1.0 PROJECT ORGANIZATION

ProEnergy EPC Services has a flat corporate structure with a strong project orientation. PES's greatest asset is its professional staff. Accordingly, PES's management is technically qualified and PES's corporate and project organization ensure that highly qualified technical personnel direct the efforts of virtually every aspect of the end product.

1.1 Corporate Structure

PES is organized in a manner which promotes the performance and efficiencies of different specialized organizational groups. Each group is lead by a technical manager who is accountable for his/her group's productivity and efficiency. These technical managers answer to the Project Manager for overall project direction. It is by the dissemination of work effort into specialized groups, managed by technical experts in their field that projects are successfully completed. The specialized groups are: engineering, construction, and technical support/service.

President
David Whisenhunt

Marketing	Director Of Projects	Technical Director
Kent McAllister	Craig DeWees	W.T. Stewart
Marketing Sales Communications	Project Management Project Administration Logistics Financial Controls Safety Construction Management Field Service	Engineering Quality Documentation

Figure 1-1 PES Corporate Organization

1.2 Project Structure

Each project flows through PES in the following manner:

1) Engineering for design and procurement;
2) Construction for actual construction/erection effort; and
3) Technical Service/Support for commissioning/startup and ongoing support.

Figure 1-2 Communication Interfaces

The formally established communication interfaces occur naturally between these groups as the projects (work) flow through the organization. Design documents and documentation, etc. facilitate the hand-off from one group to the next. Communication and continuity is maintained by Project Management which leads and stays with each project through the process. The communication interfaces are shown in figure 1-2 as red arrows and bars.

1.3 Program/Project Organization

The following chart represents PES program organization. The support tier reflects dedicated corporate support for the program. This effort is lead by the Director Of Projects who provides overall leadership and responsibilities for the various projects.

Dedicated Corporate Support

- Program Manager
- Safety
- Quality
- Engineering
- Logistics
- Schedule
- Cost Control
- Administration

Specific Project Staff

- Project Manger
- Project Engineer
- Construction Manager
- Safety
- Scheduler
- Inspectors
- Superintendents
    - o Civil
    - o Electrical
    - o Mechanical
    - o I&C

The overall program/project organization is shown on the following page in Figure 1-3, titled AEP Program/Projects Organization.

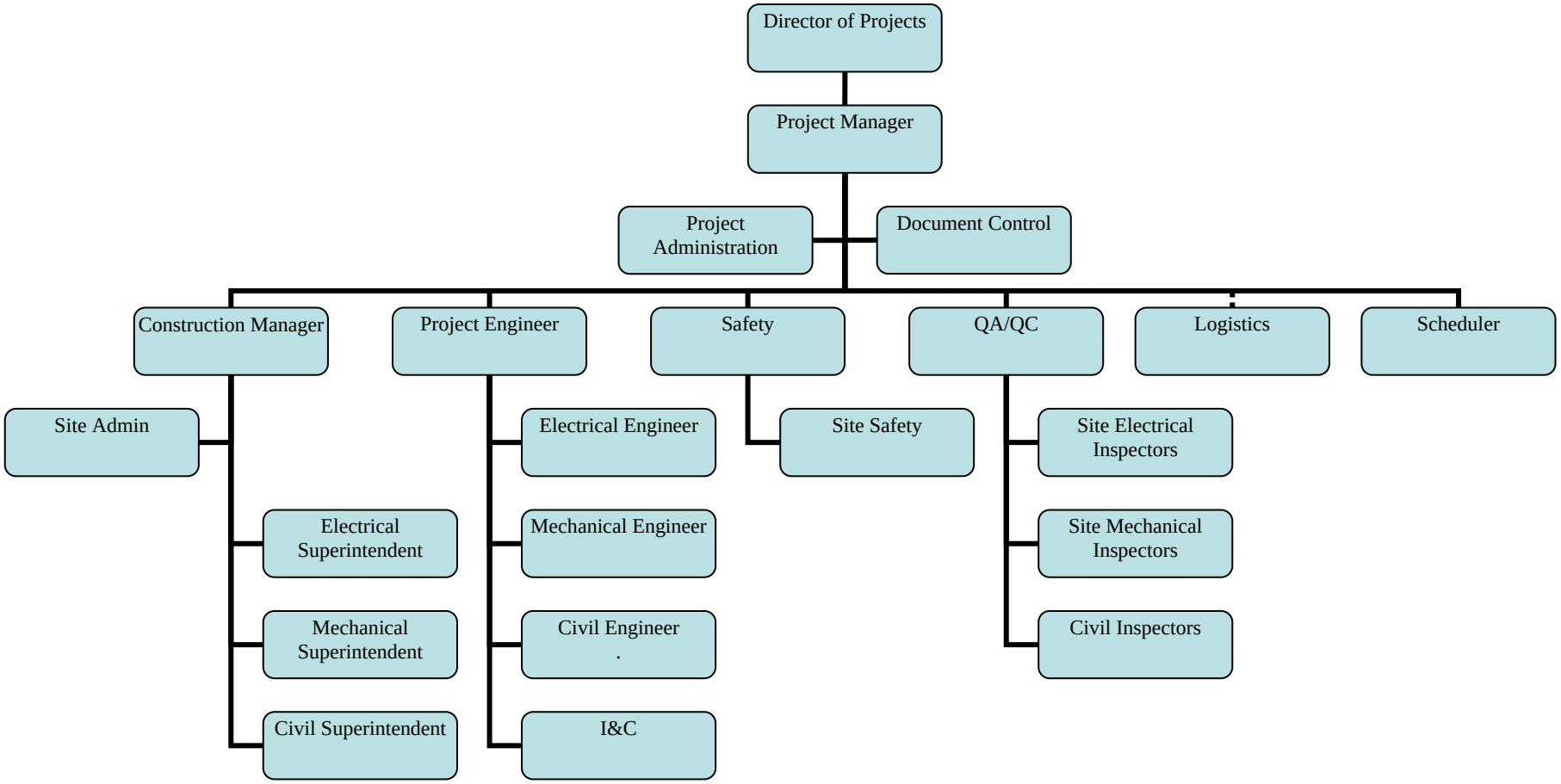


Figure 1-3 EDC / LA RAISA Program/Projects Organization

2.0 COR RESPONDENCE CONTROL

This section covers letters, facsimiles, meeting notes, transmittals, and reports. All documents should include the project title, PES's project number, and date the document was sent or received. A copy of all correspondence described below will be maintained in the PES project file.

2.1 Letters and Facsimiles

During all phases of the project, letters to the Owner shall be addressed to AEP Project Manager. Letters to PES should be addressed to the PES's Program Manager.

All PES's originated letters and facsimiles will be sequentially numbered (e.g. P615-JR-100 etc.). All correspondence will be archived in the project files.

2.2 Minutes of Meetings

PES will prepare written minutes for all project meetings. Minutes will include date, subject(s), and attendees. Copies should be sent to all attendees, Owner's Representatives, PES Project Team, and the Project file.

2.3 Transmittals

All drawings and specifications sent outside PES's office will be sent with a written transmittal. The transmittal will include the date and a list of transmitted documents. A copy of the transmittal along with the documents (if applicable) will be kept in the PES Project file.

3.0 ENGINEERING PLAN

PES engineering is performed on this project by a group of engineers from PES, EDG International, Inc. (EDGI), and its subcontractors. PES and EDGI has worked together and provided these services for over 15 years. The PES engineering team is comprised of the following disciplines:

- Electrical
- Mechanical
- Instrument & Control
- Civil, Structural (Provided by Wallace Engineering)
- Outsourced Engineering Sources
  - o Cathodic Protection
  - o Civil Engineering / Calculations

PES's engineering philosophy is continued support throughout the project. PES believes that it is in the best interest of all parties to have the same engineering team support:

- Conceptual Engineering
- Detailed Engineering
- Procuremen t
- Constructio n Support
- Commissioning and Startup Support
- As-Built Support

3.1 Organizatio n

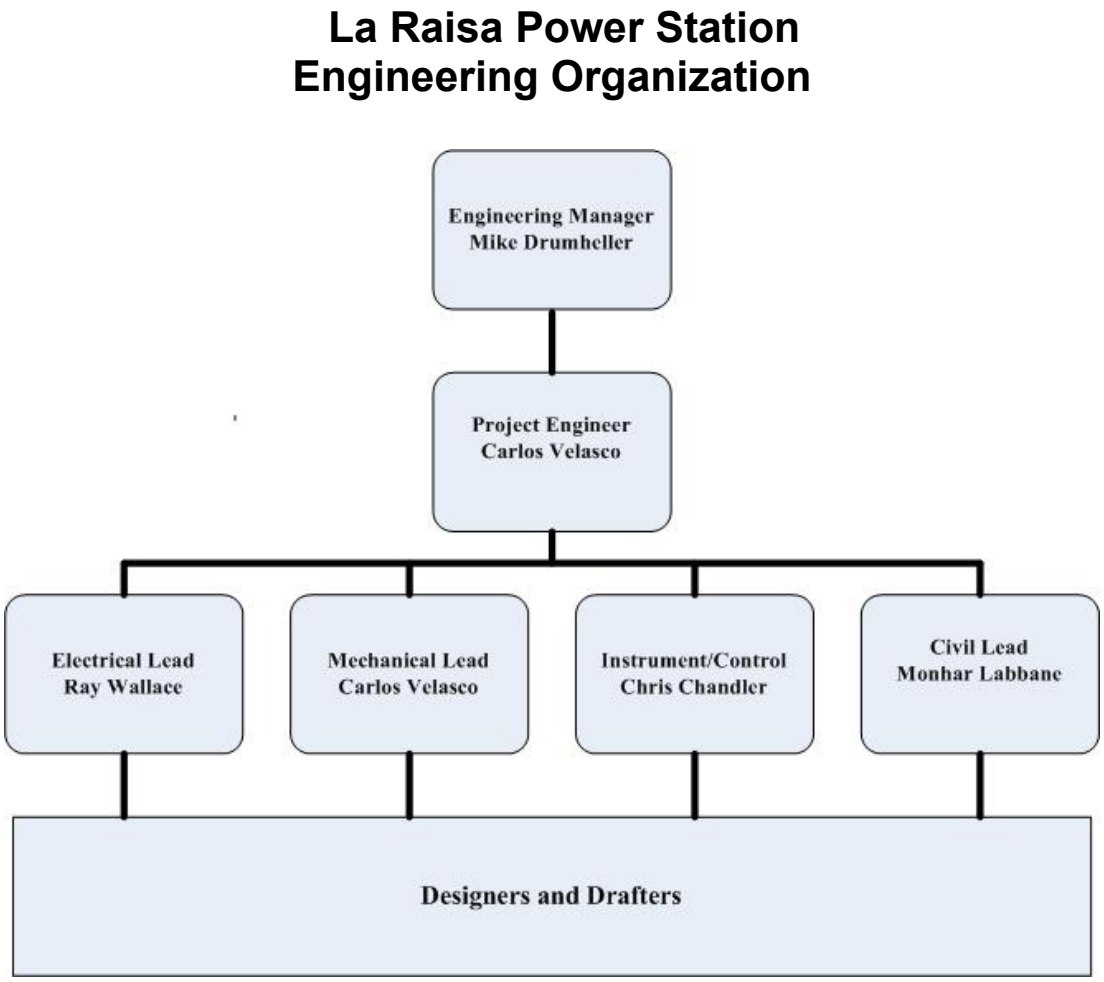
Engineering is organized to perform two equally important functions:

- Technical conceptual and detailed design
- Provide technical information as a part of the project management team

These two tasks are accomplished by the designation of a project engineer to each project. This individual acts as a liaison between the project and the detailed design engineering team and he/she also acts as a member of project management. This dual role ensures that the there is a continuous flow of information between all aspects of the project and the engineering team. This ensures:

- That problems are promptly addressed
- Technical questions resolved
- That misconceptions are promptly uncovered and corrected
- Alternatives and/or options are fully vetted

3.1.1 Engineering Organization Chart



3.1 Standards and Codes

The following represent standards and codes with which the engineering efforts will comply, additional standards and codes will be applied directly to the appropriate equipment specifications.

3.1.1 Electrical

NEMA	National Electrical Manufacturers Association
UL	Underwriters Laboratories Inc.
ICEA	Insulated Cable Engineers Association
ASTM	American Society for Testing and Materials
IEEE	Institute of Electrical and Electronics
IES	Illumincation Engineering Society
NFPA	National Fire Protection Agency
EIA	Electronic Industries Association

3.1.2 Mechanical

AWS A5.1	Specification Covered Carbon Steel Arc Welding Electrodes
AWS A5.5	Specification Low Alloy Steel Covered Arc Welding electrodes
ANSI B31.1	Power Piping
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping
ANSI B31.4	Liquid Transportation Systems for hydrocarbons, LPG, Anhydrous Ammonia and Alcohols
ANSI B31.9	Building Service Piping
ANSI B16.5	Specification for Steel Pipe Flanges and Flanged Fittings
API 1104	Standard for Welding Pipelines and related facilities
API 5L	Specification for Line Pipe Fittings
API 6D	Specification for Pipeline Valves Flanges
API RP 1110	Recommended Practice for Pressure Testing Liquid Petroleum Pipelines
MSS - 75	High Test Wrought Welding Fittings
MSS - SP44	Standard for Steel
ASME	American Society of Mechanical Engineers
ASNT	Amercian Society of Non-Destructive Testing
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association

3.1.3 Civil

ACI - 315	Detailed Reinforced Concrete Structures
ACI - 318	Building Code Requirements for Reinforced Concrete Structures
ACI - 347	Concrete Formwork
ACI - 604	Winter Concrete
ACI – 605	Hot Weather Concrete
ACI – 614	Measuring, Mixing and Placing Concrete
ACI – 617	Concrete Pavements and Concrete Bases
ASTM - A615	Specs for Deformed and Plain Billet Steel Bars for Concrete Reinforcement
ASTM – C31	Method of Making and Curing Concrete Compression and Flexural Test Specimens in the Field
ASTM - A33	Specs for Concrete Aggregates
ASTM - A185	Welded Steel Wire Fabric for Concrete Reinforcement
ASTM – C39	Method of Test for Compressive Strength of Cylindrical Concrete Specimens
ASTM - C40	Method of Test for Organic Impurities in Sands for Concrete
ASTM - C42	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM - C94	Standard for Specification for Ready Mixed Concrete
ASTM - C143	Method of Test for Slump of Portland Cement Concrete
ASTM - C150	Standard Specification for Portland Cement
ASTM - C171	Specification for Sheet Materials
ASTM - C192	Method of Making and Curing Concrete Compression and Flexual Test Specimens in the Labratory
ASTM – C260	Specs for Air-Entraining Admixtures for Concrete
ASTM - C309	Specs for Liquid Membrane Forming Compounds for Curing Concrete

ASTM - C494 Chemical Admixtures for Concrete
ASTM - D98 Standard Specification for Calcuim Chloride
ASTM - D994 Specifications for Preformed Expansion Joint Filler for Concrete, Bituminous Type
ASTM - D1751 Specs for Preformed Expansion Joint Fillers, Non-Extruding and Resilient Bituminous Types
ASTM - D1190 Specs for Concrete Joint Fillers, Non-extruding and Resilient Bituminous Types
ASTM - D1752 Specs for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM – A120 Specs for Black and Hot-Dipped Zinc Coated (Galvanized) welded and Seamless Steel Pipe for Ordinary Uses
ASTM - A123 Specs for Zinc (Hot Galvanized) Coatings on Products Fabricated and rolled, pressed and forged steel shapes, plates, bars, and strips
ASTM – A392 Spec for Zinc Coated Steel Chain Link Fence Fabric
ASTM - A491 Spec for Aluminum Coated Fence Fabric

3.2 Drawings

PES drawings will be created in accordance with the following paragraphs.

3.2.1 PES Numbering Convention

The following table describes the PES drawing numbering convention. The drawing number is a 8 digit number in the following format, XXX-YY-ZZZ-SS where:

- XXX is the PES project number
- YY is the drawing classification
- ZZZ is the unique chronological number which defines the drawing
- SS is the sheet number (if used)

3.2.2 EDC Numbering Convention

- The EDC drawing numbers will be incorporated in the title block during the deveopment of the as-builts.

The following table identified the drawing classification numbers:

Drawing Classification Number	Description
00 Cover	Sheets Drawing Index General Notes Legends Symbols and Abbreviations
10	Plot Plans Area Plans Equipment Location Plans
20 Civil:	 Foundation Location Plans Grading Paving Fencing Foundation Plans and Details Septic Systems
30 Architectural:	 Building Plans Elevations Plumbing Drains (civil and sanitary) Doors Windows Ceilings Walls HVAC
40 Structural:	 Towers Supports (Switch, Breaker, Pipe, Etc.) Walkways Platforms Stairs Ladders Handrails Structures (substation, etc)
50 Process:	 Process Flow Diagrams Process and Instrumentation Diagrams Piping Material Specifications Line Classifications Key Piping Plans Piping Plans Piping Elevation and Details
Drawing Classification Number (continued)	**Description (continued)**
60 Electrical:	 One Line Diagrams

	Three Line Diagrams Ground Grid and Details Lightning Protection Key Electrical Plans Electrical Area Plans (conduit routing) Control Schematics Wire Schedules Interconnection Diagrams Panel Schematics Equipment Drawings
70	Instrumentation and Controls: Control System Architecture Loop Diagrams Instrumentation Details Instrumentation Location Key Plans
80 Mechanical:	 Duct Details Vessels Tanks Specifications Skids

3.2.3 Title Block

The PES title block is provided on the base of each drawing. The following figure illustrates the title block and the following discussion identifies each element of the title block.

Item	Description
1	PES standard corporate logo
2	Drafter Initials and Date Check Initials and Date Design Initial and Date Project Engineer and Date Project Manager and Date Quality Manager and Date Drawing Scale and Drawing Size
3	Drawing Type Area of Drawing Name of Project or Facility Location of Project or Facility Client Client Location
4	Job Number
5 Drawing	Number
6	Sheet Number
7	Revision Number
8	Revision Log Each line will have the number of the revision, the date of the revision , the initials of the drafter, checker and the engineer approving the revision. The last section is the description of the revision.

3.3 Revision Control

At the beginning of each engineering project the following is established:

- A project drawing index is established.
- A project drawing stick file is established .
- The stick file is comprised of “D” size drawings. The stick file is the in-house permanent record master set of drawings. All drawings will have “wet” signatures (as opposed to CAD initials).
- All pre-issue for construction drawings will have alpha “A,B,C” revision levels.
- Each drawing is “Owned” by the design engineer.

Revisions to the drawing are made at the discretion of the design engineer responsible for the drawing.

- The engineer will designate the change and the revision description.
- All revisions will be clouded to indicated the location of the change.
- The drafter will make the changes to the drawing and return the drawing to the engineer for check.
- The engineer will check the drawing and if all is acceptable then he will initial the check box.
- The engineer will then return the drawing to the drafter, who will then create a new “D” size drawing for the stick file.
- The new “D” size drawing will replace the old drawing in the stick file. The old drawing will be placed in the appropriate project record flat file.

Construction Drawings

- The issue for construction revision will be “0”and all subsequent revisions will be numerical.
- All future revisions will be numerical.

3.4 Quality

Quality assurance is the responsibility of all engineering staff. To this end, all drawings will be checked by the staff generating the drawing. A peer review performed by staff not directly involved in the generation of the drawing will be performed on every drawing. All drawings will be signed to verify that these checks and peer reviews have been accomplished.

3.4.1 Checks

Checks will be made anytime a drawing is changed. The initial generation of a drawing will always be checked by the design engineer. Each time a revision is made to the drawing it will be checked again.

3.4.2 Peer Review

Peer reviews are scheduled before a drawings is to be issued. The drawings in question are frozen and the project engineer will distribute the drawings to appropriate staff for drawing review. The peer review will be performed on “B” size drawings.

Each engineer will review the assigned drawings. He or she will make comments as required. Discussion between the design engineer and the peer engineer may occur. Once the review is complete the drawings will be returned to the project engineer. The Project Engineer will review the comments and corrections and discuss the changes with the appropriate design engineer. Once agreement is achieved the revisions required will be made and documented. At the conclusion of this process the drafters will prepare new stick file drawings and a set for submission. These drawings will be stamped “ PEER REVIEW” on the back of each drawing stipulating by whom and when the peer was completed. The client set of drawings will have the appropriate stamp placed on the front of the drawing.

3.5 Submittals

3.5.1 30% Issue

30% submittals typically is a conceptual submittal which clearly demonstrates the scope of work:

- One lines
- PFDs/P&IDs
- DCS Architecture
- General Arrangements
- Civil
- Structural

3.5.2 60% Issue

60% submittals are typically preliminary detail design drawings which include:

- Cable and conduit schedules
- Piping plans
- Cable interconnects
- Cable routing
- Plot plans

3.5.3 90% Issue

90% submittals inculde the detail drawings addressed in the 60% with the addition of:

- Loop diagrams
- Electrical schematics
- Equipment drawings

3.5.4 For Construction

"For Construction" drawings incorporate the comments made in the 90% review and have undergone the final quality checks and review required for final "wet signing and stamping" of the drawings. The "for construction" drawings will be issued at revision "0". Subsequent changes will be numerical.

3.5.5 As-Built

At conclusion of the project, the drawing package will be revised to reflect the "as-built" status of the plant. Site red-line drawings are the source for most of these changes. The design engineer once again will supervise these final revisions and implement the "as-built".

3.6 Specificatio ns

Electrical and mechanical specifications will be generated in a cut sheet format. Each specification will be given a unique number and will cover each piece of major equipment.

3.7 Calculations

Engineering calculations shall be maintained and organized into a calculation manual which will be provided to the client in the Calculation Manual. These calculations vary with the project, however typically they include:

- Pipe sizing
- Pump sizing
- Stress analysis
- Grounding calculations
- Short circuit calculations
- Protective relay settings
- Cable sizing
- Equipment ratings
- Lighting requirements

4.0 EQUIPMENT RELOCATION PLAN

The equipment relocation plan may be found at the tab labeled Appendix A

5.0 CONSTRUCTION AND STARTUP PLANS

The Construction Plan, summarizing the construction management and construction of the Facility, may be found in Appendix B-1.

The Startup Plan summarizing the commissioning, startup and turnover process, may be found in Appendix B-2.

6.0 ACCOUNTING STRUCTURES FOR ENGINEERING, PROCUREMENT AND CONSTRUCTION COSTS FOR TAX ADMINISTRATION

6.1 The Firm Fixed Price shall include, and PES shall pay, all taxes and assessments for unemployment insurance, workers' compensation, social security and disability benefits, and other taxes which are based upon the compensation paid to persons employed by PES or its subcontractors for the performance of any work under the Agreement.

6.2 The Firm Fixed Price excludes, and the Owner shall pay all applicable foreign, federal, state and local taxes, including but not limited to sales and personal property taxes, payable with respect to the Agreement. However, if Owner specifies that services or tangible personal property to be furnished by PES qualify for exemption from sales or use taxes, PES shall, at the direction of Owner, not include sales or use taxes in its price. Owner shall provide PES with Owner's direct pay permit or exemption certificate where applicable. PES agrees to cooperate in obtaining exemption certificates necessary to claim such exemptions.

7.0 INVOI CING

7.1 INVOI CING PROCEDURE

Invoices and contractor's Certificate will be submitted electronically via email for each Application for Milestone Payment. The emailed invoice will contain the Project title in the subject line. Emailed invoices will be sent to:

7.2 INORMATION TO BE INCLUDED ON EACH INVOICE

- "Project title and plant unit number"
- Invoice Date
- Invoice Period: MM/DD/YYYY through MM/DD/YYYY
- Contractor contact name and invoicing contact's telephone number
- Remittance Address
- Final Invoices must be marked as such.
- Transmit copies to the project and site manager

8.0 DOCUMENT CONTROL

8.1 Document Control Procedure Overview. Document Control Manager

8.2 Requests for Information

8.3 Distribution of Documents

8.3.1 Engineering Documentation Submittals [Ref. Scope of Work, Appendix M]
Engineering Document Register [Ref. Scope of Work, 11.0 App. M]

8.3.2 Vendor Documentation Submittal Requirements [Ref. Scope of Work, Appendix N]

8.3.2.1 Drawing/Model Identification [Ref. Scope of Work, Appendix N 4.0]

8.3.2.2 Correspondence Transmittal [Ref. Scope of Work, Appendix N 5.0]

8.3.2.3 Electronic Media Document/Model Submittal Procedure Requirements [Ref. Scope of Work, Appendix N 6.0],

8.3.2.4 Electronic Documentation Submittal Index [Ref. Scope of Work, Appendix N 7.0]

8.3.2.5 Documents/Models Format Requirements [Ref. Scope of Work, Appendix N 8.0 – 13.0]

8.3.2.5.1 Submittal For Review

8.3.2.5.2 CAD (2D) Final Submittal

8.3.2.5.3 CAD (3D) Final Submittal

8.3.2.5.4 Non-CAD Engineering Documentation Final Submittal

8.3.2.5.5 Engineering Documentation Requiring PE Seal Final Submittal

8.3.2.5.6 Revision Block Requirements

8.4 Filing of Documents
8.5 File Index
8.6 Forms to Be Used Relating To Documents Delivered To Owner (Submittal Forms)
8.7 Correspondence Between PES and Owner
8.7.1 Email
8.7.2 eRoom
8.7.3 Non Email

9.0 QUALITY ASSURANCE/QUALITY CONTROL

9.1 Introduction

ProEnergy EPC Services (PES) is committed to providing our clients with quality products and quality services. Our quality mission statement:

PES recognizes that quality is a critical requirement for growth and customer satisfaction. Accordingly, PES is committed to an ongoing effort to improve performance and exceed customer expectation.

9.2 PES Quality Policy

PES is an engineering, procurement and construction (EPC) contractor serving the industrial power market. Quality assurance and quality control efforts are targeted toward the following:

- Engineering
- Procurement and Subcontracting
- Constructio n

PES's quality policy is to ensure our clients receive a quality product or service in each aspect of PES's scope of work.

9.2.1 Organizatio n

PES's quality organization has been established to provide efficient direction and oversight of all aspects of our business.

9.2.1.1 PES Corporate Quality Committee

The Corporate Quality Committee is manned by the PES Technical Director and each of the Vice Presidents of the company. The committee meets monthly for regularly scheduled meetings and on an ad hoc basis whenever a need should arise. The Quality Committee, chaired by the Technical Director, is responsible for PES quality. As such the committee is responsible for:

- Establishing PES quality standards
- Enforcing PES's quality implementation
- Approval of each project's individual plan and procedure
- Acting as the final judge in the determination of quality issues such as non conformance appeals, removal of suppliers from the PES qualified vendors list, etc.
- Executive direction of all PES quality staff

9.2.1.2 PES Quality Coordinator

The quality coordinator provides day to day corporate direction and oversight of each of the various project quality teams. The coordinator maintains the central quality repository for all project quality documentation. Each of the project quality manager's report directly to the coordinator.

9.2.1.3 Project Quality Manager

The project quality manager is dedicated to quality assurance and quality control on the project for which he or she is assigned. The manager is responsible for all checkers and inspectors utilized on the project. The manager is responsible for implementing the project specific quality plan and procedures which have been established for the project.

9.2.1.4 Checkers and Inspectors

These resources are utilized on as as-needed basis. Individuals with skill sets suitable for checks and inspections as set forth in the project quality plan are provided.

9.2.2 Engineering

PES quality is tasked with enforcing:

- PES engineering standards
- Client standards, on a project basis
- Revision control
- Checking
- Peer review

Although PES Corporate controls the standards and policies within which PES operates, quality is tasked with monitoring actual performance to ensure that our performance is consistent with the standards and policies which are in place for the project.

9.2.3 Procuremen t

PES quality is responsible for:

- Administering the PES qualified vendor list
- Confirming compliance with the PES procurement policy
  - o Purchase Orders
  - o Receiving inspections
  - o Fabrication inspections if warranted
  - o Approval for payment
  - o Acceptance/Rejection criteria

9.2.4 Constructio n

PES quality is responsible for:

- Ensuring compliance with PES engineering drawings with regard to:
  - o Standards and codes
  - o Performanc e
- Performing construction inspections
  - o Pre-Installation
  - o During the installation process
- Performing the appropriate tests
  - o Pre-Installation
  - o Pre-Operati on
  - o Functional
- PES quality is responsible for the generation, distribution and archiving of the following documentation:
  - o Daily reports
  - o Inspection reports
  - o Test reports
  - o Shipping and receiving reports
  - o Corrective action reports

9.3 Quality System Elements

There are three elements which are constant throughout the PES quality system. They are:

- Compliance verification
- Testing
- Documentation

9.3.1 Compliance Verification Quality is tasked with verifying adherence to:

- Standards & Codes
- Acceptable levels of workmanship
- Procedures both internal and external
- Policies of PES and Customer
-

This verification is accomplished by inspection

9.3.2 Testing

Quality staff is tasked with performing tests. These tests serve to verify that a particular element is performing up to a pre-determined standard. These tests typically fall into three different groupings:

- Pre-installation testing – these tests are typically performed to ensure that a piece of equipment or instrument meets or exceeds the standards that have been established for the device before it is installed.
- Pre-operational tests – these tests are performed after the device has been installed but before the system (or process which the device is a part) is commissioned (or placed into operation).
- Functional testing - these tests verify proper overall operation of the various systems which comprise the plant.

9.3.3 Documentation

The quality staff is tasked with developing and archiving:

- Inspection forms
- Review forms
- Compliance checklists
- Test forms

9.4 Project Specific Plans

Project specific plans and/or procedures are developed for each project. This plan establishes what quality tasks will be warranted for the project. These site specific plans typically will include:

- Contract data requirements list (CDRL)
- Engineering specifications
- Constructio n specifications
- Bid packages
  - o Civil
  - o Electrical
  - o Mechanical
  - o I&C
- Pre-installation plan
- Pre-operational plan
- Functional plan
- Performance test plan

10.0 PROGRESS TRACKING

10.1 Monthly Progress Meeting w/Owner

6.1.1. Progress meetings of Owner and Contractor shall be held at least once per month during the first week of the month at a location and time agreed by Owner and Contractor. However, during the design phase of the project, meetings shall be held at Contractor's engineering office. Contractor shall be represented by Contractor's Project Manager. Contractor's key personnel shall be in attendance if requested by Owner. All matters bearing on the progress and performance of the Work since the preceding progress meeting shall be reviewed, including any unresolved matters, difficulties, or delays.

6.1.2. The meeting agenda includes the following:

- *Review of the Work in Progress*
- *Problems in the Work and resolution*
- **Identification of potential problems**
- **Review of submittal schedule and recovery plan if needed**
- **Review of equipment and material delivery schedules**
- **Review of biweekly schedules**
- **Planned progress during current and succeeding work period**
- **Coordination requirements for immediate work**
- **QA/QC and Safety review**
- **Administrative and general matters**

10.2 Monthly Progress Report

The Monthly Progress Report shall be issued regularly in the first week of the month and shall contain the following information as a minimum:

- **Executive summary**
- **Up-to-date work list including activities for next month (one month look ahead)**
- **Project reporting including a detailed project schedule and status, forecast, critical path analysis, and float activity reports**
- **Relocated equipment status**
- **Procurement/expediting/receiving status**
- **Design/Engineering Status**
- **Drawings status**
- **Specifications status**
- **Studies status**
- **Relocation progress**
- **Construction and startup progress**
- **Curves based on earned value for planned progress and man-hour requirements verses actual progress and man-hours expended**
- **Construction Equipment report**

- Progress photographs
- Safety report summary
- Quality control/assurance report
- Monthly Progress Meeting minutes
- Change order status

10.3 Schedule

The project schedule shall be prepared using Microsoft Projects and submitted within 30 days of Contract execution in a form and content approved by Owner both in hardcopy and in “live” electronic format. Schedule activities shall be in critical path format. The schedule shall, at a minimum, include the following:

- The order and interdependence of all activities
- All inspection and check points
- Key project dates
- Interfaces with Owner and other contractor’s work shall be segregated and clearly identified.
- Such activities which affect progress and/or affect required dates for completion of all or part of the Work
- Information in such detail as to allow review of major activities
- Engineering activities segregated by discipline
- Significant milestones
- Detailed construction and startup activities

11.0 MATEIAL CONTROL

11.1 Existing Equipment/Materials – Owner provided FT-8.

11.2 Procured Equipment/Materials.

- Purchase Orders will designate appropriate delivery address and date.
- Purchase Orders will be expedited to assure timely delivery and schedule control.
- All equipment/material will be inspected upon receipt at site. Once inspected, the equipment/material will be received into the PES System and a receiving report will be generated, signed and forwarded to PES in Tulsa.
- All equipment/material will be staged in the lay-down area and protected from the elements as required.

12.0 Contract Document Requirements List

A contract data requirements list (CDRL) is established for each PES project. The CDRL is prepared to provide a single point of reference for all contract data requirements.

12.1 Description

Each CDRL item is listed with a unique CDRL number. The following information is provided for each CDRL item:

- Title – listing the name of the CDRL
- Description – providing a cogent explanation of what the CDRL consists. Often times LaRaisa or Contract reference is provided.
- Responsible – this names the responsible party in the PES organization to provide the CDRL item.
- Final Due– this is the date which the CDRL item is due for distribution. These dates will be processed into the CDRL when valid schedule date is produced.
- Distribution – the parties to whom the CDRL is to be transmitted.
- Comment/Status – this column is used for comments and current statue reporting during the development of the CDRL item. Once the CDRL item is submitted and accepted it is so noted here.

12.2 Form

The following format is used on the CDRL:

- Header
  - Left is the name of the project.
  - Middle is PES name.
  - Right is the current revision of the CDRL.

- Footer
  - Left side are the document notes.
  - Middle is the page number.
  - Right is the print date.

12.3 La Raisa Power Station Project CDRL is provided in Appendix D of this document.

13.0 REPORTING

Various reports are prepared during the course of the project. These reports are comprised of both internal and external reports. The internal communications ensure the prompt efficient flow of information between the various project team members. The external reports are a combination of PES standard project reports and additional reports required by the Project statement of work and/or contract.

13.1 Engineering, Procurement Phase Reporting

The following reports are prepared during the engineering and procurement phase of the project:

- Daily
  - o Action List
- Weekly
  - o Progress Reports
  - o Material Procurement Status Report
  - o Weekly Force Report
- Monthly
  - o Project Schedule
  - o Work Remaining List
  - o Monthly Progress Meeting Minutes

13.2 Construction Phase Reporting

The following reports are prepared during the construction phase of the project:

- Daily
  - o Logistics Report
  - o QA/QC Report
  - o Safety Report
  - o Action List
  - o Daily Force Report
  - o Schedule Three Day Look Ahead
- Weekly
  - o Project Status Report
  - o Material Status Report
  - o Project Schedule
- Monthly
  - o Project Schedule
  - o Work Remaining List
  - o Monthly Progress Meeting Minutes

13.3.1 Distribution

All reports will be addressed to the client's designated point of contact unless directed otherwise.

14.0 SAFETY AND ENVIRONMENTAL CONTROL

14.1 SAFETY

PES's Project Safety Manual is attached hereto as Appendix E. PES substance abuse policies are found in the Project Safety Manual. The PES safety program meets or exceeds the requirements of Exhibit J of Appendix A of the Contract. Those requirements of Exhibit J not specifically covered in the PES Project Safety Manual are incorporated by reference.

6.1.1. 14.1.2 Safety Management - PES will have a dedicated safety supervisor at the site throughout the construction of the facility.

6.1.2. 14.1.3 Safety Procedures - The safety program includes procedures and requirements for new hire orientation, reporting practices, record keeping, meetings, personnel safety, vehicle and motorized equipment operation, traffic control, emergencies (fire, first aid, ambulance, etc.) and lockout / tagout clearances. PES's lockout procedures are found in the PES Project Safety Manual.

6.1.3. 14.1.4 Safety Equipment - Personal Protective Equipment (PPE) is specifically detailed in the safety manual. PES will enforce all PES and Owner safety guidelines and OSHA requirements at all times. All site personnel and all site visitors will be required to use personal protective equipment, including approved boots with safety toes, hard hat and safety glasses.

6.1.4. 14.1.5 First Aid - PES will maintain a first aid station on site for the treatment of minor injuries. Telephone numbers and addresses of medical facilities, management, including daytime and after hours, shall be posted at various locations around the jobsite.

14.1.6 Meetings – PES subcontractors will hold regular daily tool box safety meetings at the beginning of each work day. Before Work begins in any location and before any changes are made in work procedures or activities relating to critical items posing a higher than normal degree of potential danger, such as gas tap-ins, large crane lifts, lockout/tagout, etc., PES subcontractors will perform a Daily Job Safety Analysis (JSA) and accompanying hazard assessment.

14.2 Environmen tal Control

PES will implement necessary procedures and provide controls and labor as required to meet environmental restrictions and regulations for construction activities. Environmental procedures and controls are set forth in the PES Project Safety Manual.

14.2 1 Equipment - PES is responsible for providing all equipment and materials for control of hazardous materials during normal and emergency conditions.

14.2.2 Records - PES is responsible for maintaining all records required by the site environmental permits.

15.0 SITE SECURITY

PES will provide security for the project site until turnover. The security effort will consist of the following:

15.1 Fencing. PES shall furnish, install and maintain temporary fencing for the purpose of security and segregation of construction from any existing facilities. Fencing shall be 6 foot chain link fencing and will segregate the lay down area, parking, roads, and storage areas.

15.2 Security gates. Security gates for ingress and egress will be controlled by locks.

15.3 24 hour manned patrol. PES will provide 24 hour manned security patrol.

15.4 Project personnel identification. Upon receiving safety training personnel will receive an identification badge.

16.0 MEETINGS

16.1 Design and Procurement Phase

16.1.1 30/60 Design Review Meeting

It is proposed that two approval steps be in place for the engineering phase of the project. These steps will be 30% and 60% of engineering completion. The meetings will be held at the Contractor's office.

16.1.2 Monthly Progress Meeting

Progress meetings of Owner and Contractor shall be held at least once per month during the first week of the month at a location and time as agreed by Owner and Contractor. However, during the design phase of the project, meetings shall be held at Contractor's engineering office. Contractor shall be represented by Contractor's Project Manager. Contractor's Key Personnel shall be in attendance if requested by Owner. All matters bearing on the progress and performance of the Work since the preceding progress meeting shall be reviewed, including any unresolved matters, difficulties, or delays. The meeting agenda includes the following:

- **Problems in the work and resolution**
- **Review of work in progress**
- **Identification of potential problems**
- **Review of submittal schedule and recovery plan if needed**
- **Review of equipment and material delivery schedules**
- **Review of biweekly schedules**
- **Planned progress during current and succeeding work period**
- **Coordination requirements for immediate work**
- **QA/QC and Safety review**
- **Administrative and general matters**

16.1.3 Weekly Project Team Meetings

Weekly Project Team Meetings will be held. Meetings are tentatively scheduled for Tuesday. Minutes of each meeting will be issued and distributed on Wednesday following each meeting. During the Design and Procurement phase of the Project, the meetings will be held at Contractor's office. Upon commencement of the Construction Phase, the meetings will be held at either the Contractor's office or the job site. These meetings will include Contractor's site management, and Owner representatives are invited.

1.0 CONSTRUCTION PLAN / START UP PLAN

Appendix B1 Construction Plan

Appendix B2 Start Up Plan

1.0 CONSTRUCTION MANAGEMENT.

5.1.1.1 Construction equipment management. PES will require its subcontractors to maintain their equipment according to their equipment schedules. PES will ensure cranes are properly certified within the 12 months prior to service at site and that all operators are properly licensed.

5.1.1.2 Materials management. All materials and equipment will be inspected upon receipt at the marshalling yard prior to shipment and again at the job site. A Material Receiving Log will be maintained noting date, location, and acceptance of material or equipment. PES will have specific persons on site assigned to this task.

5.1.1.3 Subcontractor administration. PES will subcontract the building erection and installation of the mechanical and electrical systems. PES will obtain financials, references and other pertinent information concerning available subcontractors and the individual subcontractor's ability to complete projects in concert with other subcontractors on time and on budget according to schedule and in a quality manner. PES will monitor the progress of all subcontractors through completion of their work.

2.0 Temporary Facilities and Services.

PES will provide all temporary facilities and services required in the performance of any Work at the Project Site including, but not limited to the following:

2.1 PES will arrange for all utilities required to support construction and start-up, including electrical power, gas, potable water, construction water, communication, and compressed air. PES's temporary utility services shall be subject to approval by Owner before installation. Record drawings shall be made immediately upon installation of utilities and transmitted to Owner.

2.2 Permits. PES will obtain all required construction permits, excluding air and emissions permits which are the Owner's responsibility. All temporary facilities shall be provided in accordance with applicable building and safety codes and regulations.

2.3 Construction fire protection. PES will provide for fire protection of the construction area. PES will provide fire extinguishers in strategic locations and arrange for local fire department awareness and readiness, and arrange to connect to a fire hydrant.

2.4 First aid. PES will have a safety supervisor at the site throughout the construction of the facility. PES will have a dedicated safety trailer with a first aid station.

2.1 Waste Disposal. All waste from the site will be removed and disposed of properly. There will be dumpsters located on site provided by a local company. Any vehicle leaks on site shall be cleaned up and the waste shall be disposed of properly.

2.2 Domestic Waste Disposal. Portable toilets will be placed throughout the site and trailers on site with restroom facilities will have septic holding tanks. Domestic waste disposal will be accomplished in accordance with applicable ADEQ regulations for septic systems. A local licensed and approved company will remove septic waste and pump out portable toilets and holding tanks on a weekly basis or as required.

2.3 Security. PES is responsible for security of Work and laydown areas as set forth in section 4.1 below.

3.0 Site Offices and Facilities.

Appropriate offices will be provided to support the construction effort at site. There will be four (4) trailers, including a 24' x 56' office trailer for Owners use. All office trailers will be equipped with internet/cable telephone connections. All office trailers will be heated and air-conditioned.

Craft parking will be located in a designated area of the proposed lay down yard. AEP and site management will have designated parking in the office area.

4.0 Construction Lay Down Plan.

Reference *Erosion Drainage Layout Plot Plan.* The project site plan will include appropriate areas for lay-down and storage, construction offices, fabrication shops and areas for use by the subcontractors. The overall project site will be temporarily fenced during construction and permanently fenced upon project completion.

4.1 Lay down area description. This will be a dedicated area for contractors to stage and store prefabricated items. Areas will be set up to store and fabricate structural support assemblies, storage tanks, buildings, equipment skids and assemblies, electrical equipment and other miscellaneous materials and equipment.

4.2 Improvements and maintenance. All improvements will be maintained in a clean and safe condition. PES will maintain all areas of the construction site in accordance with the Construction Stormwater Polution Prevention Plan submitted by PES.

4.3 Lighting. PES will provide lighting adequate for security and construction work needs including temporary lights inside and outside work areas and night time security lighting.

4.4 Parking area plan. PES will provide onsite parking unless off site parking becomes necessary, in which event off site parking will be

secured and transportation to and from the off site parking will be provided.

4.5 Ingress/egress. Temporary roads to access all areas of the construction site will be built and maintained. Construction and maintenance, dust and storm runoff control will be in accordance with the Construction Stormwater Polution Prevention Plan submitted by PES.

4.6 Fencing. PES shall furnish, install and maintain temporary fencing for the purpose of security and segregation of construction from any existing facilities. Fencing shall be chain link style, minimum (6) six feet hight, and will segregate the lay down area, parking, roads, and storage areas.

4.7 Storage. Proper storage of equipment and construction parts will be provided by both security fencing and containers.

4.8 Soil stabilization. Soil stabilization will be in accordance with the Construction Stormwater Polution Prevention Plan submitted by PES.

4.9 Protection of existing facilities. Existing aboveground and underground facilities that may be impacted by installation of the Facility interconnections will be identified and protected. In the event of damage by either PES or its subcontractor, PES will be responsible for repairs.

5.0 **Site Communications.**

Site communications will be provided by cellular phones, cable/ internet and standard phone lines. PES will try to establish standard phone service as soon as practical.

6.0 Final Grading.

At the end of construction work, PES will perform final grading such that all holes, ruts, settlements and depressions resulting from the Work will be filled, appropriately compacted and graded. Areas disturbed by construction will be restored by PES to their original condition to the maximum extent possible as acceptable to Owner.

1.0 Project Description

The EDC/La Raisa Project, consists of the installation of three (3) Pratt & Whitney FT-8 combustion turbine generators and associated balance of plant (BOP) equipment. ProEnergy EPC Services (PES) is the Enginering, Procurement, and Construction (EPC) contractor on the project.

2.0 Applicable Standards and Codes

The following organization's standards and codes are applicable to design and construction practices for the project.

ACI 318	Building Code Requirements for Reinforced Concrete
ANSI B31.1	Power Piping
ASME IX	Welder Qualifications
AWS A3/0	Definitions of Welding Terminology
AWS B2.1-84	Standard for Welding Procedure and Performance Qualification
AWS D1.1	AWS Code for Structural Welding
AISC	American Institute of Steel Construction – Various sections
ASTM	American Society for Testing Materials – Various Sections
ASME	American Society for Mechanical Engineers – Various Sections
ISA S5.1	Instrumentation Symbols and Identification
NACE RP018890	Standard Recommended Practice: Discontinuity (Holiday) Testing of Protective Coatings
NEMA AB1	Molded Case Circuit Breakers
NEMA ICS1	General Standards for Industrial Control and Systems
NEMA ICS2	Industrial Control Devices, Control and Systems
NEMA ICS4	Terminal Blocks for Industrial Use
NEMA ICS6	Enclosures for Industrial Controls and Systems
MG1	Motors and Generators
PE5	Constant-Potential-Type Electric Utility (Semi-Conductor Static Converter) Battery Chargers
PFI ES-5	Cleaning Fabricated Piping
SG2	High Voltage Fuses
WC2	Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
NFPA70	National Electric Code
NFPA No. 1	Carbon Dioxide Extinguishing Systems
NFPA No. 37	Stationary Combustion Engines and Gas Turbines
OSHA CFR Title 29	Occupational Safety and Health Administration

3.0 Project Quality Scope

PES is the EPC contractor on this project, and, as such, project quality will address all aspects of the engineering, procurement and construction. This document addresses the construction aspect of the scope. The Project Procedures Manual stipulates additional quality inspection responsibilties to provide inspection services during the engineering and procurement phases. This project specific plan/procedure addresses pre-installation inspections and tests, and pre-operational inspections and tests. Operational testing will be addressed under separate cover.

4.0 Pre-Installation Inspection/Tests

Pre-installation inspections and tests will be performed prior to the installation or construction effort. These tests are designed to ensure that equipment and material is compliant with the engineering drawings and specifications which have been established for the project.

4.1 Civil

Pre-Installation inspections and tests for the civil effort include:

- Soils Report –
    - Verify that a geotechnical survey has been performed on the project site by a qualified engineer.
- Excavation
    - Verify that qualified surveyors have established basic site dimenions.
    - Verify that backfill materials have been tested and are suitable.
    - Confirm that backfill is placed in the specified lifts and compacted.
    - Verify that Proctor density tests are performed and that the specified measurement is accomplished.
- Civil
    - Verify all locations.
    - Verify topographical elevations.
    - Verify orientation, location and size of all forms.
    - Verify and approve the civil contractor's concrete specifications.
- Structural
    - Verify material/component compliance with specifications/drawings.
    - If welding is required, ensure that welders have appropriate certification and that an appropriate procedure is in place.
    - Verify that coatings are in accordance with type and thickness specifications.
    - Check all MTRs to ensure compliance with specifications.
- Electrical
    - Perform continuity and/or insulation verification tests on all wire and cable.
    - Motor Control Centers
        - Visually inspect general appearance and workmanship
        - Verify that components are in compliance with purchase specification/drawings.

        - Verify mechanical operation (i.e. all doors open, switches operate, etc.).
        - Verify bus connection hardware torque.
    - Metal Clad Switchgear
        - Visually inspect general appearance and workmanship.
        - Verify that components are in compliance with purchase specification/drawings.
        - Verify mechanical operation (i.e. all doors open, switches operate, etc.).
        - Inspect rollout trays for proper operation and inspect component structural supports.
        - Verify mechanical interlocks.
    - Motors (½ hp and above)
        - Verify nameplate data with specification/drawings.
        - Inspect physical and mechanical condition.
        - Megger test the motor leads.
        - Resistance check each phase winding.
    - Breakers (2.4 kV and above)
        - Visually inspect general appearance and workmanship.
        - Verify that components are in compliance with purchase specification.
        - Verify nameplate data with specification.
    - Transformers
        - Inspect for shipping damage.
        - Inspect bushings and lightning arrester skirts for damage.
        - Verify proper oil level (if appropriate).
        - Verify adequate positive pressure (on passive inert gas systems).
        - Verify transformer's turns ratio.
        - Check core ground.
- Mechanical
    - Steel pipe, flanges, accessories – Verify MTR compliance with specifications/drawings.
    - Structural steel, nuts and bolts – Verify MTR compliance with specification/drawings.
    - Welding Procedures – Verify acceptability prior to any on-site welding.
    - Welder qualifications – Obtain a copy of current certifications for all welders, and verify that their qualifications are appropriate for the work for which they are scheduled.
    - Establish welding hot work area per ANSI Z49.1.
    - Major equipment and skids
        - Visually inspect general appearance and workmanship.
        - Verify that components are in compliance with purchase specification.
        - Verify nameplate data with specification.
- Instrumentation and Controls
    - Factory calibration verification (non GTG package) – Prior to installation of instrumentation the instrument will be bench checked to verify the factory calibration documentation.

- GTG instrumentation calibration verification – Package instrumentation will be calibrated as a part of the startup and commissioning process.

5.0 Pre-operational Tests/Inspections

Pre-operational inspections and tests will be performed during or after the construction or installation effort. These tests are designed to ensure that equipment and material have not been damaged during the construction and/or installation prior to placing the material/device into operation.

5.1 Civil

Pre-operational inspections and tests for the civil effort include the following:

- Civil
  - Perform slump tests and air entrainment tests during the concrete installation process.
  - Concrete strength verification
    - 3-day strength test
    - 7-day strength test
    - 14-day strength test (optional)
    - 28-day strength test
  - Grout placement
    - Verify that mix is in accordance with specification.
    - Verify appropriate installation.
- Structural
  - Visually inspect welds.
  - Verify workmanship.
  - Verify that coatings are in accordance with type and thickness specifications.
- Electrical
  - Ground grid inspections
    - Verify cable depth during installation.
    - Verify proper connections during installation.
    - Perform ground grid resistance test.
  - Conduit inspections
    - Verify workmanship.
    - Verify compliance with specifications/drawings.
  - Cable inspections and tests
    - Perform point-to-point continuity tests to confirm proper installation.
    - Verify workmanship.
    - Verify appropriate separation.
  - Motor control centers
    - Inspect and verify terminations.
    - Perform megger tests.
  - Metal Clad Switchgear
    - Visual inspection.
    - Check current transformers.
    - Check buss insulation and supports.

- Perform megger tests.

- Motors (½ hp and above)
  - Visually inspect installation and connections.
  - Verify proper phase rotation.
  - Resistance test on RTDs.
  - Verify heater operation.
  - Perform megger tests.
- Breakers (2.4 kV and above)
  - Visually inspect.
  - Perform primary insulation system checks.
  - Perform primary current checks.
  - Check current transformers.
  - Verify grounding.
  - Verify trip, close, trip-free and anti-pump functions.
  - Verify lockout function, if so equipped.
  - Check and verify pressure switch operation on pneumatic and/or hydraulic breaker devices.
  - Verify cabinet or cell heater operation.
- Transformers
  - Mechanical checks after installation
    - Tank levels
    - Temperature indicators
    - Radiator inspection tests
    - Positive pressure tests
    - Lightning arrestor inspections

  - Electrical tests
    - Winding resistance tests
    - Transformer turns ratio
    - Insulation resistance test
    - Core ground test
    - Transformer oil test
    - Forced air fans check
- Protective Relays
  - Visually inspect.
  - Calibrate.
  - Test relay functions:
    - Voltage
    - Current
    - Maximum angle of torque
    - Frequency
    - Time delay

- Mechanical
  - Weld inspections
    - Visual inspections
    - NDE inspections
  - Hydrostatic testing/leak service testing
  - Piping blowdowns, flushing and cleaning operations

    - Rotating equipment alignment
- Instrumentation and Controls
    - Field calibration or calibration verification
    - Point to point tests
    - Loop checks

CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
1	Weekly Progress Report	A weekly progress report will be submitted by the Contractor stipulating: accomplishments during the week; efforts scheduled for next week; problems impacting the project; and the high level updated project action list. For the weekly report, the work week is defined to be from Saturday thru Friday.	PES Project Manager	The report is to be sent to distribution via email by 10:00 am Monday (the Monday immediately following the report week)	The report will be submitted in PES standard Weekly report format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
2	Expediting Report	Expediting reports shall track the progress of engineering , design, procurement, fabrication and delivery of major and critical components. It shall also state schedule for inspection of equipment and summary report on any previous inspections.	PES	The report is to be sent to distribution via email by 10:00 am Monday	The report will be submitted in PES standard report format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
3	Daily Force Report	Daily Force during the engineering phase of the project will be submitted weekly and daily for construction personnel.	PES Administrative Manager	The report is to be sent to distribution via email by 10:00am Monday	The report will be submitted in PES standard report format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
4	Schedule	The schedule will be prepared in Primavera Project Manager and will be submitted monthly during the engineering phase of the project and weekly during the construction phase of the project. Narrative description required should the updated schedule indicate any key project dates slippage.	PES Scheduler	The report is to be sent to distribution on the 2nd business day of the month during the engineering phase and Monday each week during construction	Hard copy and electronic copy using Primavera Project Manager Rev 5.0	EDC/La Raisa Project Management PES Project Management Project Engineer	
5	Work Remaining List	The Work Remaining list identifies work remaining for engineering, procurement and construction after each has reached 80% completion. This information shall be provided in the monthly progress report until final acceptance.	PES Scheduler	Same as Schedule	Hard copy and electronic copy	EDC/La Raisa Project Management PES Project Management Project Engineer	
6	Monthly Progress Report	The Monthly progress report will be issued regularly in the first week of the month and shall contain the information listed (a thru r) in the SOW paragraph 3.2 titled Key Personnel Responsibilities, and as described in Exhibit I to the contract paragraph 7	PES Project Manager	The report is to be sent to distribution on the 2nd business day of the month	Hard Copy and electronic copy	EDC/La Raisa Project Management PES Project Management Project Engineer	

Documentation Notes:
1. Document Model Index to be prepared for each electronic document submittal per Appendix N, paragraph 7.0

CDRL #	Title	Description	Responsible Final	Due	Format [1]	Distribution	Comments/Status
7	Project Procedures Manual	The project procedures manual will be submitted to the client **within 30 days of Contract execution** for Owner review and approval. The procedures manual shall include an project execution plan, execution methods, reports and deliverables. As a minimum the project procedures manual shall address the information listed (a thru p) in the SOW paragraph 3.3 titled Project Procedures Manual.	PES Admin Mgr Doc Mgr Const Mgr Proj Eng	5-Feb-07	Hard Copy and electronic copy. The manual will be produced in PES standard format unless directed otherwise by EDC/La Raisa.	EDC/La Raisa Project Management	
8	Progress Meeting Minutes	Progress meetings will be held at least once a month during the first week of the month at the Contractor's offices during the engineering phase. The meeting agenda will include the items listed (a thru j) in SOW paragraph 3.5 titled Progress Meetings and 3.6 titled Meeting Documentation. The contractor will prepare and distribute a written copy of the minutes of the progress meeting to the Owner **within ten (10) business days following the meeting.** The minutes shall be of sufficient detail to allow a thorough understanding of the information presented and documentation of all action items.	PES Project Manager PES Documentation Manager	Noon, 10th day following meeting	PES standard meeting report format unless otherwise directed by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
9	Equipment Inspection/Test Reports	The Contractor will be responsible for the inspection and witnessing of all testing of critical equipment during the fabrication, dismantling and/or testing prior to shipment to the plant. The Contractor will provide 15 business day notice prior to all scheduled visits. Copies of the inspection/test reports will be provided to the Owner. Reference 4.4 (SOW)	PES QA/QC Manager	Noon, 7 days following test	The report will be submitted in PES standard report format unless directed otherwise by EDCLa Raisa	EDC/La Raisa Project Management PES Project Management	
10	Recommended Spare Parts List	The Contractor will provide a listing of recommended spare parts to the Owner 90 days prior to the startup of the plant. Consumables are to be included, for all equipment supplied on the contract, Ref. 5.2 and 1.4 (jj)	PES Project Manager	90 days prior to startup	The list will be submitted in PES standard format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
11	List of Preferred Suppliers	The Contractor shall provide a list a approved bidders which have been cross - referenced with the Owners preferred suppliers list. Contractor will submit a list of proposed bidders for all equipment (including equipment not listed on the bidders list) to the Owner for approval on all purchases. Ref 5.3	PES Administrative Manager		The list will be submitted in PES standard report format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
12	Safety Program Manual	Contractor shall submit a safety program manual along with a description of how it will be utilized at site. The description , as a minimum shall contain the procedures for new hire orientation, reporting practices and incentive programs. The safety program shall meet or exceed the requirements of Exhibit J of the Contract Safety Requirements. See 6.5 for additional requirements.	PES Safety Manager	Safety manual submitted to EDC/La Raisa on previous project for review and comments. Final copy will be distributed upon completion of	The manual will be submitted in PES standard format unless directed otherwise by EDC	EDC/La Raisa Project Management PES Project Management	

Documentation Notes:
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CDRL #	Title	Description	Responsible Final	Due	Format [1]	Distribution	Comments/Status
13	Environmental Controls Procedure	Contractor shall have environmental procedures and controls in place. These shall include hazard communications manuals, spill control plans and procedures, hazardous waste and substances control procedures, temporary site storage procedures. The contractor is also required to maintain all records required by the site environmental permits. Ref. 6.6	PES Project Engineer PES Document Manager		The procedures will be submitted in PES standard format unless directed otherwise by EDC/La Raisa. Records shall be kept and maintained according to PES normal record keeping procedures.	EDC/La Raisa Project Management PES Project Management	
14	QA/QC Plan	The Contractor's QA/QC Plan shall be adhered to throughout the duration of the project Ref 1.3(1)(y), 3.3(1)(i), 6.4, 9.4.2	PES QA/QC Manager		The plan will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
15	Pre-Installation Inspect/Test Plan	The Contractor shall develop and execute an inspection program and determine the testing necessary at the CTG existing site and upon delivery to the site. Such testing shall be done in accordance with vendor requirements and coordinating with the Vendor and the Owner of CTG existing facility as applicable under approved test procedures. Ref. SOW 7.2	PES Project Engineer		The plan will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
16	Pre-Operational Inspect/Test Plan	The Contractor shall develop and execute a plan for the system checkout, verification of design conformance, cleaning and flushing, system pressure testing, electrical continuity, setting of initial set-points and other such tests, which may be required to demonstrate that the subsystem, system or Facility is ready for its intended service, but do not require energization of plant equipment. Pre-Operational testing, which demonstrates the equipment and systems are ready to perform in an operational environment, shall be performed prior to Mechanical Completion. Specific activities are listed in the SOW paragraph 7.3 items a thru k	PES Project Engineer		The plan will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
17	Functional Inspect/Test Plan	The Contractor shall provide functional testing and initial operation of all equipment and shall verify the design capability of the equipment and components. The tests shall be in accordance with SOW paragraph 7.4 items a thru l.	PES Project Engineer, PES Doc Manager		The plan will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/La Raisa Project Management PES Project Management	
18	Start-Up Procedures Manual	The Contractor will provide a startup procedures manual which will stipulate the responsibilities of all parties involved in the startup process and provide the methodology for system turnover from construction to start-up and from Start-up to Owner. The startup manual shall have the times listed in 7.7 items a thru m. Specific startup procedures for all equipment shall also include items a thru t set forth in paragraph 7.7 (2). Due no later than 60 days prior to mechanical completion. 3.3(1)(e)	PES Project Engineer PES Document Manager		The manual will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/RaisaProject Management PES Project Management	
19	System Start-Up Turnover Packages	Contractor shall establish system turnover boundaries for all Facility systems. One-line electrical drawings shall be marked up to indicate the electrical system boundaries. P&IDs shall also be marked up to show boundaries of the mechanical systems. Equipment lists and instrument lists shall be sorted and identified by system. Start-up turnover packages shall include at a minimum items a thru y set forth in paragraph 7.8.	PES Project Engineer PES Document Manager		The manual will be produced in PES standard format unless directed otherwise by EDC/La Raisa	EDC/Raisa Project Management PES Project Management	

Documentation Notes:
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CDRL #	Title	Description	Responsible Final	Due	Format [1]	Distribution	Comments/Status
20	Ops/Maint Staff Training Program	Paragraph 7.13: 1. Owner will provide classroom training to Owner's personnel. 2. Contractor shall provide the Training Manual to be utilized by Owner conducted classroom training, which will be scheduled near the time of back-feed. Contractor shall provide effective on-the-job training by involving Owner's operations and maintenance personnel during commissioning, start-up and testing activities. See also Appendix M/VI	PES Project Engineer PES Document Manager		The manual will be produced in PES standard format unless directed otherwise by EDC/Raisa	EDC/Raisa Project Management PES Project Management	
21	Ops/Maint Training Manual Overall Integrated Plant Operating Procedure	Paragraph 7.14: Training manuals will consiste of several individual documents, **one developed for each plant system**. Typical list of plant systems provided in 7.14 (1) a thru m. An **overall Integrated Plant Operating Procedure** will be developed by Contractor for startup and shutdown the facility as a whole. The integrated procedure will provide guidance and priority for placing the systems in service to bring the plant from cold iron to base load operation. The IP wil be a concise document, useful to an experienced Operator and will provide reference to the individual Operating Procedures, as appropriate. 7.15: 1) During development of the 'plant system documents,' Contractor will submit three draft (Revision A) of each document to Owner for review and comment. 2)Contracotr will provide the Operating/Training Manuals, both Rev A and Rev B, including Owner's comments, in electronic format to facilitate editing for future use at the same time as issuance of the hardcopy above. 7.16 Combustion turbine list of systems for training manual development (items a thru k)	PES Project Engineer PES Document Manager		The manual will be produced in PES standard format unless directed otherwise by EDC/Raisa	EDC/Raisa Project Management PES Project Management	
22	Acceptance Test Procedures	Paragraph 8.2 Contractor shall develop specific test procedures for each test. Manufacturers of Owner supplied equipment shall provide test procedures, support and some instrumentation as specified in the contract specs. Performance test procedures shall be based upon Prudent Utility Practices and shall generally conform to the requirements of the latest PTC-22 including all addenda's up thru execution of the contract. **Procedures shall be provided to Owner for review and approval at least 90 days prior to installation of the first test.** Test procedures shall include at a minimum items a thru f.	PES Project Engineer [Operations Mgr.??] PES Document Manager		The procedures will be submitted in PES standard format unless directed otherwise by EDC/Raisa. Records shall be kept and maintained according to PES normal record keeping procedures.	EDC/Raisa Project Management PES Project Management	
23	Acceptance Test Completion Certs	Ref 8.0 Contractor shall provide to Owner a Test Completion Certificate and summarized test reports, as well as any backup data as requested by Owner, following the successful completion of each Test.	PES Project Engineer ??	5 days following test	The certificates and reports will be submitted in PES standard format unless directed otherwise by EDC/Raisa. Records shall be kept and maintained according to PES normal record keeping procedures.	EDC/Raisa Project Management PES Project Management	

Documentation Notes:
1. Document Model Index to be prepared for each electronic document submittal per Appendix N, paragraph 7.0

CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
24	Acceptance Test Report	Ref 8.0 At the completion of each Test, Contractor shall provide written test reports including, but not limited to, recorded test data, explanation of any variances, detailed results calculations, other information reasonably requested by Owner and copies of the Test Completion Certificates. **Contractor shall supply all testing data, electronic spreadsheets, and preliminary results to all parties to the Test within (5) business days.**	PES Project Engineer ??	5 days following test	The certificates and reports will be submitted in PES standard format unless directed otherwise by EDC/Raisa. Records shall be kept and maintained according to PES normal record keeping procedures.	EDC/Raisa Project Management PES Project Management	
25	Conceptual Drawings Issue	Paragraph 9.2 1) Contractor shall prepare and submit in accordance with Appendix N to Owner and parties designated by Owner copies of all drawings, documentation, and manuals with sufficient details necessary to completely describe the details and construction of the Work.	PES Project Engineer	6-Feb-07	Auto CAD and/or TIFF shall be submitted electronically according to the requirements established by the SOW; submittal for review to EDC/Raisa eRoom	EDC/Raisa Project Management PES Project Management	
26	Design Drawings Issue	Ref 9.2	PES Project Engineer	8-Mar-07	Auto CAD and/or TIFF and shall be submitted electronically according to the requirements established by the SOW; submittal for review to EDC/Raisa"s eRoom	EDC/Raisa Project Management PES Project Management	
27	For Construction Drawings Issue	Ref 9.2	PES Project Engineer	30-Mar-07	Auto CAD and/or TIFF and shall be submitted electronically according to the requirements established by the SOW; submittal for review to EDC/Raisa's eRoom	EDC/Raisa Project Management PES Project Management	
28	Final Drawings Issue	Ref 9. 2	PES Project Engineer	4-Sep-07	Auto CAD, TIFF (and hardcopy?), which shall be submitted electronically according to the requirements established by the SOW 9.2(7)	EDC/RaisaA Project Management PES Project Management	
29	Procurement Documents	5.2 Contractor shall maintain all original purchasing files and records and **provide copies of purchase documents to Owner.** Ref 9.2 Appendix M/8 For EOR supplied equipment & components, the EOR shall provide the following deliverables: 8.1 Bill of Material 8.2 Operational & Commissioning Spare Parts Lists 8.3 Equipment and Component Testing 8.4 Fabrication and Delivery Schedule (Procurement Plan--update monthly) 8.5 Storage Requirements	PES Admin Man		Hard copies of the original files/records as kept in the regular course of business	EDC/Raisa Project Management	

Documentation Notes:
1. Document Model Index to be prepared for each electronic document submittal per Appendix N, paragraph 7.0

CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
30	Operations/Maintenance Manuals	Ref 9.2.8 (a thru e) Contractor shall provide six bound hard copies and one electronic copy. Manuals shall be prefaced with a description of the project stipulating the scope of coverage. Each of the major plant systems shall be provided with an individual section. Each section shall consist of a general descriprion of the system followed by a listing of pertinent design curves for equipment within the system. Appendix M-IV Each volume shall be assembled and bound in a hard cover binder not exceeding three (3) inches in thickness. the manual shall be completely indexed by equipment tag number and description and contain a detailed table of contents for each volume. The manual shall be organized into two (2) major sections. Section I shall contain information related to the overall system performance. (See SOW for minimum requirements.) Section II shall contain all information related to the specific equipment and components comprising the system. (See SOW for minimum requirements.)	PES Doc Man		Six (6) hard copies and one (1) electronic copy in PES standard format unless otherwise agreed by EDC/Raisa.	EDC/Raisa Project Management	
31	Civil Bid Package	PES Internal	PES Proj Engr				
32	Mechanical Bid Package	PES Internal	PES Proj Engr				
33	Electrical Bid Package	PES Internal	PES Proj Engr				
34	I&C Bid Package	PES Internal	PES Proj Engr				
35	Engineering Calculations	Ref 9.5.7 Calculations and/or studies required to support the detailed engineering and design work shall be performed and recorded. These records shall be updated and maintained during the course of the project development. The original documents shall be kept assembled and bound in a binder. The final calculations and/or studies **shall be submitted to Owner with the as-built documentation.** 9.6.15.b All flow element-sizing calculation and data sheets shall be provided.	PES Proj Engr		Hard Copy and electronic copy. The manual will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	
36	On Site Master Red-Line Drawings	Ref 7.9 Contractor shall mark up and maintain on-site in a location immediately accessible to Owner, a master set of drawings which reflect all field changes made during construction or during the start-up effort.	PES Proj Engr			EDC/Raisa Project Management PES Project Management	

Documentation Notes:
1. Document Model Index to be prepared for each electronic document submittal per Appendix N, paragraph 7.0

CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
37	Electrical Point to Point Tests	Ref 7.10 (2)-(4) 2 All electrical power, control and instrument cables shall be inspected and checked for proper installation, and shall be continuity tested to verify proper termination and control action. Each circuit shall be tested prior to energizing. All 600 V and higher rated power cable shall be megger tested prior to energization. 3 These requirements include skid-mounted factory built systems. Each circuit and control circuit test shall be documented by highlighting and signing the appropriate drawings and forms. 4 Electrical testing and checkout shall apply to all generators, transformers, switchgear, MCCs, cables and electrical equipment, protective relays and components, controls and instrumentation. **These tests should be included in the reports as part of System Start-Up Turnover Packages,**	PES Proj Eng		The test reports will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	
38	Calibration and Test Data	Ref 7.10 (5)-(6) 5 All calibration and test data shall be recorded. Contractor shall provide the calibration setpoints and issue revised set points to meet field conditions. Records shall be corrected and revised by Contractor to reflect errors or changes found during or after system start-up. 6 All test instruments shall be calibrated to standards certified by the National Institute of Standards & Technology (NIST) or equal within three months prior to their use and on a regular schedule or as needed to maintain accuracy and certification. **Needs to be done before operational test (6 June)**	PES Proj Eng		The data will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	
39	Electrical Test Procedures	Ref 7.10 a thru n, 10.1.4.b Electrical Test Procedures shall be prepared, which include but are not limited to, the following: a Switchgear Tests b Circuit Checkout c Grounding Grid Checkout d Motor Checkout e Protective Relay Tests f Circuit Breaker Tests g Secondary Current and Potential Tests h MCC Tests i Battery Tests j Generator Tests k Transformer Tests l Cable Tests m Bus Duct Tests n Freeze Protection Checkout (If applicable) **Part of Preop Test Plan, must be done prior to operational test**	PES Proj Eng		The test procedures will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	

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CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
40	Loop Check Sheets	Ref 7.11 1) Start-up shall verify calibration and loop check on all instrumentation. Calibration and loop test data shall be recorded on instrument device calibration sheets and instrument loop check sheets. Contractor shall provide the calibration setpoints and issue revised setpoints to meet field conditions. Records shall be corrected and revised by Contractor to reflect errors or changes found during or after system start-up. 2) All test instruments shall be calibrated to standards certified by the NIST or equal within three (3) months prior to their first use and as needed to maintain accuracy and certification. **Preoperational**	PES Proj Eng		The test reports will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	
41	Mech Startup Procedures	Ref 7.12 (2) a thru h 2) Mechanical start-up activities shall include, but are not necessarily be limited to, providing detailed procedures and accomplishing and verifying the following: a Hydrostatic testing and acceptance. b Initial operation of all equipment. c Determine baseline vibration record for specified equipment. d Cleaning and flushing all plant systems including blowdown and pigging reports. e Monitor and verify acceptance of the Combustion Turbine lube oil flushes. f Identify design problems for engineering resolution and provide supervision and labor to implement the engineering fix. g Daily maintenance of all equipment. h Initial fills and charges for system start-up.	PES Proj Eng		The test procedures will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	
42	Relay Protection Coordination Studies	Ref 9.5.8.f f) Coordination studies necessary to develop relay protection schemes and relay settings for interface with Site substation and protection of the equipment described herein shall be provided.	PES Proj Eng		The studies will be produced in PES standard format unless directed otherwise by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	

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CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
43	Erection Manuals	Appendix M/III Each volume shall be assembled and bound in a hard cover binder not exceeding 3 inches in thickness. The manual shall be completely indexed by equipment tag number and contain a detailed table of contents for each volume. The manual shall include the following types of information: -A detailed system and process description -Initial system start-up procedures -Process and Instrumentation Diagrams -A detailed equipment description -A detailed description of all on-site testing procedures used to determine the physical or operational condition of all equipment and components. -Installation instructions and start-up procedures -Equipment assembly/disassembly drawings -Equipment and component erection drawings including the weights of equipment and components -Maintenance instructions, including any maintnenance required during storage or prior to system start-up -Required lubricant and lubrication schedule, including requirements for lubrication during storage and prior to system start-up. -Manufacturer drawings -Listing or bill of material of all supplied components -Namelpate information and shop order numbers -Equipment parts lists, commissioning spare parts and operational spare parts -List of special erection and maintenance tools required -A list of each component's model number, manufacturer's seral number, and -A detailed description of erection tolerances, minimum alignment dimensions -A detailed description of riggine, unloading, over ground transportation and se -Equipment setting tolerances and torque requirements -Equipment vendor erection/startup manuals and instructions	PES Doc Man		Six (6) hard copies and one (1) electronic copy in PES standard format unless otherwise agreed by EDC/Raisa.	EDC/Raisa Project Management PES Project Management	Need at site 23 Jan 2007 (Erection of Unit 03 begins)
44	Lubrication Manual	Appendix M/V …shall be assembled and bound in a hard cover binder not exceeding three inches in thickness. The manual shall be completely indexed by equipment tag number and description and contain a detailed table of contents for each volume. The following information shall be provided for each piece of equipment/component: -EDC/La Raisa Equipment Tag Number -Equipment Description -Amount of Lubricant Required -Lubricant Points -Recommended Lubrication Schedule -Three (3) Acceptable Types of Oil by Manufacturer -Three (3) Acceptable Types of Grease by Manufacturer	PES Doc Man		Six (6) hard copies and one (1) electronic copy in PES standard format unless otherwise agreed by EDC/Raisa.	EDC/Raisa Project Management	

Documentation Notes:
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CDRL #	Title	Description	Responsible	Final Due	Format [1]	Distribution	Comments/Status
45	Engineering Document Register	Appendix M/11.0 Prior to performing engineering, the EOR shall develop an Engineering Document Register listing all engineering documents, which are to be developed for the project. The Register shall be maintained by the EOR and updated on a weekly basis. The register shall contain as a minimum the following information for each document: -EDC/Raisa Document Identification Number (if required), -Vendor Document Identification Number, -Document Revision Number, -Document Title, -Document Type, -Schedule Date to be issued, -Actual Issued Date, -Purpose of Issue, -Construction Bid Package Document is Associated With.	PES Proj Engr, PES Doc Man	The report is to be sent to distribution via email (and/or to the E Room) by 10:00 am Monday (the Monday immediately following the report week)	Microsoft Excell spreadheet, electronic.	EDC/Raisa Project Management PES Project Management	
46	Electric Utilization Plan	Contractor to develop plan to measure and determine monthly electrical requirements prior to backfeed	JD, RC, CD		The plan will be produced in PES standard format unless directed otherwise by EDC/RaisaA.	EDC/Raisa Project Management PES Project Management	
47	Fuel Gas Utilization Plan	Contractor to develop plan to measure and determine monthly fuel gas usage prior to Commercial Operation Date	JD, RC, CD		The plan will be produced in PES standard format unless directed otherwise by EDC/TRaisa.	EDC/Raisa Project Management PES Project Management	
48	Construction Laydown Plan			8-Feb-07	Auto CAD, TIFF (and hardcopy?), which shall be submitted electronically according to the requirements established by the SOW	EDC/Raisa Project Management PES Project Management	

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E. ProEnergy EPC Services Project Safety Manual

The PES Safety Manual was submitted on a previous project for review and comment. The final copy will be distributed upon completion of revisions.

The following document is incorporated by reference:

Project Safety Manual, Rev. 3
Published by
ProEnergy EPC Services

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