

THE STATE OF SOUTH CAROLINA  
In The Court of Appeals  
\_\_\_\_\_  
APPEAL FROM COLLETON COUNTY  
Court of Common Pleas

J. Ernest Kinard, Jr., Judge  
\_\_\_\_\_

Appellate Case No. 2014-002733  
\_\_\_\_\_

Samuel Washington, Jr., Respondent,

v.

South Carolina Electric and Gas Company; and Emerson Electric Company d/b/a  
Emerson Network Power, and/or Emerson Network Power, Defendants,

Of Whom South Carolina Electric and Gas Company is the Appellant.  
\_\_\_\_\_

**APPENDIX TO THE RECORD ON APPEAL**  
\_\_\_\_\_

September 25, 2015

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SC Court of Appeals

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*Emerson Process Management  
Power and Water Solutions*  
**Subcontract Terms and Conditions  
For  
Installation and Construction Services  
Purchase Order Number 4121009192  
March 4, 2011**

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**EPM 00039**



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**Emerson Process Management  
Power and Water Solutions  
Subcontract Terms and Conditions  
For  
Installation and Construction Services  
Purchase Order Number 4121009192**

**Contractor:** Applied Control Technology, Inc.  
5005 N. Stateline Avenue  
Texarkana, TX 75503  
**Contact:** George Burns  
**Phone:** 903-791-3000 **Cell:** 580-212-2335 **Fax:** 903-791-3001  
**Owner:** South Carolina Electric & Gas  
**Project:** South Carolina Electric & Gas Canadys Unit 3 Turbine Controls Upgrade  
**Project Site:** Walterboro, SC

Emerson Process Management, Power and Water Solutions, hereinafter called "Company" and the above named contractor, hereinafter called "Contractor", hereby agree that the portion of the Principal Contract work set forth herein shall be performed by Contractor in accordance with all the requirements of the Principal Contract applicable thereto, as may be modified by the provisions hereinafter stated, and the General Terms and Conditions set forth herein. Contractor acknowledges that it is familiar with the requirements of the Principal Contract and agrees to be bound by the terms and conditions therein with respect to Work described in Article 2.0, Scope of Work, as if it were Company under such Principal Contract.

**PROVISIONS**

**1.0 DEFINITIONS**

When capitalized in the Purchase Agreement, the following words or phrases shall have the meanings specified below.

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acceptance:</b>           | Shall have the meaning specified in Article 5.0, Acceptance.                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Company:</b>              | Shall mean Emerson Process Management, Power and Water Solutions, Inc.                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Company Equipment:</b>    | Shall mean all equipment, hardware, components, parts and materials provided by Company to Contractor for the performance of the Work by Contractor.                                                                                                                                                                                                                                                                                                    |
| <b>Contractor:</b>           | Shall mean Applied Control Technology, Inc.                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Delivery:</b>             | Shall have the meaning specified in Article 9.2, Delivery and Title.                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Equipment:</b>            | Shall mean any equipment, products, components, parts and materials furnished by and necessary to fulfill Contractor's obligations under the Purchase Agreement.                                                                                                                                                                                                                                                                                        |
| <b>Hazardous Substances:</b> | Shall mean solid, liquid or gaseous substances or materials used, generated, produced, stored or supplied that are classified as a "toxic substance", "hazardous substance", "extremely hazardous substance", "acutely hazardous waste", "hazardous waste", "asbestos", "polychlorinated biphenyls (PCBs)", "residual waste" or any other terms for substances or materials subject to federal, state or local regulations in effect from time to time. |
| <b>Owner:</b>                | Shall mean South Carolina Electric & Gas.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Price:</b>                | Shall mean the price or prices stated in the Purchase Agreement.                                                                                                                                                                                                                                                                                                                                                                                        |



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|                              |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Principal Contract:</b>   | Shall mean the final accepted contract agreement signed between Company and Owner for the Project.                                                                                                                                                                                                                                                                                                                    |
| <b>Project:</b>              | Shall mean South Carolina Electric & Gas Canadys Unit 3 GE Steam Turbine FD Fan Controls Shutdown Upgrade.                                                                                                                                                                                                                                                                                                            |
| <b>Project Schedule:</b>     | Shall mean the specified progress milestones and applicable time period(s) for performance and completion of the Work under the Purchase Agreement.                                                                                                                                                                                                                                                                   |
| <b>Purchase Agreement:</b>   | Shall mean Company's Purchase Order(s), these Subcontract Terms and Conditions, Supplemental Terms and Conditions, Specifications and associated drawings, Change or Revised Order(s) and such other documentation as shall be specified in the Company's Purchase Order.                                                                                                                                             |
| <b>Purchase Order:</b>       | Shall mean the Company's official written document, with Company assigned Purchase Order Number, issued to Contractor authorizing the Work and confirming the Purchase Agreement award with all applicable and governing Purchase Agreement contract documents.                                                                                                                                                       |
| <b>Scope of Work:</b>        | Shall have the meaning specified in Article 2.0, Scope of Work.                                                                                                                                                                                                                                                                                                                                                       |
| <b>Services:</b>             | Shall mean any design, engineering, consulting, management, supervision, programming, system hardware and software configuration, graphics development, drawings and documentation, installation, start-up, testing, evaluation, training, maintenance, calibration, repair, and any other services specified under the Scope of Work and necessary to fulfill Contractor's obligations under the Purchase Agreement. |
| <b>Site:</b>                 | Shall mean the location(s) where Contractor shall provide the Work under the Purchase Agreement.                                                                                                                                                                                                                                                                                                                      |
| <b>Software:</b>             | Shall mean any Scope of Work software and firmware and related documentation necessary to fulfill Contractor's obligations under the Purchase Agreement including, but not limited to, any corrections, fixes, enhancements, upgrades, releases, updates or other modifications.                                                                                                                                      |
| <b>Specifications:</b>       | Shall mean all Company and Owner scope of work, specifications, drawings, sketches, documentation, plans, schedules, data, etc. pertaining to the Work and as shall be provided to Contractor under the Purchase Agreement.                                                                                                                                                                                           |
| <b>Subcontractor:</b>        | Shall mean Contractor's, suppliers and subcontractors of any tier and any other persons or entities contracting directly or indirectly with Contractor for the performance of the Work under the Purchase Agreement.                                                                                                                                                                                                  |
| <b>Technical Assistance:</b> | Shall mean advice and consultation given to Company by Contractor with respect to: (i) installation, inspection, repair and maintenance activities performed by others at the Site, and (ii) any Contractor recommended quality assurance procedures for activities performed at the Site.                                                                                                                            |
| <b>Work:</b>                 | Shall mean any Equipment, Services, Software, Technical Assistance and/or Work Product provided by Contractor under the Purchase Agreement.                                                                                                                                                                                                                                                                           |



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**Work Product:**

Shall mean studies, reports, evaluations, designs, graphics, drawings (hard and electronic copies), sketches, procedures, specifications, plans and all other documentation deliverables which are produced or acquired by Contractor for or at the direction of Company and necessary to fulfill its obligations under the Subcontract Agreement.

**2.0 SCOPE OF WORK**

The Contractor shall perform the following Work pursuant to the applicable requirements of the Principal Contract and as otherwise required by the Purchase Agreement.

2.1 Contractor shall provide the Scope of Work as specified in Attachment A; Scope of Work.

2.2 All Work performed by Contractor shall be in strict accordance with the Specifications, drawings and terms and conditions contained in the Purchase Agreement. Contractor shall be fully responsible for all acts, errors, omissions, failures, and faults of all Subcontractors in the performance of the Work as if they were the acts, errors, omissions, failures and faults of Contractor.

2.3 The Contractor shall provide the Company with all information and documentation, including both software and hardware documentation as may be applicable, drawings and submittals pertaining to the Work and as required by Company to enable Company to timely execute and fulfill its obligations to the Owner under the Principal Contract.

2.4 The Contractor shall attend design review meetings as may be required by the Principal Contract or as otherwise required by Company or Owner.

**3.0 SPECIFICATION**

Contractor agrees to provide the Work in accordance with the Specifications. Any work and/or materials that may be reasonably inferred from the Principal Contract, as being required to produce the intended result under the Purchase Agreement shall be supplied whether specifically called for or not. Such work and/or materials shall be provided without increase to the Price.

**4.0 SCHEDULE**

Time is of the essence for Contractor's performance of the Work. Contractor's performance of the Work under the Purchase Agreement is subject to the negotiation of a Project Schedule to be included herein as Attachment B, Project Schedule, which shall depict the timely execution of the Work to be performed by Contractor under the Purchase Agreement, as well as any applicable progress payment milestones to be included herein as Attachment C, Milestone Payment Schedule. Such Project Schedule shall take into account and support the work to be performed by the Company to meet its obligations for completion of the Project under the Principal Contract. In the event that Contractor is unable to agree with such Project Schedule upon receipt of Purchase Agreement award and an acceptable alternative Project Schedule is not agreed upon by both parties within two (2) weeks of the date of the Purchase Agreement award, then the Company, at its sole option, may terminate the Purchase Agreement and shall have no further obligation or liability to the Contractor. The Purchase Agreement is subject to such Project Schedule, as same may be amended from time to time upon mutual agreement of the parties. Such amendment(s) to the Project Schedule shall not be considered amendments to any other provisions under the Purchase Agreement.



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**5.0 ACCEPTANCE**

Contractor shall notify Company when, in its opinion, the Work or any part thereof designated under the Purchase Agreement is completed. Company and/or Owner shall inspect and/or test the Work or parts thereof and Company shall notify Contractor if the Work or parts thereof do not conform to the Purchase Agreement. Upon such notification, Contractor shall promptly correct all nonconforming Work at its sole expense.

Upon completion of all of the Work required under the Purchase Agreement and Company's work under the Principal Contract, Company, Owner or their designee shall inspect the Work and perform overall final system acceptance testing, as required in accordance with the Principal Contract ("Final Acceptance"). Upon completion of such system acceptance testing, Company shall notify Contractor if the Work or any part thereof performed by Contractor does not conform to the Purchase Agreement. Contractor shall promptly correct all nonconforming Work at its sole expense.

Upon Final Acceptance by Owner in accordance with the requirements of the Principal Contract, Contractor may then invoice any amounts then remaining due to Contractor and Company shall make payment in accordance with the terms of the Purchase Agreement. Final Acceptance by Company and/or Owner or payment shall not waive any of Company's rights and remedies or relieve Contractor from any of Contractor's duties and obligations under the Purchase Agreement.

**6.0 INSURANCE**

Contractor shall fully comply with and properly maintain insurance coverages in accordance with the requirements of the Principal Contract and naming Company as an additional insured. Notwithstanding the insurance requirements specified under the Principal Contract, the following insurance coverages and requirements shall be provided by Contractor as a minimum.

Statutory Workers' Compensation Insurance in full compliance with the Workers' Compensation and Occupational Disease Acts of each and every state in which Work is to be performed and U.S. Longshoremen's and Harbor Workers' Compensation Acts, if applicable; Employer's Liability Insurance with a limit of not less than \$500,000; Commercial General Liability Insurance including Premises-Operation, Independent Contractor's Protective, Products, Completed Operations, and Blanket Contractual Liability coverages with a combined single limit of not less than \$1,000,000 per occurrence and \$2,000,000 aggregate. The policy shall be endorsed to include, if applicable, coverage for blasting or explosion, collapse and underground Work. Contractor shall also maintain Excess/Umbrella Liability Insurance with a single limit of not less than \$3,000,000 per occurrence; Automobile Liability Insurance covering all owned, hired and non-owned vehicles with a combined single limit of not less than \$1,000,000 per occurrence. Contractor shall provide Company with a Certificate of Insurance specifically evidencing the coverages required above, naming the Company as an additional insured, except under the Workers' Compensation Policy, and stating the policy numbers, applicable deductibles where they exceed \$100,000 and the inception and expiration dates of all policies. The deductible for each required insurance coverage, if any, shall be the responsibility of Contractor. The Certificate of Insurance shall also provide for thirty (30) days' prior written notice to Company in the event of cancellation or any material alteration of any policy. The Certificate of Insurance shall be furnished to and/or be on file with the Company prior to commencement of any Work under the Purchase Agreement by Contractor or any of its Subcontractors.

If requested by Company, Contractor shall, in addition to the above insurance coverages, provide and maintain Professional Liability (Errors and Omissions) Insurance with a single limit of not less than \$1,000,000. The Certificate of Insurance specifically evidencing this coverage shall be provided to Company prior to commencement of the Work under the Purchase Agreement.



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If design engineering services are being provided under the Purchase Agreement and if requested by Company, Contractor shall, in addition to the above insurance coverages, provide and maintain Professional Liability (Errors and Omissions) Insurance with a single limit of not less than \$1,000,000. The Certificate of Insurance specifically evidencing this coverage shall be provided to Company prior to commencement of the Work under the Purchase Agreement.

**7.0 CLARIFICATIONS**

Not applicable.

**8.0 PURCHASE AGREEMENT PRICE**

The total Price for the Work provided by Contractor under the Purchase Agreement is \$520,020. (The Price shall include all applicable freight, state sales and business taxes, permits and fees, including, if required by Company, the cost of providing performance and payment bonds in accordance with article 9.8, Performance and Payment Bonds.)

**9.0 GENERAL TERMS AND CONDITIONS**

**9.1 CONTRACTUAL RELATIONSHIP**

Contractor shall operate as an independent contractor in the performance of the Purchase Agreement and not as an agent or employee of Company. Contractor shall ensure that neither it nor its agents or employees shall act or hold themselves out as agents or employees of Company. Contractor shall have complete control of its agents and employees engaged in the performance of the Work.

**9.2 DELIVERY AND TITLE**

Delivery of the Work shall be made F.O.B. destination(s), freight allowed, as specified by Company under the Purchase Agreement. Title to Work or parts thereof, other than Equipment, shall pass to Company or Owner upon Final Acceptance. Title to Equipment shall pass to Owner upon delivery at Owner's Site. Contractor shall bear risk of loss to the Work until Final Acceptance pursuant to the terms of the Principal Contract.

**9.3 OWNERSHIP RIGHTS**

Contractor warrants that the Work shall not infringe or misappropriate the intellectual property rights of any third parties. Unless otherwise specified in the Principal Contract, all rights, title and interest in and to all the Work, including but not limited to, drawings, graphics, designs, specifications, notebooks, tracings, photographs, negatives, reports, findings, recommendations, data maskworks, software and associated documentation, and memoranda of every description, arising out of and relating to the Work provided under the Purchase Agreement, shall inure (and shall continue to inure after the expiration or termination of the Purchase Agreement) to Company or its assigns, and Company shall own all title to and have exclusive rights to use, copyright and/or publish such Work in the name of Company. It is understood, and the Contractor agrees, that the use of the Work or parts thereof in any manner by Company or its assigns shall not result in any claim for additional compensation by the Contractor. All Work shall be considered "work made for hire."

**9.4 ITEMS TO BE FURNISHED BY CONTRACTOR**

Contractor shall supply and furnish at the location(s) where the Work shall be performed all items, including labor, supervision, management, tools, materials, and equipment necessary for the complete and satisfactory performance of the Purchase Agreement, except for such items as the Company in the Purchase Agreement specifically agrees in writing to supply or furnish.



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**9.5 PERFORMANCE REQUIREMENTS**

Work shall be performed in accordance with all requirements of the Purchase Agreement. Contractor acknowledges receipt and/or examination of all documents contained or incorporated by reference under the Purchase Agreement. Anything mentioned in the written Specifications and not shown on the drawings, or shown on the drawings and not mentioned in the written Specifications, shall be of like effect as if shown and mentioned in both. In case of conflict with the drawings, the written Specifications shall govern; but, in any event, the matter shall be submitted immediately to Company for its sole determination. Contractor shall diligently and uninterruptedly carry on the Work and adhere to the Project Schedule as described in Article 4.0, Schedule during all disputes or disagreements with Company or Owner. Any work stoppage, delay, suspension or significant reduction in manpower, or removal of equipment from the Site, determined by the Company or Owner to have occurred by reason of any change in Specifications, extra work requests, unresolved dispute, or disagreement shall constitute an event of default thereby subjecting Contractor to termination of the Purchase Agreement.

**9.6 INDEMNIFICATION**

Contractor shall defend, indemnify and hold harmless Company from and against and shall pay all losses, damages, liabilities, claims and actions, and all related expenses, whether or not covered by insurance (including reasonable attorneys' fees and expenses and the actual costs of litigation) by reason of injury or death to any person, including but not limited to employees of Contractor and its Subcontractors, damage to any property or any other occurrence arising or resulting from its performance of the Work, defects in the Work or any other cause to the extent not attributable to the negligence of Company. To the fullest extent permitted by law, Contractor waives as to Company its immunity against suits by Contractor's employees under the Workers' Compensation Laws of Pennsylvania and any other state where Work shall be performed.

**9.7 INTELLECTUAL PROPERTY INDEMNIFICATION**

Contractor warrants that the Work provided by the Contractor or its Subcontractors shall not infringe or misappropriate the intellectual property rights and patents of any third parties.

Contractor shall defend all suits relating to and shall hold Company and Owner harmless from and pay any and all claims, royalties, damages and costs, including attorney fees, resulting from the misappropriation of intellectual property rights, infringement of any patents or for the misuse of any patented article by Contractor or its Subcontractors, in the performance of the Work.

If Contractor is notified promptly in writing and given authority, information, and assistance in a timely manner for the defense of said suit or proceedings, Contractor shall pay the damages and costs awarded in any suit or proceeding so defended. In case the Work, or any part thereof, as a result of any suit or proceeding so defended is held to constitute infringement or its use by Company and/or Owner is enjoined, Contractor shall, at its option and its sole expense, either: (a) procure for Company and Owner the right to continue using said Work; (b) replace the Work with substantially equivalent non-infringing Work; (c) modify the Work so that it becomes non-infringing, or (d) if none of the above remedies is available, refund to Company the Price for the Work.

Contractor shall have no duty or obligation to Company under this Article 9.7 to the extent that the Work is (a) supplied according to Company's design or instructions wherein compliance therewith has caused Contractor to deviate from its normal course of performance, (b) modified, in an unauthorized manner, by Company or its subcontractors after delivery, or (c) combined, in an unauthorized manner, by Company or its subcontractors, with items not furnished by Contractor.



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and by reason of said design, instruction, modification, or combination a suit is brought against Company. In addition, if by reason of such Company design, instruction, modification or combination, a suit or proceeding is brought against Contractor, Company shall protect Contractor in the same manner and to the same extent that Contractor has agreed to protect Company under the provisions of this article.

Compliance with this article as provided herein shall constitute fulfillment of all liabilities of the parties under the Purchase Agreement with respect to intellectual property and patent infringement. Contractor shall obtain from all Subcontractors similar indemnity protection for Company and Owner.

**9.8 PERFORMANCE AND PAYMENT BONDS**

Contractor shall, if required by Company, procure, carry and maintain through the Warranty Period, on all its operations hereunder, performance and payment bonds with sureties acceptable to the Company, and at the expense of Company, in the amount of the total Price or in such lesser amount as agreed to by Company in writing, covering the faithful performance of the Purchase Agreement and the payment of all obligations arising in connection with the Work.

**9.9 CHANGES**

The Purchase Agreement Price stated herein shall be final as to payment for the Work provided by Contractor in accordance with the Purchase Agreement. There shall be no additions to or other modifications of such Price except as such additions or modifications may result from actual changes to the Purchase Agreement and are confirmed in writing by Company.

Company reserves the right, at any time, to make changes to the general Scope of Work, correct any errors and/or to make changes in the Specifications and/or drawings and it shall notify the Contractor of any such changes or corrections in writing. If Contractor is of the opinion that such changes or correction of any errors would affect its cost of performance of the Work or affects the time of performance, a written notice thereof shall be given to the Company by the Contractor within five (5) working days after receipt of the Company's written notice of such changes and/or corrections. Such Contractor notice shall identify any cost and/or time of performance impact for such changes. In such event, the Contractor and the Company shall agree on an equitable adjustment, upwards or downwards, in the Price, if any, and/or the time of performance. If the parties cannot agree as to such adjustment(s) within ten (10) days after receipt of Company's initial written change notice, the matter shall be resolved pursuant to Article 9.26, Disputes. Notwithstanding such pending dispute resolution, if directed by Company, the Contractor shall nevertheless proceed with any changes in the Work required by the Company's written notice without delay.

**9.10 EXTRA WORK**

Contractor shall not be entitled to any increase in the Price for the performance of any work not specified under the Purchase Agreement, unless, prior to the performance of such work, it shall have received from Company written authorization to perform such work, and an addition to the Price shall have been agreed upon in writing; provided, however, the terms and conditions contained in the Principal Contract shall govern extra work requested by the Owner.

**9.11 INSPECTIONS, TESTS AND REJECTION OF MATERIAL AND WORKMANSHIP**

All Work furnished or performed by Contractor shall be subject to final inspection, tests and Final Acceptance by Company and/or Owner upon completion of all Work and whether or not previously



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paid for by Company. At any and all proper times during manufacture or performance of the Work, all Work furnished or performed by Contractor shall be subject to inspection, tests and approval by inspectors of the Company, Owner or their designees, at any and all places where such manufacturing or performance shall be conducted. Failure of such inspectors to make inspection or test or to discover defective Work shall not prejudice the rights of Company or Owner on final inspection and test. The requirements of this paragraph shall be at no additional cost to the Company or Owner and Contractor shall include such requirements in contracts with any of its Subcontractors.

If prior to the expiration of the Warranty Period, upon any such inspection or test, any Work or part thereof shall be found defective or not conforming to requirements of the Purchase Agreement, the Contractor shall be notified. Contractor, at its own expense, shall promptly correct any defects in the Work which does not comply with the requirements in accordance with its warranty obligations hereunder. If Contractor shall fail to replace or correct any nonconforming Work or part thereof in accordance with Article 9.18, Warranties, Company or Owner, at their option, may replace or correct the same and all reasonable costs and expenses of Company and Owner in connection therewith shall be borne by Contractor.

**9.12 TIME OF PERFORMANCE**

Time is of the essence in the performance of the Work under the Purchase Agreement. Contractor agrees to perform the Work in accordance with the Project Schedule milestones and complete the Work by no later than the time limit(s) specified under the Purchase Agreement. In the event that completion of all or any portion of the Work is delayed for other than excusable causes, as defined in Article 9.13, Extension of Time-Contractor's Waiver of Damages For Delay, then Contractor shall reimburse the Company for any additional costs (including applicable liquidated damages, if any) it incurs from Owner under the Principal Contract as the result of the Contractor's late completion.

**9.13 EXTENSION OF TIME-CONTRACTOR'S WAIVER OF DAMAGES FOR DELAY**

If Contractor shall be delayed in the progress of the Work by an act or the negligence of Company or Owner, or by any other subcontractor employed by Company or Owner, or by changes ordered in the Work by Company or Owner, or by strikes, lockouts, fire, flood, unusual delay in transportation, acts of public officials, unavoidable casualties, or any cause beyond Contractor's reasonable control, the cause of which was not reasonably foreseeable by Contractor at the time the Purchase Agreement was entered into or by delay authorized by the Company or Owner, then the time of completion shall be extended for a reasonable time, provided that Contractor shall have given Company prompt written notice of the delay and of the anticipated results. Failure to give such written notice within three (3) business days of the event giving rise to the delay shall be deemed sufficient reason for a denial of an extension of time. After the cause of delay has ceased, Contractor shall file with Company a statement in writing of the actual delay resulting from such cause. If, in the opinion of Company, the cause of delay was beyond the reasonable control of Contractor and was not reasonably foreseeable by Contractor at the time the Purchase Agreement was entered into, the duration and impact of the delay shall be determined by Company. Company shall notify Contractor promptly if, in its opinion, the cause of delay specified would not entitle Contractor to an extension of time. Contractor's sole remedy for delays shall be a reasonable extension of time; provided, however, to the extent the Principal Contract provides for compensation otherwise, Contractor shall be entitled to submit a claim for such compensation pursuant to the terms of the Principal Contract and Contractor shall receive an equitable adjustment to the Project Schedule and/or Price only to the extent and under the conditions that Company



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receives same from the Owner under the Principal Contract. Company shall confirm to Contractor such adjustment(s), if any, in the Project Schedule and/or Price for the delayed Work in writing. Neither Company nor Owner shall be liable to Contractor for damages due to such delays.

**9.14 JOB COST ACCOUNTS AND INFORMATION AUDITS**

Contractor shall maintain detailed separate cost data for any time and material Work provided under the Purchase Agreement in accordance with generally accepted accounting principles. Contractor's records pertaining to time and material cost of the Work (other than firm-fixed Prices agreed to prior to performance of the Work) shall be open at all reasonable times for inspection or audit by Company or its representative(s). Company or its representative(s) shall at reasonable times have access to the premises, materials, instructions, working papers, plans, drawings, specifications, memoranda and other information of Contractor pertaining to the Work. All of Contractor's purchase orders or contracts with Subcontractors shall provide that Company or its representative(s) shall have the right to audit Subcontractors' charges to Contractor. Company's rights under this article shall terminate after expiration of the Warranty Period.

**9.15 ORDER OF PERFORMANCE**

The Company, Contractor, Owner and other contractors and subcontractors may be working at the Site of the Work concurrently during the performance of the Purchase Agreement. Company reserves the right to direct the Contractor and to schedule the order of performance of Work performed at the Site in such manner as not to unreasonably interfere with the performance of Work by Contractor, Owner and other contractors or subcontractors.

**9.16 COMPANY'S PERFORMANCE OF CONTRACTOR'S OBLIGATIONS**

If Contractor fails to comply with any of its obligations under the Purchase Agreement, Company may, at its option, without affecting Contractor's obligations under the Purchase Agreement or Company's rights under Article 9.17, Taking Over Performance-Termination of Purchase Agreement, perform or contract with a third party to perform all or any of Contractor's obligations, and Contractor shall be liable to Company for the costs of performing such obligations and any other damages resulting from Contractor's failure to comply.

**9.17 TAKING OVER PERFORMANCE-TERMINATION OF PURCHASE AGREEMENT**

**9.17.1** Should Contractor (i) fail in any respect to timely prosecute the Work or any separable portion thereof in accordance with the Project Schedule, (ii) be in default under any of the provisions or any other material obligation contained in the Purchase Agreement, (iii) make an assignment for the benefit of its creditors or (iv) voluntarily or involuntarily file a petition for relief in Bankruptcy or similar action in State or Federal Court, Company may, after having given prior written notice to the Contractor specifying that a particular default exists and after Contractor having failed to cure such default or taken reasonable steps to commence to cure the same within five (5) days from the date of receipt of Company's notice (or cure the default within such other time period as Company may establish in the notification), provide any such labor or materials and deduct the cost thereof from any money due or thereafter to become due Contractor under the Purchase Agreement; and Company may also terminate Contractor's right to proceed with the Work or such part of the Work as to which such defaults have occurred. In the event of such termination, Company may take possession of all materials, plans, drawings, and other property which, if the Purchase Agreement had been completed, would have been required to be furnished to the Company/Owner. In such case, the Contractor shall not be entitled to receive any further



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payment until the Work is finished. If the expenses, compensations, costs and damages shall exceed the unpaid balance due Contractor, Contractor and/or its sureties shall be liable for and shall pay the difference to Company. Final payment to Contractor, if any, shall be made to Contractor forty-five (45) days after receipt of Contractor's invoice for Work completed in accordance with the Purchase Agreement, which may be submitted upon Final Acceptance of the Work pursuant to the terms of the Principal Contract. Failure of Company to exercise any of the rights given it under this subsection 9.17.1 shall not excuse Contractor from compliance with the provisions of the Purchase Agreement nor prejudice rights of Company to recover damages for such default.

9.17.2 In the event that either (i) the Principal Contract is terminated, canceled or any Work and/or materials thereunder is deleted, reduced or changed, pursuant to the terms thereof, or (ii) in the sole discretion of Company, Company determines it advisable to cease Work or delete, reduce or change the Work and/or materials under the Purchase Agreement, Company may terminate the Purchase Agreement, or delete, reduce or change the Work or materials thereunder by written notice to Contractor. Such termination or deletion, reduction or change shall be effective in the manner specified in said notice and shall be without prejudice to any claims which Company or Owner may have against Contractor hereunder.

9.17.3 On receipt of written notice under subsection 9.17.1 or 9.17.2 above, Contractor shall, unless the notice directs otherwise, immediately discontinue the Work and placing of orders for materials, facilities, services and supplies in connection with the performance of the Purchase Agreement, and shall, if requested, make every reasonable effort to procure cancellation of all existing orders or contracts upon terms satisfactory to Company; and shall thereafter do only such work as may be necessary to preserve and protect Work already in progress and to protect material, plant and equipment on the Work or in transit thereto.

9.17.4 In the event of any termination it is agreed that the obligations of the Purchase Agreement shall continue as to Work already performed and as to bona fide obligations assumed by Contractor prior to date of cancellation or termination, and that the Contractor shall be entitled only to pro rata compensation for Work already performed in accordance with the Purchase Agreement, including material for which it has made firm contracts, it being understood that Company shall be entitled to that material. In all cases Company may require Contractor to transfer title and deliver to Company any contracts, rights and Work produced or acquired by Contractor for the performance of the Purchase Agreement.

9.17.5 Payments due for termination or deletion, reduction or change of Work (a) pursuant to Subsection 9.17.2 (i) shall be made, to the extent provided for and permitted, in accordance with the terms of the Principal Contract or (b) pursuant to subsection 9.17.2 (ii) shall be made within thirty (30) days from receipt of Contractor's invoice, including such documentation as requested by Company in support of such costs, which shall be subject to Company's right to audit Contractor's books and records.

**9.18 WARRANTIES**

The Contractor shall warrant all Work in accordance with the Principal Contract for the period described in the Principal Contract ("Warranty Period"). In addition to the warranties that are required under the Principal Contract, the Contractor shall also meet the following warranty obligations as a minimum requirement.



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Contractor represents, warrants and guarantees that any Services, Software, Technical Assistance and Work Product provided under the Purchase Agreement shall be provided: 1) in accordance with the requirements and Specifications of the Purchase Agreement, 2) in a skillful, workmanlike and professional manner, 3) in accordance with generally accepted professional engineering practices, standards and procedures and 4) free from errors, omissions, defects and viruses and suitable for the purposes specified by Company.

Contractor also represents, warrants and guarantees that any Equipment shall be: 1) constructed from new materials, free of defects in title, materials, workmanship and design and of proper size and quality; 2) provided in accordance with the requirements and Specifications of the Purchase Agreement, 3) provided in accordance with standards of care consistent with generally accepted industry practices and procedures and 4) merchantable and suitable for the purposes specified by Company.

If during the Warranty Period, the Work or any part thereof does not conform to the requirements of this warranty, Contractor shall commence the repair, replacement or reperformance of the Work F.O.B. Site within five (5) calendar days of notice by Owner or Company at Contractor's sole expense.

The Warranty Period for such repairs, replacement or re-performance of the Work or part thereof shall be ninety (90) days from the date of such warranty replacement, repair or reperformance or for the remaining period of the above initial Warranty Period, whichever is longer.

The above remedies shall be available in addition to all other remedies available at law or in equity and all remedies shall be cumulative and nonexclusive.

**9.19 RESPONSIBILITY FOR WORK**

Contractor shall be responsible for all Equipment and Company Equipment delivered to Contractor for the performance of the Work and all Work performed until completion and Final Acceptance and shall deliver the Work complete and undamaged.

**9.20 VERIFICATION OF CONDITIONS AT SITE**

Contractor shall, as may be applicable to the Scope of Work, perform a thorough inspection of the Site for the purpose of verifying any condition that may affect the Work, such as possible errors in work previously performed by others and difficulties that may be encountered in the performance of the Work for any reason.

When the proper performance of any part of the Work depends upon other work, whether performed by Contractor or others, Contractor shall be responsible for verifying all necessary information, data, dimensions, measurements, equipment, etc. that may affect the Work. No adjustment to the Price shall be made for Contractor's failure to verify conditions at the Site.

**9.21 PREMISES AND REMOVAL OF DEBRIS AND WASTE MATERIALS**

Contractor shall confine its facilities, materials, tools and equipment on Owner's Site in areas specified by Company or Owner for that purpose.

Contractor shall, during the progress of the Work and upon completion of the Work, clean up and remove from Owner's Site and from the adjoining premises, driveways and streets all Contractor's waste materials, rubbish, tools and equipment and leave Owner's Site and adjoining premises, driveways and streets free and clear from all obstructions and in a condition satisfactory to Company and Owner. Upon Contractor's failure to comply with the above requirements, Company or Owner



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may remove all debris and materials and restore any property disturbed by Contractor to the condition prior to commencement of the Work by Contractor at the sole expense of Contractor.

**9.22 PROTECTION OF PROPERTY AND PERSONS**

Contractor shall take, use, provide and make all proper, necessary and sufficient precautions, safeguards and protections against the occurrence or happening of any accidents, injuries or damages to any persons or properties arising from the performance of the Work, including (without limiting Contractor's duties hereunder) such precautions, safeguards and protections as the Company or Owner's representative may direct.

Contractor shall assume full responsibility for all tools, equipment and materials to be used and/or installed in connection with the Work performed by Contractor.

**9.23 USE OF COMPANY'S AND/OR OWNER'S EQUIPMENT OR MACHINERY**

In the event Company's and/or Owner's owned, leased, or otherwise bailed machinery or equipment is used by Contractor in the performance of any of the Work by Contractor or its Subcontractors, such machinery or equipment shall be considered as being under the sole custody and control of Contractor during the period of such use by Contractor, and if any person or persons in the employ of Company and/or Owner should be used to operate said machinery or equipment during the period of such use, Contractor shall be responsible for the supervision of and Work performed by such person or persons, to the same extent as if such person(s) were an employee or employees of Contractor, or of its Subcontractors. Contractor shall indemnify, protect and hold Company and Owner harmless from any injury or death to any person(s) resulting from the use of or loss of or damage to such equipment, tools and materials.

**9.24 COMPENSATION AND PAYMENTS**

9.24.1 Contractor agrees to accept the specified Price as full compensation for performance of the Work in accordance with the Purchase Agreement.

9.24.2 Unless otherwise provided in the Purchase Agreement, the Company shall make partial payments as the Work progresses based on applications for progress payments submitted once per month by Contractor for completed Work performed in accordance with the Purchase Agreement during the prior month, subject to subsection 9.24.3 below.

Company's payment terms shall be 5<sup>th</sup>-3<sup>rd</sup> Prox from Contractor's invoice date on all approved and undisputed invoices for Work performed in accordance with the Purchase Agreement. 5<sup>th</sup>-3<sup>rd</sup> Prox payment terms shall mean Company shall issue payment for all approved and undisputed Contractor invoices on the 5<sup>th</sup> day of the third month following the month in which subject Contractor's invoice is dated.

9.24.3 When inspection and tests performed on the Work prove satisfactory and are approved by Owner pursuant to the terms of the Principal Contract, the Work shall be finally accepted (Final Acceptance) and the amount then remaining due (retainage) to Contractor shall be paid pursuant to the terms therein; provided that Contractor shall have furnished Company and Owner with a release of all claims against Company, Owner or the Work arising under or by virtue of the Purchase Agreement, other than such claims, if any, as may with the express consent of Company and Owner be specifically excluded by Contractor from the operation of the release in stated amounts to be set forth therein.



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9.24.4 Payments otherwise due may be withheld by Company on account of defective Work not remedied, claims filed, or failure of Contractor to make payments properly to its employees, Subcontractors or materialmen, carry insurance as specified under Article 6.0, Insurance, meet the Project Schedule, failure to sign and return Company's Purchase Order Acknowledgment and these Subcontract Terms and Conditions or for any other breach under the Purchase Agreement.

9.24.5 Company shall have no obligation to pay Contractor or its Subcontractors any late interest rate on amounts due and payable under the Purchase Agreement. In no event shall Company award or reimburse to Contractor or its Subcontractors attorneys' fees and expenses or any other costs with respect to any proceedings to recover payment under the Purchase Agreement.

**9.25 LIENS AND CLAIMS**

Contractor shall immediately pay, or provide sufficient security to its own workmen, materialmen, creditors or those of its Subcontractors, for payment of any obligation; or alleged obligation, which it or any of its Subcontractors may have.

The Contractor expressly agrees that no lien shall be filed either by the Contractor or by any of its Subcontractors, workmen or materialmen against the property of the Owner or Company for any work done or materials furnished for the Work, provided that Company has paid all undisputed Contractor invoices for Work performed in accordance with the requirements and payment terms of the Purchase Agreement.

The Contractor further agrees that if any such liens should be filed, where Company is not in breach of the terms of payment to Contractor under the Purchase Agreement, Contractor shall promptly discharge the same by bond or otherwise. Company may require Contractor to submit complete waivers and releases of any and all claims of any person, firm or corporation prior to any payment hereunder.

Contractor agrees that in the event of its breach of any of the above provisions in this Article 9.25, that it shall defend, indemnify and hold Company and Owner harmless and shall pay any and all claims, demands, liabilities and liens, costs, expenses, causes of action or proceedings of whatsoever nature arising out of said breach and shall pay any and all amounts arrived at by way of settlement, judgment or otherwise including damages, costs and reasonable attorney fees.

**9.26 DISPUTES**

All disputes connected with, arising out of or relating to the subject matter of the Purchase Agreement shall be subject to the procedure described herein, whether such controversies of claims are in law or equity or include claims based upon contract, statute, tort, or otherwise. If a dispute arises, a Party shall provide the other Party written notice thereof, asking for mediation. Within twenty (20) days after receipt of such notice, the notified Party shall submit to the other party a written response which shall include a statement of the Party's position and a summary of the evidence and arguments supporting its position. The management level representatives shall meet at a mutually acceptable time and place within thirty (30) days of the date of the notified Party's response and thereafter, as often as they reasonably deem necessary, to exchange relevant information and to attempt to resolve the dispute. If the controversy has not been resolved within sixty (60) days after the first meeting, or if the Party receiving said notice will not meet within such thirty (30) days, either Party may initiate mediation of the controversy or claim in accordance with the American Arbitration



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Association ("AAA") Commercial Mediation Rules, as may be amended by the AAA. Both Parties shall participate in good faith. If the Parties agree to forego mediation or if the controversy has not been resolved pursuant to the aforesaid mediation procedures within sixty (60) days of the initiation of such procedures, the Parties shall be permitted to address the matter with a court of competent jurisdiction.

**9.27 CONFLICTS, ERRORS AND OMISSIONS**

In the event Contractor or Company becomes aware of any conflict, error or omission in the documents comprising the Purchase Agreement, such party shall bring the discrepancy to the attention of the other party. Company shall resolve any discrepancy in its sole discretion.

**9.28 UNEMPLOYMENT INSURANCE AND TAXES**

Contractor shall accept full and exclusive liability for the payment of any and all taxes and contributions for unemployment insurance, old age retirement benefits and life pensions and annuities or other benefits which may now or hereafter be imposed by contract or by the United States or any State, whether measured by the wages, salaries or remuneration paid to persons employed by Contractor or otherwise, for the Work required to be performed hereunder. Contractor shall comply with all Federal and State laws on such subjects, and all rules and regulations promulgated thereunder, and shall maintain suitable forms, books and records and shall pay fines or penalties resulting from Contractor's failure to pay any taxes and contributions. Contractor shall likewise pay any and all taxes, excises, assessments or other charges levied by any government authority on or because of the Work to be done hereunder, or any equipment, supplies or materials used in the performance thereof.

Company shall provide to Contractor upon Contractor's request a tax exemption certificate for all taxes, which become due under Pennsylvania sales and use tax laws, except for taxes that Contractor is required to pay under such laws.

**9.29 CONFIDENTIAL/PROPRIETARY INFORMATION**

Contractor agrees to treat as confidential and proprietary any of Company's or Owner's information that is not generally known to the public and to exercise a high degree of care to prevent the disclosure of such information. Company's information shall be disclosed in confidence on a need to know basis on the condition that it is not to be reproduced, copied, or used for any purpose other than for use by Contractor in connection with performance of its obligations under the Purchase Agreement and shall not be disclosed to third parties without the prior written permission of Company. However, Contractor may disclose such information as required by law.

**9.30 NON-ASSIGNMENT**

Contractor shall not assign the Purchase Agreement, in whole or in part, nor contract with any subcontractor for the performance of the same or any of its parts, without first obtaining Company's written consent. Company's consent shall not be unreasonably withheld and shall not be construed as discharging or releasing Contractor in any way from the performance of the Work or the fulfillment of any obligation under the Purchase Agreement.

**9.31 COMPANY'S APPROVAL OF PLANS, SPECIFICATIONS AND SCHEDULES**

Contractor shall develop and submit for review and/or approval by Company any submittals, procedures, checklists, drawings, specifications and other documentation requested by Company to verify that the Work conforms to the Purchase Agreement. Contractor shall not proceed with any part



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violations of national or international RoHS compliance by Contractor, Contractor undertakes to indemnify and hold Company harmless from any claim, liability, loss, damage, judgment and external responsibility, irrespective of their legal ground, and to bear any and all harm, loss or damage arising to Company's disadvantage in the event of infringement. To the extent required by applicable law, Contractor shall be responsible for the collection, treatment, recovery or disposal of (i) the Equipment or any part thereof when they are deemed by law to be 'waste' and (ii) any items for which the Equipment or any part thereof are replacements. If Contractor is required by applicable law, including waste electrical and electronic equipment Legislations, European Directive 2002/96/EC ("WEEE") and related Legislations in EU Member States, to dispose of 'waste' Equipment or any part thereof, Contractor shall dispose of such Equipment entirely at its own cost (including all handling and transportation costs). Contractor is and remains solely responsible for the full compliance of delivered Equipment, parts of Equipment or substances with the requirements of Regulation (EC) No. 1907/2006 ("REACH") as of 18 December 2006 as amended or varied and all further releases as well as any national regulations issued in execution of this Regulation. Contractor guarantees that all obligations under this Regulation, in particular all information requirements vis-à-vis Company, have been fulfilled. This includes in particular the provision of a due and comprehensive safety data sheet in accordance with the Regulation. Insofar as Equipment, parts of Equipment or substances are not supplied in accordance with the aforementioned requirements, Company reserves the right to cancel this Purchase Agreement. Contractor undertakes to duly and immediately inform Company of any changes affecting REACH compliance. In case of cancellation of this Purchase Agreement or proven violations of national or international REACH compliance regulations by Contractor, Contractor undertakes to indemnify and hold Company harmless from any claim, liability, loss, damage, judgment and external responsibility, irrespective of their legal ground, and to bear any and all harm, loss or damage arising to Company's disadvantage in the event of infringement. Contractor shall comply with all International Plant Protection Convention ("IPPC") regulations on solid wood packaging material ("SWPM") as outlined in ISPM-15 and elsewhere. Contractor shall ensure, and provide appropriate certification, that all SWPM shall be marked with the IPPC logo, country code, the number assigned by the national plant protection organization and the IPPC treatment code.

**9.39 TOXIC SUBSTANCES & EPA REQUIREMENTS**

Contractor warrants that each and every chemical substance delivered under this Purchase Agreement shall, at the time of sale, transfer or delivery, be on the list of chemical substances compiled and published by the Administrator of the Environmental Protection Agency pursuant to Section 8(b) of the Toxic Substance Control Act (Public Law 94-469), as may be amended. Contractor shall submit to Company, Material Safety Data Sheets, prepared in accordance with OSHA Hazardous Communication Standard, 29 CFR 1910.1200 as required. Contractor shall be responsible for all chemical substances or mixtures which it or its subcontractors or suppliers of any tier bring upon premises of Company or Owner. Contractor shall be responsible for removing and disposing all such substances and/or mixtures, containers, materials, and residue from their use, in accordance with all applicable federal, state and/or local statutes, laws, regulations, rules, orders and ordinances. Contractor warrants that all of the equipment and material furnished hereunder have been completely and accurately labeled pursuant to the requirements of 40 CFR Part 82, "Protection of Stratospheric Ozone" or that such equipment and materials do not require such labeling.

**9.40 SUPPLY CHAIN SECURITY**

Contractor warrants that it has reviewed its supply chain security procedures and that these procedures and their implementation are in accordance with the criteria set forth by the Customs-



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of the Work, which requires prior approval by Company under the Purchase Agreement until such approval has been obtained.

Such review and/or approval by Company, whether oral or in writing, shall not waive Contractor's duties and obligations for providing the Work in accordance with the requirements of the Purchase Agreement.

**9.32 DESIGNATION OF SUPERINTENDENT**

Contractor shall designate a competent superintendent that shall have complete charge of all Work on behalf of Contractor. Contractor shall advise Company in writing of the name, address and telephone number (day and night) of the superintendent and of any changes.

**9.33 RISKS**

Contractor acknowledges that the Work covered by the Purchase Agreement may involve Work at or near pressurized steam or energized electric lines or equipment, above or below ground, or potential exposure to Hazardous Substances and that, for this reason, there are certain risks attendant to the performance of the Work.

Contractor expressly assumes the risks of pre-existing conditions during performance of the Work covered by the Purchase Agreement.

**9.34 KEY PERSONNEL**

The Work shall be performed by Contractor's key personnel, if and as named in the Purchase Agreement, and no other person shall be substituted without the prior written approval of Company. Contractor shall replace any of its key personnel to whom Company reasonably objects, and any replacement shall be subject to the prior written approval of Company.

**9.35 LABOR CONDITIONS AND NOTICE OF DISPUTES**

If applicable, Contractor hereby certifies that it complies with Prevailing Wage Rate requirements applicable to the Project as determined by the Department of Industrial Relations Division of Labor Statistics and Research.

Company may require Contractor to discharge any incompetent or undesirable employee. No adjustment in the Price payable to Contractor shall be allowed to Contractor for any increase in labor costs, unless otherwise expressly agreed in writing.

Whenever an actual or potential labor dispute delays or threatens to delay the performance of the Work, Contractor shall immediately notify Company in writing. Such notice shall include all relevant information concerning the dispute.

**9.36 NOTICES**

Any notices hereunder may be served personally on the designated representative of the other party may be served by facsimile (followed by posted mail), or federal express or certified mail, return receipt requested.

**9.37 LAWS, CODES, RULES, REGULATIONS**

Contractor represents, warrants and covenants that all of the Equipment, merchandise, and materials delivered and/or services rendered hereunder will be and will have been produced and/or provided in compliance with all applicable laws, rules, regulations, orders, treaties and other requirements of federal, state and local governments and agencies thereof, and that Contractor, Contractor's business and all property used therein do and will comply with all applicable laws, rules, regulations, orders, treaties and other requirements of federal, state and local governments and agencies thereof.



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including, without limitation, all provisions of the U.S. Fair Labor Standards Act of 1938, Executive Order 11246, as amended, including Subparagraphs 1 through 7 of Section 202, the applicable provisions of 41 C.F.R. Chapter 60, including, without limitation, the Affirmative Action clauses of the Rehabilitation Act of 1973 at C.F.R. Section 60-741.4, U.S. Department Of Labor Occupational Safety & Health Administration Regulations 29 CFR 1910.1001 relating to the restrictions in the level of Asbestos used/contained in products sold and distributed within the continental USA and the Vietnam Era Veterans Readjustment Act of 1974, at 41 C.F.R. Section 60-250.4, as amended, the texts of which are hereby incorporated by reference. Where applicable, Contractor hereby agrees to comply with Executive Order 13201, as amended, and its implementing regulations including the employee notice clause set forth in 29 CFR Part 470, which is incorporated herein by reference. If any of the Equipment is purchased for incorporation into products sold under a government contract or subcontract, the terms required to be inserted by that contract or subcontract shall be deemed to apply to this Purchase Agreement. All rating or certification requirements specified in such government contract or subcontract or of which Contractor has knowledge shall be complied with. Contractor agrees to furnish Company a certificate of compliance with any such laws and certification requirements in such form as may be requested by Company. In addition, 48 CFR 52.219-8 & 9 (Utilization of Small Business Concerns and Small Business Subcontracting Plan) shall be applicable.

Specific reference is also made to the Williams-Steiger Occupational Safety and Health Act of 1970, plus all amendments thereto in the way of regulations, rules and directions issued by the US Department of Labor and including those to be issued during the existence of the Purchase Agreement. The Williams-Steiger Act requires that each employer furnish his employees a place of employment free from recognized hazards that might cause serious injury or death; and the Act further requires that Employers comply with the specific safety and health standards issued by the Department of Labor.

Contractor shall, at its sole cost, secure and maintain all necessary licenses, permits, authorizations or other approvals required for the operation of Contractor's business or any property used therein, or as necessary for Contractor's performance hereunder. Contractor shall immediately notify Company in the event that Contractor is not in compliance with any provision of this Section. In Addition Supplier shall comply with all applicable laws, codes and standards including, but not limited to, ANSI, ASME, AIEE, ASTM and NEMA.

Contractor and its Subcontractors shall also comply with Site policies, rules and procedures.

**9.38 RoHS, WEEE, REACH AND SOLID WOOD PACKAGING MATERIAL**

Contractor is and remains solely responsible for the full compliance of delivered Equipment or parts of with any applicable rules and regulations ("Legislations") on restriction of hazardous substances ("RoHS") such as Directive 2002/95/EC as of 27 January 2003, the Administrative Measures on the Control of Pollution Caused by Electronic Information Products as of 28 February 2006, etc. and all further releases as well as all national or local regulations issued in execution of the aforesaid RoHS Legislations. Therefore all delivered Equipment or parts of Equipment must be suitable and fit for RoHS compliant production and sale. Contractor will complete and sign Company's standard Declaration of RoHS Compliance at the part number level, use appropriate systems and processes to ensure the accuracy of these determinations and maintain appropriate records to allow traceability of all Equipment or parts of Equipment. Insofar as Equipment or parts of Equipment are not supplied in accordance with the aforementioned requirements, Company reserves the right to cancel this Purchase Agreement. Contractor undertakes to duly and immediately inform Company of any changes affecting RoHS compliance: in case of cancellation of this Purchase Agreement or proven



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Trade Partnership Against Terrorism ("C-TPAT") program of the U.S. Bureau of Customs and Border Protection. Specifically, Contractor warrants that it is applying C-TPAT prescribed inspectional methods prior to loading of the transport conveyance; is maintaining secure control over its loaded and empty transport conveyances; is controlling and applying certified high security seals for securing transport conveyance doors; and, is ensuring that its business partners are observing the criteria set forth by C-TPAT. Contractor further warrants and represents that it has developed and implemented, or will develop and implement, procedures for periodically reviewing and, if necessary, improving its supply chain security procedures. Specifically, Contractor agrees to conduct an annual security audit at each of its facilities and to take all necessary corrective actions to ensure conformity with C-TPAT standards. Contractor agrees to share with Company the results of such annual audits and agrees to prepare and submit to Company a report on the corrective actions taken in response thereto. In the event Contractor fails to take an appropriate corrective action, Company may, but is not required to, terminate this Purchase Agreement. Company's auditors will be provided access to Contractor's records and facilities for the purpose of verifying that Contractor's procedures are in accordance with the criteria set forth by C-TPAT. If Contractor is enrolled in any supply chain security accredited programs, such as C-TPAT or other similar programs that may exist in the country of Contractor, then Contractor shall provide Company with documentary evidence of such enrollment.

**9.41 EXPORT REQUIREMENTS**

Each party acknowledges that any shipped goods licensed or sold under this agreement, and the transaction contemplated by this Purchase Agreement, which may include technology and software, are subject to the customs and export control laws and regulations of the United States ("U.S.") and may also be subject to the customs and export laws and regulations of the country in which the products are manufactured and/or received. Each party agrees to abide by those laws and regulations. Further, under U.S. law, the goods shipped pursuant to this contract may not be sold, leased or otherwise transferred to restricted end-users or to restricted countries. In addition, the shipped goods may not be sold, leased or otherwise transferred to, or utilized by an end-user engaged in activities related to weapons of mass destruction, including without limitation, activities related to the design, development, production or use of nuclear weapons, materials, or facilities, missiles or the support of missile projects, and chemical or biological weapons.

Contractor agrees not to provide any written regulatory certifications or notifications on behalf of Company. When applicable and necessary, Company will provide Contractor with all U.S. export licenses, license designations, and commodity classifications.

Contractor is prohibited from diverting any Company shipment without first securing written approval from Company Export Compliance Representative. Contractor agrees not to support or engage in any boycott related transaction and/or requests in order to execute a transaction on behalf of Company.

Contractor agrees to indemnify, defend and hold Company harmless from any loss, expense, penalty or claim against Company, to the extent due to Contractor's violation or alleged violation of any such applicable laws and regulations. Contractor assumes liability if Contractor delivers a duty exempt shipment without stamped and signed documentation required for US Customs.

In no circumstances will Company rely upon the Contractor's Freight Forwarder to obtain export licenses from the United States Government even if the Contractor has authorized its Freight Forwarder to act as the exporter of record.



**Emerson Process Management  
Power and Water Solutions  
Subcontract Terms and Conditions  
For  
Installation and Construction Services  
Purchase Order Number 4121009192**

**9.42 EMERSON LOGO AND RELATED INFORMATION**

Contractor shall obtain prior written permission from Company management before publishing, communicating or using any written material or literature which includes any statements concerning Emerson, the use of the Emerson logo, and other Emerson-related information on the Emerson-specific and the Contractor general website, or otherwise.

**9.43 GOVERNING LAW/JURISDICTION**

All disputes relating to the execution, interpretation, construction, performance, or enforcement of the Purchase Agreement and the rights and obligations of the parties hereto shall be governed by the laws of the State of Missouri applicable to contracts to be formed and fully performed within the State of Missouri, without giving effect to the choice or conflicts of law provisions thereof. All suits arising from or concerning this Purchase Agreement shall be filed in the Circuit Court of St. Louis County, Missouri, or the United States District Court for the Eastern District of Missouri, and in no other place; provided that, in Company's sole discretion, such action may be heard in some other place designated by Company (if necessary to acquire jurisdiction over third persons) so that disputes can be resolved in one action. Seller hereby irrevocably consents to the jurisdiction of such court or courts and agrees to appear in any such action upon written notice thereof.

**9.44 NON-WAIVER**

No waiver by Company, either by act or failure to act, of any default by or obligation of Contractor in the performance of its obligations under the Purchase Agreement shall be deemed or construed to be a waiver, whether prior or subsequent, of the same or any other default by or obligation of Contractor. Failure of Company to insist upon strict performance of any term or condition in the Purchase Agreement shall not be deemed a waiver of any rights or remedies that Company may have and shall not be deemed a waiver of any prior or subsequent default.

**9.45 PRIORITY OF DOCUMENTS**

In the event of conflict among the various documents of the Purchase Agreement, the conflict shall be resolved according to the priority given to the documents in the Purchase Order(s). If no priority is indicated in the Purchase Order, the conflict shall be resolved according to Article 9.27, Conflicts, Errors and Omissions.

**9.46 SEVERABILITY**

This is a general form of Subcontract Terms and Conditions designed for use in any State or Territory of the United States of America or in foreign countries where Company is performing work and any provisions herein, which in any way contravene the laws of any such State, Territory or foreign country shall not be deemed a part of the Purchase Agreement. If any provision(s) of the Purchase Agreement is found by a court of competent jurisdiction to be illegal or otherwise unenforceable, that finding shall not invalidate the whole Purchase Agreement and the remaining provisions shall remain in full force and effect.

**9.47 SURVIVAL**

The obligations and rights of the parties pursuant to the Non-Assignment, Liens and Claims, Insurance, Warranties, Confidential/Proprietary Information, Intellectual Property Indemnification, Indemnification, Ownership Rights, Performance and Payment Bonds and Job Cost Accounts and Information Audits, Taking Over Performance-Termination of Purchase Agreement, Laws, Codes, Rules and Regulations, RoHS, WEEE, and Solid Wood Packaging Material, Supply Chain Security, Export Requirements, Governing Law/Jurisdiction articles shall survive the expiration or early termination of the Purchase Agreement.



**Emerson Process Management  
Power and Water Solutions  
Subcontract Terms and Conditions  
For  
Installation and Construction Services  
Purchase Order Number 4121009192**

**SOLE AND ENTIRE AGREEMENT**

The Purchase Agreement contains the entire agreement between the parties with respect to the subject matter and supersedes any pre-printed terms and conditions that are identified by pre-printed reference and included with or contained on the reverse side of any Company Request for Proposal, Purchase and Change Order(s), Contractor's proposals, acknowledgments, packing slips or invoices and all prior indications, intent or understanding whether oral or in writing. All additional or different terms provided by Contractor at anytime, whether oral or in writing, are expressly rejected and shall not apply, without prior agreement by Company and when specifically incorporated in writing by Company into the Purchase Agreement.

Notwithstanding the dates of execution below, the parties agree that the effective date of the Purchase Agreement shall be either from the first date written below or from the first day of performance of the Work specified under the Purchase Agreement, whichever occurs first.

IN WITNESS WHEREOF, the parties hereto have caused their duly authorized representatives to execute this Purchase Agreement.

**COMPANY:**

Emerson Process Management  
Power and Water Solutions  
200 Beta Drive  
Pittsburgh, PA 15238

*Ed Popelarski*  
Ed Popelarski  
Lead Supply Management Specialist  
301128 04 105439 -0500

3/4/11

By: (print) Ed Popelarski

Date

Title: Lead Supply Management Specialist

**CONTRACTOR:**

Applied Control Technology, Inc.  
5005 N. Stateline Avenue  
Texarkana, TX 75503

By: (print) \_\_\_\_\_

Date

Title: \_\_\_\_\_



**Emerson Process Management  
Power and Water Solutions  
Subcontract Terms and Conditions  
For  
Installation and Construction Services  
Purchase Order Number 4121009192**

**Attachment A  
Scope of Work**

(See Attached)

**SCE&G Canadyss Turbine Controls Project Unit 3  
Demolition & Installation  
BFPT and main Turbine Controls Upgrade-New HPU 5-12-10**

**Overview**

This document describes the electrical installation/demolition scope of work required for SCG&E Canadys

**Base --**

The following existing control systems will be replaced with Ovation DCS:

- FD Fan Turbine Controls System (Outage start date January 2010)
- Main Turbine Controls System (Outage start date January 2011)
- BFPT Controls System (Outage start date January 2011)

**I. General Requirements**

1. Buyer is SCE&G Canadys
2. Seller is Emerson Power & Water Solutions
3. Installation Contractor is ACT for this Scope of Work
4. Installation Contractor shall supply all hardware, raceways, tubing, fittings, hangers, brackets, tools, equipment, and any material that is not specified as supplied by Emerson or SCG&E
5. The Installation Contractor is responsible for the removal of all demolished equipment and materials to a pre-designated area located on Plant site
6. Buyer shall provide off loader to unload all Seller's equipment from truck and Seller shall install equipment in place.
7. All references made to SCE&G Canadys
8. The equipment quantities mentioned in this Scope of Work document are for ONE unit.
9. Installation Contractor shall furnish and install all cables/wirings (control, power, etc.) meeting the attached cable specification of SCE&G & Emerson. All cable insulation shall be Low Smoke Zero Halogen jacketed.
10. Installation Contractor shall identify and label all cables per Purchaser standard.
  - The individually identified and labeled cables and conductors shall be permanently labeled (on the cables), within 3 inches of all terminal blocks. Individually identified conductors shall have respective terminal points included in the label (from/to termination information). The method of labeling shall be machine printed ferrules on both ends of each internal I/O wire and cable in the termination cabinet and on each Ovation I/O internal wire and cable identifying the cable/conductor tag number.
11. Signal shield shall be terminated individually to the ground bus per Emerson's developed installation drawings. Shield shall be landed in the DCS IO card cabinet area only. The use of individual shield insulation clear sleeves (not black tape) is required. Shield wire length shall be 2 inches or less.

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12. Installation Contractor shall furnish and install all mounting hardware, conduit, cable tray, and other necessary materials and equipment required for installation. Installation Contractor shall re-use existing cable tray or other race-way where available. Installation Contractor shall furnish and install new cable tray and/or race-way if they are not available.
13. The equipment, materials, services, documentation, functionality, etc. supplied in response to this installation document shall meet the requirements of applicable codes and standards.
  - Applicable associations and regulatory organizations include, but shall not be limited to:
    - Application of Safety Instrumented Systems for the Process Industry ANSI/ISA-84.01
    - Functional Safety: Safety Instrumented Systems for the process industry sector IEC 61511
    - National Electrical Code (NEC)
    - American National Standards Institute (ANSI)
    - American Society for Testing and Materials (ASTM)
    - Electronic Industry Association (EIA)
    - Institute of Electrical and Electronics Engineers (IEEE)
    - Instrument Society of America (ISA)
    - Temperature Measurement
    - International Standards Organization (ISO)
    - National Electrical Manufacturers Association (NEMA)
    - Occupational Safety and Health Administration (OSHA)
    - Underwriters Laboratories (UL) UL 508
    - Federal, State, County, and local codes and regulations.
    - Any codes and standards conflicts shall be resolved with the Purchaser or appointed alternate
14. Each cabinet, panel, etc. shall be grounded per the OEM published standard grounding methods. It is assumed the existing ground grid is sufficient to support the Ovation DCS hardware.
15. Any equipment decommissioned and removed shall be placed in an area designated by SCE&G Canadys for disposal by SCE&G Canadys.
16. Removal of any hazardous material shall be by SCE&G Canadys.
17. All abandoned cables that cannot be easily removed shall be coiled up and left in the cable tray.
18. Installation Contractor shall work up to 10 hours per day, six days per week, for up to seven consecutive weeks.
19. Installation Contractor shall furnish and install required material to reseal all cable penetrations.

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20. Installation Contractor shall furnish qualified supervision at the project site at any time the Installation Contractors are performing work and include daily progress reports.
21. Installation Contractor shall be responsible for the provision of all tools, equipment, etc. to perform the work and all such tools shall have an identifying mark. All required scaffolding shall be by owner.
22. Installation Contractor shall determine best routing and, if necessary, provide all penetrations through floors, walls, etc. for all newly installed cables and raceways. Any penetrations shall be re-sealed by Installation Contractor.
23. Installation Contractor shall furnish and install all Cat 5 and fiber optic cables with all necessary connectors. Cables and connectors specification provided by Emerson. In addition, Installation Contractor shall furnish all necessary test equipment to test and provide testing documentation verifying Cat 5 & fiber connections and cable test are good.
24. All wire terminations will be at right angles to terminal blocks.
25. Cable, wire, conduit and tray will be installed per Purchaser standards provided and the current industry standards. In addition, cable used outside all enclosed cabinet(s) shall use a fire retardant insulation. Multi-conductor cables will be no less than 16 AWG stranded with permanent individual conductor insulation colors or permanent numbering so as to provide unique conductor identification beyond the required conductor label.
26. All stranded wire is lugged with a designed lug system. This includes all DCS I/O field wire. The Installation Contractor shall furnish and install crimp on ring terminals on all non captive screw terminal blocks. The Supplier shall furnish and install crimp on locking fork terminals on all captive screw terminal blocks.
27. Installation Contractor shall supply field side resource support for loop check commissioning. SCG&E Canadys shall supply one (1) resource to support field side loop check commissioning.
28. The owner shall provide two (2) separate power distribution panels (PDP'S) (primary and back-up power) containing Three (3) spare 20 Amp circuits (within 100 ft of all new Ovation cabinets).
29. Any oil clean-up and disposal of oil, by owner.
30. Any required Hydraulic oil shall be provide by owner.
31. Installation contractor shall include a suitable temporary on site work facility (trailer) for the duration of the outage work activity. Owner to supply suitable porta-restrooms facilities to be located within a reasonable distance to work location.
32. Reference buyers SCE&G Mechanical Installation Scope document for Installation of mechanical equipment.
33. Buyer shall remove and re-install any main turbine or BFPT lagging necessary for seller to complete this scope of work.
34. Buyer shall remove and re-install any insulation covering BFPT or Main turbine necessary for seller to complete this scope of work.

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## II. Engineering:

### **Drawings and Documentation**

#### **A. Base:**

##### I. Control System Documentation

1. Emerson (ACT) shall review and mark-up (by hand) copies of the following existing termination drawings to reflect "as built" configuration and to verify the control system I/O quantities:
  - FD Fan Turbine System
  - Main Turbine System
  - BFPT System
2. Emerson shall provide an instrumentation database in Microsoft Access format reflecting instrument tag names, descriptions, signal levels, I/O type, cable numbers and existing termination information.
3. Emerson (ACT) shall provide instrument location drawings for all new equipment supplied by Emerson, based on existing plant plan view drawings. Emerson will show instrument locations and add instrument tags using hand drawn red-line markups.
4. If applicable, Emerson (ACT) shall provide BTG layout drawings for the vertical BTG board sections, depicting new cover plate dimensions, material, and painting requirements. Emerson will provide a final record drawing showing the as-built BTG board layout.
5. Emerson (ACT) shall provide a cable schedule, to include cable numbers, to & from run locations, cable type, description and wiring drawing reference information.
6. Emerson (ACT) will provide new (AutoCad) drawings for the following systems:
  - Electrical drawings (for UPS and non UPS power feeds)
    - Power Distribution One Lines
    - Power Equipment General Arrangement Drawing
  - Instrumentation drawings
    - DCS I/O Interconnections
    - Field Junction Box Drawings
    - BTG Wiring Drawings
    - HPU I/O Interconnection
  - Mechanical drawings
    - Hydraulic piping isometric installation.
7. Plant Drawing Modification / Void Markup - Emerson (ACT) shall provide hand drawn red line markups to reflect wiring changes and / or drawing deletions.

Note: A quantity of up to 100 drawings shall be provided for items 1 thru 7 above.

#### **Emerson Engineering Scope**

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8. Using Microsoft Access® format, Emerson will provide the Initial I/O database, which will include all required hardware-related attributes (signal type, sensor type, sensor range, etc.) and assignment to a specific area of the plant (Ovation cabinet grouping). Emerson will populate its DBID (Data Base Initial Definition) tool, adding module types, module locations, point assignments, etc., and then return to SCE&G Canadys for the addition of optional software-related attributes (alarm limit, alarm priority, etc.). After all of the desired attributes are complete, Emerson will create the Controller database.
9. Emerson will assign I/O points to Ovation I/O modules.
10. SCE&G Canadys shall provide colored or black & white sketches for all required Graphic Pictorial Displays, Text Displays, and Faceplate Displays for all Control Functions. All process variable point-names shall be indicated on the sketches, along with control information and comprehensive descriptions of dynamic actions, such as color changes, alarm messages, pop-up windows, paging, etc. Emerson will implement the graphics according to Emerson's standard Graphics Design Specification. The process graphics will be built using standard shapes from Emerson library, and Emerson will utilize standard Smart M/A's for all control devices.
11. Emerson shall determine and document the field I/O wiring to the Ovation I/O.
12. Emerson shall provide system architecture, power and ground wiring drawings for the Ovation controller and I/O cabinets. These are system overview drawings only.
13. Emerson shall develop a loop check package to support loop-checking during commissioning stage of the project.

### III. Installation Scope

#### Main Turbine Controls

| Description           | AI_DCS                      | AI_Field | AI_Volt | TC | RTD | AO | DI | DO | DO_C |
|-----------------------|-----------------------------|----------|---------|----|-----|----|----|----|------|
| <b>A. Base I/O:</b>   |                             |          |         |    |     |    |    |    |      |
| Main Turbine Controls | 20                          |          |         | 8  |     | 4  | 45 | 20 |      |
| Over speed Protection | 3speed, & 3 are wired spare |          |         |    |     |    |    |    |      |
| 5 Actuators-LVDT's    | 10                          |          |         |    |     |    |    |    |      |
| 3 Actuator - Servos   |                             |          | 12      |    |     |    |    |    |      |
| PSM Blocks            | 3                           |          |         |    |     |    |    |    |      |
| Filter assembly       |                             |          |         |    |     |    | 3  |    |      |
| Zero Speed            | 1 (1-3/c cable)             |          |         |    |     |    |    |    |      |

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|                           |    |  |  |  |  |  |  |    |   |  |
|---------------------------|----|--|--|--|--|--|--|----|---|--|
| HPU Assembly (with TDM)   | 8' |  |  |  |  |  |  | 41 |   |  |
| Blow Down Valve Air Relay |    |  |  |  |  |  |  |    | 1 |  |
|                           |    |  |  |  |  |  |  |    |   |  |

**Note:**

- \* **AI: 3 wires, AO: 3 wires, DI: 2 wires and DO: 2 wires**
- \* **The above I/O count is plus or minus 10%**
- \* **AI for LVDT's: each LVDT requires 3 twisted shielded pairs**

**A. Main Turbine Area U3**

**Hydraulic Power Unit (HPU)**

1. Installation Contractor shall furnish and install conduit and cable (4-25/c (overall shield) 18-20 AWG, 1-10 pair (individually twisted shield, pair) 18-20 AWG, for the new digital I/O instrumentation on the HPU skid (see above I/O list) from the skid termination box to the new Ovation plate located in the existing GE cabinet located in Turbine Logic Room. For the new eight analog signals existing TSP cables from the demoed OEM HPU can be utilized and re-used. Installation contractor shall furnish and install a junction box with termination blocks above the location of the HPU near the existing cable tray. The Installation Contractor shall terminate eight (8) TSP of these existing cables in the new junction for the new eight (8) analog (AI) signals on the new HPU. These cables shall also be re-terminated (see #12 below) on the Ovation I/O modules located on the new plates in the Turbine Logic Room. The installation contractor shall furnish and install new cable (eight (8) TSP) and raceway from the newly installed junction box to the termination box located on the new HPU skid for these eight (8) analog signals. Reference Emerson Dwg. Hydraulic Power Unit - 200 Gal)
2. Installation Contractor shall furnish and install two (2) 48 amp 480 VAC feeds from the U3 Turbine MCC room (identified by Buyer) for Pump B and Recirc. Pump to the termination box located on the HPU skid. Installation contractor shall furnish and install one (1) 48 amp 480 VAC feed from U3 Boiler MCC Room (identified by buyer) for pump a to the termination box located on new HPU Skid. Seller shall supply the fused disconnects and motor starters on HPU skid assembly. (Reference Emerson Dwg Hydraulic power Unit). In addition the seller shall furnish and install a fused disconnect from this feed to supply to supply power to the HPU heater on HPU skid assembly.

**New Control Valve (CV) Actuator Assembly (Qty. 1)**

3. Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area for the existing CV actuator assembly. Installation Contractor shall furnish and install conduit and cable from the CV Actuator assembly to a new Junction Box (furnish and installed by installation contractor) located near the new CV actuator assembly. The Junction Box to be located within 25 ft of new CV Actuators. Installation Contractor to furnish and install conduit and cable between junction box and Ovation cabinet(s) located in Turbine Logic Room. This consists of six (6) twisted shielded pairs (TSPs) for the redundant LVDT's, and one (1) TSP for the Trip Solenoid (all 16-18 AWG) for each CV Actuator assembly. Installation Contractor to furnish

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and install slide link type terminal blocks in the junction box for each termination. The Installation Contractor to include mounting plate for each junction box.

**New Reheat Stop Valve (SV) Actuator Assembly (Qty. 2)**

4. Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area for the existing SV actuator assemblies. Installation Contractor shall furnish and install conduit and cable from each SV Actuator assemblies to a new Junction Box (furnish and installed by installation contractor) located near the new SV actuator assemblies. The Junction Box shall be located within 25 ft of new SV Actuators). Installation Contractor to furnish and install conduit and cable between junction box and Ovation cabinet(s) located in Turbine Logic Room. This consists of six (6) twisted shielded pairs (TSPs) for the redundant LVDT's, two (2) TSPs for the Servo Valve, and one (1) TSP for the Trip Solenoid (all 16-18 AWG) for each SV Actuator assembly. Installation Contractor to furnish and install slide link type terminal blocks in the junction box for each termination. The Installation Contractor to include mounting plate for each junction box.

**New Intercept Valve (IV) Actuator Assembly (Qty. 2)**

5. Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area for the existing IV actuator assemblies. Installation Contractor shall furnish and install conduit and cable from each IV Actuator assemblies to a new Junction Box (furnish and installed by installation contractor) located near the new IV actuator assemblies. The Junction Box shall be located within 25 ft of new IV Actuators). Installation Contractor to furnish and install conduit and cable between junction box and Ovation cabinet(s) located in Turbine Logic Room. This consists of six (6) twisted shielded pairs (TSPs) for the redundant LVDT's, two (2) TSPs for the Servo Valve, and one (1) TSP for the Trip Solenoid (all 16-18 AWG) for each IV Actuator assembly. Installation Contractor to furnish and install slide link type terminal blocks in the junction box for each termination. The Installation Contractor to include mounting plate for each junction box.

**Active Speed Probe (Qty. 1)**

6. Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area for the existing speed probe assembly. Installation Contractor shall furnish and install conduit and cable from the Speed Probe to the new Junction Box located with 25 ft of front standard and then to Ovation cabinet located in Turbine Logic room. The cable shall be 1 - 3/c (16-18 AWG) high temperature, oil resistant twisted shielded pairs. Installation Contractor to furnish and install slide link type terminal blocks in junction box for each termination.

Note: Currently the machine is equipped with 8 speed probes that shall remain. 3 of the speed probes are wired spares

**Duplex Filter Assembly (Qty. 3)**

7. Installation Contractor shall furnish and install conduit and cable from the pressure switch on each Filter assembly to a new Junction Box (installed in #5 above) and then to the new Ovation cabinet located in the Turbine Logic Room. The filter assemblies (three total)

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requires 1-3/c cable (16-18 AWG) each. Contractor to furnish and install slide link type terminal blocks in junction box for each termination.

**Pressure Status Manifolds (Qty 1)**

8. The Installation Contractor shall furnish and install conduit and cable for the three (3) pressure transmitters (each manifold uses three transmitters) per status manifold located near the FD Fan turbines front standard to the new Junction Box (identified in #5 above) and then to the new Ovation cabinet located in Turbine Logic Room. Each transmitter requires a twisted and shielded pair (TSP) (16-18 AWG). Contractor to furnish and install slide link type terminal blocks in junction box for each termination.

**Packing Blowdown Valve Air Relay (Qty. 1)**

9. The installation contractor shall remove/demo all unused wires and raceways to the greatest extent possible and dispose to owner designated area for the existing blow down valve air relay. The installation contractor shall furnish and install cable (1 4/c cable 16-18 AWG) and raceway from the blow down valve relay to the new active probe junction box installed in #5 above, then from the new active probe junction box to the new Ovation panels located in the Turbine Logic Room.

**B. Turbine Logic Room**

**Ovation Controller Cabinet**

10. Installation Contractor shall determine, pull-back and remove all existing GE system I/O cables between Marshaling cabinet and GE system I/O cabinets located in the Turbine Logic Room. Installation Contractor shall provide permanent cable/wire tags at all existing field wirings located in existing Marshaling Cabinet and demo the existing GE I/O plates located in existing GE cabinets located in Turbine Logic Room and remove them to a designated location for disposal by the owner.
11. Installation Contractor shall install new Ovation controller plates and extended I/O plates (qty: up to 3) in the existing GE cabinets located in the Turbine Logic Room.
12. Emerson shall terminate all new and existing field wirings to field side of existing Marshaling Cabinet and all new I/O wirings between existing marshaling cabinet and the Ovation I/O modules bases located on new Ovation Plates installed in existing GE cabinets located in Turbine Logic Room based on the termination drawings generated by Emerson.
13. Installation Contractor shall install interconnecting power, ground and communications cables (supplied by Emerson) between the Ovation plates.
14. Installation Contractor shall furnish and install power feeds and ground wiring for the new Ovation Controller Cabinet. The redundant power feeds shall run from the fuse breaker panels located in the Turbine Logic room (or within 100ft.) to the new Ovation Controller cabinet located in the Turbine Logic Room. If necessary, buyer shall furnish and install new circuit breakers in the fused panel for all new power feeds. Ground wire from existing Cabinets to plant grounding grid will be furnished and installed by Installation Contractor at a convenient location using a cad weld connection.
15. Installation Contractor shall furnish and install two Cat 5 cables to the new Ovation controller located in Turbine Logic Room from the Ovation Network Cabinet located in Turbine Logic

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Room. Installation Contractor shall test and furnish testing documentation verifying Cat 5 connections and cable test good.

### Boiler Feed Pump Turbine (BFPT) Controls

| Description             | AI_DCS  | AI_Field | AI_Volt | TC | RTD | AO | DI | DO | DO_C |
|-------------------------|---------|----------|---------|----|-----|----|----|----|------|
| <b>A. Base I/O:</b>     |         |          |         |    |     |    |    |    |      |
| FD Fan Turbine Controls | 24      |          |         | 8  |     | 8  | 32 | 36 |      |
|                         |         | 9        |         |    |     |    |    |    |      |
| Over speed Protection   | 3 speed |          |         |    |     |    |    |    |      |
| 1 Actuators-LVDT's      | 2       |          |         |    |     |    |    |    |      |
| 1 Actuator - Servos     |         |          | 2       |    |     |    |    |    |      |
| PSM Blocks              | 0       |          |         |    |     |    |    |    |      |
| Filter assembly         |         |          |         |    |     |    | 0  |    |      |
|                         |         |          |         |    |     |    |    |    |      |
|                         |         |          |         |    |     |    |    |    |      |
|                         |         |          |         |    |     |    |    |    |      |
|                         |         |          |         |    |     |    |    |    |      |
|                         |         |          |         |    |     |    |    |    |      |

**Notes:**

- \* AI: 3 wires, AO: 3 wires, DI: 2 wires and DO: 2 wires
- \* The above I/O count is plus or minus 10%

#### **A. Turbine Logic Room**

##### Ovation Controller Cabinet

1. Installation Contractor shall determinate, pull-back and remove all existing GE system I/O cables between Marshaling cabinet and GE BFPT system I/O cabinets located in the Turbine Logic Room. Installation Contractor shall provide permanent cable/wire tags at all existing field wirings located in existing Marshaling Cabinet and demo the existing GE I/O plates located in existing GE BFPT cabinets located in Turbine Logic Room and remove them to a designated location for disposal by the owner.
2. Installation Contractor shall install new Ovation controller plates and extended I/O plates (qty: up to 3) in the existing GE cabinets located in the Turbine Logic Room.
3. Installation Contractor shall terminate all new field wirings to field side of existing Marshaling Cabinet and all new I/O wirings between existing marshaling cabinet and the Ovation I/O modules bases located on new Ovation Plates installed in existing GE BFPT cabinets located in Turbine Logic Room based on the termination drawings generated by Emerson.
4. Installation Contractor shall install interconnecting power, ground and communications cables (supplied by Emerson) between the Ovation plates.

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5. Installation Contractor shall furnish and install power feeds and ground wiring for the new Ovation Controller Cabinet. The redundant power feeds shall run from the fuse breaker panels located in the Turbine Logic room (or within 100ft.) to the new Ovation Controller cabinet located in the Turbine Logic Room. If necessary, buyer shall furnish and install new circuit breakers in the fused panel for all new power feeds. Ground wire from existing Cabinets to plant grounding grid will be furnished and installed by Installation Contractor at a convenient location using a cad weld connection.
6. Installation Contractor shall furnish and install two Cat 5 cables to the new Ovation controller located in Turbine Logic Room from the Ovation Network Cabinet located in Turbine Logic Room. Installation Contractor shall test and furnish testing documentation verifying Cat 5 connections and cable test good.

#### Option U3 Main Turbine

##### Auto Sync. Systems (Reference EPM drawing 5D94596)

7. Buyer shall remove from truck and store in dry location and Electrical Installation Contractor shall install one (1) auto synchronization cabinet in Turbine Logic Room. The cabinet shall include three (3) Beckwith devices, Gen Control Unit, Synchro Closer Unit, Sync check relay Unit.
8. Electrical Installation Contractor shall furnish and install new I/O (up to 15 digital signals) wires between the auto sync. equipment cabinet located in the Turbine Logic Room and the Ovation I/O modules bases located on the new plates located in Turbine Logic Room based on the termination drawings provided by Emerson.
9. Electrical Installation Contractor shall furnish and install power feeds and ground wiring for the new auto sync. equipment cabinet located in Turbine Logic Room. One power feeds shall run from the fuse breaker panels located in Turbine Logic Room (or within 100 ft.) of the new auto sync. Cabinet located in Turbine Logic Room. One Power feed shall run from the fused Breaker panel located under steps on turbine deck (Red Floor) leading to the turbine logic room to the New auto sync. Cabinet located in the Turbine Logic Room
10. Installation Contractor shall furnish and install new cable and raceway to the Auto Sync Cabinet located in the Turbine logic room for inputs from the generator breaker, Gen/Line Voltage, and Bus voltage tie in locations (from Generator and Bus Power Transformers) located in U3 Control Room or U3 Relay Room.

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**SCE&G Canadyss Turbine Controls Project Unit 3  
Demolition & Installation  
Optional BFPT SV's and Optional Main Turbine CV's  
6-10-10**

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**Overview**

This document describes the electrical installation/demolition scope of work required for SCG&E Canadys

**Base -**

The following existing control systems will be replaced with Ovation DCS:

- Main Turbine Controls System (Outage start date January 2011)
- BFPT Controls System (Outage start date January 2011)

**1. General Requirements**

1. Buyer is SCE&G Canadys
2. Seller is Emerson Power & Water Solutions
3. Installation Contractor is ACT for this Scope of Work
4. Installation Contractor shall supply all hardware, raceways, tubing, fittings, hangers, brackets, tools, equipment, and any material that is not specified as supplied by Emerson or SCG&E
5. The Installation Contractor is responsible for the removal of all demolished equipment and materials to a pre-designated area located on Plant site
6. Buyer shall provide off loader to unload all Seller's equipment from truck and Seller shall install equipment in place.
7. All references made to SCE&G Canadys.
8. The equipment quantities mentioned in this Scope of Work document are for ONE unit.
9. Installation Contractor shall furnish and install all cables/wirings (control, power, etc.) meeting the attached cable specification of SCE&G & Emerson. All cable insulation shall be Low Smoke Zero Halogen jacketed.
10. Installation Contractor shall identify and label all cables per Purchaser standard.
  - The Individually Identified and labeled cables and conductors shall be permanently labeled (on the cables), within 3 inches of all terminal blocks. Individually identified conductors shall have respective terminal points included in the label (from/to termination information). The method of labeling shall be machine printed ferrules on both ends of each internal I/O wire and cable in the termination cabinet and on each Ovation I/O internal wire and cable identifying the cable/conductor tag number.
11. Signal shield shall be terminated individually to the ground bus per Emerson's developed installation drawings. Shield shall be landed in the DCS IO card cabinet area only. The use of individual shield insulation clear sleeves (not black tape) is required. Shield wire length shall be 2 inches or less.

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12. Installation Contractor shall furnish and install all mounting hardware, conduit, cable tray, and other necessary materials and equipment required for installation. Installation Contractor shall re-use existing cable tray or other race-way where available. Installation Contractor shall furnish and install new cable tray and/or race-way if they are not available.
13. The equipment, materials, services, documentation, functionality, etc. supplied in response to this installation document shall meet the requirements of applicable codes and standards.
- Applicable associations and regulatory organizations include, but shall not be limited to:
    - Application of Safety Instrumented Systems for the Process Industry ANSI/ISA-84.01
    - Functional Safety: Safety Instrumented Systems for the process industry sector IEC 61511
    - National Electrical Code (NEC)
    - American National Standards Institute (ANSI)
    - American Society for Testing and Materials (ASTM)
    - Electronic Industry Association (EIA)
    - Institute of Electrical and Electronics Engineers (IEEE)
    - Instrument Society of America (ISA)
    - Temperature Measurement
    - International Standards Organization (ISO)
    - National Electrical Manufacturers Association (NEMA)
    - Occupational Safety and Health Administration (OSHA)
    - Underwriters Laboratories (UL) UL 508
    - Federal, State, County, and local codes and regulations.
    - Any codes and standards conflicts shall be resolved with the Purchaser or appointed alternate
14. Each cabinet, panel, etc. shall be grounded per the OEM published standard grounding methods. It is assumed the existing ground grid is sufficient to support the Ovation DCS hardware.
15. Any equipment decommissioned and removed shall be placed in an area designated by SCE&G Canadys for disposal by SCE&G Canadys.
16. Removal of any hazardous material shall be by SCE&G Canadys.
17. All abandoned cables that cannot be easily removed shall be coiled up and left in the cable tray.
18. Installation Contractor shall work up to 10 hours per day, six days per week, for up to seven consecutive weeks.
19. Installation Contractor shall furnish and install required material to reseal all cable penetrations.

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20. Installation Contractor shall furnish qualified supervision at the project site at any time the Installation Contractors are performing work and include daily progress reports.
21. Installation Contractor shall be responsible for the provision of all tools, equipment, etc. to perform the work and all such tools shall have an identifying mark. All required scaffolding shall be by owner.
22. Installation Contractor shall determine best routing and, if necessary, provide all penetrations through floors, walls, etc. for all newly installed cables and raceways. Any penetrations shall be re-sealed by Installation Contractor.
23. Installation Contractor shall furnish and install all Cat 5 and fiber optic cables with all necessary connectors. Cables and connectors specification provided by Emerson. In addition, Installation Contractor shall furnish all necessary test equipment to test and provide testing documentation verifying Cat 5 & fiber connections and cable test are good.
24. All wire terminations will be at right angles to terminal blocks.
25. Cable, wire, conduit and tray will be installed per Purchaser standards provided and the current industry standards. In addition, cable used outside all enclosed cabinet(s) shall use a fire retardant insulation. Multi-conductor cables will be no less than 16 AWG stranded with permanent individual conductor insulation colors or permanent numbering so as to provide unique conductor identification beyond the required conductor label.
26. All stranded wire is lugged with a designed lug system. This includes all DCS I/O field wire. The Installation Contractor shall furnish and install crimp on ring terminals on all non captive screw terminal blocks. The Supplier shall furnish and install crimp on locking fork terminals on all captive screw terminal blocks.
27. Installation Contractor shall supply field side resource support for loop check commissioning. SCG&E Canadys shall supply one (1) resource to support field side loop check commissioning.
28. The owner shall provide two (2) separate power distribution panels (PDP'S) (primary and back-up power) containing Three (3) spare 20 Amp circuits (within 100 ft of all new Ovation cabinets).
29. Any oil clean-up and disposal of oil, by owner.
30. Any required Hydraulic oil shall be provide by owner.
31. Installation contractor shall include a suitable temporary on site work facility (trailer) for the duration of the outage work activity. Owner to supply suitable porto-restrooms facilities to be located within a reasonable distance to work location.
32. Reference buyers SCE&G Mechanical Installation Scope document for installation of mechanical equipment.
33. Buyer shall remove and re-install any main turbine or BFPT lagging necessary for seller to complete this scope of work.
34. Buyer shall remove and re-install any insulation covering BFPT or Main turbine necessary for seller to complete this scope of work.

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## **II. Engineering:**

### **Drawings and Documentation**

#### **A. Base:**

##### **I. Control System Documentation**

1. Emerson (ACT) shall review and mark-up (by hand) copies of the following existing termination drawings to reflect "as built" configuration and to verify the control system I/O quantities:
  - Main Turbine System
  - BFPT System
2. Emerson shall provide an instrumentation database in Microsoft Access format reflecting instrument tag names, descriptions, signal levels, I/O type, cable numbers and existing termination information.
3. Emerson (ACT) shall provide instrument location drawings for all new equipment supplied by Emerson, based on existing plant plan view drawings. Emerson will show instrument locations and add instrument tags using hand drawn red-line markups.
4. If applicable, Emerson (ACT) shall provide BTG layout drawings for the vertical BTG board sections, depicting new cover plate dimensions, material, and painting requirements. Emerson will provide a final record drawing showing the as-built BTG board layout.
5. Emerson (ACT) shall provide a cable schedule, to include cable numbers, to & from run locations, cable type, description and wiring drawing reference information.
6. Emerson (ACT) will provide new (AutoCad) drawings for the following systems:
  - Electrical drawings (for UPS and non UPS power feeds)
    - Power Distribution One Lines
    - Power Equipment General Arrangement Drawing
  - Instrumentation drawings
    - DCS I/O Interconnections
    - Field Junction Box Drawings
    - BTG Wiring Drawings
    - HPU I/O Interconnection
  - Mechanical drawings
    - Hydraulic piping isometric installation.
7. Plant Drawing Modification / Void Markup - Emerson (ACT) shall provide hand drawn red line markups to reflect wiring changes and / or drawing deletions.

**Note:** A quantity of up to 100 drawings in base scope shall be provided for items 1 thru 7 above.

#### **Emerson Engineering Scope**

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8. Using Microsoft Access® format, Emerson will provide the initial I/O database, which will include all required hardware-related attributes (signal type, sensor type, sensor range, etc.) and assignment to a specific area of the plant (Ovation cabinet grouping). Emerson will populate its DBID (Data Base Initial Definition) tool, adding module types, module locations, point assignments, etc., and then return to SCE&G Canadys for the addition of optional software-related attributes (alarm limit, alarm priority, etc.). After all of the desired attributes are complete, Emerson will create the Controller database.

9. Emerson will assign I/O points to Ovation I/O modules.
10. SCE&G Canadys shall provide colored or black & white sketches for all required Graphic Pictorial Displays, Text Displays, and Facaplate Displays for all Control Functions. All process variable point-names shall be indicated on the sketches, along with control information and comprehensive descriptions of dynamic actions, such as color changes, alarm messages, pop-up windows, paging, etc. Emerson will implement the graphics according to Emerson's standard Graphics Design Specification. The process graphics will be built using standard shapes from Emerson library, and Emerson will utilize standard Smart M/A's for all control devices.
11. Emerson shall determine and document the field I/O wiring to the Ovation I/O.
12. Emerson shall provide system architecture, power and ground wiring drawings for the Ovation controller and I/O cabinets. These are system overview drawings only.
13. Emerson shall develop a loop check package to support loop-checking during commissioning stage of the project.

### III. Insallation Scope

#### Main Turbine Controls (OPTION Control Valves (CV))

| Description                                  | AI_DCS | AI_Field | AI_Volt | TC | RTD | AO | DI | DO | DO_C |
|----------------------------------------------|--------|----------|---------|----|-----|----|----|----|------|
| <b>A. Base I/O:</b>                          |        |          |         |    |     |    |    |    |      |
| Main Turbine Controls                        |        |          |         |    |     |    |    |    |      |
| Over speed Protection                        |        |          |         |    |     |    |    |    |      |
| 3 redundant (additional) Actuators-LVDT's    | 6      |          |         |    |     |    |    |    |      |
| 3 Actuator (additional) – Servos (redundant) |        |          | 6       |    |     |    |    |    |      |
| PSM Blocks                                   |        |          |         |    |     |    |    |    |      |
| Filter assembly                              |        |          |         |    |     |    | 1  |    |      |
| Zero Speed                                   |        |          |         |    |     |    |    |    |      |

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### Option

5. Installation Contractor shall furnish and install power feeds and ground wiring for the new Ovation Expansion Cabinet. The redundant power feeds shall run from the fuse breaker panels located in the Turbine Logic room (or within 100ft.) to the new Ovation Controller cabinet located in the Turbine Logic Room. If necessary, buyer shall furnish and install new circuit breakers in the fused panel for all new power feeds. Ground wire from existing Cabinets to plant grounding grid will be furnished and installed by Installation Contractor at a convenient location using a cad weld connection.

### Boiler Feed Pump Turbine (BFPT) Controls

| Description           | AI_DCS | AI_Field | AI_Volt | TC | RTD | AO | DI | DO | DO_C |
|-----------------------|--------|----------|---------|----|-----|----|----|----|------|
| <b>A. Base I/O:</b>   |        |          |         |    |     |    |    |    |      |
| Test solenoid valve   |        |          |         |    |     |    |    | 2  |      |
| Trip solenoid valve   |        |          |         |    |     |    |    | 2  |      |
| Over speed Protection |        |          |         |    |     |    |    |    |      |
| 2 Actuators-LVDT's    | 4      |          |         |    |     |    |    |    |      |
| 1 Actuator - Servos   |        |          |         |    |     |    |    |    |      |
| 1 PSM Block           | 3      |          |         |    |     |    |    |    |      |
| Filter assembly       |        |          |         |    |     |    | 0  |    |      |
|                       |        |          |         |    |     |    |    |    |      |
|                       |        |          |         |    |     |    |    |    |      |
|                       |        |          |         |    |     |    |    |    |      |
|                       |        |          |         |    |     |    |    |    |      |
|                       |        |          |         |    |     |    |    |    |      |
|                       |        |          |         |    |     |    |    |    |      |

**Note:**

- \* AI: 3 wires, AO: 3 wires, DI: 2 wires and DO: 2 wires
- \* The above I/O count is plus or minus 10%
- \* AI for LVDT's: each LVDT requires 3 twisted shielded pairs
- \* Reference document "SCEG Canadys U3 main Turbine Mechanical SOW-BFPT SV's.doc"

### **A. BFPT Area**

#### LP Stop Valve and HP Stop Valve Actuators

1. Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area for the existing LP Stop Valve and HP Stop Valve actuator assemblies BFPT area. Installation Contractor shall furnish and install conduit and cable from the new LP Stop Valve and HP Stop Valve Actuator

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assemblies (Qty. 2) to a new Junction Box (furnish and installed by installation contractor) located near the new LP Stop Valve and HP Stop Valve Actuator assemblies. The Junction Box shall be located within 25 ft of new LP Stop Valve and HP Stop Valve Actuator assemblies. Installation Contractor to furnish and install conduit and cable between new junction box and Ovation cabinet(s) located in Turbine Logic Room. This consists of twelve (12) twisted shielded pairs (TSPs) for the redundant LVDT's, and four (4) TSP for the Trip Solenoid (all 16-18 AWG) for the SV Actuator assemblies. Installation Contractor to furnish and install slide link type terminal blocks in the junction box for each termination. The Installation Contractor to include mounting plate for each junction box.

Pressure Status Manifold (Qty 1)

2. The Installation Contractor shall furnish and install conduit and cable for the three (3) pressure transmitters (each manifold uses three transmitters) per status manifold located near the BFPT front standard to the new Junction Box (identified in #1 above) and then to the new Ovation cabinet located in Turbine Logic Room. Each transmitter requires a twisted and shielded pair (3 TSP total) (16-18 AWG). Contractor to furnish and install slide link type terminal blocks in junction box for each termination.

**B. Turbine Logic Room**

Ovation Controller Cabinet

3. Buyer shall remove from truck and Installation Contractor shall install new Ovation Expansion cabinet near the existing GE cabinets located in the Turbine Logic Room
4. Installation Contractor shall terminate all new field wirings (furnished and installed by installation contractor #1 above) to the Ovation I/O modules bases located on new Ovation expansion cabinet located in Turbine Logic Room based on the termination drawings generated by Emerson.
5. Installation Contractor shall install interconnecting power, ground and communications cables (supplied by Emerson) between the Ovation plates.

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6. Installation Contractor shall furnish and install power feeds and ground wiring for the new Ovation Expansion Cabinet. The redundant power feeds shall run from the fuse breaker panels located in the Turbine Logic room (or within 100ft.) to the new Ovation Controller cabinet located in the Turbine Logic Room. If necessary, buyer shall furnish and install new circuit breakers in the fused panel for all new power feeds. Ground wire from existing Cabinets to plant grounding grid will be furnished and installed by Installation Contractor at a convenient location using a cad weld connection.

**NOTE: If buyer purchase both the Main Turbine CV and BFPT SV Options then only one (1) Expansion cabinet shall be required**

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**SCG&E Turbine Controls Project Unit 3 – Main Turbine - Version B**  
**Demolition & Installation of EHC Fluid System**  
**Turbine Controls Upgrade - Mechanical Turbine Hardware**  
**New EPM HPU 5-12-10**

**Reference drawings:**

| Source  | Description                                                                                                                                                                                                                                                              | Drawing Number                                                                                                                                                           |   |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|         | Control Diagram of Main Turbine                                                                                                                                                                                                                                          |                                                                                                                                                                          |   |
| Emerson | Control Diagram – Demolition & Installation                                                                                                                                                                                                                              | U0110MTOIL                                                                                                                                                               | * |
| Emerson | EHC System Hydraulic Schematic<br>(Typical ??? system schematic provided. A site specific schematic will be developed for this project and provided to the installation contractor prior mobilization.)                                                                  | U110MTSSCH (Sheets 1-?)                                                                                                                                                  | * |
| Emerson | Modifications to existing Hydraulic Power Unit                                                                                                                                                                                                                           | U0110HPU200 (Sheets 1-7)                                                                                                                                                 | * |
| Emerson | Actuator Installation - Typical<br>Actuator Assembly – Typical<br>(Typical ??? Actuator Installation and Assembly drawings provided. Site specific Actuator drawings will be developed for this project and provided to the installation contractor prior mobilization.) | U0110IVI001 (Sheets 1,2)<br>U0110IVA001 (Sheets 1, 2)<br>U0110RHSV11 (Sheets 1,2)<br>U0110 RHSVA1 (Sheets 1, 2)<br>U0110IVI001 (Sheets 1,2)<br>U0110IVA001 (Sheets 1, 2) | * |
| Emerson | Accumulator Assembly                                                                                                                                                                                                                                                     | Accumulator Assembly Operation & Maintenance Manual                                                                                                                      | * |
| Emerson | Filter Assembly                                                                                                                                                                                                                                                          | Filter Assembly Operation & Maintenance Manual                                                                                                                           | * |
| Emerson | Pressure Status Manifold                                                                                                                                                                                                                                                 | Pressure Status Manifold Operation & Maintenance Manual                                                                                                                  | * |
| Emerson | Oil Operated Air Pilot Valve Packing<br>Blowdown Valve Air Relay                                                                                                                                                                                                         | U0110PBDVR1 (Sheets 1-3)                                                                                                                                                 |   |

**General Notes:**

1. Asterisks above denote Emerson supplied equipment.
2. Buyer is SCG&E Canadys
3. Seller is Emerson Power & Water Solutions
4. Mechanical Installation Contractor is the successful bidder for this Scope of Work
5. Mechanical Installation Contractor shall supply all hardware, tubing, fittings, hangers, brackets, tools, equipment, and any material that is not specified as supplied by Emerson or SCE&G.
6. The Mechanical Installation Contractor is responsible for the removal of all demolished equipment and materials to a pre-designated area, (disposal container supplied by SCE&G) located on Plant site (within 400 ft from closest exit.).
7. Buyer will provide off loader to unload all Seller's equipment from truck. Mechanical Installation contractor to assist the buyer in this effort.
8. All references made to SCG&E Canadys Unit 3 Main Turbine
9. The equipment quantities mentioned in this Scope of Work document are for ONE unit.
10. See Electrical Installation Statement of Work (SOW) for electrical installation scope

11. The scope identified below is preliminary and may not represent the total scope until additional information is received from SCE&G Canadys
12. Buyer shall remove and re-install any main turbine or BFPT lagging necessary for seller to complete this scope of work.
13. Buyer shall remove and re-install any insulation covering BFPT or Main turbine necessary for seller to complete this scope of work

#### I. Demolition of Existing Mechanical Equipment:

The following item numbers (1-29) refer to specific equipment removed or modified as shown on drawing "U0110MTOIL"

##### Equipment: OEM Valve Actuators

##### Reheat Stop Actuators Valve (RSV) Left and Right

1. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM RSV Valve actuator assemblies (total of 2 RSV actuators) and applicable linkage. These items are shown on drawing "?????" as items ? and ? and identified for removal on drawing "U0110MTOIL, sheets 1&2". ~~Note that both drawings referenced show only the actuator on the left side of the turbine. The actuator on the right side of the turbine is not shown.~~
2. The Mechanical Installation Contractor shall remove the existing hydraulic piping from each RSV actuator assembly. The piping shall be removed to the greatest extent possible and capped. Emerson will identify, with unique markers, all hydraulic plumbing to be removed. "U0110MTOIL, sheets 1&2" will identify (schematically) which sections of pipe are to be removed.

##### Control Valve Actuator

3. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM CV Valve actuator assembly (total of 1 CV actuators) and applicable linkage. These items are shown on drawing "?????" as items ?? and identified for removal on drawing "U0110MTOIL, sheet 3". ~~Note that both drawings referenced show only the actuators on the left side of the turbine. The actuators on the right side of the turbine are not shown.~~
4. The Mechanical Installation Contractor shall remove the existing hydraulic piping from the CV actuator assembly. The piping shall be removed to the greatest extent possible and capped. Emerson will identify with unique markers all hydraulic plumbing to be removed. "U0110MTOIL, sheet 3" will identify (schematically) which sections of pipe are to be removed.

##### Intercept Valve Actuators (referred to as IV)

5. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM IV Valve actuator assemblies (total of 2 IV actuator). These items are shown on drawing "???????" as item ? and ? and identified for removal on drawing "U0110MTOIL, sheets 1&2". ~~Note that both drawings referenced show only the actuator on the left side of the turbine. The actuator on the right side of the turbine is not shown.~~
6. The Mechanical Installation Contractor shall remove the existing hydraulic piping from each IV actuator assembly. The piping shall be removed to the greatest extent possible. Emerson will identify, with unique markers, all hydraulic plumbing to be removed. "U0110MTOIL, sheets 1&2" will identify (schematically) which sections of pipe are to be removed.

#### Existing OEM Hydraulic Power Unit (HPU) Modifications

7. The Mechanical Installation Contractor shall remove (at a minimum), to customer designated area, the OEM Hydraulic pumps (Qty. 2) and associated couplings. These items are shown on drawing "U0110MTOIL, sheet 5" as item 7 and 7 and identified for removal on drawing "U0110MTOIL, sheet 5".
8. The Mechanical Installation Contractor shall disconnect and/or remove the existing hydraulic piping as deemed necessary for removal of existing pumps, re installation of new pumps, (See # 22 below) and necessary HPU modifications. Emerson will identify with unique markers all hydraulic plumbing to be removed. "U0110MTOIL, sheet 5" will identify (schematically) which sections of pipe are to be removed.
9. The mechanical installation contractor shall remove, to customer designated area the OEM Cross Trip Relay Manifold. These items are identified for removal on drawing "U0110MTOIL Sheet 4/5".
10. The mechanical installation contractor shall remove, to customer designated area the Ion Exchange Filter Element Assembly and associated plumbing. This is identified for removal on drawing "U0110MTOIL, sheet 5". The piping shall be removed to the greatest extent possible and capped.
11. The mechanical installation contractor shall remove, to customer designated area, the OEM Hydraulic Power Unit. This demolition will include the concrete containment area surrounding the HPU. This demolition will not include demolition of the hydraulic lines, or water lines that run to the OEM HPU.

The mechanical installation contractor shall disconnect the hydraulic lines that run from the Cross Trip Relay to the Hydraulic Actuators, and the Hydraulic Power Unit. These lines include, but are not limited to, "FTD", "FTS", "ETS", "FAS", and System Return. "U0110MTOIL, sheets 1 & 4" will identify schematically, which sections of pipe are to be removed. These lines should be disconnected and temporarily capped to the least extent possible. These hydraulic lines will need to be re-used during the installation of the Testable Dump Manifold, the new Hydraulic Actuators and installation of the new Hydraulic Power Unit. In addition, the Mechanical Installation Contractor shall disconnect the cooling water lines from the HPU to the cooling water supply. These lines are labeled on U0110MTOIL sheet 1 as CWS and CWR. There are a total of four (4) cooling water lines that need to be disconnected. From an electrical standpoint, the Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area. Some wires shall be re-used during installation of new Emerson HPU. See Electrical SOW document dated 5-12-10.

#### Front Standard & Dry Pocket Modifications

12. The mechanical installation contractor shall remove (at a minimum), to customer designated area the following items as shown on U0110MTOIL:
  - a. Initial Pressure Regulator - Jet, (2) Auxiliary Pilot Valve, (3) Intercept Valve Jacking Device, (4) Speed Relay, (5) Speed Governor, (6) Backup Overspeed Trip, (7) Speed Load Changer, (8) Load Limit, (9) Intercept Valve Relay, (10) Packing Blowdown Valve Air Relay.
13. Each component and piping associated shall be removed to the greatest extent possible. Emerson will identify with unique markers all hydraulic and mechanical elements to be removed. Reference Emerson Drawing U0110MTOIL for additional details on removal of front standard and dry pocket items to be removed.

#### Low Speed Switch Assembly Modifications

14. The mechanical installation contractor shall remove, to customer designated area the Low Speed Switch Assembly. This includes the 2 timing cylinders, Low Speed Switches (LSS), and associated hydraulic tubing. The piping shall be removed to the greatest extent possible and capped. This is identified for removal on drawing "U0110MTOIL, sheet 1".

#### Packing Blowdown Valve Air Relay

15. The Mechanical Installation Contractor shall demo/remove, to customer designated area the Packing Blowdown Valve Air Relay. This includes Air relay valve and linkages that connect back to the

Intercept valve. The linkages should be removed to the greatest extent possible. This is identified for removal on drawing "U0110MTOIL, sheet 1".

#### Vacuum Trip

16. The Contractor shall remove, to customer designated area, the OEM vacuum trip device (total of 1 vacuum trip device). This item is shown on drawing "R202-112 b" as item 7 and identified for removal on drawing "R202-112 Modified". The Contractor shall cut and cap the vacuum sensing line at a convenient location near the source. The tubing for the sensing line will be removed to the greatest extent possible and capped. Emerson will identify, with unique markers, all plumbing to be removed. Drawing "R202 Modified" will identify (schematically) which sections of pipe and tubing are to be removed.

17. The Contractor shall remove, to customer designated area, the OEM vacuum trip device (total of 1 vacuum trip device). This item is shown on drawing "R202-112 b" as item 2 and identified for removal on drawing "R202 Modified". The tubing for the vacuum sensing line will be re-used as the sensing line for a bank of three transmitters. The installation and tubing connection for the three transmitters is described in the installation section of this document under the heading "Vacuum Pressure Status Manifold".

#### Lube Oil Trip

18. The Contractor shall remove, to customer designated area, the OEM lube oil trip device (total of 1 lube oil trip device). This item is shown on drawing "R202-112 b" as item 75 and identified for removal on drawing "R202-112 Modified". The tubing for the lube oil sensing line will be re-used as the sensing line for a bank of three transmitters. The installation and tubing connection for the three transmitters is described in the installation section of this document under the heading "Lube Oil Pressure Status Manifold".

#### Vacuum Breaker Control Valve

19. The Contractor shall remove, to customer designated area, the OEM vacuum breaker control device (total of 1 vacuum breaker control device). This item is shown on drawing "R202-112 b" as item 79 and identified for removal on drawing "R202-112 Modified". The pushbutton, solenoids and control mechanisms associated with the vacuum breaker control device will also be removed. The Contractor shall remove the LDC Control System and the associated piping and equipment. The tubing for the vacuum breaker control device. The tubing shall be removed to the greatest extent possible. The tubing for control of the vacuum breaker shall remain in place and connected to the vacuum breaker control manifold as described in the installation section of this document under the heading "Vacuum Breaker Control Manifold".

#### Trap Solenoids

20. The Contractor shall remove, to customer designated area, the OEM Trap Solenoids (total of 2 Trap Solenoids). These items are shown on drawing "R202-112 b" as items 57, 58/1 and 58/2 and identified for removal on drawing "R202-112 Modified". The tubing connected to these solenoids shall be removed to the greatest extent possible.

#### Interlocked Draining Device

21. The Contractor shall remove, to customer designated area, the OEM Test Valve and Striking Device (total of 1 Test Valve and 1 Striking Device). These items are shown on drawing "R202-112 b" as items 72 and 54 and are identified for removal on drawing "R202-112 Modified". The tubing connecting these devices to the trap solenoids 58/1 and 58/2 and the tubing connected to the Secondary Emergency Shut Down System shall be removed to the greatest extent possible.

#### Live Steam Pressure Limiter

22. The Contractor shall remove, to customer designated area, the OEM Live Steam Pressure Limiter (total of 1 Pressure Limiter). This item is shown on drawing "R202-112 b" as item 41 and is identified for

removal on drawing "202-112 Modified". The tubing connected to this device shall be removed to the greatest extent possible.

#### Reversing Relay and Retarding Relay

23. The Contractor shall remove, to customer designated area, the OEM Retarding and Reversing Relays. These items are shown on drawing "R-202-112 b" as items 42/1 and 43/2 and are identified for removal on drawing "202-112 Modified". The tubing connecting these devices to the Live Steam Pressure Limiter shall be removed. The tubing connecting these devices to the air source shall be removed to the greatest extent possible.

#### Steam Pressure Transmitter

24. The Contractor shall remove, to customer designated area, the OEM Steam Pressure Transmitter (total of 1 Pressure Transmitter). This item is shown on drawing "R-202-112 b" as item 42 and is identified for removal on drawing "202-112 Modified". The air source tubing connected to this device shall be removed to the greatest extent possible. The steam sensing line shall be capped at a convenient location near the device.

#### Emergency Relays and Non-Return Valves

25. The Contractor shall remove, to customer designated area, the OEM Emergency Relays (total of 2 Relays). These items are shown on drawing "R-202-112 b" as items 50/1 and 50/2 and are identified for removal on drawing "202-112 Modified". The air tubing connected to these devices shall be cut and capped locally. The hydraulic tubing connected to these devices shall be removed to the greatest extent possible.

#### High Air Pressure Relief and Transducer Relay in Area

26. The Contractor shall remove, to customer designated area, the OEM Multiplication Relay and Transmission Relay System. This system is shown on drawing "R-202-112 b" as items 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

#### Intercept Valve Test Valves

27. The Contractor shall remove, to customer designated area, the OEM IV Test Valves. These items are shown on drawing "R-202-112 b" as items 34/1 and 34/2 and are identified for removal on drawing "202-112 Modified". The tubing connected to these devices shall be removed to the greatest extent possible.

#### Water Valve in Area

28. The Contractor shall remove, to customer designated area, the OEM Water Inlet Valve Relay. This item is shown on drawing "R-202-112 b" as item 50 and is identified for removal on drawing "202-112 Modified". The tubing connected to this device shall be removed to the greatest extent possible.

#### Water Valve in Area

29. The Contractor shall remove, to customer designated area, the OEM Air Valve Relay and Air Valve Relay. These items are shown on drawing "R-202-112 b" as items 23 and 24 and are identified for removal on drawing "202-112 Modified". The tubing connected to these devices to the HP Control Fluid System shall be removed to the greatest extent possible.

## II. Installation of New Equipment:

The following item numbers (1 - 11) refer to specific equipment installed during the Units 3 Control System Replacement. These items are identified on Emerson drawing UXXXXSYSSCH, System Hydraulic Schematic (sheets 1-3).

### **Seller Equipment:**

#### **Hydraulic Power Unit (HPU)**

Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Hydraulic power Unit (Total of 1 HPU) to the location where the OEM HPU had previously been located. Refer to Emerson example drawing UXXXXHPU200 (Sheets 1-7) for the HPU Assembly, Hydraulic Schematic, Instrumentation Wiring Diagram and Power iring Diagram. The HPU drawing lists each hydraulic connection port size. The HPU envelope dimensions and weights are listed on the assembly drawing (sheet 1 of 7). The HPU assembly includes a structural steel drip pan with (4) 11/16 inch mounting holes to secure the HPU to the foundation. The HPU is connected to the system as shown on the EHC System Hydraulic Schematic, UXXXXSYSSCH (Sheets 1-3)

#### Existing OEM Hydraulic Power Unit (HPU) Modifications

1. ~~The existing OEM HPU shall be utilized and remain undisturbed except for modifications required to increase hydraulic fluid flow capacity and the additions of stainless steel tubing as deemed necessary for connections to new pumps and actuators. Contractor shall remove from the shipping truck and install the new hydraulic pumps and C couplings to existing motors (Qty 2). Refer to Emerson drawing UXXXX for the HPU Modifications Assembly.~~

#### Control, Reheat and Intercept Valve Actuators

2. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new EHC steam valve actuators (Total of 5 Actuator Assemblies). The installation of each type of valve (CV, RH and IV) will be documented via an Actuator Installation Drawing (refer to Emerson example drawing UXXXXIVA001 and UXXXXIVA001). The actuators are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Emerson shall supply the mounting hardware. Installation Contractor will match up mounting pattern and field drill new holes in the mounting plate and bracket. The linkage will need to be field cut with Seller field Instructions and assistance per Control Valve Installation drawings. Note: additional field fit machining shall be required on bracket assembly for the RHSV & IV installation. All of the actuator assemblies include Pressure, Return, Trip and drain ports. The connection ports range in size from SAE-8 to SAE-20.
3. Mechanical Installation Contractor shall furnish and install the stainless steel tubing for the high pressure supply lines, the three? return lines, 3 Trip Header Lines, and the 3 drain lines from the HPU Assembly tie in points to close proximity of the newly installed CV, IV & RHSV actuator manifolds. Mechanical Installation Contractor shall furnish and install high pressure hoses from the stainless steel tubing to each type of valve assembly (CV, RH, and IV) actuator manifold. Mechanical Installation Contractor shall furnish and install new tubing from the 2 actuator manifold to the new low pressure trip manifold (see # 7) and connect the line. (??This can come out, I think??) (Reference Dwg. System Schematic for hose recommendations

#### Accumulator Assemblies

4. Buyer shall remove from the shipping truck and Mechanical Installation Contractor install the new Accumulator Assemblies (Total of 4 Accumulators - Qty (1) twenty gallon assembly, Qty (1) ten gallon assembly, and Qty (2) five gallon assemblies). The accumulators are attached to the turbine deck or grating using four 9/16 lag bolts (provided by contractor). The accumulators are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Each

accumulator assembly includes SAE-20 pressure ports and SAE-8 drain ports. Refer to the Accumulator Assembly Operation and Maintenance Manual for layout drawings and schematics.

5. Mechanical Installation Contractor shall furnish and install the 1" pressure line (P1) and 3/4" drain line (S1) to the accumulator.

#### Filter Assemblies

6. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Filter Assemblies (Total of 3 Filter Assemblies) in the high-pressure supply lines close to each actuator type. The filter assemblies are field mounted using four 3/8-24 bolts (provided by contractor). Simple angle iron mounting brackets will be fabricated on-site by the Mechanical Installation Contractor. The filters are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Each filter assembly includes SAE-20 inlet and outlet ports. Refer to the Filter Assembly Operation and Maintenance Manual for layout drawings and schematics.

#### Pressure Status Manifolds

7. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Pressure Status Manifold near the front standard of the Main Turbine. The manifold is field mounted using four 1/2-13 bolts (provided by installation contractor). Simple angle iron mounting brackets will be fabricated on-site by the Installation Contractor. The Pressure Status manifolds include SAE-12 pressure and drain ports. Refer to the Pressure Status Manifold Operation and Maintenance Manual for layout drawings and schematics.
8. Mechanical Installation Contractor shall furnish and install the 1/2" trip header line to the supply port (A) on the status manifold. Furnish and install the 1/2" drain line to the drain line to port (B) on the status manifold (Reference Dwg. Pressure Status manifold (PSM)).

#### Active Speed Sensing Probe

9. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the one Active Speed Probe Assembly to the existing OEM speed probe mounting bracket. The OEM assembly consists of a speed wheel and a speed probe mounting bracket. The speed probe mounting bracket is attached to the support steel inside the front standard in a manner that permits the speed probes to come in close proximity to the rotating speed wheel. There are no hydraulic connections to the Speed Sensing Assembly.

#### Testable Dump Manifold - Not necessary with NEW HPU because TDM is located on HPU from Airline

10. The Mechanical Installation Contractor shall remove from the shipping truck and install the new Testable Dump Manifold on the HPU where the Cross Trip Relay Manifold was previously located on the OEM HPU. The manifold will be field mounting using 3/8-16 UNC mounting bolts. Simple angle iron mounting brackets will be fabricated to interface to where the OEM Cross Trip Relay Manifold was previously located.

The mechanical installation contractor shall re-connect the existing OEM Trip Header lines to the new Trip Header lines from the CV, IV and RHSV and connect these to the TDM. Furnish and install the 1/2" drain line and the 1" Return Line from the TDM to the OEM HPU reservoir. Testable Dump Manifold

#### Packing Blowdown Valve Air Relay

11. The Mechanical Installation Contractor shall remove from the shipping truck and install the new Packing Blowdown Valve Air Relay Pneumatic Actuator. The actuator will be mounted using simple using simple brackets to interface where the previous Packing Blowdown Valve Air Relay was located.

**SCOPE OF WORK NOTES:**

1. All fittings for maintenance critical devices identified by Owner shall be Swagelok
2. All piping welds shall be socket welds unless otherwise authorized by Owner
3. All ball valves shall be furnished by Mechanical Installation Contractor and shall be Hydac KHB or KHN series ball valves with SAE straight thread and connection
4. All flexible hoses required shall be furnished by Mechanical Installation Contractor and shall be Parker 381 or 772 series with face seal ends (seal-lok)
5. Mechanical Installation Contractor to supply all mounting hardware unless otherwise noted.
6. All equipment to be unloaded from truck and set in place by contractor.
7. All industry standards for cleanliness shall be performed during installation and all pipes shall be labeled using industry standards on each end of run.
8. Mechanical Installation Contractor shall provide Buyer with Hydraulic flush support for the Main Turbine systems
9. Mechanical Installation Contractor shall furnish all stainless steel tubing, and associated fittings required for the installation. See installation drawings for tubing size and ss material types.

**SCG&E Turbine Controls Project Unit 3 – Main Turbine – Version C**  
**Demolition & Installation of EHC Fluid System**  
**Turbine Controls Upgrade - Mechanical Turbine Hardware**  
**Additional 4 Control Valve Actuators**

**Reference drawings:**

| Source  | Description                                                                                                                                                                                                                                                              | Drawing Number                                                                                                                                                          |   |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|         | Control Diagram of Main Turbine                                                                                                                                                                                                                                          |                                                                                                                                                                         |   |
| Emerson | Control Diagram – Demolition & Installation                                                                                                                                                                                                                              | U0110MTOIL                                                                                                                                                              | * |
| Emerson | EHC System Hydraulic Schematic<br>(Typical ??? system schematic provided. A site specific schematic will be developed for this project and provided to the installation contractor prior mobilization.)                                                                  | U110MTSSCH (Sheets 1-7)                                                                                                                                                 | * |
| Emerson | Modifications to existing Hydraulic Power Unit                                                                                                                                                                                                                           | U0110HPU200 (Sheets 1-7)                                                                                                                                                | * |
| Emerson | Actuator Installation – Typical<br>Actuator Assembly – Typical<br>(Typical ??? Actuator Installation and Assembly drawings provided. Site specific Actuator drawings will be developed for this project and provided to the installation contractor prior mobilization.) | U0110VI001 (Sheets 1,2)<br>U0110IVA001 (Sheets 1, 2)<br>U0110RHSV11 (Sheets 1,2)<br>U0110 RHSVA1 (Sheets 1, 2)<br>U0110IV1001 (Sheets 1,2)<br>U0110IVA001 (Sheets 1, 2) | * |
| Emerson | Accumulator Assembly                                                                                                                                                                                                                                                     | Accumulator Assembly Operation & Maintenance Manual                                                                                                                     | * |
| Emerson | Filter Assembly                                                                                                                                                                                                                                                          | Filter Assembly Operation & Maintenance Manual                                                                                                                          | * |
| Emerson | Pressure Status Manifold                                                                                                                                                                                                                                                 | Pressure Status Manifold Operation & Maintenance Manual                                                                                                                 | * |
| Emerson | Oil Operated Air Pilot Valve Packing<br>Blowdown Valve Air Relay                                                                                                                                                                                                         | U0110PBDVR1 (Sheets 1-3)                                                                                                                                                |   |

**General Notes:**

1. Asterisks above denote Emerson supplied equipment.
2. Buyer is SCG&E Canadys
3. Seller is Emerson Power & Water Solutions
4. Mechanical Installation Contractor is the successful bidder for this Scope of Work
5. Mechanical Installation Contractor shall supply all hardware, tubing, fittings, hangers, brackets, tools, equipment, and any material that is not specified as supplied by Emerson or HE.
6. The Mechanical Installation Contractor is responsible for the removal of all demolished equipment and materials to a pre-designated area, (disposal container supplied by HE) located on Plant site (within 400 ft from closest exit).
7. Buyer will provide off loader to unload all Seller's equipment from truck. Mechanical installation contractor to assist the buyer in this effort.
8. All references made to SCG&E Canadys Unit 3 Main Turbine
9. The equipment quantities mentioned in this Scope of Work document are for ONE unit.
10. See Electrical Installation Statement of Work (SOW) for electrical installation scope

11. The scope identified below is preliminary and may not represent the total scope until additional information is received from SCE&G Canadys
12. Buyer shall remove and re-install any main turbine or BFPT lagging necessary for seller to complete this scope of work.
13. Buyer shall remove and re-install any insulation covering BFPT or Main turbine necessary for seller to complete this scope of work

#### I. Demolition of Existing Mechanical Equipment:

The following item numbers (1-26) refer to specific equipment removed or modified as shown on drawing "U0110MTOIL"

##### Equipment: OEM Valve Actuators

##### Reheat Stop Actuators Valve (RSV) Left and Right

1. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM RSV Valve actuator assemblies (total of 2 RSV actuators) and applicable linkage. These items are shown on drawing "?????" as items ? and ? and identified for removal on drawing "U0110MTOIL, sheets 1&2". ~~Note that both drawings referenced show only the actuator on the left side of the turbine. The actuator on the right side of the turbine is not shown.~~
2. The Mechanical Installation Contractor shall remove the existing hydraulic piping from each RSV actuator assembly. The piping shall be removed to the greatest extent possible and capped. Emerson will identify, with unique markers, all hydraulic plumbing to be removed. "U0110MTOIL, sheets 1&2" will identify (schematically) which sections of pipe are to be removed.

##### Control Valve Actuator

3. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM CV Valve actuator assembly (total of 5 CV actuators) and applicable linkage. These items are shown on drawing "?????" as items ?? and identified for removal on drawing "U0110MTOIL, sheets 2&3". ~~Note that both drawings referenced show only the actuators on the left side of the turbine. The actuators on the right side of the turbine are not shown.~~
4. The Mechanical Installation Contractor shall remove the existing hydraulic piping from the CV actuator assembly. The piping shall be removed to the greatest extent possible and capped. Removal of the hydraulic piping will on be required on the CV Actuator located at the front standard. The (4) CV Actuators located above and below the steam chest do not have hydraulic lines. Emerson will identify with unique markers all hydraulic plumbing to be removed. "U0110MTOIL, sheet 3" will identify (schematically) which sections of pipe are to be removed.

##### Intercept Valve Actuators (referred to as IV)

5. The Mechanical Installation Contractor shall remove, to customer designated area, the OEM IV Valve actuator assemblies (total of 2 IV actuator). These items are shown on drawing "???????" as item ? and ? and identified for removal on drawing "U0110MTOIL, sheets 1&2". ~~Note that both drawings referenced show only the actuator on the left side of the turbine. The actuator on the right side of the turbine is not shown.~~
6. The Mechanical Installation Contractor shall remove the existing hydraulic piping from each IV actuator assembly. The piping shall be removed to the greatest extent possible. Emerson will identify, with unique markers, all hydraulic plumbing to be removed. "U0110MTOIL, sheets 1&2" will identify (schematically) which sections of pipe are to be removed.

#### Existing OEM Hydraulic Power Unit (HPU) Modifications

7. The Mechanical Installation Contractor shall remove (at a minimum), to customer designated area, the OEM Hydraulic pumps (Qty. 2) and associated couplings. These items are shown on drawing "U0110MTOIL, sheet 5" as item 2 and 7 and identified for removal on drawing "U0110MTOIL, sheet 5".
8. The Mechanical Installation Contractor shall disconnect and/or remove the existing hydraulic piping as deemed necessary for removal of existing pumps, re-installation of new pumps, (See # 22 below) and necessary HPU modifications. Emerson will identify, with unique markers, all hydraulic plumbing to be removed. "U0110MTOIL, sheet 5" will identify (schematically) which sections of pipe are to be removed.
9. The mechanical installation contractor shall remove, to customer designated area the OEM Cross Trip Relay Manifold. These items are identified for removal on drawing "U0110MTOIL Sheet 4/5".
10. The mechanical installation contractor shall remove, to customer designated area the Ion Exchange Filter Element Assembly and associated plumbing. This is identified for removal on drawing "U0110MTOIL, sheet 5". The piping shall be removed to the greatest extent possible and capped.
11. The mechanical installation contractor shall remove, to customer designated area, the OEM Hydraulic Power Unit. This demolition will include the concrete containment area surrounding the HPU. This demolition will not include demolition of the hydraulic lines, or water lines that run to the OEM HPU.

The mechanical installation contractor shall disconnect the hydraulic lines that run from the Cross Trip Relay to the Hydraulic Actuators, and the Hydraulic Power Unit. These lines include, but are not limited to, 'FTD', 'FTS', 'ETS', 'FAS', and System Return. "U0110MTOIL, sheets 1 & 4" will identify schematically, which sections of pipe are to be removed. These lines should be disconnected and temporarily capped to the least extent possible. These hydraulic lines will need to be re-used during the installation of the Testable Dump Manifold, the new Hydraulic Actuators and installation of the new Hydraulic Power Unit.

From an electrical standpoint, the Installation Contractor shall demo/remove all unused wires and raceway to the greatest extent possible and dispose to owner designated area. Some wires shall be re-used during installation of new Emerson HPU. See Electrical SOW document dated 5-12-10.

#### Front Standard & Dry Pocket Modifications

12. The mechanical installation contractor shall remove (at a minimum), to customer designated area the following items as shown on U0110MTOIL;
  - a. Initial Pressure Regulator – Jet, (2) Auxiliary Pilot Valve, (3) Intercept Valve Jacking Device, (4) Speed Relay, (5) Speed Governor, (6) Backup Overspeed Trip, (7) Speed Load Changer, (8) Load Limit, (9) Intercept Valve Relay, (10) Packing Blowdown Valve Air Relay.
13. Each component and piping associated shall be removed to the greatest extent possible. Emerson will identify with unique markers all hydraulic and mechanical elements to be removed. Reference Emerson Drawing U0110MTOIL for additional details on removal of front standard and dry pocket items to be removed.

#### Low Speed Switch Assembly Modifications

14. The mechanical installation contractor shall remove, to customer designated area the Low Speed Switch Assembly. This includes the 2 timing cylinders, Low Speed Switches (LSS), and associated hydraulic tubing. The piping shall be removed to the greatest extent possible and capped. This is identified for removal on drawing "U0110MTOIL, sheet 1".

#### Packing Blowdown Valve Air Relay

15. The Mechanical Installation Contractor shall demo/remove, to customer designated area the Packing Blowdown Valve Air Relay. This includes Air relay valve and linkages that connect back to the

Intercept valve. The linkages should be removed to the greatest extent possible. This is identified for removal on drawing "U0110MTOIL, sheet 1".

#### Vacuum Trip

16. The Contractor shall remove, to customer designated area, the OEM vacuum limiter device (total of 1 vacuum limiter device). This item is shown on drawing "202-112" as item 7 and identified for removal on drawing "202-112 Modified". The Contractor shall cut and cap the vacuum sensing line at a convenient location near the source. The tubing for the sensing line will be removed to the customer designated area. The control oil line connected to the vacuum limiter will be removed to the greatest extent possible and capped. Emerson will identify, with unique markers, all plumbing to be removed. Drawing "202-112 Modified" will describe (schematically) which sections of pipe and tubing are to be removed.
17. The Contractor shall remove, to customer designated area, the OEM vacuum trip device (total of 1 vacuum trip device). This item is shown on drawing "202-112" as item 7 and identified for removal on drawing "202-112 Modified". The tubing for the vacuum sensing line will be re-used as the sensing line for a bank of three transmitters. The installation and tubing connection for the three transmitters is described in the installation section of this document under the heading "Vacuum Pressure Status Manifold".

#### Lube Oil Trip

18. The Contractor shall remove, to customer designated area, the OEM lube oil trip device (total of 1 lube oil trip device). This item is shown on drawing "R 202-112 b" as item 76 and identified for removal on drawing "202-112 Modified". The tubing for the lube oil sensing line will be re-used as the sensing line for a bank of three transmitters. The installation and tubing connection for the three transmitters is described in the installation section of this document under the heading "Lube Oil Pressure Status Manifold".

#### Vacuum Breaker Control Device

19. The Contractor shall remove, to customer designated area, the OEM vacuum breaker control device (total of 1 vacuum breaker control device). This item is shown on drawing "R 202-112 b" as item 79 and identified for removal on drawing "202-112 Modified". The pushbuttons, solenoids and control mechanisms associated with the vacuum breaker control device will also be removed. The Contractor shall remove the LRP Control device and the tubing connected to the vacuum breaker control device. The tubing for the vacuum breaker shall remain in place and connected to the vacuum breaker control manifold as described in the installation section of this document under the heading "Vacuum Breaker Control Manifold".

#### Trip Solenoids

20. The Contractor shall remove, to customer designated area, the OEM Trip Solenoids (total of 3 Trip Solenoids). These items are shown on drawing "R 202-112 b" as items 57, 58 and 59 and identified for removal on drawing "202-112 Modified". The tubing connected to these solenoids shall be removed to the greatest extent possible.

#### Test Valve and Starting Device

21. The Contractor shall remove, to customer designated area, the OEM Test Valve and Starting Device (total of 1 Test Valve and 1 Starting Device). These items are shown on drawing "R 202-112 b" as items 72 and 54 and are identified for removal on drawing "202-112 Modified". The tubing connected to these devices to the trip solenoids 58 and 59 and the tubing connected to the Secondary Emergency Shut-Down System shall be removed to the greatest extent possible.

#### Live Steam Pressure Limiter

22. The Contractor shall remove, to customer designated area, the OEM Live Steam Pressure Limiter (total of 1 Pressure Limiter). This item is shown on drawing "R 202-112 b" as item 41 and is identified for

removal on drawing "202-112 Modified". The tubing connected to this device shall be removed to the greatest extent possible.

Reversing Relay and Rotating Relay

23. The Contractor shall remove, to customer designated area, the OEM Rotating Relay (total of 2 Relays). These items are shown on drawing "R-202-112 b" as item 41 and 42 and are identified for removal on drawing "202-112 Modified". The tubing connecting these devices to the Live Steam Pressure Limiter shall be removed. The tubing connecting these devices to the air source shall be removed to the greatest extent possible.

Steam Pressure Transmitter

24. The Contractor shall remove, to customer designated area, the OEM Steam Pressure Transmitter (total of 1 Pressure Transmitter). This item is shown on drawing "R-202-112 b" as item 42 and is identified for removal on drawing "202-112 Modified". The air source tubing connected to this device shall be removed to the greatest extent possible. The steam sensing line shall be capped at a convenient location near the device.

Emergency Relays (Water Injection Valve)

25. The Contractor shall remove, to customer designated area, the OEM Emergency Relays (total of 2 Relays). These items are shown on drawing "R-202-112 b" as items 69/1 and 69/2 and are identified for removal on drawing "202-112 Modified". The air tubing connected to these devices shall be cut and capped locally. The hydraulic tubing connected to these devices shall be removed to the greatest extent possible.

Multiplication and Transmission Ratio System

26. The Contractor shall remove, to customer designated area, the OEM Multiplication Relay and Transmission Ratio System. This system is shown on drawing "R-202-112 b" as items 334, 333, 366, 334, 372, 366, 336, 92/2, 344 and 92/1 and is identified for removal on drawing "202-112 Modified". The air tubing connected to these devices shall be removed to the air line or the supply header. The hydraulic tubing connected to these devices shall be removed to the greatest extent possible. The steam pressure sensing line shall be cut and capped at a convenient location.

Intercept Valve Test Valves

27. The Contractor shall remove, to customer designated area, the OEM IV Test Valves. These items are shown on drawing "R-202-112 b" as items 84/1 and 84/2 and are identified for removal on drawing "202-112 Modified". The tubing connected to these devices shall be removed to the greatest extent possible.

Relay to Water Injection Valve

28. The Contractor shall remove, to customer designated area, the OEM Water Injection Valve Relay. This item is shown on drawing "R-202-112 b" as item 50 and is identified for removal on drawing "202-112 Modified". The tubing connected to this device shall be removed to the greatest extent possible.

Acceleration Limiter and Speed Controller

29. The Contractor shall remove, to customer designated area, the OEM Acceleration Limiter and Speed Controller devices. These items are shown on drawing "R-202-112 b" as items 23 and 24 and are identified for removal on drawing "202-112 Modified". The tubing connected to these devices to the H2 Control Fluid System shall be removed to the greatest extent possible.

## II. Installation of New Equipment:

The following item numbers (1 - 11) refer to specific equipment installed during the Units 3 Control System Replacement. These items are identified on Emerson drawing UXXXXSYSSCH, System Hydraulic Schematic (sheets 1-3).

### Seller Equipment:

#### Hydraulic Power Unit (HPU)

Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Hydraulic power Unit (Total of 1 HPU) to the location where the OEM HPU had previously been located. Refer to Emerson example drawing UXXXXHPU200 (Sheets 1-7) for the HPU Assembly, Hydraulic Schematic, Instrumentation Wiring Diagram and Power Icing Diagram. The HPU drawing lists each hydraulic connection port size. The HPU envelope dimensions and weights are listed on the assembly drawing (sheet 1 of 7). The HPU assembly includes a structural steel drip pan with (4) 11/16 inch mounting holes to secure the HPU to the foundation. The HPU is connected to the system as shown on the EHC System Hydraulic Schematic, UXXXXSYSSCH (Sheets 1-3)

#### Existing OEM Hydraulic Power Unit (HPU) Modifications

1. The existing OEM HPU shall be utilized and remain undisturbed except for modifications required to increase hydraulic fluid flow capacity and the additions of stainless steel tubing as deemed necessary for connections to new pumps and actuators. Contractor shall remove from the shipping truck and install the new hydraulic pumps and C couplings to existing motors (Qty 2). Refer to Emerson drawing UXXXX for the HPU Modifications Assembly.

#### Control, Reheat and Intercept Valve Actuators

2. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new EHC steam valve actuators (Total of 8 Actuator Assemblies - 2 RHSV, 2 IV, 4 CV). The installation of each type of valve (CV, RH and IV) will be documented via an Actuator Installation Drawing (refer to Emerson example drawing UXXXXIVA001 and UXXXXIVA001). The actuators are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Emerson shall supply the mounting hardware. Installation Contractor will match up mounting pattern and field drill new holes in the mounting plate and bracket. The linkage will need to be field cut with Seller field instructions and assistance per Control Valve Installation drawings. Note: additional field fit machining shall be required on bracket assembly for the RHSV, IV installation and control valve actuators. All of the actuator assemblies include Pressure, Return, Trip and drain ports. The connection ports range in size from SAE-8 to SAE-20.
3. Mechanical Installation Contractor shall furnish and install the stainless steel tubing for the high pressure supply lines. There will be 4 Supply Pressure lines, 4 Trip Header Lines, 4 Drain Lines and 4 Return lines from the HPU Assembly tie in points to close proximity of the newly installed CV, IV & RHSV actuator manifolds. Mechanical Installation Contractor shall furnish and install high pressure hoses from the stainless steel tubing to each type of valve assembly (CV, RH, and IV) actuator manifold. Mechanical Installation Contractor shall furnish and install new tubing from the 2 actuator manifold to the new low pressure trip manifold (see # 2) and connect the line (Reference Dwg. System Schematic for hose recommendations)

#### Accumulator Assemblies

4. Buyer shall remove from the shipping truck and Mechanical Installation Contractor install the new Accumulator Assemblies (Total of 5 Accumulators - Qty (1) twenty gallon assembly, Qty (2) ten gallon assembly, and Qty (2) five gallon assemblies). The accumulators are attached to the turbine deck or grating using four 9/16 lag bolts (provided by contractor). The accumulators are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Each

accumulator assembly includes SAE-20 pressure ports and SAE-8 drain ports. Refer to the Accumulator Assembly Operation and Maintenance Manual for layout drawings and schematics.

5. Mechanical Installation Contractor shall furnish and install the 1" pressure line (P1) and 3/4" drain line (S1) to the accumulator.

#### Filter Assemblies

6. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Filter Assemblies (Total of 4 Filter Assemblies) in the high pressure supply lines close to each actuator type. The filter assemblies are field mounted using four 3/8-24 bolts (provided by contractor). Simple angle iron mounting brackets will be fabricated on-site by the Mechanical Installation Contractor. The filters are connected in the system as shown on the EHC System Hydraulic Schematic UXXXXSYSSCH (Sheets 1-3). Each filter assembly includes SAE-20 inlet and outlet ports. Refer to the Filter Assembly Operation and Maintenance Manual for layout drawings and schematics.

#### Pressure Status Manifolds

7. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the new Pressure Status Manifold near the front standard of the Main Turbine. The manifold is field mounted using four 1/2-13 bolts (provided by installation contractor). Simple angle iron mounting brackets will be fabricated on-site by the Installation Contractor. The Pressure Status manifolds include SAE-12 pressure and drain ports. Refer to the Pressure Status Manifold Operation and Maintenance Manual for layout drawings and schematics.
8. Mechanical Installation Contractor shall furnish and install the 1/2" trip header line to the supply port (A) on the status manifold. Furnish and install the 1/2" drain line to the drain line to port (B) on the status manifold (Reference Dwg. Pressure Status manifold (PSM)).

#### Active Speed Sensing Probe

9. Buyer shall remove from the shipping truck and Mechanical Installation Contractor shall install the one Active Speed Probe Assembly to the existing OEM speed probe mounting bracket. The OEM assembly consists of a speed wheel and a speed probe mounting bracket. The speed probe mounting bracket is attached to the support steel inside the front standard in a manner that permits the speed probes to come in close proximity to the rotating speed wheel. There are no hydraulic connections to the Speed Sensing Assembly.

~~Testable Dump Manifold~~ - Not necessary with NEW HPU because TDM is located on HPU from Airline

10. The Mechanical Installation Contractor shall remove from the shipping truck and install the new ~~Testable Dump Manifold~~ on the HPU where the Cross Trip Relay Manifold was previously located on the OEM HPU. The manifold will be field mounting using 3/8-16 UNC mounting bolts. Simple angle iron mounting brackets will be fabricated to interface to where the OEM Cross Trip Relay Manifold was previously located.

The mechanical installation contractor shall re-connect the existing OEM Trip Header lines to the new Trip Header lines from the CV, IV and RHSV and connect these to the TDM. Furnish and install the 1/2" drain line and the 1" Return Line from the TDM to the OEM HPU receiver. ~~Testable Dump Manifold~~

#### Packing Blowdown Valve Air Relay

11. The Mechanical Installation Contractor shall remove from the shipping truck and install the new Packing Blowdown Valve Air Relay Pneumatic Actuator. The actuator will be mounted using simple using simple brackets to interface where the previous Packing Blowdown Valve Air Relay was located.

**SCOPE OF WORK NOTES:**

1. All fittings for maintenance critical devices identified by Owner shall be Swagelok
2. All piping welds shall be socket welds unless otherwise authorized by Owner
3. All ball valves shall be furnished by Mechanical Installation Contractor and shall be Hydac KHB or KHN series ball valves with SAE straight thread and connection
4. All flexible hoses required shall be furnished by Mechanical Installation Contractor and shall be Parker 381 or 772 series with face seal ends (seal-lok)
5. Mechanical Installation Contractor to supply all mounting hardware unless otherwise noted.
6. All equipment to be unloaded from truck and set in place by contractor.
7. All industry standards for cleanliness shall be performed during installation and all pipes shall be labeled using industry standards on each end of run.
8. Mechanical Installation Contractor shall provide Buyer with Hydraulic flush support for the FD Fan Turbine and Main Turbine systems

THE STATE OF SOUTH CAROLINA  
In The Court of Appeals

APPEAL FROM COLLETON COUNTY  
Court of Common Pleas

J. Ernest Kinard, Jr., Judge

Case No. 2014-002733

**RECEIVED**

SEP 28 2015  
SC Court of Appeals

Samuel Washington, Jr.....Respondent,

v.

South Carolina Electric and Gas Company; and Emerson Electric Company d/b/a Emerson  
Network Power, and/or Emerson Network Power, Defendants,

Of Whom South Carolina Electric and Gas Company.....Appellant.

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**CERTIFICATE OF COUNSEL**

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The undersigned certifies that the Appendix to the Record on Appeal complies with  
Rule 209(c), SCACR and contains no matter which is irrelevant to the appeal.

September 25, 2015

  
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PROOF OF SERVICE

I certify that the Appendix to the Record on Appeal was served on Respondent Samuel Washington, Jr. via United States Mail, postage prepaid, on September 25, 2015, addressed to his attorneys of record, Margie Bright Matthews, Margie Bright Matthews, LLC, Post Office Box 499, Walterboro, SC 29488 and S. Kirkpatrick Morgan, Jr. and Charles T. Slaughter, Walker Morgan, LLC, Post Office Box 949, Lexington, SC 29071, and that the same was also served on Co-Defendant Emerson Electric Company d/b/a Emerson Network Power, and/or Emerson Network Power via United States Mail, postage prepaid, on September 25, 2015 addressed to its attorneys of record, H. Michael Bowers, Esquire, Smith Moore Leatherwood LLP, 25 Calhoun Street, Suite 250, Charleston, SC 29401.

September 25, 2015



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