interface with Buyer/EPC Contractor on commissioning activities.

5.4 Excitation TA:

Responsible for technical advice on the following:

- Check out of exciters and associated auxiliaries.
- Excitation system test.
- Electrical test before synchronization.
- Synchronization.
- Electrical test after synchronzation.

5.5 Mechanical Commissioning TA- Steam Turbine:

Responsible for technical advice on the following:
Steam turbine pre-commissioning.
Initial running check of pumps/fans.
Lube oil flushing.
Steam blow for gland steam piping (from aux. steam line).
Initial steam admission to steam turbine.
Vibration analysis and field balancing.
Outage to remove temporary steam strainers.

END.

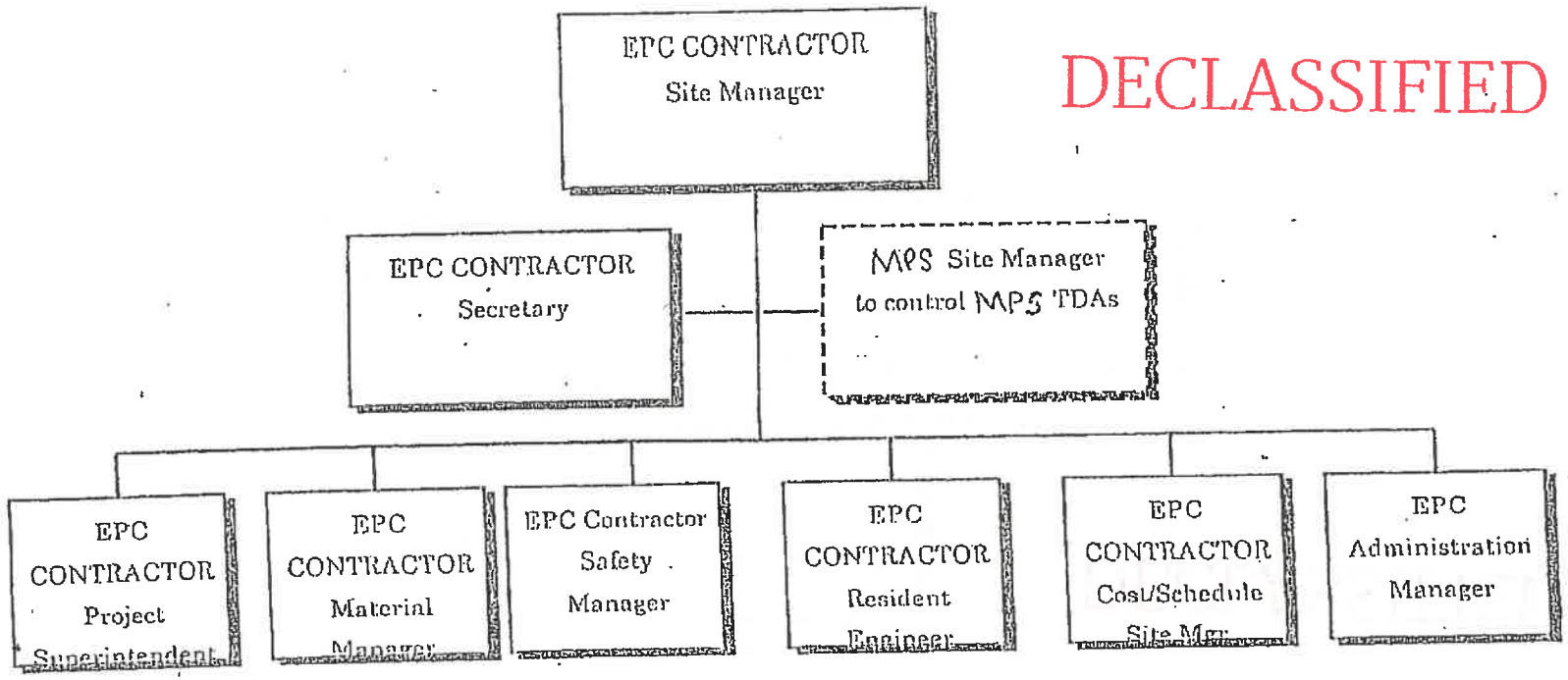
Attachments:

A-1 Organization of Erection & Commissioning Period
A-2 Erection & Commissioning Plan
- (a) Steam Turbine Generator of Tenaska Power Equipment, LLC

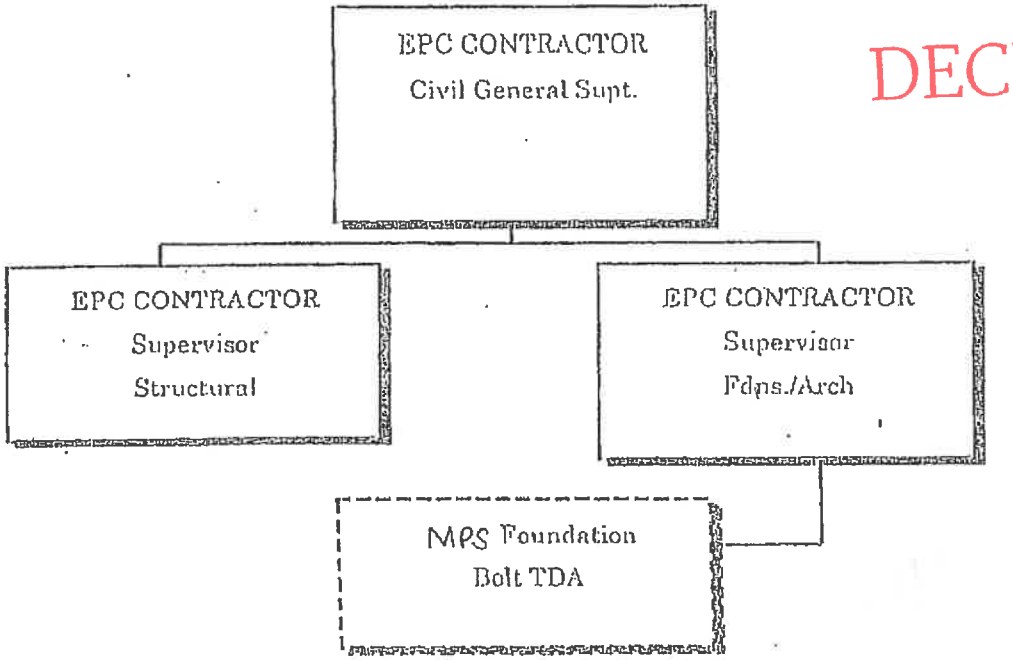
B-1 Field Service rate for additional TA

Attachment-A-1

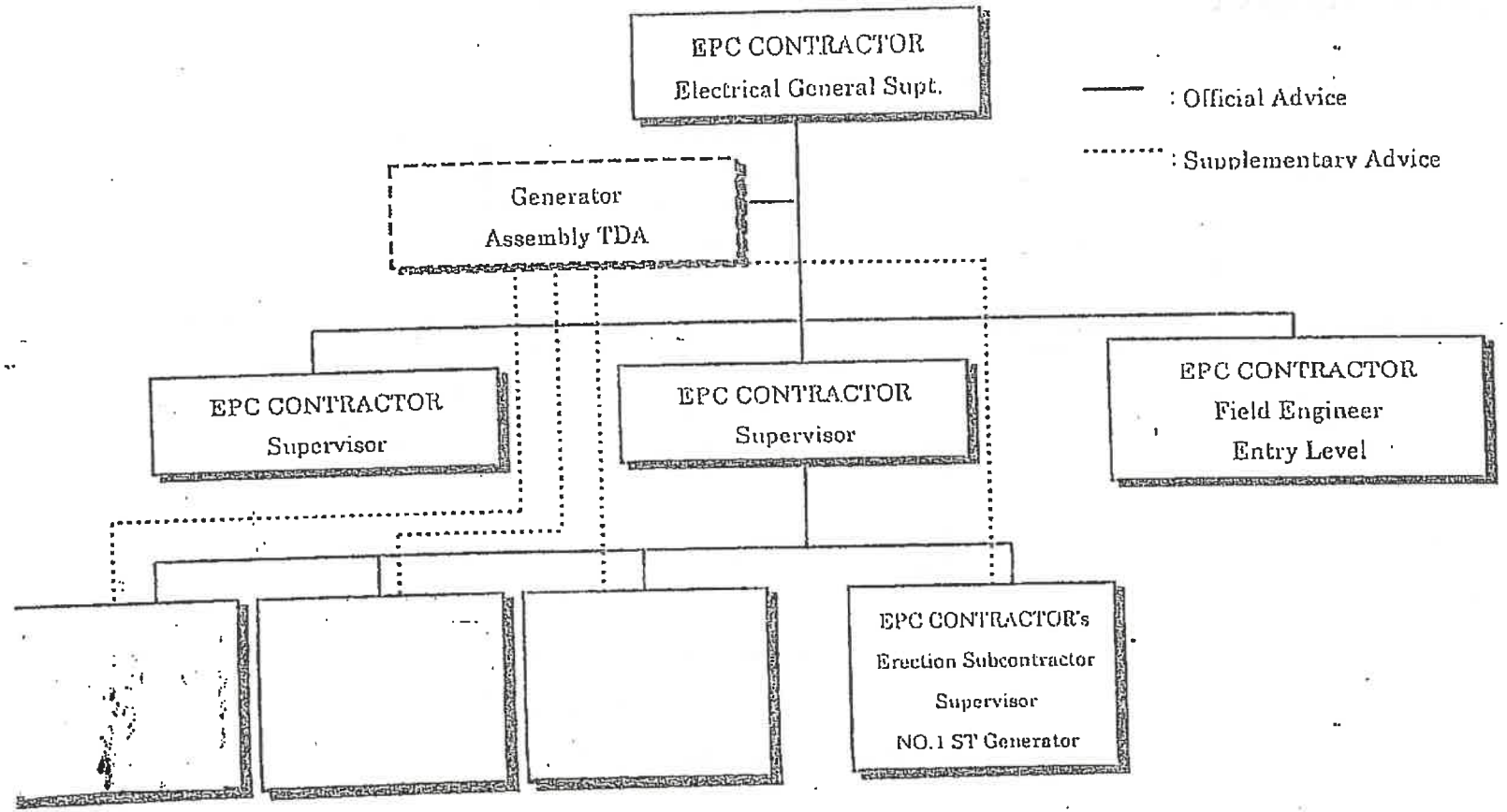
EPC CONTRACTOR & MPS
USA TENASKA
Site Management Team



EPC CONTRACTOR & MPS
USA TENASKA
Civil Construction Team



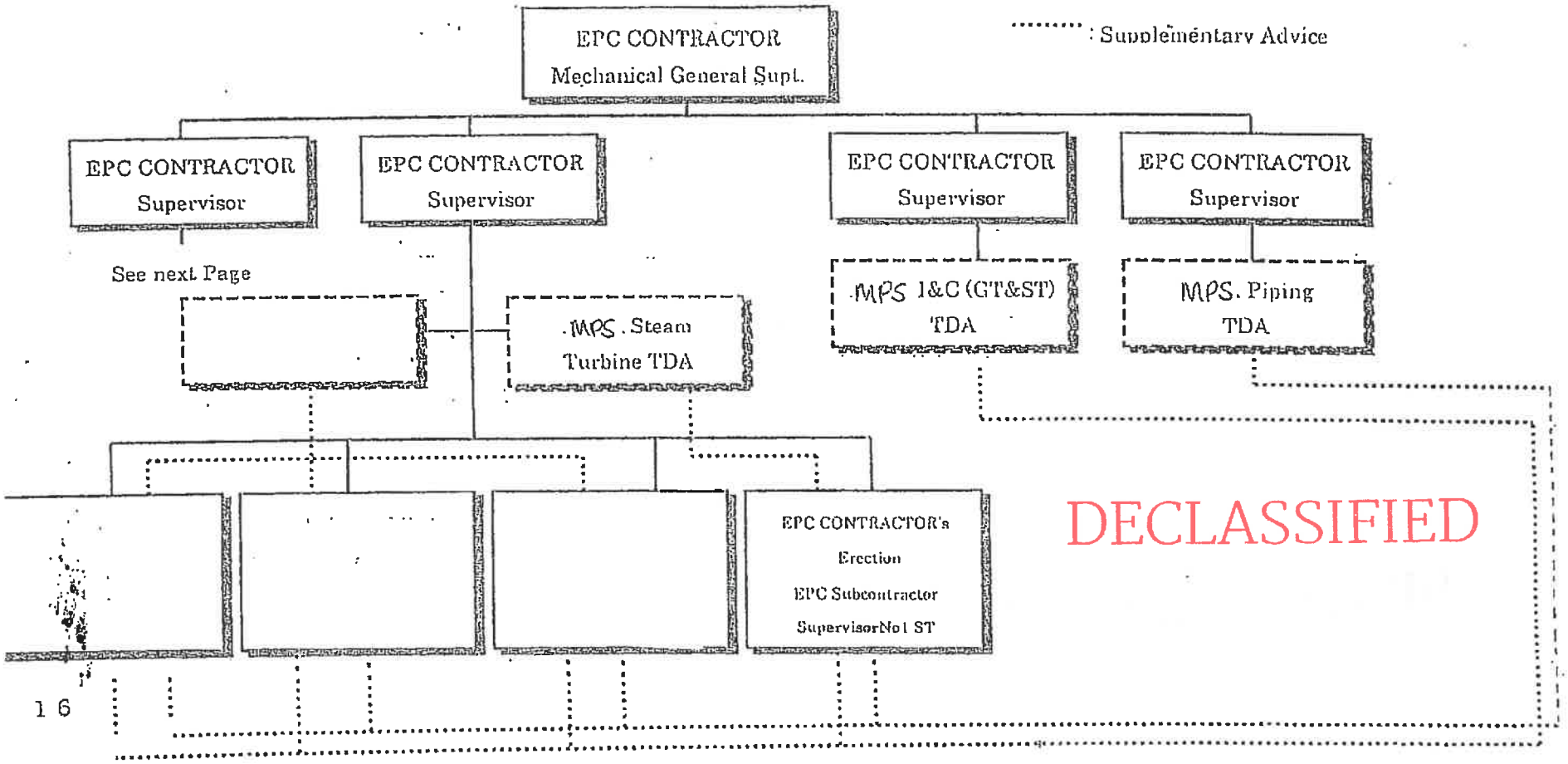
EPC CONTRACTOR & MPS
USA TENASKA
Electrical Construction Team



EPC CONTRACTOR & MPS
USA TENASKA
Mechanical Construction Team 1/2

—— : Official Advice

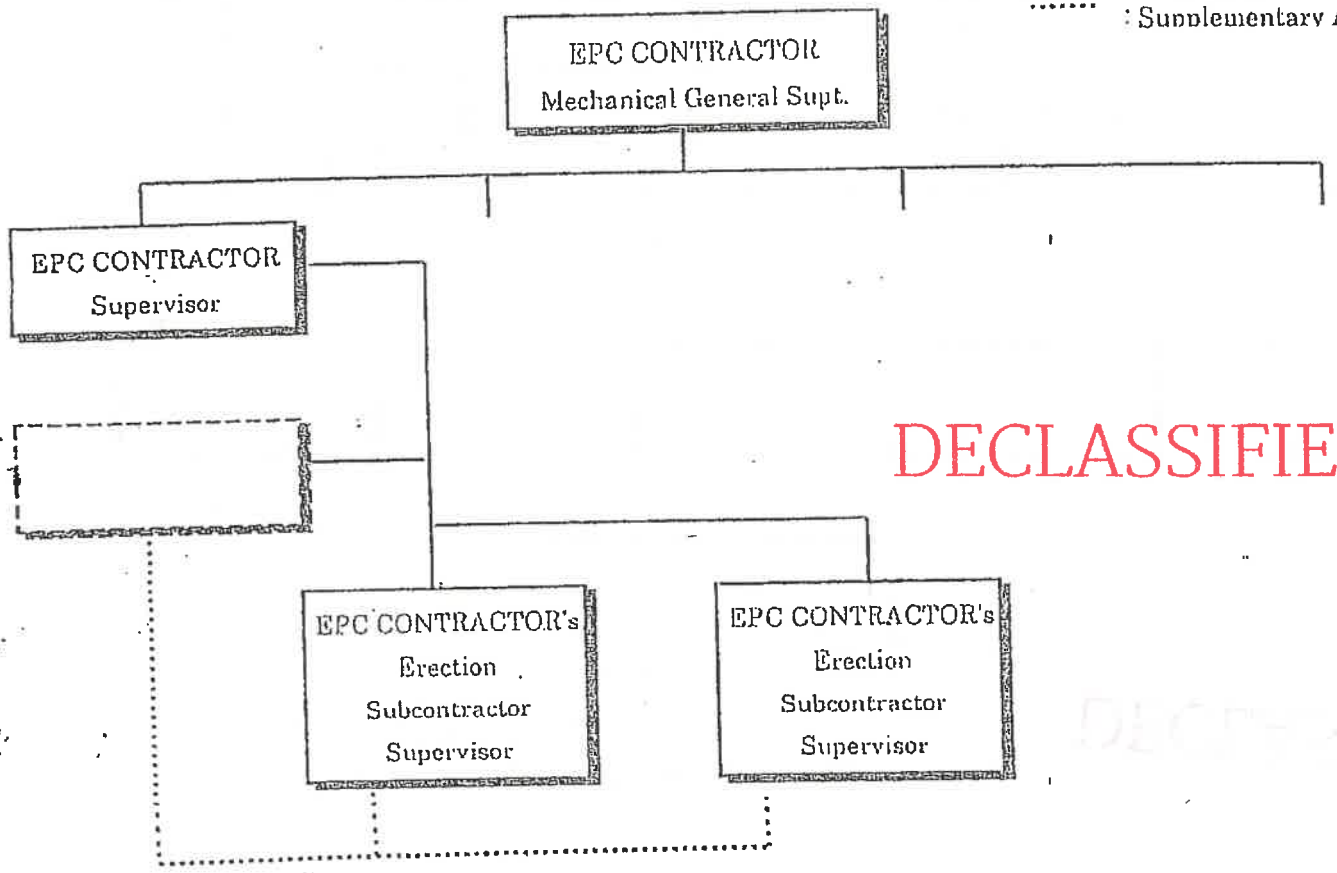
..... : Supplementary Advice



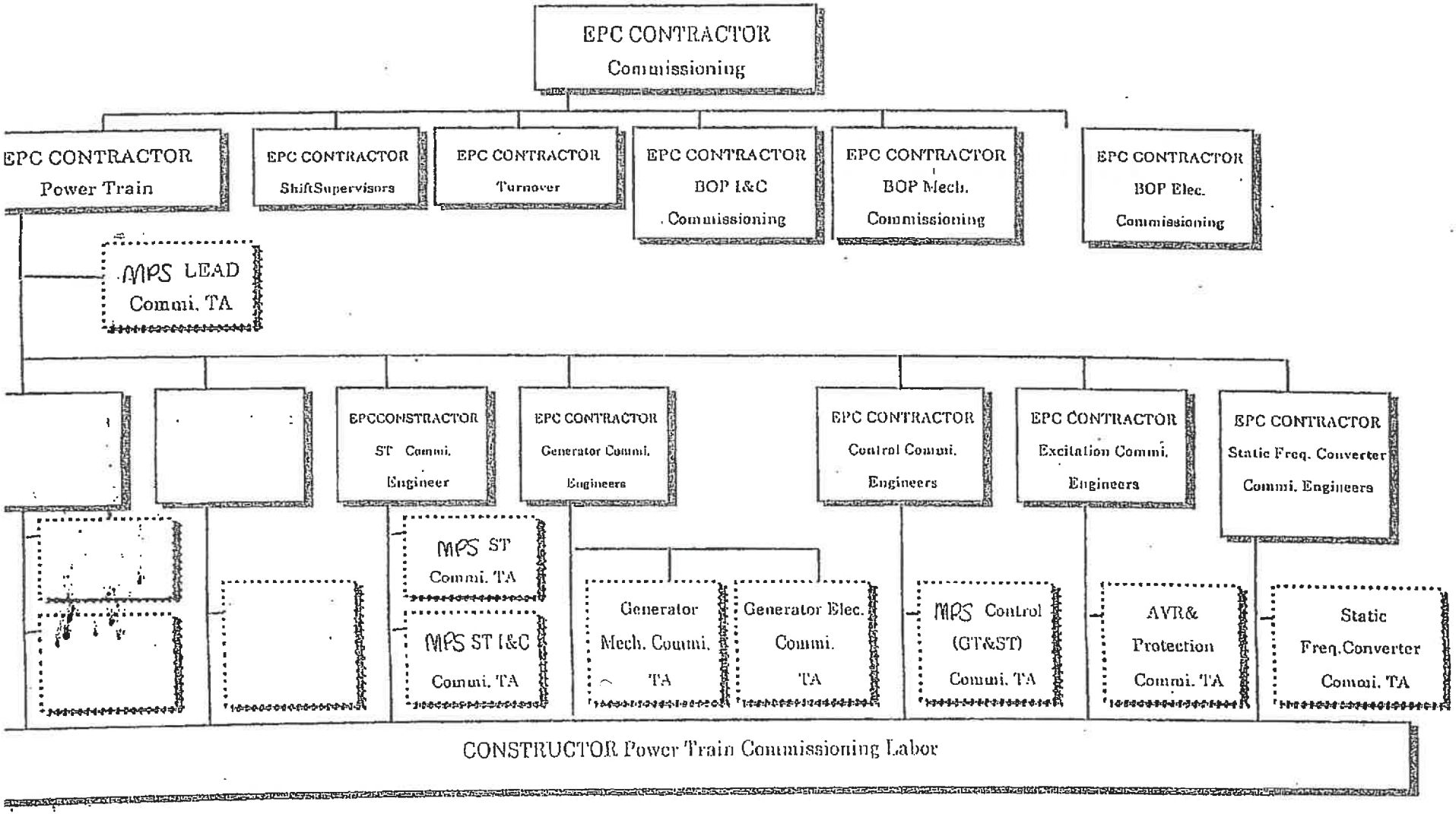
EPC CONTRACTOR & MPS
USA TENASKA
Mechanical Construction Team 2/2

——— : Official Advice

····· : Supplementary Advice



EPC CONTRACTOR & MPS
USA TENASKA
Commissioning Team



EPC CONTRACTOR & MPS
USA TENASKA
Commissioning Team (Suppleement)

MPS assumes CONTRACTOR's Power Train Commissioning Team as follows.

CONTRACTOR ST Commissioning Engineers

- NO.1 CONTRACTOR ST Commissioning Engineer

4. CONTRACTOR Generator Commissioning Engineers

- NO.1 CONTRACTOR ST Generator Commissioning Engineer

5. CONTRACTOR ST instrument & Control Commissioning Engineers

- NO.1 CONTRACTOR ST Instrument & Control Engineer

6. CONTRACTOR ST Excitation Engineers

- NO.1 CONTRACTOR ST Excitation Engineer

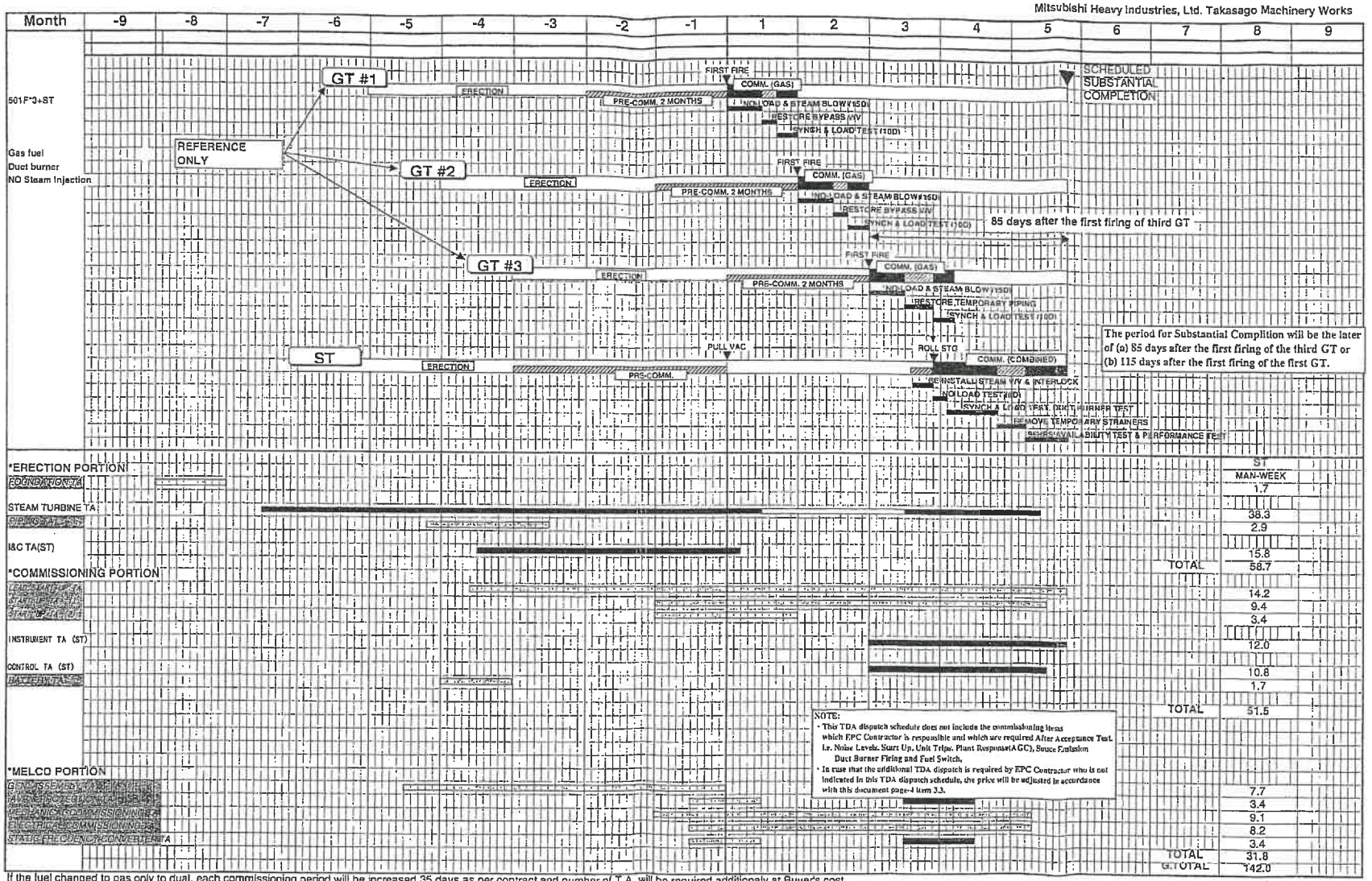
7. CONTRACTOR ·ST Static Frequency Enginees

- NO.1 CONTRACTOR ST Static Frequency Engineer

TENASKA Project Erection & Commissioning Plan (Including ST TDA Dispatch Schedule)
3on 1 C/C STG Portion

Attachment-A-2(a)

Mitsubishi Heavy Industries, Ltd. Takasago Machinery Works



	ST MAN-WEEK
	1.7
	38.3
	2.9
	15.8
TOTAL	58.7
	14.2
	9.4
	3.4
	12.0
	10.8
	1.7
TOTAL	51.5
	7.7
	3.4
	9.1
	8.2
	3.4
TOTAL	31.8
G.TOTAL	142.0

NOTE:
- This TDA dispatch schedule does not include the commissioning items which EPC Contractor is responsible and which are required After Acceptance Test. i.e. Noise Levels, Start Up, Unit Trips, Plant Response(AGC), Smoke Emission Duct Burner Firing and Fuel Switch.
- In case that the additional TDA dispatch is required by EPC Contractor who is not indicated in this TDA dispatch schedule, the price will be adjusted in accordance with this document page-4 item 3.3.

If the fuel changed to gas only to dual, each commissioning period will be increased 35 days as per contract and number of T.A. will be required additionaly at Buyer's cost

*Estimated On Site Date" shown above is not the responsibility to MHIA.

This man-week dispatch schedule is based on MHIA's experienced erection & commissioning schedule. The actual dispatch schedule will be developped in accordance with the Contract within 700man-week/block 1&2.

Green colored portion TA are common to cover GT & ST potion simultaniously. The dispatching schedule shown by bar chart is total dispached man-weeks. The proportion of the man-week assigned to ST work are shown in exact number in the right colum of abo

This schedule will be applicable only when GT and ST will be assigned to the same project site and be erectioned & commissioned at the same period.

ATTACHMENT B-I

2000

FIELD SERVICE RATES

LOCATION	STANDARD RATE
USA	$134 / HR

SCHEDULE OF CHARGES

A. APPLICATIONS

1. Travel Day	8 hours Standard Rate

Note 1: The above rate is net receivable amount and does not include any kind of tax and duties levied in the USA which shall be compensated at actual cost by purchaser.

Note 2: All subcontracted specialists will be billed to purchaser at cost plus 15% administration.

Note 3: Standby Time means any non-working hours from Monday to Friday except holidays in case working hours of a certain day does not reach eight (8) hours.

ATTACHMENT B-1

B. EXPENSES

1. Travel Expenses such as Airfare (Business class for International flights), Taxi, Rental car, etc. are invoiced at cost plus 5% handling fee.
2. Lodging is invoiced at cost plus 5% handling fee.
3. A per diem of $60.00/day is charged to cover food and incidentals.
4. Telephone, telefax, and telex communications shall be invoiced at cost.
5. Expenses (Passport, Visa, etc.) in connection with supervisor's preparation for departure will be charged at cost plus 10% handling fee.

C. TERMS

1. Validity :

   This rate is firm to December 31, 2002. After that, rate shall be adjusted by escalation.

2. Payment:

   100% cash payment within 30 days after presentation of seller's invoice

3. Time Sheet:

   The Seller's Supervisor will submit the time sheet daily to purchaser's representative at the field who shall approve time sheets daily. If purchaser has any questions per time sheets, purchaser shall assess and clarify with seller's representative at the field and determine the approved time sheet within a week.

   If purchaser fails to make the approved time sheet within a week, the seller is entitled to claim the service fee based on the time sheet which the seller's supervisor writes.

4. Special Hardship Premium:

   Seller reserves the right to assess special hardship premium for assignments deemed by seller to entail unusual or extreme enviromental working conditions.

5. Labor Permit:

   Purchaser shall secure any labor permit or any other authorization which may

be required to permit supervisor to perform the services and any loss of supervisor's services pending the procurement of any such permit or authorization shall be for purchaser's account.

6. Notice of Request / Cancellation:

In order to assure availability of Field Service Representative for installation/service, Seller requires a minimum of twenty-one (21) working days notice except in cases of emergency breakdowns/forced outages. Cancellation of a previously confirmed assignment within three (3) normal working days of the scheduled starting date shall be subject to a cancellation charge equiivalent to the value of two (2) regular working days.

7. Facilities and Service:

Purchser shall, at his expenses, provide supervisor with the following facilities and services.

a. Supply of Safety equipment
b. Adequate first aid & medical services
c. Communicaations facilities for the performance of supervisor's duty
d. Office with desk, chair, locker, etc.
e. Necessary labor & direct labor supervision
f. Installation equipment

(END OF SHEETS)

APPENDIX J

Division of Responsibility for Delivery

Delivery terms and conditions for Internationally-Sourced Items shall be DEQ Mobile port (*2) as per Incoterms 2000 and the one for Domestically-Sourced Items shall be DDP to the Delivery Point (*5) as per Incoterms 2000. Details are shown as follows:

Item	Responsibility	
	Internationally-Sourced Item	Domestically-Sourced Item
Unlashing, Hook on/off and Unloading from Vessel, Truck and Rail Carrier	Seller	Seller
Bond Fee	Seller(*1)	Seller
Harbor Maintenance Fee	Seller(*1)	Not applicable
Merchandise Processing Fee	Seller(*1)	Not applicable
Port Charge including Warfage Fee	Buyer	Not applicable
Pier Loading Fee	Buyer	Not applicable
Dock Handling Charge	Buyer	Not applicable
DDC (Destination Delivery Charge)	Buyer	Not applicable
DO Charge (Delivery Order Charge)	Buyer	Not applicable
Arrangement of truck, trailer, barge, floating crane, etc. and bonded area, storage area	Buyer(*4)	Buyer
Import Duty	Seller(*1)	Seller
Submitting Bill of Lading or Transport document applicable to the means of transport signed by the carrier	Seller	Seller
Authorization, formalities, documentation and import license for Customs Clearance and importation of equipment to U.S.	Buyer(*6)	Seller
Customs Clearance and its agent fee in U.S.	Buyer	Seller

*1 : Payments are made by Seller. Actual cost and fee shall be reimbursed to Seller by Buyer within 30 days after Seller's submission of invoice. Buyer will also reimburse the import duties for the equipment (not material) which Seller will ship to their sub-supplier in U.S. to assemble and/or install to the equipment manufactured in U.S.

*2 : If the Port of Entry is changed from Mobile, the price and delivery time are to be adjusted in accordance with the Contract.

*4 : Seller shall have the right to decide berthing point within the port of entry. Buyer shall timely arrange necessary number of trucks, trailers, barges and/or floating cranes, etc. and bonded area, storage area so that cargo can be unloaded and stored by Buyer without demurrage of vessel.

*5 : Delivery point means, with respect to Domestically-Sourced Items, the location designated by Buyer in Mobile, Alabama, unless changed by Buyer in accordance with Section 4.1 of the Contract.

*6 Notwithstanding the requirements under the DEQ trade term that Buyer obtain any required import license or other official authorization and carry out all customs formalities necessary for the importation of the Internationally-Sourced Items into the U.S.A., Buyer will use all reasonable efforts to designate Seller or an affiliate of Seller as the "Importer of Record" for purposes of U.S. customs clearance and Seller agrees to act as the "Importer of Record" for such purposes. Seller shall pay any Anti-Dumping duties or charges applicable to the importation of the Equipment.

APPENDIX K

SITE LEGAL DESCRIPTION

PARCEL A
LEGAL DESCRIPTION

BEGIN AT THE SOUTHWEST CORNER OF FRACTIONAL SECTION 33 T-20-S, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN N 00°07'22" E, 734.75 FEET TO A POINT LYING ON THE SOUTH BANK OF THE COOSA RIVER; THENCE RUN ALONG SAID BANK THE FOLLOWING COURSES, AND DISTANCES MORE OR LESS S 66 ° 50'47" E, 499.05 FEET; S 23 ° 46'46" W, 95.29 FEET; S 72 ° 57'02" E, 139.24 FEET; S 83 ° 45'12" E, 174.73 FEET; S 65 ° 02'27" E, 418.34 FEET; S 06 ° 32'44" E, 76.24 FEET; S 85 ° 44'32" E, 37.10 FEET; N 50 ° 45'28" E, 72.60 FEET; S 69 ° 04'16" E, 232.86 FEET; S 54 ° 37'54" W, 45.09 FEET; S 04 ° 41'38" E, 73.41 FEET; S 81 ° 20'36" E, 139.68 FEET; N 73 ° 36'35" E, 148.61 FEET; S 72 ° 45'17" E, 472.99 FEET; S 07 ° 07'31" E, 206.45 FEET; N 60 ° 44'34" E, 27.59 FEET; N 10 ° 27'13" E, 78.42 FEET; N 10 ° 54'32" W, 109.06 FEET; S 83 ° 29'11" E, 420.11 FEET; S 32 ° 01'19" E, 19.43 FEET; S 65 ° 18'24" W, 73.78 FEET; S 00 ° 50'10" E, 61.48 FEET; S 67 ° 12'05" E, 49.32 FEET; S 17 ° 42'07" E, 57.49 FEET; S 14 ° 48'38" W, 564.77 FEET; S 55 ° 00'12" E, 270.62 FEET; N 27 ° 38'32" E, 695.01 FEET; N 36 ° 57'45" W, 105.05 FEET; N 84 ° 30'43" W, 71.70 FEET; N 43 ° 45'50" W, 213.52 FEET; N 63 ° 54'38" E, 38.58 FEET; N 89 ° 15'18" E, 478.57 FEET; N 78 ° 44'15" E, 607.21 FEET; N 65 ° 15'03" E, 723.35 FEET; N 52 ° 00'21" E, 297.16 FEET; N 43 ° 58'29" E, 866.0 FEET TO A ANGLE IRON; THENCE LEAVING SAID SOUTH BANK OF THE COOSA RIVER RUN S 00 ° 26'33" W, 1121.50 FEET TO A FOUND AXLE LYING AT THE SOUTHEAST CORNER OF FRACTIONAL SECTION 33 T-20-S, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN S 00 ° 26'19" W, 1044.25 FEET TO A POINT LYING ON THE PRESCRIPTIVE NORTH RIGHT OF WAY OF McGOWANS FERRY ROAD (60' R.O.W.); THENCE RUN ALONG SAID RIGHT OF WAY S 84 ° 07'06" W, 224.22 FEET TO A POINT; THENCE RUN S 83 ° 38'48" W, 603.69 FEET TO A POINT; THENCE RUN S 84 ° 48'06" W, 511.10 FEET TO A POINT; THENCE RUN S 83 ° 43'09" W, 251.32 FEET TO A POINT; THENCE RUN S 80 ° 34'04" W, 725.34 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=745.02'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 87 ° 42'12" W, 185.09 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN N 85 ° 09'39" W, 1174.0 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=1879.37'); THENCE RUN ALONG SAID RIGHT OF WAY, AND

SAID CURVE A CHORD OF N 78 ° 07'36", 460.30 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN N 71 ° 05'33" W, 959.84 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=1018.12'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF N 81 ° 37'00" W, 371.92 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN S 87 ° 51'33" W, 427.08 FEET TO A POINT; THENCE RUN S 83 ° 22'15" W, 679.77 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=176.86'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 41 ° 25'55" W, 236.41 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE LEAVING SAID PRESCRIPTIVE RIGHT OF WAY RUN N 00 ° 02'56" W, 1113.94 FEET TO A POINT; THENCE RUN S 89 ° 08'30" E, 1339.27 FEET TO THE POINT OF BEGINNING.

SAID DESCRIBED PROPERTY LYING AND BEING SITUATED IN FRACTIONAL SECTION 33 T-20-S, R-2-E, AND SECTIONS 4 AND 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA AND CONTAINS 189.87 ACRES (8,270,551 S.F.) MORE OR LESS.

PARCEL B
LEGAL DESCRIPTION

BEGIN AT THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4 T-21-5, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN N 89°15'04" W, 1319.08 FEET TO AN ANGLE IRON; THENCE RUN N 00°16'58" E, 1318.62 FEET TO AN ANGLE IRON; THENCE RUN N 89°15'28 W, 1321.17 FEET TO A QUARTER INCH REBAR; THENCE RUN N 00°11'36" E, 1318.63 FEET TO AN ANGLE IRON; THENCE RUN N 89°19'20" W, 1323.73 FEET TO AN IRON PIN; THENCE RUN N 89°08'30" W, 1287.13 FEET TO A POINT LYING ON THE EAST PRESPECTIVE RIGHT OF WAY OF MCGOWANS FERRY ROAD (60' R.O.W.); THENCE RUN ALONG SAID RIGHT OF WAY N 04°11'54" E, 232.20 FEET TO A POINT; THENCE RUN N 01°51'31" E, 223.40 FEET TO A POINT; THENCE RUN N 00°30'25" W, 1049.83 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=116.86'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF N 41°25'55" E, 156.21 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY N 83°22'15" E, 677.42 FEET TO A POINT; THENCE RUN N 87°51'33" E, 424.72 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=958.12'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 81°37'00" E, 350.0 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY S 71°05'33" E, 959.84 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=1939.37'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 78°07'36" E, 475.0 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY S 85°09'39" E, 1174.0 FEET TO A

POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=805.02'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF N 87°42'12" E, 200.0 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY N 80°34'04" E, 723.69 FEET TO AN IRON PIN; THENCE LEAVING SAID PRESCRIPTIVE RIGHT OF WAY RUN S 04°52'54" E, 1356.15 FEET TO AN IRON PIN; THENCE RUN S 89°13'53" E, 122.90 FEET TO AN ANGLE IRON; THENCE RUN S 00°22'05" W, 2637.33 FEET TO THE POINT OF BEGINNING.

SAID DESCRIBED PROPERTY LYING AND BEING SITUATED IN SECTIONS 4 AND 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA AND CONTAINS 287.88 ACRES (12,540,132 S.F.) MORE OR LESS.

PARCEL C
LEGAL DESCRIPTION

BEGIN AT THE SOUTHEAST CORNER OF SECTION 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN S 89 ° D46'30" W, 1298.30 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=968.25'), AND ALSO LYING ON THE PRESCRIPTIVE EAST RIGHT OF WAY OF McGOWANS FERRY ROAD (60.0' R.O.W.); THENCE RUN ALONG SAID CURVE, AND SAID RIGHT OF WAY A CHORD OF N 17 ° D24'41" W, 384.04 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY N 28 ° D51'00" W, 361.91 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=431.07'); THENCE RUN ALONG SAID CURVE, AND SAID RIGHT OF WAY A CHORD OF N 15 ° D16'51" W, 202.27 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY N 01 ° D42'42" W, 160.27 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=508.25'); THENCE RUN ALONG SAID CURVE, AND SAID RIGHT OF WAY A CHORD N 06 ° D13'15" E, 140.28 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY N 14 ° D09'13" E, 312.83 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY N 16 ° D02'33" E, 556.23 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY N 14 ° D32'42" E, 309.22 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY N 08 ° D38'10" E, 205.51 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY N 04 ° D11'54" E, 141.52 FEET TO A POINT; THENCE LEAVING SAID EAST RIGHT OF WAY RUN S 89 ° D08'30" E, 1287.13 FEET TO A POINT; THENCE RUN S 00 ° D06'58" W, 2635.37 FEET TO THE POINT OF BEGINNING.

SAID DESCRIBED PROPERTY LYING AND BEING SITUATED IN FRACTIONAL SECTION 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA AND CONTAINS 89.43 ACRES (3,895,462 S.F.) MORE OR LESS.
LESS AND EXCEPT ALL LANDS LYING BELOW ELEVATION 398 FEET.
SUBJECT TO FLOOD EASEMENT GRANTED TO ALABAMA POWER COMPANY.

PARCEL D
LEGAL DESCRIPTION

COMMENCE AT THE SOUTHEAST CORNER OF SECTION 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN S 89 ° D46'30" W, 1358.62 TO THE POINT OF BEGINNING, SAID POINT LYING ON THE PRESCRIPTIVE WEST RIGHT OF WAY OF McGOWANS FERRY ROAD; THENCE LEAVING SAID RIGHT OF WAY RUN S 89 ° D46'30" W, 2877.52 TO A POINT LYING ON THE EAST BANK OF THE COOSA RIVER; THENCE RUN ALONG SAID BANK THE FOLLOWING COURSES AND DISTANCES MORE OR LESS N 52 ° D23'10" W, 139.74 FEET; N 01 ° D12'03" E, 121.97 FEET; N 08 ° D17'42" E, 152.20 FEET; N 02 ° D08'55" W, 89.38 FEET; N 28 ° D27'07" W, 56.18 FEET; N 11 ° D40'53" E, 136.87 FEET; N 00 ° D06'36" W, 193.79 FEET; N 09 ° D38'53" W, 100.36 FEET; S 72 ° D02'06" W, 39.40 FEET; N 05 ° D36'49" E, 84.80 FEET; N 22 ° D19'40" W, 62.50 FEET; N 13 ° D38'51" E, 383.16 FEET; N 20 °D45'20" E, 126.34 FEET; N 30 ° D46'12" E, 200.98 FEET; N 15 ° D02'43" E, 243.60 FEET; N 30 ° D55'54" E, 392.58 FEET; S26 ° D17'15"E, 252.31 FEET; S37 ° D11'40"E, 207.14 FEET; S48 ° D37'35"E, 144.55 FEET; N26 ° D46'23"E, 49.72 FEET; N36 ° D35'44"W, 73.99 FEET; N01 ° D10'01" W, 102.86 FEET; N01 ° D57'14"W, 199.07 FEET; N43 °D29'12"W, 193.68 FEET; N23 ° D02'01"W, 171.00 FEET; N83 ° D10'48"W, 86.36 FEET; N 24 ° D06'53" E, 324.63 FEET; S82 ° D38'05"E, 49.07 FEET; S19 ° D31'24"E, 141.52 FEET; S55 ° D24'16"E, 192.73 FEET; N52 °D40'59"E, 283.22 FEET; N12 ° D29'54"W, 103.69 FEET; N41 ° D31'09"E, 55.44 FEET; S74 ° D18'43"E, 150.96 FEET; N57 ° D18'37"E, 82.97 FEET; N27 ° D57'26"E, 132.27 FEET; N74 ° D51'03"E, 210.97 FEET; S60 ° D33'42"E, 69.91 FEET; N33 ° D47'12"E, 154.54 FEET; N29 ° D14'15"W, 118.66 FEET; N55 ° D54'12"W, 152.36 FEET; N82 ° D13'17"W, 86.37 FEET; S63 ° D59'17"W, 105.70 FEET; S49 ° D44'34"W, 234.94 FEET; S70 ° D24'21"W, 136.44 FEET; S47 ° D28'13"W, 155.96 FEET; N87 ° D47'54"W, 98.68 FEET; S29 ° D05'27"W, 130.08 FEET; N76 ° D30'04"W, 110.88 FEET; N 32 ° D12'39" E, 200.71 FEET; N 23 ° D11'23" E, 373.46 FEET; N 29 ° D45'46" E, 208.85 FEET; N 26 ° D34'00" E, 306.0 FEET; N 26 ° D35'12" E, 275.40 FEET; N 29 ° D00'16" E, 602.36 FEET; N 22 ° D38'08" E, 124.56 FEET; N 29 ° D23'15" E, 661.85 FEET; N 31 ° D23'13" E, 584.99 FEET; N 62 ° D02'10" E, 381.40 FEET; N 80 ° D33'50" E, 368.27 FEET; S 89 ° D56'48" E, 833.18 FEET; S 83 ° D51'04" E, 561.22 FEET TO A POINT; THENCE LEAVING SAID BANK RUN S 00 ° D07'22" W, 734.75 FEET TO A FOUND AXLE LYING AT THE SOUTHWEST CORNER OF FRACTIONAL SECTION 33 T-20-S, R-2-E TALLADEGA COUNTY, ALABAMA; THENCE RUN N 89 ° D08'30" W, 1339.27 FEET TO A POINT; THENCE RUN S 00 ° D02'56" E, 1134.94 TO A POINT LYING ON THE PRESCRIPTIVE WEST RIGHT OF WAY OF McGOWANS FERRY ROAD (60.0' R.O.W.); THENCE RUN ALONG SAID RIGHT OF WAY S 00 ° D30'25" E, 1048.59 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY S 01 ° D51'31" W, 220.94 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY S 04 ° D11'54" W, 370.18 TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY S 08 ° D38'10" W, 200.09 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY S 14 ° D32'42" W, 305.34 FEET TO A POINT; THENCE RUN

ALONG SAID RIGHT OF WAY S 16 ° D02'33" W, 556.44 FEET TO A POINT; THENCE RUN ALONG SAID RIGHT OF WAY S 14 ° D09'13" W, 313.81 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=568.25'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 06 ° D13'15" W, 156.85 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY S 01 ° D42'42" E, 160.27 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE LEFT (RADIUS=491.07'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 15 ° D16'51" E, 230.43 FEET TO A POINT LYING AT THE END OF SAID CURVE; THENCE RUN ALONG SAID RIGHT OF WAY S 28 ° D51'00" E, 361.91 FEET TO A POINT LYING AT THE BEGINNING OF A CURVE TO THE RIGHT (RADIUS=908.25'); THENCE RUN ALONG SAID RIGHT OF WAY, AND SAID CURVE A CHORD OF S 17 ° D36'07" E, 354.32 FEET TO THE POINT OF BEGINNING.

SAID DESCRIBED PROPERTY LYING AND BEING SITUATED IN FRACTIONAL SECTION 32 T-20-S, R-2-E, AND FRACTIONAL SECTION 5 T-21-S, R-2-E TALLADEGA COUNTY, ALABAMA AND CONTAINS 298.59 ACRES (13,006,397 S.F.) MORE OR LESS.
LESS AND EXCEPT ALL LANDS BELOW ELEVATION 398 FEET.

APPENDIX L

Inspection and Test Plan

DECLASSIFIED

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLADEGA GENERATING STATION

INSPECTION AND TEST PLAN AT SHOP

FOR STEAM TURBINE

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS

CONTENT		REMARKS	PURCHASER	ORDER No. ITEM No.	Quality Assurance Department Power Plant Quality Control Section	
DESCR.	— PAGES		TENASKA	6-704301	APPROVED BY	H. TAKAYA
FIGURE	— PAGES			6100	CHECKED BY	J.L. for M. WAKAMATSU
TOTAL	7 PAGES				DESIGNED BY	C. ROGGELIN
					1st ISSUE	NOVEMBER 10th, 2000
					DWG. No.	A D - 1 0 8 9 5 R-2

COPY TO	CUSTOMER	MHIA	原輸一	PM	原部購	外注課	機購	CC設	ア機設	タ設	配設	工務	組(一)	組(二)	ア工(板)	高部	ア工(管)	重購	ア総管G	アレード	建設	試検	機品管	控
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PA. CODE	P-00010	C. CODE	T01-A10-002

GENERAL DISCRIPTION

This Inspection and Test Plan, hereinafter called "ITP", covers the inspection and testing items for each manufacturing stage of major mechanical components and/or systems for the STEAM TURBINE supplied to the TENASKA PROJECT. The inspections are carried out at the Shop of MHI TAKASAGO and/or at the shop of its Sub-Vendors. The scope of supply is specified in this ITP which identifies the items to be inspected/tested and the witness classification.

i) Abbreviations of Non-Destructive Examinations in this ITP are as follows :

RT: Radiographic Examination
UT: Ultrasonic Examination
MT: Magnetic Particle Examination
PT: Liquid Penetrant Examination

ii) Inspection symbols used for the inspections in this ITP are as follows:

"I": "Inspection"
"H": "Hold Point"
"W": "Witness Point"
"DR": "Document Review"
"RS": "Record Submission"
"—": "Not Applicable"

iii) For the TENASKA PROJECT the following ITP's are being issued:

~~a) ITP AD-20634 for GAS TURBINE~~
b) ITP AD-10895 for STEAM TURBINE
c) ITP AD-10896 for ~~GAS TURBINE &~~ STEAM TURBINE AUXILLARIES
d) ITP AD-20637 for CONTROL SYSTEM & INSTRUMENTS
~~e) ITP AD-20625 for HEAT RECOVERY STEAM GENERATOR~~

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NSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

DOC. No. : AD-10895 Rev.2

SUBSYSTEM : 1.1 STEAM TURBINE

PAGE : 3 OF 5

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
.1.1	HIP Turbine Rotor Shaft	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	I	OR	—	—	
		Non-Destructive Examination(UT) (at Drum Profile)	MHI Standard	MHI Standard	Test Certificate	I	W	—	—	
		Non-Destructive Examination(MT) (after machining)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	
.1.2	LP Turbine Rotor Shaft	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	I	OR	—	—	
		Non-Destructive Examination(UT) (at Drum Profile)	MHI Standard	MHI Standard	Test Certificate	I	W	—	—	
		Non-Destructive Examination(MT) (after machining)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	
.1.3	HIP Turbine Casing	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	I	OR	—	—	
		Non-Destructive Examination(PT)	MHI Standard	MHI Standard	Test Certificate	I	OR	—	—	For machined surfaces
		Non-Destructive Examination(MT)	MHI Standard	MHI Standard	Test Certificate	I	OR	—	—	
		Non-Destructive Examination(UT)	MHI Standard	MHI Standard	Test Certificate	I	OR	—	—	
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	—	W	—	—	
.1.4	LP Turbine Casing	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	I	OR	—	—	
		Non-Destructive Examination on Welds (MT)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	For pressure retaining welds
.1.5	Journal Bearings and Thrust Bearings	Chemical Composition Check for White Metal	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	I	OR	—	—	
		Non-Destructive Examination for Adhesion Check (UT & PT)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	
.1.6	Overspeed Trip Device	Function Test	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

SUBSYSTEM : 1.1 STEAM TURBINE

DOC. No. : AD-10895 Rev.2

PAGE : 4 OF 5

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufactured	MHI	Client		
1.1.7	Stationary Blades (Mill Out & Forged Blades)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	I	DR	—	—	
		Non-Destructive Examination(MT) (After Final Machining)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	
1.1.8	Stationary Blades (Cast Blades)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	I	DR	—	—	
		Non-Destructive Examination(PT)	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
1.1.9	Rotating Blades (Mill Out & Forged Blades)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawing	Material Spec. as per Drawing	Mill Certificate (Mill Sheet)	I	DR	—	—	
		Non-Destructive Examination(MT) (After Final Machining)	MHI Standard	MHI Standard	Test Certificate	—	W	—	—	
1.1.10	Assembled Rotor	Runout Check	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	—	W	—	—	
		High Speed Balance Test and Overspeed Test	As per applicable Procedure	As per applicable Procedure	Test Report	—	W	W	—	
1.1.11	Turbine Assembly	Clearance Check between rotating and stationary parts	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	—	W	—	—	
		Packing Inspection	As per applicable Procedure	As per applicable Procedure	Packing List	—	W	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. STEAM TURBINE

DOC. No. : AO-10895 Rev.2

SUBSYSTEM : 1.2 MAIN VALVES

PAGE : 5 OF 5

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mill	Client		
1.2.1	HP Stop Valve and Control Valve	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	1	DR	—	—	
		Non-Destructive Examination(MT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Non-Destructive Examination(UT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	—	W	W	—	For HP SV & CV Assembly
		Actuator Function Test	Mill Standard	Mill Standard	Test Certificate	1	W	—	—	Actuators will be tested on their own.
1.2.2	IP Stop Valve and Control Valve	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	1	DR	—	—	
		Non-Destructive Examination(MT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Non-Destructive Examination(UT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	—	W	W	—	For IP SV & CV Assembly
		Actuator Function Test	Mill Standard	Mill Standard	Test Certificate	—	W	—	—	Actuators will be tested on their own.
1.2.3	LP Stop Valve and Control Valve	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	1	DR	—	—	
		Non-Destructive Examination(MT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Non-Destructive Examination(UT)	Mill Standard	Mill Standard	Test Certificate	1	DR	—	—	For valve body
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	—	W	—	—	For LP SV & CV Assembly
		Actuator Function Test	Mill Standard	Mill Standard	Test Certificate	—	W	—	—	Actuators will be tested on their own.

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLADEGA GENERATING STATION

INSPECTION AND TEST PLAN AT SHOP

FOR ~~GAS TURBINE AND~~
STEAM TURBINE AUXILIARIES

DECLASSIFIED

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS

CONTENT		REMARKS	PURCHASER	ORDER No. ITEM No.
DESCR.	— PAGES		TENASKA	6-704301 6-545101
FIGURE	— PAGES			
TOTAL	18 PAGES			6100

Quality Assurance Department
Power Plant Quality Control Section

APPROVED BY	H. TAKAYA
CHECKED BY	2 2001 for M. WAKAMATSU
DESIGNED BY	ROGGE[illegible]
1st ISSUED	NOVEMBER 10th, 2000

QUALITY ASSURANCE DEPARTMENT
QUALITY CONTROL

DWG. No. AD-10896 R-2

COPY TO																							
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PA. CODE	P-00010	C. CODE	T0[illegible]A10-002

GENERAL DISCRIPTION

This Inspection and Test Plan, hereinafter called "ITP", covers the inspection and testing items for each manufacturing stage of major GT and ST Auxiliaries supplied to the TENASKA PROJECT. The inspections are carried out at the Shop of MHI TAKASAGO and/or at the shop of its Sub-Vendors. The scope of supply is specified in this ITP which identifies the items to be inspected/tested and the witness classification.

i) Inspection symbols used for the inspections in this ITP are as follows:

"I": "Inspection"
"H": "Hold Point"
"W": "Witness Point"
"RI": "Random Inspection"
"DR": "Document Review"
"RS": "Record Submission"
"—": "Not Applicable"

ii) For the TENASKA PROJECT the following ITP's are being issued:

~~a) ITP AD-20634 for GAS TURBINE~~
b) ITP AD-10895 for STEAM TURBINE
c) ITP AD-10896 for ~~GAS TURBINE &~~ STEAM TURBINE AUXILIARIES
d) ITP AD-20637 for CONTROL SYSTEM & INSTRUMENTS
~~e) ITP AD-20625 for HEAT RECOVERY STEAM GENERATOR~~

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~~1.8 Enclosure~~

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~~1.8.2 GT Package Ventilation Fan~~

~~1.9 Compressor Washing System~~

~~1.9.1 Blade Cleaning Equipment~~

2 Steam Turbine

2.1 Lube Oil & Control Oil System

2.1.1 Main Oil Pump (driven by turbine rotor)

2.1.2 Auxiliary Oil Pump

Emergency Oil Pump

Turning Oil Pump

2.1.3 Lube Oil Reservoir

2.1.4 Lube Oil Cooler

2.1.5 Vapour Extractor

2.1.6 Oil Purifier

2.2 Gland Steam System

2.2.1 Gland Steam Condenser

2.2.2 Exhaust Fan for Gland Steam Condenser

3 Common Auxiliaries

3.1 Valves

3.1.1 Piston Valve

3.1.2 General Valve

3.2 Piping

3.2.1 Main Pipes (HP/LP-Main Reheat Steam Inlet Pipes)

3.2.2 Cross Over Pipe

3.2.3 LO/CO Pipes

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INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (USOIF)

SUBSYSTEM : 1.1 AIR INTAKE SYSTEM

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
1.1.1	Air Intake Filter	Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
		Final Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.1.2	Air Inlet Duct	Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
		Final Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.1.3	Expansion Joint	Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
		Final Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

DOC. No. : AD-10896 Rev. 2

SUBSYSTEM : 1.2 EXHAUST SYSTEM

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
1.2.1	Exhaust Duct	Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
		Final Inspection	As per applicable Dwg.	As per applicable Dwg.	Certificate of Compliance	I	DR	—	—	
1.2.2	Expansion Joint	Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
		Final Inspection	As per applicable Dwg.	As per applicable Dwg.	Certificate of Compliance	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

SUBSYSTEM : 1.3 LUBE OIL SYSTEM

DOC. No. : AD-10896 Rev. 2

PAGE : 6 OF 16

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
1.3.1	Main Lube Oil Pump (A)&(B)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	DR	DR	—	—	For impeller and casing
		Performance Test	JIS B8301/ JIS B8306 or equivalent	JIS B8301/ JIS B8306 or equivalent	Test Report	I	DR	—	—	Tested using test motor
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.3.2	Emergency Lube Oil Pump	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	DR	DR	—	—	For impeller and casing
		Performance Test	JIS B8301/ JIS B8306 or equivalent	JIS B8301/ JIS B8306 or equivalent	Test Report	I	DR	—	—	Tested using test motor
		Hydrostatic Test	As per applicable Dwg.	As per applicable Dwg.	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.3.3	Lube Oil Reservoir	Fill Water Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.3.4	Lube Oil Cooler	Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.3.5	Vapour Extractor	Performance Test	JIS B8330 or equivalent	JIS B8330 or equivalent	Test Report	I	DR	—	—	
1.3.6	Lube Oil Filter	Hydrostatic Test	Design Pressure × 1.5	No Leakage is acceptable	Test Certificate	I	DR	—	—	
1.3.7	Accumulator for Supply Line	Hydrostatic Test	Design Pressure ×1.5	No Leakage is acceptable	No Leakage	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

DOC. No. : AD-10896 Rev. 2

SUBSYSTEM : 1.4 CONTROL OIL UNIT

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Unit	Client		
1.4.1	Control Oil Unit Assembly	Running Test	Manufacturer's Standard	Manufacturer's Standard	Test Report	1	OR	—	—	
1.4.2	Control Oil Pump (A)&(B)	Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	1	OR	—	—	
		Performance Test	Manufacturer's Standard	Manufacturer's Standard	Test Report	1	OR	—	—	
1.4.3	Control Oil Reservoir	Fill Water Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	1	OR	—	—	
1.4.4	Control Oil Supply & Return Filter	Hydrostatic Test	Design Pressure * 1.5	No Leakage	Test Certificate	1	OR	—	—	
1.4.5	Control Oil Cooler	Hydrostatic Test	Design Pressure * 1.5	No Leakage	Test Certificate	1	OR	—	—	
1.4.6	Accumulator	Hydrostatic Test	Design Pressure * 1.5	No Leakage	Test Certificate	1	OR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

DOC. No. : AD-10896 Rev. 2

SUBSYSTEM : 1.5 STARTING SYSTEM

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mit	Client		
1.5.1	Turning Gear	Chemical Composition Check and Mechanical Properties Test	As per applicable Dwg.	As per applicable Dwg.	Mill Certificate (Mill Sheet)	I	DR	—	—	For shaft and gear
		Mechanical Running Test	Manufacturer's Standard	Manufacturer's Standard	Test Report	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

DOC. No. : AD-10896 Rev. 2

SUBSYSTEM : 1.6 TURBINE COOLING AIR SYSTEM

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
1.6.1	Turbine Cooling Air Cooler	Pressure Test	ASME Sect. VIII	Test Report	Test Certificate	I	DR	—	—	
		Visual & Dimensional Inspection	As per applicable Dwg.	Inspection Record	Inspection Record	I	DR	—	—	
		Fan Run Test	Manufacturer's Standard	Test Report	Test Report	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

SUBSYSTEM : 1.7 FIRE PROTECTION

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Client		
1.7.1	CO2 Fire Fighting System for Turbine Enclosure	Receiving Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (MS01F)

SUBSYSTEM : 1.8 ENCLOSURE

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mit	Client		
1.8.1	Enclosure for GT	Visual & Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
1.8.2	GT Package Ventilation Fan	Running Test	JIS B8330 or equivalent	JIS B8330 or equivalent	Test Report	I	DR	—	—	
		Visual & Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. GAS TURBINE (M501F)

SUBSYSTEM : 1.9 COMPRESSOR WASHING SYSTEM

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mit	Client		
1.9.1	Blade Cleaning Equipment	Hydrostatic Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	1	OR	—	—	
		Visual and dimensional Control	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	1	OR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 2. STEAM TURBINE

DOC. No. : AD-10895 Rev. 2

SUBSYSTEM : 2.1 LUBE OIL & CONTROL OIL SYSTEM

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mill	Client		
2.1.1	Main Lube Oil Pump (driven by turbine rotor)	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	DR	DR	—	—	For impeller
		Static Balance Test	JIS B0905 (G6.3) or equivalent	JIS B0905 (G6.3) or equivalent	Test Report	—	DR	—	—	For impeller
2.1.2	Auxiliary Oil Pump Emergency Oil Pump Turning Oil Pump	Chemical Composition Check and Mechanical Properties Test	Material Spec. as per Drawings	Material Spec. as per Drawings	Mill Certificate (Mill Sheet)	DR	DR	—	—	For impeller & shaft
		Hydrostatic Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Performance Test	JIS B8301/ JIS B8306 or equivalent	JIS B8301/ JIS B8306 or equivalent	Test Report	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
2.1.3	Lube Oil Reservoir	Fill Water Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
2.1.4	Lube Oil Cooler	Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
2.1.5	Vapour Extractor	Performance Test	JIS B8330 or equivalent	JIS B8330 or equivalent	Test Report	I	DR	—	—	
2.1.6	Oil Purifier	Fill Water Test	Manufacturer's Std.	No Leakage is acceptable	Test Certificate	I	DR	—	—	
		Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 2. STEAM TURBINE

SUBSYSTEM : 2.2 Gland Steam System

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Unit	Client		
2.2.1	Gland Steam Condenser	Chemical Composition Check and Mechanical Properties Test	As per applicable Dwg.	As per applicable Dwg.	Mill Certificate. (Mill Sheet)	DR	DR	—	—	
		Pressure Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—	—	
		Visual & Dimensional Inspection	As per applicable Dwg.	As per applicable Dwg.	Inspection Record	I	DR	—	—	
2.2.2	Exhaust Fan for Gland Steam Condenser	Running Test	Manufacturer's Standard	Manufacturer's Standard	Test Report	RI	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 3. COMMON AUXILIARIES

SUBSYSTEM : 3.1 VALVES

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	Mill	Client		
3.1.1	Piston Valve	Chemical Composition Check and Mechanical Properties Test	Applicable Code/ Standard	Applicable Code/ Standard	Mill Certificate (Mill Sheet)	DR	DR	—	—	
		Shell Test	ANSI B16.34 para 7.1 or equivalent	ANSI B16.34 para 7.1 or equivalent	Test Certificate	I	DR	—	—	
		Seat Leakage Test	ANSI B16.104 or equivalent	ANSI B16.104 or equivalent	Test Certificate	I	DR	—	—	
		Function Test	Manufacturer's Std.	Manufacturer's Std.	Test Certificate	I	DR	—	—	
3.1.2	General Valve	Chemical Composition Check and Mechanical Properties Test	Applicable Code/ Standard	Applicable Code/ Standard	Mill Certificate (Mill Sheet)	DR	DR	—	—	Mill Sheet is maintained over 600 LB
		Shell Test	ANSI B16.34 para 7.1 or equivalent	ANSI B16.34 para 7.1 or equivalent	Test Certificate	I	DR	—	—	
		Seat Leakage Test	ANSI B16.104 or equivalent	ANSI B16.104 or equivalent	Test Certificate	I	DR	—	—	
		Function Test	Manufacturer's Std.	Manufacturer's Std.	Test Certificate	I	DR	—	—	

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 3. COMMON AUXILIARIES

SUBSYSTEM : 3.2 PIPING

DOC. No. : AD-10896 Rev. 2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	WH	Client		
3.2.1	Main Pipes (HP/LP Main Reheat Steam Inlet Pipes)	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	1	DR	—	—	
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.	Test Certificate	1	DR	—	—	
3.2.2	Cross Over Pipe	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	1	DR	—	—	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	1	DR	—	—	
		Hydrostatic or Pneumatic Test	ANSI B31.1, Para. 137.4	ANSI B31.1, Para. 137.4	Test Certificate	1	DR	—	—	
3.2.3	LO/CO Pipes	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	1	DR	—	—	If required by applicable code
		Visual Inspection on all Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	1	DR	—	—	
		Hydrostatic or Pneumatic Test	ANSI B31.1, Para. 137.4	ANSI B31.1, Para. 137.4	Test Certificate	1	DR	—	—	Only applies to pipes fabricated in the shop
3.2.4	~~Fuel Gas Piping in the GT~~ Enclosure	Non-Destructive Examination on Butt Welds	ANSI B31.1, Para. 136.4	ANSI B31.1, Para. 136.4	Test Certificate	1	DR	—	—	~~If required by applicable~~ code
		Visual Inspection on all Welds	~~ANSI B31.1, Para. 136.4~~	ANSI B31.1, Para. 136.4	~~Test Certificate~~	1	DR	—	—	
		~~Hydrostatic or Pneumatic Test~~	ANSI B31.1, Para. 137.4	ANSI B31.1, Para. 137.4	Test Certificate	1	DR	—	—	~~Only applies to pipes fabricated in the shop~~

TENASKA ALABAMA IV PARTNERS, L.P.
TENASKA TALLADEGA GENERATING STATION

INSPECTION AND TEST PLAN AT SHOP

FOR I&C, ELECTRICAL
(CST Portion)

MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS

CONTENT		REMARKS	PURCHASER	ORDER No. / ITEM No.	Quality Assurance Department Power Plant Quality Control Section
DESCR.	— PAGES		TENASKA	6-545101 6-546501 6-546601 6-704301	APPROVED BY: H. TAKAYASU
FIGURE	— PAGES			6100	CHECKED BY: M. MIZUSAWA
TOTAL	7 PAGES				QUALITY ASSURANCE DEPARTMENT MITSUBISHI HEAVY INDUSTRIES, LTD. TAKASAGO MACHINERY WORKS
					ISSUED: MAY 14th, 2001
					DWG. No. AD-20637 R-2

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P.A. CODE	P-00010	C. CODE	601-AB-002

GENERAL DESCRIPTION

This Inspection and Test Plan, hereinafter called "ITP", covers the inspection and testing items for each manufacturing stage of major electrical components and/or systems for the Gas Turbine and the Steam Turbine supplied to the **Tenaska Power Plant**. The inspections are carried out at the Shop of MHI TAKASAGO and/or at the shop of its Sub-Vendors. The scope of supply is specified in this ITP which identifies the items to be inspected/tested and the witness classification.

i) Abbreviations of Non-Destructive Examinations in this ITP are as follows :

RT	:	Radiographic Examination
UT	:	Ultrasonic Examination
MT	:	Magnetic Particle Examination
PT	:	Liquid Penetrant Examination
FPT	:	Fluorescent Penetrant Examination

ii) Inspection symbols used for the inspections in this ITP are as follows:

"I"	:	"Inspection"
"H"	:	"Hold Point"
"W"	:	"Witness Point"
"DR"	:	"Document Review"
"RS"	:	"Record Submission"
"—"	:	"Not Applicable"

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INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 1. CONTROL SYSTEMS

SUBSYSTEM :

DOC. No. : AD-20637 Rev.2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	MHI	Customer		
1.1	Gas Turbine Controller	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Simulation Test*	MHI Standard	MHI Standard	Test Certificate	I	DR	—		*Applies to GT#1 controller
1.2	Steam Turbine Controller	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Simulation Test*	MHI Standard	MHI Standard	Test Certificate	I	DR	—		*Applies to ST#1 controller

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 2. LOCAL INSTRUMENTS

SUBSYSTEM :

DOC. No. : AD-20637 Rev. 2

PAGE : 4 OF 5

No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	WHI	Customer		
2.1	Pressure Switch	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Function Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.2	Temperature Switch	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Function Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.3	Pressure Gauge	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.4	Temperature Gauge	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.5	Thermocouple / RTD	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.6	Pressure / Differential Press. / Level Transmitter	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Calibration Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
2.7	Fuel Gas Flow Orifice	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR			

INSPECTION AND TEST PLAN AT SHOP

INSPECTION AND TEST PLAN FOR : 3. ELECTRICAL EQUIPMENT

SUBSYSTEM :

DOC. No. : AO-20637 Rev.2

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No.	COMPONENTS	INSPECTION AND/OR TESTING ITEMS	SPECIFICATION OR PROCEDURE	ACCEPTANCE CRITERIA	VERIFYING DOCUMENTS	CLASSIFICATION				REMARKS
						Manufacturer	WH	Customer		
3.1	Motor Control Center	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Insulation Resistance Mesurement	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Withstand Voltage Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Function Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
3.2	DC Motor Starter Panel	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Insulation Resistance Mesurement	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Withstand Voltage Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Function Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
3.3	DC System (Battery & Charger)	Visual and Dimensional Inspection	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		
		Operation Test	Manufacturer's Standard	Manufacturer's Standard	Test Certificate	I	DR	—		

APPENDIX M

RIGHTS AND OBLIGATIONS RETAINED BY BUYER OR BUYER'S ASSIGNEE

In the event of the assignment of this Contract pursuant to Section 22.1(b), the term Buyer as used in this Contract shall mean such Section 22.1(b) Contractor Assignee, except that Buyer or Buyer's assignee under Section 22.1(a) ("Owner"), may, at its option, retain some or all of the following rights, which shall not:

a) materially alter Seller's rights, duties and obligations as provided in the Contract; or
b) materially increase Seller's cost of performance or time of completion as provided in the Contract; or
c) materially alter Seller's ability to receive prompt payment for goods and services provided for under the Contract; or
d) materially alter Buyer's Security, Seller's security or other payment assurances.

Section 4.1	the right under Section 4.1 to (i) notify Seller regarding a change to the Port of Entry and (ii) to notify Seller to change the Delivery Point for Domestically-Sourced Items in a Steam Turbine Generator, subject to all existing and additional obligations, duties and limitations which may arise under the Contract as a result of the delivery of such notices, including, without limitation, the obligation to pay Seller additional charges under the Contract which arise as a result of the delivery of such notices.
Section 4.4	the right, jointly with Contractor Assignee, to exercise all of the inspection rights under Section 4.4, subject to the obligation to comply with all relevant provisions of this Contract, including, without limitation, those related to such inspection rights.
Section 4.5	the right to notify Seller to delay shipment, subject to the existing and all additional obligations which may arise under the Contract as a result of the delivery of such notice.
Section 5.1	together with Contractor Assignee, the rights of access set forth in Section 5.1, subject to the obligation to comply with all relevant provisions of this Contract including, without limitation, those related to such rights of access.
Section 5.2	the right to agree upon a specific list of Witness Tests, subject to all obligations which exist or may arise under the Contract as a result of such action.

Section 5.3	the right to receive notification from Seller under Section 5.3 and participate in observations, subject to the obligation to comply with all relevant provisions of this Contract including, without limitation, those related to such observation rights.
Section 5.5	the right to receive notice from Seller under Section 5.5, subject to the obligation to comply with all relevant provisions of this Contract including, without limitation, those related to receipt of such notice.
Section 7.1	the right, along with Contractor Assignee, to receive all notices to be delivered by Seller under Section 7.1.
Section 8.1	rights, along with Contractor Assignee, to the benefits of all warranties in Section 8.1 and to notify Seller of any breach of warranty under Section 8.1, subject to the obligation to comply with all relevant provisions of the Contract, including, without limitation, those related to such warranties.
Article 9.1	the right to consent, within five (5) days following receipt of written notice of Contractor Assignee's consent, to all change orders, including Directed Change Orders, under Section 9.1 and to receive copies of all Dispute Notices delivered by Seller pursuant to Section 9.1.
Article 10	rights, along with Contractor Assignee, to all warranties in Article 10 and to notify Seller of any breach of warranty under Article 10, subject to the obligation to comply with all existing relevant provisions of the Contract, including, without limitation, those related to such warranties.
Article 11	rights to enforce Seller's covenants regarding confidentiality with respect to the confidential information of Tenaska, Inc., Owner, and Contractor Assignee and obligations to comply with such covenants regarding confidentiality with respect to the confidential information of Seller or its Affiliates.
Section 12.1	rights, along with Contractor Assignee, to be indemnified by Seller, subject to all limitations on such indemnification applicable under the Contract.
Section 12.2	rights, along with Contractor Assignee, to require Seller to provide remedies for infringement, subject to all limitations and conditions applicable to such remedies under the relevant provisions of this Contract.

Section 14.1	the right to consent to the termination of the Contract, within five (5) days following receipt of written notice of Contractor Assignee's termination, under Section 14.1, 14.3 or 14.4.
Section 15.1	the right to be included as an Indemnified Party under Section 15.1, subject to all limitations on such indemnification applicable under the Contract.
Section 17.2	the right, along with Contractor Assignee, to receive delivery of all notices to be delivered by Seller under Section 17.2 including the obligations to comply with all relevant provisions of this Contract.
Article 21	the right and obligation to provide all insurance required from Buyer and to perform all actions of Buyer required or permitted under Article 21, including the obligation to comply with the relevant provisions of this Contract related to the provision of such insurance.

Tenaska Power Equipment, LLC shall defend, indemnify and hold harmless Seller from any claims by the Contractor Assignee arising out of the compliance by Seller with any of the rights retained by Owner under this Appendix M and the obligation for all waivers and limitations of liability set forth in this Contract shall remain applicable to Tenaska Power Equipment, LLC, and any Buyer's assignee, notwithstanding any such assignment or delegation.

TENASKA® INC.
1044 N. 115 Street, Suite 400
Omaha, Nebraska 68154-4446
402-691-9500
FAX: 402-691-9526

January 18, 2006

Mr. Roy Harris
Project Engineering Lead
Progress Energy
410 South Wilmington Street
PEB 8A
Raleigh, North Carolina 27601

Subject: **Tenaska Power Equipment, LLC**
MHI Steam Turbine Generator

Dear Mr. Harris:

In response to your request for information regarding the subject steam turbine generator system, we are enclosing a copy of the Contract for Purchase dated May 2002. Please treat this information as Confidential and within the terms of the Confidentiality Agreement between our two companies.

We thank you for your efforts and attention on Tenaska's behalf. You can reach this writer at 334-358-7730.

Sincerely,

Daniel G. Culver

Daniel G. Culver, PE
Project Manager

Cc: N. N. Borman – VP Tenaska Engineering & Construction – w/out encl.
R. Williamson – President TAI – w/out encl.