

“Original”

RFP # 151193

City of Tucson

Testing, Maintenance, Repair and Replacement

Services for Electrical Systems

Submitted by:

Sabino Electric, Inc.

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Testing, Maintenance, Repair and Replacement

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TAB 1

Completed Offer and Acceptance

OFFER AND ACCEPTANCE

OFFER

TO THE CITY OF TUCSON:

The Undersigned hereby offers and shall furnish the material or service in compliance with all terms, scope of work, conditions, specifications, and amendments in the Request for Proposal which is incorporated by reference as if fully set forth herein.

For clarification of this offer, contact:

Sabino Electric, Inc.
Company Name

945 W. 29th Street
Address

Tucson AZ 85713
City State Zip


Signature of Person Authorized to Sign

Robert Magee
Printed Name

General Manager
Title

Name: Robert Magee

Title: General Manager

Phone: 520-623-6061


Fax: 520-623-1655

E-mail: bmagee@sabinoelectric.com

ACCEPTANCE OF OFFER


The Offer is hereby accepted. The Contractor is now bound to sell the materials or services specified in the Contract. This Contract shall be referred to as Contract No. _____.

Approved as to form this 17th day of July, 2015.


As Tucson City Attorney and not personally

CITY OF TUCSON, a municipal corporation

Awarded this 16th day of July, 2015.


Marcheta Gillespie, C.P.M., CPPO, CPPB, CPM
As Director of Procurement and not personally

TAB 2
Signed Amendments

CITY OF TUCSON
DEPARTMENT OF PROCUREMENT

REQUEST FOR PROPOSAL NO.151193

Testing, Maintenance, Repair and Replacement Services for Electrical Systems

AMENDMENT NO. One (1)

DATE ISSUED: April 28, 2015

The referenced document has been modified as per the attached Amend No. One (1)

Please sign this Amendment where designated and return the executed copy with your PROPOSAL. This amendment is hereby made part of the referenced solicitation as though fully set forth therein. Any questions regarding this amendment should be addressed to Bob Barton, Contract Officer at (520) 837-4131. Robert.Barton@tucsonaz.gov

DEPARTMENT OF PROCUREMENT
ADMINISTRATION • DESIGN, CONSTRUCTION & SERVICES CONTRACTING
MAIL SERVICES • PURCHASING • STORES
CITY HALL • 255 W. ALAMEDA • PO BOX 27210 • TUCSON, AZ • 85726-7210
(520) 791-4217 • FAX (520) 791-4736 • TTY (520) 791-2639
www.tucsonprocurement.com

INVITATION FOR BID AMENDMENT

CITY OF TUCSON DEPARTMENT OF PROCUREMENT
255 W. ALAMEDA, 8TH FLOOR, TUCSON, AZ 85701
P.O. BOX 27210, TUCSON, AZ 85726
Phone: (520) 837-4131/Fax: (520) 791-4131
ISSUE DATE: April 28, 2015
Robert.Barton@tucsonaz.gov

RFP NO.: 151193
RFP AMENDMENT NO.: One (1)
PAGE 1 of 1
DUE DATE: Wednesday, May 06, 2015 @ 4:00 P.M., Local AZ Time
CONTRACT OFFICER: Robert "Bob" Barton

A SIGNED COPY OF THIS AMENDMENT MUST BE SUBMITTED WITH YOUR PROPOSAL.
THIS IFB IS AMENDED AS FOLLOWS:

ITEM NO. ONE (1): BID DUE DATE

Bid Due Date remains **UNCHANGED: MAY 6, 2015 at 4:00 pm LOCAL AZ TIME.**

ITEM NO. TWO (2): PRE-SUBMITTAL CONFERENCE ATTENDANCE SHEETS

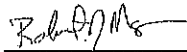
A one (1) page Pre-Submittal Conference attendance sheet document is included with the amendment as Attachment A.

ITEM NO. THREE (3): CLARIFICATIONS / QUESTIONS / ANSWERS :

Clarifications / Questions / Answers is included as Attachment B in response to Bidder questions:

***** **END OF AMENDMENT** *****

ALL OTHER PROVISIONS OF THE REQUEST FOR PROPOSAL SHALL REMAIN IN THEIR ENTIRETY.
VENDOR HEREBY ACKNOWLEDGES RECEIPT AND UNDERSTANDING OF THE ABOVE AMENDMENT.



Signature Date
Robert Magee, General Manager

Print Name and Title

Sabino Electric, Inc.

Company Name
945 W. 29th Street

Address
Tucson AZ 85713

City State Zip

REQUEST FOR PROPOSAL NO. 151193

**TESTING, MAINTENANCE, REPAIR AND REPLACEMENT SERVICES
FOR ELECTRICAL SYSTEMS**

AMENDMENT NO. ONE (1)

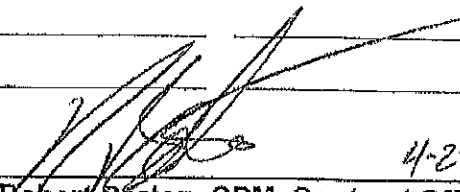
ATTACHMENT A



**ATTENDANCE
PRE-PROPOSAL CONFERENCE**

This is to acknowledge that the undersigned were present at City Hall, City Attorney's 7th Floor Conference Room, Tucson, AZ 85701 at 9:00 A.M., on Monday, April 27, 2015 at the Pre-Proposal conference for Testing, Maintenance, Repair and Replacement Services for Electrical Systems RFP 151193.

NAME OF PERSON	NAME OF FIRM	PHONE NUMBER	E-MAIL ADDRESS
Joe Castillo	Sabino Electric	(520) 400-2862	Jcastillo@sabinoelectric.com
Eddie McComb	Sabino Electric	520-977-8302	emccomb@sabinoelectric.com
Casey Peck	Sturgeon Electric	520-237-9685	Cjpeck@MYRGroup.com
JOSEPH F. SMITH	MONROE ENGINEERING	520-338-8236	joesmith@monroeengineeringinc.com
Ted Elling	Laron, Inc	520-349-0553	telling@laron.com
ED KAVANAGH	SOUTHWEST ENERGY	(602) 920-2818	ed@southwestenergy.com

Signed:  4-27-15
 Robert Barton, CPM, Contract Officer

REQUEST FOR PROPOSAL NO. 151193

**TESTING, MAINTENANCE, REPAIR AND REPLACEMENT SERVICES
FOR ELECTRICAL SYSTEMS**

AMENDMENT NO. ONE (1)

ATTACHMENT B

CLARIFICATIONS / QUESTIONS / ANSWERS – Amendment #1

DATE: April 28, 2015, 2016

{City of Tucson responses are italicized}

1. Does the City of Tucson have Switch Gear spares in case of failure, which would allow for an immediate replacement and standard rebuild time. Or, is it anticipated that in case of a Switch Gear failure with no spare available, the Switch Gear rebuild will require an emergency priority.

Answer: The instances in which the City of Tucson has spare components are very few with the ice rink and Public Safety Training Academy (PSTA) being the only ones that come to mind.

Predominantly, a switchgear failure will require emergency action to either locate and expedite shipment of new components or pull and rebuild with local resources. We have had both situations arise in recent years with good success, and minimal disruption.

2. In terms of de-energizing a system and the associated Lock Out - Tag Out, will the city be responsible for the Lock Out - Tag Out process, or will the city require that a supervisor accompany a contractor during the Lock Out - Tag Out process, or will the city allow the contractor to be responsible for the Lock Out - Tag Out process after notification of the need to de-energize a system.

*Answer: Lock Out – Tag Out (LOTO) procedures will be discussed during the walk through for any applicable project at hand. We also have a designated Electrician supporting the project when the gear is shutdown and locked out by the contractor. We also place our locks on their multi-lock hasps. In some cases we have TEP kill power the service at pole or transformer. We also place our padlocks on the multi-lock hasps along side that of TEP. **The contractor has the responsibility to de-energize and lock out the gear they are about to work on , and to verify that there are no alternate sources of power and we provide support in that effort and install our locks also on multi lock hasps. Our reference for this is found in 29CFR 1910.147 (f)(2)(i.). We will provide a copy of our policy to the contractor and they will apply their policy to ensure their control of hazardous energy.***

TAB 3
Copy of RFP

CITY OF TUCSON

REQUEST FOR PROPOSAL

REQUEST FOR PROPOSAL NUMBER: 151193
PROPOSAL DUE DATE: Wednesday, May 6, AT 4:00 P.M. LOCAL AZ TIME
PROPOSAL SUBMITTAL LOCATION: Department of Procurement
255 W. Alameda, 6th Floor, Tucson, AZ 85701

MATERIAL OR SERVICE: TESTING, MAINTENANCE, REPAIR AND REPLACEMENT
SERVICES FOR ELECTRICAL SYSTEMS

PRE-PROPOSAL CONFERENCE DATE: Monday, April 27 2015

TIME: 9:00AM LOCAL AZ TIME

LOCATION: CITY HALL, CITY ATTORNEY'S 7TH FLOOR
CONFERENCE ROOM
255 W. ALAMEDA, 6TH FLOOR, TUCSON, AZ 85701

CONTRACT OFFICER: BOB BARTON
TELEPHONE NUMBER: (520) 837-4131
Robert.Barton@tucsonaz.gov

A copy of this solicitation and possible future amendments may be obtained from our Internet site at: <http://www.tucsonprocurement.com/> by selecting the Bid Opportunities link and the associated solicitation number. The City does not mail out Notices of available solicitations via the U.S. Postal Service. Email notifications are sent to those interested offerors who are registered with us and who have selected email as their preferred delivery method. To register, please visit www.tucsonprocurement.com, click on Vendors, then click on Vendor Registration. To update an existing record, click on Vendors, click on What's New?, and read the section titled "Notice of Solicitations." You may also call (520) 791-4217 if you have questions.

Competitive sealed proposals for the specified material or service shall be received by the Department of Procurement, 255 W. Alameda, 6th Floor, Tucson, Arizona 85701, until the date and time cited.

Proposals must be in the actual possession of the Department of Procurement at the location indicated, on or prior to the exact date and time indicated above. Late proposals shall not be considered. The prevailing clock shall be the City Department of Procurement clock.

Proposals must be submitted in a sealed envelope. The Request for Proposal number and the offeror's name and address should be clearly indicated on the outside of the envelope. All proposals must be completed in ink or typewritten. Questions must be addressed to the Contract Officer listed above.

****ALERT****

Effective July 1, 2014, the City of Tucson's Small Business Enterprise (SBE) and Disadvantaged Business Enterprise (DBE) Program has moved to the Department of Procurement and has become the Business Enterprise and Compliance Program. To contact them, please call (520) 837-4000 or visit the website at http://www.tucsonprocurement.com/Bidders_Page.aspx and click on SBE or DBE.

RB/sf

PUBLISH DATE: Tuesday, April 14 2015

INTRODUCTION

The General Services Department Facilities and Communications Maintenance Division (FCM) is responsible for providing building oversight and maintenance services to City-owned buildings and facilities through a combination of internal staffing and contracted services. This resulting contract will be used by other City Departments such as Housing, Environmental Services and Tucson Water.

The City is hereby soliciting proposals from qualified firms to provide predictive testing and analysis of electrical switchgear, distribution systems, and associated components installed in City buildings and at various City of Tucson facilities. Requests for service will be both selective and programmatic in nature and will include energized predictive testing and analysis, de-energized maintenance actions, formal documentation of test findings and correction of identified discrepancies. Expenditures for services are initially estimated at approximately \$50,000 per year. Various funding sources will be used. Housing and Urban Development (HUD) may provide funding for some projects. Federally funded projects will be identified in the request for price and schedule proposals for individual projects. Any projects utilizing HUD funding shall be subject to applicable terms and conditions included as attachments to this solicitation. Appendix A & B include the HUD terms and conditions. Davis Bacon Prevailing Wages may apply to these individual projects and will be identified in the request for price and schedule proposal.

The intent of contracted service is to:

- Develop a prioritized approach to electrical service equipment maintenance;
- Ensure safe and reliable operation of electrical distribution equipment and systems;
- Maximize the service life of installed equipment;
- Identify renewal and/or replacement needs in advance of potential failures;
- Avoid unplanned service disruptions through planned inspection and repair;
- Acquire test data and develop formal condition assessment documentation for all systems selected for Inspection.

The Facilities and Communications Maintenance (FCM) Electrical Supervisor will provide scheduling coordination with access to facilities for requested services and will initiate new service requests and provide the work order reference.

SCOPE OF WORK

A. INSPECTIONS AND TESTING SERVICES

General categories of Equipment to be inspected:

- Service Entrance switchgear
- Motor control centers and components
- Emergency Power Systems and electrical components
- Pad-mounted transformers/switchgear (15 KV primaries)
- Dry type power and distribution transformers

1. Energized testing shall include, but is not limited to:

- Compliance with established safety procedures
- National Electric Code Compliance
- Infrared Thermography
- Ultrasonic Inspection
- Nominal system voltage measurements

- Phase balance and neutral loading conditions
- Voltage drop measurements
- Power quality recording
- Acceptance testing

Upon request and authorization by FCM, the Contractor will perform an energized electrical systems analysis and condition assessment using predictive testing procedures, equipment, and methodologies. Documentation reports will include system identification, summaries of results, noted anomalies, and recommendations.

2. De-energized inspection and minor service maintenance shall include, but is not limited to:

- Visual inspection of internal components for abnormal conditions
- Removal of accumulated dust/dirt from components and surfaces within enclosures
- Ensuring cleanliness and tightness of terminating connections
- Exercise circuit breakers and switches
- Lubricate moving parts

3. Pad-mounted transformer/switchgear inspections shall include, but is not limited to:

- Manufacturer recommendations for inspection
- Proper positioning on concrete pad
- Vegetation growth and service access
- Hot spots on tank surfaces of liquid filled transformers
- Fluid leak inspection
- Nameplate data temperature rise and gauge readings.
- Load break elbow inspection
- Transformer oil sampling with analysis

4. Dry type transformer inspections shall include, but is not limited to:

- Proper ventilation at louvers and screens
- Visible dust accumulation
- De-energized cleaning as needed
- Monitor audible sound levels
- Ambient space temperatures

B. REPAIR, MAINTENANCE & ON-CALL SERVICES

FCM may request quotes from multiple contractors, if multiple contracts are awarded. Submitted quotes must include a detailed description of the work to be performed, permits if required, proposed start and finish dates, estimated hours, etc. FCM will consider the Contractor's ability to expeditiously start and finish the job, projected costs, and previous contractor performance when awarding work. FCM reserves the right to award work in a manner that is in the best interest of the City for continuity of operations when multiple quotes are impractical. Upon completion, Contractor must submit a comprehensive analysis report with documentation associated with equipment or components installed or repaired.

1. Routine Planned Services

- a. All work shall be performed during normal working hours, i.e. 7:00 am to 4:00 pm except for emergencies and testing where an unoccupied building is required.
- b. All services provided by contractor will meet all applicable code requirements, will adhere to manufacturer's installation and maintenance recommendations, and will additionally comply with specific FCM requirements as outlined in the scope of work.

- c. Provide notification to the City's remote monitoring service (Central Alarm), FCM and all occupants in the immediate area when a functional system test is about to be conducted during normal working hours and again upon completion.
- d. Quotes for additional services or repair requirements identified and confirmed during the inspection process shall be submitted to the designated FCM representative. Upon approval, a written 'Notice to Proceed', with associated project number will be presented to the contractor for initiation of such work.

2. Emergency/On-Call

- a. In the case of sudden failure of equipment serving mission essential operations, priority service will be requested. The Contractor must immediately inform FCM if unable to mobilize immediately in response. This type of unplanned service request may be charged on a time and materials basis as agreed upon under the terms of this contract. Where damage to equipment exists or replacement components are not immediately available, an alternative temporary power installation may be installed to restore electrically safe service while pursuing a permanent restoration.
- b. Contractor shall provide regular emergency on-call repair services within two (2) hours after notification of request by FCM and shall be fully prepared to assess the problems and commence repairs to the affected system.

3. Other Repairs

- a. Additional Unplanned Service – FCM may request additional unplanned services on a time and material basis. Requests for quotes may or may not be requested from multiple contractors.
- b. Call Backs - Should FCM determine that the work has not been completed in an acceptable manner, the Contractor will be called back to complete missing or re-do unsatisfactory work. Return or repeat work will be considered non-billable.

FCM will monitor and provide oversight of Contractor performance to ensure that expected outcomes or performance objectives communicated in the contract are achieved. Methods to evaluate contractor performance will be comprised of a combination of periodic and random site inspections of work in progress, review of project report documentation, efficiency, quality, customer satisfaction, and flexibility with respect to work scheduling and response times.

C. INVOICING & DOCUMENTATION

Invoicing & Attachments - In order for an invoice to be considered as "accepted" for payment it must have the required information attached and the work must have been completed. The Contractor shall not submit an invoice for payment prior to the completion of service.

1. Contractor must submit separate invoices for each On-Call Repair service rendered and for any additional authorized services discovered during a scheduled system testing & inspection service. Reoccurring scheduled services may be combined on one invoice.
2. The invoice must not be dated prior to the date of service completion.
3. Contractor must electronically submit the invoice, field report, and any associated documentation to GSD-Payables@tucsonaz.gov with reference to FCM.
4. Itemized list of charges based on work performed including the system or component repaired or replaced. (i.e. labor hours, equipment rental, permit, etc.).
5. Itemized list of parts with associated charge. Parts and Permits will be reimbursed at Contractor costs only, no markup or margin, original receipt or purchase invoice from supplier may be requested.
6. Neither Trip Charges nor Hourly Rate for Travel Time are allowed. A reasonable fuel charge may be considered for services provided outside the City limits.

7. A comprehensive annual report of services performed may be requested as part of annual Contractor review and/or for audit purposes.

D. EXPECTATIONS AND REQUIREMENTS

Expectations --The Contractor Shall:

1. Designate a Company Representative who is a management or supervisory point of contact that will be responsible for and have authority to act in overseeing this contract, who will be ready upon request to inspect, meet and discuss work; resolve performance issues; and to provide technical advice, consultation, or input as requested. The Company Representative shall be available at all times via telephone and shall be able to respond within 48 hours to requests for meetings or consultation, and within 2 hours to emergencies as determined by FCM.
2. Furnish all labor, transportation, tools, materials, equipment, and instruments required to perform contracted services in accordance with generally accepted industry practices for safe and efficient operation. Contractor shall arrive on site, fully prepared and equipped to perform all services and procedures.
3. Ensure all parts and materials provided are in new condition and meet or exceed the original equipment manufacturers specifications. Any parts other than those manufactured by the original equipment manufacturer must be approved by FCM before they are used for work under this contract.
4. Maintain a reasonable supply on hand or have a system for acquisition of additional parts and manufacturer's equipment for replacement of defective devices to reduce operation down time.
5. Maintain clean work sites and use water-proof drop cloths or other coverings to prevent damage or staining to the interior of building or its contents. Remove all waste materials, debris, rubbish, tools, surplus material, and hazardous materials from the work site and disposing of all such materials in compliance with all relevant laws and regulations. Any structural damages caused by the Contractor or its employees shall be repaired at no cost to the City immediately, not to exceed 24 hours from occurrence. In the event that a contractor damage repair requires in excess of 24 hours, the contractor must provide FCM with a repair plan and schedule for approval within the required 24 hour time limit.
6. Warranty all labor and materials used in performance of this work for a minimum of one (1) year (365 days) after completion of the repairs and initiate corrective work needed in response to a warranty item. The one year warranty period shall commence at the date and time FCM accepts the work as complete and satisfactory. The contractor will coordinate any warranty response to the satisfaction of FCM.
7. Provide additional service and repair work, as needed, at agreed upon parts pricing and labor rates.
8. Provide on-call support in preparation for and recovery from uncommon weather conditions such as hard freeze weather anomalies. Emergency/on-call work is considered an additional component of this contract.

Requirements – The Contractor Must:

Comply with all NEC requirements and special regulations (OSHA standards, etc.) and adhere to any direction and deadline provided by FCM.

1. Perform work in full compliance of this contract and all applicable regulations. Contractor must maintain up-to-date knowledge of all related requirements to ensure the proper, reliable, and legal operation and performance of contracted services.
2. Notify building occupants, users, and/or the public whenever the contracted service may affect usage of facility. (Example: fire protection system, public housing unit, etc.)
3. Leave the system in fully operational condition. If a repair cannot be completed at the time of service, Contractor must notify FCM whenever a system is not operational before leaving facility.
4. Maintain in full force and effect all insurance as required by law, City regulations, and this contract.
5. Hold and maintain for the duration of the contract all required licenses and certifications associated with the performance of contracted services.
6. Ensure all Contractor personnel wear identification badges that clearly show the Contractor's company name, employee photo, with first and last name of the employee.

7. Must utilize only individuals to work on this contract who have successfully completed a criminal background investigation conducted by the Tucson Police Department. The Contractor shall submit the names of Individuals the Contractor intends to use under this contract to FCM. Individuals shall not perform work until notified of successful completion of the criminal background investigation.
8. Ensure that all Contractor personnel are not under the influence of alcohol, drugs or other intoxicants, do not engage in any illegal activities, and are not in possession of weapons while working at City buildings or sites. Any Contractor personnel found to be in violation of this requirement will be removed from the premises and ineligible for future assignment under this contract.
9. Ensure all services provided are completed only by personnel who are specifically trained and qualified to perform service. At no time shall apprentice level personnel be allowed to perform tasks under this contract without qualified supervisory oversight present on site.
10. Use of Sub-Contractors must be pre-authorized and cannot result in additional cost to the City. If a sub-contractor is utilized for a portion of the work, sub-contractor must have same qualifications and licensing as required of Contractor. Any attempt by Contractor to assign or subcontract any performance of this agreement without the express written consent of FCM shall be invalid and shall constitute a breach of this agreement. Whenever a Contractor-Sub-Contractor agreement is authorized by FCM, the agreement terms shall be in compliance with the terms of this contract.

E. Facilities & Communications Maintenance Shall:

1. Work collaboratively with Contractor to ensure compliance with contract.
2. Designate a single point of contact to provide oversight of this contract including:
 - a. Accompanying Contractor when necessary.
 - b. Coordinate schedules, including dates, times, and notifications to occupants and other entities as appropriate;
 - c. Monitor and review Contractor performance to ensure compliance with the contract.
 - d. Approve or decline repairs or additional services,
 - e. Assist the Contractor Technician as necessary or appropriate.
3. Attempt to resolve any contractual issues at the lowest possible level.
4. Consult with manufacturer representatives, regulating agencies, an FCM management as needed to provide assistance to Contractor.
5. Annually review performance of Contractor as part of contract renewal.
6. FCM reserves the option to use internal sources for completion of repairs or to obtain competitive prices on large repairs that exceed the scope of this contract.

INSTRUCTIONS TO OFFERORS

1. DEFINITION OF KEY WORDS USED IN THE SOLICITATION:

For purposes of this solicitation and subsequent contract, the following definitions shall apply:

City: The City of Tucson, Arizona

Contract: The legal agreement executed between the City and the Contractor/Consultant. The Contract shall include this RFP document incorporated herein by reference, all terms, conditions, specifications, scope of work, Amendments, the Contractor's offer and negotiated items as accepted by the City.

Contractor/Consultant: The individual, partnership, or corporation who, as a result of the competitive solicitation process, is awarded a contract by the City.

Contract Representative: The City employee or employees who have specifically been designated to act as a contact person or persons to the Contractor, and is responsible for monitoring and overseeing the Contractor's performance under this Contract.

Director of Procurement: The contracting authority for the City, authorized to sign contracts and amendments thereto on behalf of the City.

May: Indicates something that is not mandatory but permissible.

Offeror: The individual, partnership, or corporation who submits a proposal in response to a solicitation.

Shall, Will, Must: Indicates a mandatory requirement. Failure to meet these mandatory requirements, if they constitute a substantive requirement, may, at the City's sole discretion, result in the rejection of a proposal as non-responsive.

Should: Indicates something that is recommended but not mandatory. If the Offeror fails to provide recommended information, the City may, at its sole option, ask the Offeror to provide the information or evaluate the proposal without the information.

2. **PRE-PROPOSAL CONFERENCE:** If scheduled, the date and time of a Pre-Proposal conference is indicated on the cover page of this document. Attendance at this conference is not mandatory. Written minutes and/or notes will not be available, therefore attendance is encouraged. If an Offeror is unable to attend the Pre-Proposal Conference questions may be submitted in writing. Offerors are encouraged to submit written questions, via electronic mail or facsimile, at least five days prior to the Request for Proposal due date to the Contract Officer listed above. The purpose of this conference will be to clarify the contents of this Request for Proposal in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this Request for Proposal or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine the appropriate action necessary, if any, and may issue a written amendment to the Request for Proposal. Oral statements or instructions will not constitute an amendment to this Request for Proposal.
3. **INQUIRIES:** Any question related to the Request for Proposal shall be directed to the Contract Officer whose name appears above. An offeror shall not contact or ask questions of the department for whom the requirement is being procured. The Contract Officer may require any and all questions be submitted in writing. Offerors are encouraged to submit written questions via electronic mail or facsimile, at least five days prior to the proposal due date. Any correspondence related to a solicitation should refer to the appropriate Request for Proposal number, page and paragraph number. An envelope containing questions should be identified as such, otherwise it may not be opened until after the official proposal due date and time. Oral interpretations or clarifications will be without legal effect. Only questions answered by a formal written amendment to the Request for Proposal will be binding.
4. **AMENDMENT OF REQUEST FOR PROPOSAL:** The Offeror shall acknowledge receipt of a Request for Proposal Amendment by signing and returning the document by the specified due date and time.
5. **FAMILIARIZATION OF SCOPE OF WORK:** Before submitting a proposal, each offeror shall familiarize itself with the Scope of Work, laws, regulations and other factors affecting contract performance. The

Offeror shall be responsible for fully understanding the requirements of the subsequent Contract and otherwise satisfy itself as to the expense and difficulties accompanying the fulfillment of contract requirements. The submission of a proposal will constitute a representation of compliance by the Offeror. There will be no subsequent financial adjustment, other than that provided by the subsequent Contract, for lack of such familiarization.

6. PREPARATION OF PROPOSAL:

- A. All proposals shall be on the forms provided in this Request for Proposal package. It is permissible to copy these forms as required. Facsimiles or electronic mail proposals shall not be considered.
- B. At a minimum, your proposal should include the signed Offer and Acceptance form, signed copies of any solicitation amendments, completed Price Page and your response to all evaluation criteria.
- C. The Offer and Acceptance page shall be signed by a person authorized to submit an offer. An authorized signature on the Offer and Acceptance page, Proposal Amendment(s), or cover letter accompanying the proposal documents shall constitute an irrevocable offer to sell the good and/or service specified herein. Offeror shall submit any additional requested documentation, signifying intent to be bound by the terms of the agreement.
- D. The authorized person signing the proposal shall initial erasure, interlineations or other modifications on the proposal.
- E. In case of error in the extension of prices in the proposal, unit price shall govern when applicable.
- F. Periods of time, stated as a number of days, shall be in calendar days.
- G. It is the responsibility of all offerors to examine the entire Request for Proposal package and seek clarification of any requirement that may not be clear and to check all responses for accuracy before submitting a proposal. Negligence in preparing a proposal confers no right of withdrawal after due date and time.
- H. The City shall not reimburse the cost of developing, presenting, submitting or providing any response to this solicitation.
- I. Offeror must list any subcontractors to be utilized in the performance of the services specified herein. For each subcontractor, details on respective qualifications must be included.

7. PAYMENT DISCOUNTS: Payment discount periods shall be computed from the date of receipt of the material/service or correct invoice, whichever is later, to the date City's payment warrant is mailed. Unless freight and other charges are itemized, any discount provided shall be taken on full amount of invoice. Payment discounts of twenty-one calendar days or more shall be deducted from the proposed price in determining the price points. However, the City shall be entitled to take advantage of any payment discount offered by a vendor provided payment is made within the discount period. The payment discount shall apply to all purchases and to all payment methods.

8. TAXES: The City of Tucson is exempt from federal excise tax, including the federal transportation tax.

9. PROPOSAL/SUBMITTAL FORMAT: An original and 3 copies (4 total) of each proposal should be submitted on the forms and in the format specified in the RFP. Offerors shall also submit one electronic copy of the proposal on cd, disc or zip disc in MS Office 2003 or .pdf format. Any confidential information shall be submitted on a separate cd, disc or zip disc. The original copy of the proposal should be clearly labeled "Original" and shall be single-sided, three hole punched and in a binder. The material should be in sequence and related to the RFP. **The sections of the submittal should be tabbed, clearly identifiable and should include a minimum of the following sections: the completed Offer and Acceptance Form, all signed Amendments, a copy of this RFP document and the Offeror's response to the Evaluation Criteria including the completed Price Page.** Failure to include the requested information may have a negative impact on the evaluation of the offeror's proposal.

10. EXCEPTIONS TO CONTRACT PROVISIONS: A response to any Request for Proposal is an offer to contract with the City based upon the contract provisions contained in the City's Request for Proposal, including but not limited to, the specifications, scope of work and any terms and conditions. Offerors who

wish to propose modifications to the contract provisions must clearly identify the proposed deviations and any proposed substitute language. The provisions of the Request for Proposal cannot be modified without the express written approval of the Director or his designee. If a proposal or offer is returned with modifications to the contract provisions that are not expressly approved in writing by the Director or his designee, the contract provisions contained in the City's Request for Proposal shall prevail.

- 11. PUBLIC RECORD:** All proposals submitted in response to this Request for Proposal shall become the property of the City and shall become a matter of public record available for review subsequent to the award notification.
- 12. CONFIDENTIAL INFORMATION:** The City of Tucson is obligated to abide by all public information laws. If an Offeror believes that any portion of a proposal, offer, specification, protest or correspondence contains information that should be withheld, a statement advising the Contract Officer of this fact should accompany the submission and the information shall be so identified wherever it appears. The City shall review all requests for confidentiality and may provide a written determination to designate specified documents confidential or the request may be denied. Price is not confidential and will not be withheld. If the confidential request is denied, such information shall be disclosed as public information, unless the offeror submits a formal written objection.
- 13. CERTIFICATION:** By signature on the Offer and Acceptance page, solicitation Amendment(s), or cover letter accompanying the submittal documents, Offeror certifies:
 - A. The submission of the offer did not involve collusion or other anti-competitive practices.
 - B. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal or State law.
 - C. The Offeror has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, meal or service to a public servant in connection with the submitted offer.
 - D. The Offeror hereby certifies that the individual signing the submittal is an authorized agent for the Offeror and has the authority to bind the Offeror to the Contract.
- 14. WHERE TO SUBMIT PROPOSALS:** In order to be considered, the Offeror must complete and submit its proposal to the City of Tucson Department of Procurement at the location indicated, prior to or at the exact date and time indicated on the Notice of Request for Proposal page. The Offeror's proposal shall be submitted in a sealed envelope. The words "SEALED PROPOSAL" with the REQUEST FOR PROPOSAL TITLE, REQUEST FOR PROPOSAL NUMBER, PROPOSAL DUE DATE AND TIME and OFFEROR'S NAME AND ADDRESS shall be written on the envelope.
- 15. LATE PROPOSALS:** Proposals must be in the actual possession of the Department of Procurement at the location indicated, on or prior to the exact time and date indicated above. Late proposals shall not be considered. The prevailing clock shall be the City of Tucson's Department of Procurement clock. Late proposals will be rejected.
- 16. OFFER AND ACCEPTANCE PERIOD:** In order to allow for an adequate evaluation, the City requires an offer in response to this solicitation to be valid and irrevocable for ninety (90) days after the proposal due date and time.
- 17. WITHDRAWAL OF PROPOSAL:** At any time prior to the specified solicitation due date and time, an offeror may formally withdraw the proposal by a written letter, facsimile or electronic mail from the Offeror or a designated representative. Telephonic or oral withdrawals shall not be considered.
- 18. DISCUSSIONS:** The City reserves the right to conduct discussions with offerors for the purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the proposal in order to clarify an offer and assure full understanding of, and responsiveness to, solicitation requirements.

- 19. CONTRACT NEGOTIATIONS:** Exclusive or concurrent negotiations may be conducted with responsible offeror(s) for the purpose of altering or otherwise changing the conditions, terms and price of the proposed contract unless prohibited. Offerors shall be accorded fair and equal treatment in conducting negotiations and there shall be no disclosure of any information derived from proposals submitted by competing offerors. Exclusive or concurrent negotiations shall not constitute a contract award nor shall it confer any property rights to the successful offeror. In the event the City deems that negotiations are not progressing, the City may formally terminate these negotiations and may enter into subsequent concurrent or exclusive negotiations with the next most qualified firm(s).
- 20. VENDOR APPLICATION:** Prior to the award of a Contract, the successful offeror shall register with the City's Department of Procurement. Registration can be completed at <http://www.tucsonprocurement.com/> by clicking on Vendor Services. Please note that email notifications of newly published solicitations and amendments will be provided to those vendors that select email as their preferred delivery method in their vendor record.
- 21. CITY OF TUCSON BUSINESS LICENSE:** It is the responsibility of the Contractor to have a City of Tucson Business License throughout the life of this contract or a written determination from the City's Business License Section that a license is not required. At any time during the contract, the City may request the Contractor to provide a valid copy of the business license or a written determination that a business license is not required. Application for a City Business License can be completed at <http://www.tucsonaz.gov/etax>. For questions contact the City's Business License Section at (520) 791-4566 or email at tax-license@tucsonaz.gov.
- 22. UPON NOTICE OF INTENT TO AWARD:** The apparent successful offeror shall sign and file with the City, within five (5) days after Notice of Intent to Award, all documents necessary to the successful execution of the Contract.
- 22. AWARD OF CONTRACT:** Notwithstanding any other provision of the Request for Proposal, the City reserves the right to:
- (1) waive any immaterial defect or informality; or
 - (2) reject any or all proposals, or portions thereof; or
 - (3) reissue the Request for Proposal.
- A response to this Request for Proposal is an offer to contract with the City based upon the terms, conditions and Scope of Work contained in the City's Request for Proposal. Proposals do not become contracts unless and until they are executed by the City's Director of Procurement and the City Attorney. A contract has its inception in the award, eliminating a formal signing of a separate contract. All of the terms and conditions of the contract are contained in the Request for Proposal, unless any of the terms and conditions are modified by a Request for Proposal amendment, a Contract Amendment, or by mutually agreed terms and conditions in the Contract documents.
- 23. PROPOSAL RESULTS:** The name(s) of the successful offeror(s) will be posted on the Procurement Department's Internet site at <http://www.tucsonprocurement.com/> upon issuance of a Notice of Intent to Award or upon final contract execution.
- 24. PROTESTS:** A protest shall be in writing and shall be filed with the Director of Procurement. A protest of a Request for Proposal shall be received at the Department of Procurement not less than five (5) working days before the Request for Proposal due date. A protest of a proposed award or of an award shall be filed within ten (10) days after issuance of notification of award or issuance of a notice of intent to award, as applicable. A protest shall include:
- A. The name, address, and telephone number of the protestant;
 - B. The signature of the protestant or its representative;

- C. Identification of the Request for Proposal or Contract number;
- D. A detailed statement of the legal and factual grounds of protest including copies of relevant documents; and
- E. The form of relief requested.

PROPOSAL EVALUATION REQUIREMENTS

Interested Contractors are requested to submit proposals that provide sufficiently detailed information to evaluate proposed services in the areas of predictive and preventive maintenance, on-call repairs, and project performance. Level of detail requested include explanation of techniques used, manufacturer and industry recommendations, and estimated labor hours required. Proposed services should consider the type, current age/condition, anticipated life cycle of system in estimating costs. Failure to provide sufficiently detailed information as requested may result in a proposal receiving a low score or deemed as incomplete.

PROPOSAL EVALUATION CRITERIA - (listed in relative order of importance)

- A. Method of Approach
- B. Qualifications & Experience
- C. Price Proposal

Requirements Specific to Evaluation Criteria: The narrative portion and the materials presented in response to this Request for Proposal should be submitted in the same order as requested and must contain, at a minimum, the following:

Method of Approach

1. Describe how the company and its employees will satisfy the contract requirements.
2. Describe the company's human and equipment resources for parts availability and storage, on-line accessibility, its ability to respond to emergency service calls, and provide other information that would assure the City of the successful performance of the work.
3. Describe how the company's management team will ensure compliance with regulations and fulfillment of the contract by their Technicians. (Include training of personnel and any other method of monitoring the services provided)
4. Describe special licenses, unique knowledge, equipment, or techniques beneficial to projects that your firm will contribute.
5. Provide a sample copy of the following report:
 - a. Comprehensive Analysis Report
6. Provide a sample invoice.
7. Describe how your firm will ensure you will have the parts and materials available to support the services under this contract. Provide an approximate value of the parts and materials inventory that your firm maintains.
8. Identify if subcontracts will be utilized for services under this contract.

Qualifications and Experience

1. Provide a general overview of your company, including company location, number of years in business, and number of employees.

2. Experience on Similar projects:
Provide detailed information of past experience in the performance of projects of a similar nature to those listed in the Scope of Work. Identify the approximate date the work was performed, the specific scope, and the location of work. Provide sufficient detail to illustrate the security requirements, critical nature of the operation and work quality requirements. A minimum of two similar projects for each category shall be provided and at least one specific reference shall be provided for each project to allow the City to contact and verify performance.
3. Submit qualifications of the company and detail the company's experience in providing Electrical Systems Predictive Testing, Preventative Maintenance, and Repairs as detailed in the contract. Describe company's knowledge and experience related to industry standards, local and state regulations, codes, and ordinances specific to this contract.
4. Provide the name, resumes, contact information, certifications and licenses of the designated company representative, including levels of training, certifications received, descriptions of their experience, expertise and the number of contracts/projects that they are currently the designated contact person.
5. Provide the names, resumes, certifications and licenses of key company officers as well as the names, resumes, and certifications of employees who will perform work on this contract including levels of training, certifications received, and descriptions of their experience and expertise.
6. Detail any additional benefits or extra services provided by the company either optional or/and included.
7. Provide the name, location and type of work to be performed by any and all subcontractors. If a subcontractor is proposed for a portion of the work where Contractor qualifications and experience are required, the same information as listed above including references must be provided.

Price Proposal

1. The hourly rates shall cover all Contractor expenses (other than parts) for providing services, including labor, materials, supplies, equipment, travel, vehicles, and all other costs necessary to provide the required Testing, Maintenance, and Repair services as detailed in the specifications. On-call repair work conducted on a single day both during and extending beyond normal business hours, rates shall be paid as stated for each applicable time frame and must be documented accordingly. Time allocated to a repair call shall commence when the Contractor has arrived on site to commence work and shall cease when the repair assignment has been completed. Hourly rates for travel time may not be applied and should be considered overhead.
2. Parts required for any repair shall be reimbursed at the Contractor's cost from suppliers with no markup.
3. FCM will not pay additional labor or mileage rates for any trip off site to pick up tools, supplies or materials necessary to complete the work required for a scheduled service call.

GENERAL

1. **Shortlist:**
The City reserves the right to shortlist the offerors on all of the stated criteria. However, the City may determine that shortlisting is not necessary.
2. **Interviews:**
The City reserves the right to conduct interviews with some or all of the offerors at any point during the evaluation process. However, the City may determine that interviews are not necessary. In the event interviews are conducted, information provided during the interview process shall be taken into consideration when evaluating the stated criteria. The City shall not reimburse the offeror for the costs associated with the interview process.
3. **Additional Investigations:**
The City reserves the right to make such additional investigations as it deems necessary to establish the competence and financial stability of any offeror submitting a proposal.
4. **Prior Experience:**
Experiences with the City and entities that evaluation committee members represent may be taken into consideration when evaluating qualifications and experience.
5. **Multiple Awards:**
To provide adequate contract coverage, at the City's sole discretion, multiple awards may be made.

SPECIAL TERMS AND CONDITIONS

1. INSURANCE: The Contractor agrees to:

- A. Obtain insurance coverage of the types and amount required in this section and keep such insurance coverage in force throughout the life of this contract. All policies will contain an endorsement providing that written notice be given to the City at least thirty (30) calendar days prior to termination, cancellation, or reduction in coverage in any policy.
- B. The Comprehensive General Liability Insurance and Comprehensive Automobile Liability Insurance policies will include the City as an additional insured with respect to liability arising out of the performance of this contract. Such additional insured shall be covered to the full limits of liability purchased by the Contractor, even if those limits of liability are in excess of those required by this Contract. The Contractor agrees that the insurance hereunder will be primary and that any insurance carried by the City will be excess and not contributing.
- C. Provide and maintain minimum insurance limits as applicable.

COVERAGE	LIMITS OF LIABILITY
I. Commercial General Liability:	
Policy shall include Bodily Injury, Property Damage, Personal Injury and Broad Form Contractual Liability	
Each Occurrence	\$1,000,000
General Aggregate Per Project	\$2,000,000
Products & Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Blanket Contractual Liability	\$1,000,000
II. Commercial Automobile Liability	
Policy shall include Bodily Injury and Property Damage, for any owned, Hired, and/or Non-owned vehicles used in the operation, installation and maintenance of facilities under this agreement.	
Combined Single Limit	\$1,000,000
III. Workers' Compensation (applicable to the State of Arizona)*¹	
Per Occurrence	Statutory
Employer's Liability	\$1,000,000
Disease Each Employee	\$1,000,000
Disease Policy Limit	\$1,000,000

*¹ Sole Proprietor/Independent Contractor designation is given to those who desire to waive their rights for workers' compensation coverage and benefits as outlined in ARS§ 23-901 and specifically ARS § 23-961 (O). If applicable, please request the Sole Proprietor/Independent Contractor form from the Contract Officer listed in the solicitation

- D. **ADDITIONAL INSURANCE REQUIREMENTS:** All policies shall include, or be endorsed to include, the following provisions:
 1. A waiver of subrogation endorsement in favor of the City of Tucson, for losses arising from work performed by or on behalf of the Contractor.
 2. The insurance afforded the contractor shall be primary insurance and that any insurance carried by the City of Tucson and its agents, officials or employees shall be excess and not contributory.
 3. Coverage provided by the Contractor shall not be limited to the liability assumed under the indemnification provisions of this Contract.
- E. **NOTICE OF COVERAGE MODIFICATIONS:** Any changes material to compliance with this contract in the insurance policies above shall require (30) days written notice to the City of Tucson. Such notice shall be sent directly to the Department of Procurement.

F. **ACCEPTABILITY OF INSURERS:** Contractors insurance shall have an "A.M. Best" rating of not less than A-VII. The City of Tucson in no way warrants that the required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

G. **VERIFICATION OF COVERAGE:** Contractor shall furnish the City of Tucson with certificates of insurance (ACORD form or equivalent approved by the City of Tucson) as required by this Contract. The certificates for each insurance policy are to be signed by an authorized representative.

All certificates and endorsements are to be received and approved by the City of Tucson before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work and remain in effect for the duration of the contract and two (2) years after completion. Failure to maintain the insurance policies as required by this Contract, or to provide evidence of renewal upon the City's request, is a material breach of contract.

All certificates required by this Contract shall be sent directly to the Department of Procurement.

The City of Tucson project/contract number and project description shall be noted on the certificate of insurance. The City of Tucson reserves the right to require complete copies of all insurance policies required by this Contract at any time.

H. **SUBCONTRACTORS:** Contractors' certificate(s) shall include all subcontractors as insureds under its policies or Contractor shall furnish to the City of Tucson separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to the minimum requirements identified above.

I. **EXCEPTIONS:** In the event the Contractor or sub-contractor(s) is/are a public entity, then the Insurance Requirements shall not apply. Such public entity shall provide a Certificate of Self- Insurance.

2. **TERM AND RENEWAL:** The term of the Contract shall commence upon award and shall remain in effect for a period of one (1) year, unless terminated, canceled or extended as otherwise provided herein. The Contractor agrees that the City of Tucson shall have the right, at its sole option, to renew the Contract for four (4) additional one-year periods or portions thereof. In the event that the City exercises such rights, all terms, conditions and provisions of the original Contract shall remain the same and apply during the renewal period with the possible exception of price and minor scope additions and/or deletions.

3. **PRICE ADJUSTMENT:** The City will review fully documented requests for price adjustment after any Contract has been in effect for one (1) year. Any price adjustment will only be made at the time of Contract renewal and/or extension and will be a factor in the extension review process. The City will determine whether the requested price adjustment or an alternate option, is in the best interest of the City. Any price adjustment will be effective upon the effective date of the Contract extension.

4. **COOPERATIVE PURCHASING:** Any Contract resulting from this solicitation shall be for the use of the City of Tucson. In addition, public and nonprofit agencies that have entered into a Cooperative Purchasing Agreement with the City of Tucson's Department of Procurement are eligible to participate in any subsequent Contract. See http://www.tucsonprocurement.com/coop_partners.aspx and click on Cooperatives for a list of the public and nonprofit agencies that have currently entered into Cooperative Purchasing Agreements with the City of Tucson. Additionally, this contract is eligible for use by the Strategic Alliance for Volume Expenditures (SAVE) cooperative. See <http://www.maricopa.gov/Materials/PubDocuments/SAVE-members.pdf> for a listing of participating agencies. The parties agree that these lists are subject to change.

Any orders placed to, or services required from, the successful Contractor(s) will be requested by each participating agency. Payment for purchases made under this agreement will be the sole responsibility of each participating agency. The Contractor may negotiate additional expenses incurred as a result of participating agencies' usage of this contract (i.e., freight charges, travel related expenses, etc.). The City shall not be responsible for any disputes arising out of transactions made by others.

The Contractor(s) will provide an electronic copy of the complete Contract to the City of Tucson Department of Procurement upon receipt of the Notice of Intent to Award. At the City's request, the successful Contractor(s) may also be requested to provide an electronic copy of the complete Contract to a participating agency.

- 5. LIVING WAGE REQUIREMENT:** In accordance with the Tucson Procurement Code, Chapter 28, Article XV, providing for a living wage requirement for all employees supplying specific service to the City of Tucson, this solicitation, and the resulting Contract, is subject to the referenced Article. By signing the Offer and Acceptance page, Bidder/Offeror agrees to comply with the requirements of the Article. Such requirements include, but are not limited to:

A wage of no less than \$10.39 per hour (with health benefits being provided to employees); or
A wage of no less than \$11.62 per hour (without health benefits being provided to employees); and If health benefits are offered, an eligible contractor shall pay no less than 50% of the eligible employee's health benefits premium.

In accordance with Sec. 28-157 (f) of the Tucson Procurement Code, if health benefits are offered to an eligible employee under an eligible Contract, proof of the above compliance shall be provided by the successful Bidder/Offeror upon notification by the City of its intent to award a Contract.

Notwithstanding the Severability clause, under Standard Terms and Conditions, if the provisions of this clause become unenforceable for any reason, the City reserves the right to terminate this Contract without penalty or liability. In the event the City negotiates an adjustment to the terms, conditions, or price acceptable to the parties, then this Contract shall continue until expiration.

Compliance with Wage Requirement: The City's Director of Procurement shall monitor compliance, including the investigation of claimed violations, and may promulgate administrative rules and regulations to implement and enforce this Article. In the event of any violation of the provisions set forth in this Article, the responsible Contractor and any applicable subcontractors shall be liable for the unpaid wages and shall pay the eligible employee any amounts underpaid. The City's Director of Procurement is additionally authorized to take any one or more of the following remedies in the event of a written determination of noncompliance:

Liquidated damages paid to the City in the amount of \$50.00 for each incidence of non-compliance for each day of non-compliance and/or each day it continues;

Suspension of further payments under the Contract until the violation has ceased;

Suspend and/or terminate the Contract for cause; and/or

Debar or suspend the Contractor or subcontractor from future City contracts pursuant to Tucson Procurement Code, Chapter 28, Article IX.

Protests or appeals of the Director's remedies for non-compliance shall be in accordance with Article IX.

Records for Wage Requirement:

The Contractor and any applicable subcontractor shall make the records required available for inspection, copying, or transcription by authorized representatives of the City's Director of Procurement, and shall permit such representatives to interview employees during working hours on the job. If the Contractor and any applicable subcontractor fails to submit the required records or make them available, the Director may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to Article IX.

Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all eligible employees. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

All inquiries regarding the Living Wage program may be directed to the Contract Officer responsible for this solicitation.

- 6. KEY PERSONNEL:** It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this Contract.

STANDARD TERMS AND CONDITIONS

1. **ADVERTISING:** Contractor shall not advertise or publish information concerning this Contract without prior written consent of the City's Director of Procurement.
2. **AFFIRMATIVE ACTION:** Contractor shall abide by the provisions of the Tucson Procurement Code Chapter 28, Article XII.
3. **AMERICANS WITH DISABILITIES ACT:** The Contractor shall comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101, et seq.) and applicable Federal regulations under the Act.
4. **APPLICABLE LAW:** This Contract shall be governed, and the City and Contractor shall have all remedies afforded to each, by the Tucson Procurement Code and the law of the State of Arizona. State law claims shall be brought only in Pima County Superior Court.
5. **ASSIGNMENT-DELEGATION:** No right or interest in this Contract shall be assigned by the Contractor without prior written permission of the City, and no delegation of any duty of the Contractor shall be made without prior written permission of the City's Director of Procurement. The City shall not unreasonably withhold approval and shall notify the Contractor of the City's position by written notice.
6. **CHILD/SWEAT-FREE LABOR POLICY:** The Contractor shall comply with all applicable provisions of the United States Federal and State Child Labor and Worker's Right laws and agrees if called upon to affirm in writing, that they, and any subcontractor involved in the provision of goods to the City, are in compliance.
7. **CLEAN UP:** The Contractor shall at all times keep the contract area, including storage areas used by the Contractor, free from accumulation of waste material or rubbish and, prior to completion of the work, remove any rubbish from the premises and all tools, scaffolding, equipment and materials not property of the City. Upon completion of the repair, the Contractor shall leave the work and premises in clean, neat and workmanlike condition.
8. **COMMENCEMENT OF WORK:** The Contractor is cautioned not to commence any billable work or provide any material or service under this Contract until Contractor receives purchase order or is otherwise directed to do so, in writing, by the City.
9. **CONFIDENTIALITY OF RECORDS:** The Contractor shall establish and maintain procedures and controls that are acceptable to the City for the purpose of assuring that no information contained in its records or obtained from the City or from others in carrying out its functions under the Contract shall be used by or disclosed by it, its agents, officers, or employees, except as required to efficiently perform duties under the Contract. Persons requesting such information should be referred to the City. Information pertaining to individual persons shall not be divulged other than to employees or officers of Contractor as needed for the performance of duties under the Contract, unless otherwise agreed to in writing by the City.
10. **CONTRACT AMENDMENTS:** The Procurement Department has the sole authority to:
 - A. Amend the contract or enter into supplemental verbal or written agreements;
 - B. Grant time extensions or contract renewals;
 - C. Otherwise modify the scope or terms and provisions of the contract.

This Contract shall only be modified with the approval of the Department of Procurement. Except in the case of a documented emergency, approval must be granted prior to performance. Any contract modification not explicitly approved by the Procurement Department through a written contract amendment or change order is performed at the sole risk of the Contractor and may not be eligible for payment by the City.

11. **CONTRACT:** The Contract shall be based upon the Request for Proposal issued by the City and the Offer submitted by the Contractor in response to the Request for Proposal. The offer shall substantially conform to the terms, conditions, specifications and other requirements set forth within the text of the Request for Proposal. The City reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by the City's Director of Procurement, shall be deemed non-responsive and the offer rejected. The Contract shall contain the entire agreement between the City of Tucson and the Contractor

relating to this requirement and shall prevail over any and all previous agreements, contracts, proposals, negotiations, purchase orders, or master agreements in any form.

- 12. DEFAULT IN ONE INSTALLMENT TO CONSTITUTE TOTAL BREACH:** Contractor shall deliver conforming materials in each installment or lot of this Contract and may not substitute nonconforming materials. Delivery of nonconforming materials, or default of any nature, may constitute breach of the Contract. Noncompliance may be deemed a cause for possible Contract termination.
- 13. DUPLEXED/RECYCLED PAPER:** In accordance with efficient resource procurement and utilization policies adopted by the City of Tucson, the Contractor shall ensure that, whenever practicable, all printed materials produced by the Contractor in the performance of this Contract are duplexed (two-sided copies), printed on recycled paper and labeled as such.
- 14. EXCLUSIVE POSSESSION:** All services, information, computer program elements, reports and other deliverables created under this Contract are the sole property of the City of Tucson and shall not be used or released by the Contractor or any other person except with prior written permission by the City.
- 15. FEDERAL IMMIGRATION LAWS AND REGULATIONS:** Contractor warrants that it complies with all Federal Immigration laws and regulations that relate to its employees and complies with A.R.S. § 23-214(A) and that it requires the same compliance of all subcontractors under this Contract. Contractor acknowledges that pursuant to A.R.S. § 41-4401 and effective September 30, 2008, a breach of this warranty is a material breach of this Contract subject to penalties up to and including termination of this Contract. The City retains the legal right to audit the records of the Contractor and inspect the papers of any employee who works for the Contractor to ensure compliance with this warranty and the Contractor shall assist in any such audit. The Contractor shall include the requirements of this paragraph in each contract with subcontractors under this Contract.

If the Contractor or subcontractor warrants that it has complied with the employment verification provisions prescribed by sections 274(a) and 274(b) of the Federal Immigration and Nationality Act and the E-verify requirements prescribed by A.R.S. § 23-214(A), the Contractor or subcontractor shall be deemed to be in compliance with this provision. The City may request proof of such compliance at any time during the term of this Contract by the Contractor and any subcontractor.

- 16. FORCE MAJEURE:** Except for payment of sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of Force Majeure. The term "Force Majeure" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Force Majeure shall not include late performance by a subcontractor unless the delay arises out of a Force Majeure occurrence in accordance with this Force Majeure term and condition.

If either party is delayed at any time in the progress of the work by Force Majeure, the delayed party shall notify the other party in writing of such delay, as soon as is practical, of the commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be hand-delivered or mailed certified-return receipt and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing when it has done so. The time of completion shall be extended by contract modification for a period of time equal to the time that results or effects of such delay prevent the delayed party from performing in accordance with this Contract.

- 17. GRATUITIES:** The City may, by written notice to the Contractor, terminate this Contract if it is found that gratuities, in the form of entertainment, gifts, meals or otherwise, were offered or given by the Contractor or any agent or representative of the Contractor, to any officer or employee of the City amending, or the making of any determinations with respect to the performing of such Contract. In the event this Contract is terminated by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold from the Contractor the amount of the gratuity.

- 18. HUMAN RELATIONS:** Contractor shall abide by the provisions of the Tucson City Code Chapter 28, Article XII.

- 19. INDEMNIFICATION:** To the fullest extent permitted by law, Contractor, its successors, assigns and guarantors, shall pay, defend, indemnify and hold harmless City of Tucson, its agents, representatives, officers, directors, officials and employees from and against all allegations, demands, proceedings, suits, actions, claims, including claims of patent or copyright

infringement, damages, losses, expenses, including but not limited to, attorney fees, court costs, and the cost of appellate proceedings, and all claim adjusting and handling expense, related to, arising from or out of or resulting from any actions, acts, errors, mistakes or omissions caused in whole or part by Contractor relating to work, services and/or products provided in the performance of this Contract, including but not limited to, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable and any injury or damages claimed by any of Contractor's and Subcontractor's employees. . If Contractor or any of Contractor's employees are certified to receive a premium tax credit or cost sharing reduction which triggers a §4980H (a) or (b) penalty against the City, the Contractor shall indemnify the City from and shall pay any assessed tax penalty. It is agreed that Contractor will be responsible for primary loss investigation, defense and judgment costs where this indemnification is applicable. The Contractors agrees to waive all rights of subrogation against the City of Tucson, it's agents, representatives, officers, directors, officials, employees and volunteers for losses arising from the work performed by the Contractor for the City of Tucson.

- 20. INDEPENDENT CONTRACTOR:** It is understood that each party shall act in its individual capacity and not as an agent, employee, partner, joint venturer, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other party for any purpose.

The Contractor shall not be entitled to compensation in the form of salaries, holidays, paid vacation, sick days, or pension contributions by the City. The City of Tucson will not provide any insurance coverage to the Contractor, including Worker's Compensation coverage. The Contractor is advised that taxes, social security payments, and other withholdings shall not be withheld from a City payment issued under this Contract and that Contractor should make arrangements to directly pay such expenses. Contractor is responsible for compliance with the Affordable Care Act for Contractor and any of Contractor's employees.

- 21. INSPECTION AND ACCEPTANCE:** All material or service is subject to final inspection and acceptance by the City. Material or service failing to conform to the specifications of this Contract shall be held at the Contractor's risk and may be returned to the Contractor. If returned, all costs are the responsibility of the Contractor. Noncompliance may be deemed a cause for possible Contract termination.

- 22. INTERPRETATION-PAROLE EVIDENCE:** This Contract is intended by the parties to be a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in the Contract. Acceptance or consent in the course of performance under this Contract shall not be relevant to determine the meaning of this Contract even though the accepting or consenting party has knowledge of the nature of the performance and the opportunity to object.

- 23. LICENSES:** Contractor shall maintain in current status all Federal, State, and local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract.

- 24. LIENS:** All materials, services, and other deliverables supplied to the City under this Contract shall be free of all liens other than the security interest. Security interest shall extinguish upon full payment made by the City. Upon the City's request, the Contractor shall provide a formal release of all liens.

- 25. NO REPLACEMENT OF DEFECTIVE TENDER:** Every tender of materials must fully comply with all provisions of this Contract. If a tender is made which does not fully comply, this shall conform to the termination clause set forth within this document.

- 26. NON-EXCLUSIVE CONTRACT:** Any contract resulting from this solicitation shall be awarded with the understanding and agreement that it is for the sole convenience of the City of Tucson. The City reserves the right to obtain like goods or services from another source when necessary.

- 27. OVERCHARGES BY ANTITRUST VIOLATIONS:** The City maintains that, in actual practice, overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, the Contractor hereby assigns to the City any and all claims for such overcharges as to the materials or services used to fulfill the Contract.

- 28. PAYMENT:** The City's preferred method of payment is via credit card. The City will issue a Purchase Order and, in some cases, either provide a credit card for payment at the time of ordering or pay subsequent invoices by credit card upon receipt of goods or services in good order. However, not all City employees will possess a credit card and, therefore, the City reserves the right to make payment by check as it deems necessary.

Unless payment is made by credit card at time of order or point of sale, a separate invoice shall be issued for each shipment of material or service performed, and no payment shall be issued prior to receipt of material or service and correct invoice.

The City shall make every effort to process payment for the purchase of materials or services within twenty-one (21) calendar days after receipt of materials or services and a correct invoice.

The Contractor's payment terms shall apply to all purchases and to all payment methods.

29. **PROTECTION OF GOVERNMENT PROPERTY:** The Contractor shall use reasonable care to avoid damaging existing buildings, equipment, and vegetation (such as trees, shrubs, and grass) on City property. If the Contractor fails to do so and damages such property, the Contractor shall replace or repair the damage at no expense to the City, as determined and approved by the City's Director of Procurement. If the Contractor fails or refuses to make such repair or replacement, the City will determine a cost and the Contractor shall be liable for the cost thereof, which may be deducted from the Contract price.
30. **PROVISIONS REQUIRED BY LAW:** Each and every provision of law and any clause required by law to be in the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall be amended to make such insertion or correction.
31. **RECORDS:** Internal control over all financial transactions related to this Contract shall be in accordance with sound fiscal policies. The City may, at reasonable times and places, audit the books and records of the Contractor and/or any subcontractors. Said audit shall be limited to this Contract.
32. **RIGHT TO ASSURANCE:** Whenever one party to this Contract has reason to question, in good faith, the other party's intent to perform, the former party may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding party may treat this failure as the other party's intent not to perform and as a cause for possible Contract termination.
33. **RIGHT TO INSPECT:** The City may, at reasonable times, and at the City's expense, inspect the place of business of a Contractor or subcontractor which is related to the performance of any Contract as awarded or to be awarded.
34. **RIGHTS AND REMEDIES:** No provision in this document or in the Contractor's proposal shall be construed, expressly or by implication, as a waiver by either party of any existing or future right and/or remedy available by law in the event of any claim, default or breach of contract. The failure of either party to insist upon the strict performance of any term or condition of the Contract, to exercise or delay the exercise of any right or remedy provided in the Contract or by law, or to accept materials or services required by this Contract or by law shall not be deemed a waiver of any right of either party to insist upon the strict performance of the Contract.
35. **SEVERABILITY:** The provisions of this Contract are severable to the extent that any provision or application held to be invalid shall not affect any other provision or application of the Contract which may remain in effect without the valid provision or application.
36. **SHIPMENT UNDER RESERVATION PROHIBITED:** No tender of a bill of lading shall operate as a tender of the materials. Non-compliance shall conform to the termination clause set forth within this document.
37. **SUBCONTRACTS:** No subcontract shall be entered into by the Contractor with any other party to furnish any of the material/service specified herein without the advance written approval of the City's Director of Procurement. All subcontracts shall comply with Federal and State laws and regulations which are applicable to the services covered by the subcontract and shall include all the terms and conditions set forth herein which shall apply with equal force to the subcontract, as if the subcontractor were the Contractor referred to herein. The Contractor is responsible for contract performance whether or not subcontractors are used.
38. **SUBSEQUENT EMPLOYMENT:** The City may terminate this Contract without penalty or further obligation pursuant to A.R.S. Section 38-511 if any person significantly involved in initiating, negotiating, securing, drafting, or creating the Contract, on behalf of the City, is or becomes, at any time while the Contract or any extension of the Contract is in

effect, an employee of, or a contractor to, any other party to this Contract with respect to the subject matter of the Contract. Termination shall be effective when written notice from the City's Director of Procurement is received by the parties to this Contract, unless the notice specifies a later time.

39. TERMINATION OF CONTRACT: This Contract may be terminated at any time by mutual written consent, or by the City, with or without cause, upon giving thirty (30) days written notice. The City, at its convenience, by written notice, may terminate this Contract, in whole or in part. If this Contract is terminated, the City shall be liable only for payment under the payment provisions of this Contract for services rendered and accepted material received by the City before the effective date of termination.

The City reserves the right to terminate the whole or any part of this Contract due to the failure of the Contractor to carry out any term or condition of the Contract. The City will issue a written ten (10) day notice of default to the Contractor for acting or failing to act as specified in any of the following:

In the opinion of the City, the Contractor provides personnel that do not meet the requirements of the Contract;

In the opinion of the City, the Contractor fails to perform adequately the stipulations, conditions or services/specifications required in this Contract;

In the opinion of the City, the Contractor attempts to impose personnel, materials, products or workmanship of an unacceptable quality;

The Contractor fails to furnish the required service and/or product within the time stipulated in the Contract;

In the opinion of the City, the Contractor fails to make progress in the performance of the requirements of the Contract;

The Contractor gives the City a positive indication that the Contractor will not or cannot perform to the requirements of the Contract.

Each payment obligation of the City created by this Contract is conditioned upon the availability of City, State and Federal funds that are appropriated or allocated for the payment of such an obligation. If funds are not allocated by the City and available for the continued purchase of the services and/or materials provided under this Contract, this Contract may be terminated by the City at the end of the period for which funds are available. The City will endeavor to notify the Contractor in the event that continued service will or may be affected by non-appropriation. No penalty shall accrue to the City in the event this provision is exercised, and the City shall not be obligated or liable for any future payments due or for any damages as a result of termination under this paragraph.

40. TITLE AND RISK OF LOSS: The title and risk of loss of material or service shall not pass to the City until the City actually receives the material or service at the point of delivery, unless otherwise provided within this Contract.

41. WARRANTIES: Contractor warrants that all material or service delivered under this Contract shall conform to the specifications of this Contract. Mere receipt of shipment of the material or service specified and any inspection incidental thereto by the City shall not alter or affect the obligations of the Contractor or the rights of the City under the foregoing warranties. Additional warranty requirements may be set forth in this document.

PRICE PAGE

HOURLY RATES:

	Journey Level/ Supervisory	Trades Person	Laborer
Regular Hours	\$ _____ / Hour	\$ _____ / Hour	\$ _____ / Hour
Emergency & Afterhours	\$ _____ / Hour	\$ _____ / Hour	\$ _____ / Hour

Definitions of Terms:

Supervisory or Journey level = Certified with 4+ years of experience
 Trades level = Certified with 2+ years of experience
 Laborer = Non-certified or helper

Regular Business Hours: Monday through Friday, 7:00 am to 4:00 p.m., excluding holidays.

After Hours/Holiday Rate: Monday through Friday, 4:00 p.m. to 7:00 am, weekends, and the following City holidays.

New Year's Day
 Memorial Day
 Labor Day
 Christmas Day

Martin Luther King Jr. Day
 Independence Day
 Veteran's Day

President's Day
 Cesar Chavez Day
 Thanksgiving Day

PROMPT PAYMENT DISCOUNT: As stated in the Instructions to Offerors, Item 7- Payment Discounts, the price(s) quoted herein can be discounted by _____ %, if payment is made within _____ days.

NOTE: Unless otherwise specified in the offer, a two percent/twenty-one days (2%/21) cash discount will be assumed as allowable and will be considered in determining award.

CREDIT CARD PAYMENT:

- Will payment be accepted via commercial credit card? _____ Yes _____ No
- If yes, can commercial payment(s) be made online? _____ Yes _____ No
 - Will a third party be processing the commercial credit card payment(s)? _____ Yes _____ No
 - If yes, indicate the flat fee per transaction \$ _____ (as allowable, per Section 5.2.E of Visa Operating Regulations).
 - If "no" to above, will consideration be given to accept the card? _____ Yes _____

OFFER AND ACCEPTANCE

OFFER

TO THE CITY OF TUCSON:

The Undersigned hereby offers and shall furnish the material or service in compliance with all terms, scope of work, conditions, specifications, and amendments in the Request for Proposal which is incorporated by reference as if fully set forth herein.

For clarification of this offer, contact:

Company Name

Name: _____

Address

Title: _____

City State Zip

Phone: _____

Signature of Person Authorized to Sign

Fax: _____

Printed Name

E-mail: _____

Title

ACCEPTANCE OF OFFER

The Offer is hereby accepted. The Contractor is now bound to sell the materials or services specified in the Contract. This Contract shall be referred to as Contract No. _____.

Approved as to form this ____ day of _____, 2015.

CITY OF TUCSON, a municipal corporation

Awarded this ____ day of _____, 2015.

As Tucson City Attorney and not personally

Marcheta Gillespie, C.P.M., CPPO, CPPB, CPM
As Director of Procurement and not personally

TAB 4
Responses to Evaluation Criteria
And
Price Page

TAB 4A
Method of Approach

Method of Approach

1. Sabino Electric, Inc. is uniquely qualified to support the City of Tucson. Our guaranteed Predictive Service Programs are designed to maintain a building's electrical system by proactively using our trained employees to stave off any potential problems that could interrupt the facility operations. We have been performing new construction, service and small project work on a variety of commercial, industrial and residential facilities in Arizona for over 30 years. As a full service electrical service provider we have a vast history of satisfied customers. We have an excellent working relationship with the IBEW local unions in Arizona and are able to receive additional qualified personnel on short notice to assist with any City of Tucson project or service need.

Also, as a TEGG Service Provider we have a diverse history of electrical testing, documentation, repairs, maintenance, design, and construction experience for Data Centers, Drinking Water Utilities, Wastewater Utilities, Electric Utility Companies, Manufacturing Facilities, Hospitals, Mining firms, and Universities. Our firm is backed up by the 100+ contractors around the world that make up the TEGG Service Network. Over the years our Arizona Team has performed analysis and documentation on over 3,000 facilities in 11 states and recorded data for over 150,000 pieces of electrical equipment. Many of those electrical systems are conditionally guaranteed for 3 months to 36 months unmatched by any other electrical services firm in North America.

2. Sabino Electric, Inc. has our service vehicles equipped with the necessary items to be able to handle a standard service call, we also electrical material and equipment that is stored and maintained at our warehouse located at our Tucson office location.

The following is our Emergency Response Procedure:

When a work request arrives at Sabino Electric, Inc. via a local, 800 numbers, cell phone or fax, it is immediately forwarded to the dispatcher/scheduler. The dispatcher is responsible for determining urgency (if applicable), and responding according to the following parameters.

- Regular Services – As scheduled.
- S/T hours begin at 7:00 a.m. to 3:30 p.m.
- Emergency Services – Within one (1) to three (3) hours based on geographic location.
- After Hours & Saturday and Sundays & Holidays – Unless scheduled in advance, after hours & Saturday and Sundays & holidays are treated as emergency services.
- After Hours & Saturday - O/T hours begin before 7:00 a.m. and after 3:30 p.m. Monday through Friday all day Saturdays and the Friday after Thanksgiving.
- Sundays & Holidays - D/T Sundays and holidays. New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Eve, and Christmas Day.
- 2nd and 3rd Shift Work - Should a project require 2nd and 3rd shift work and employees work five (5) or more consecutive 8 - hour days, shift differentials will apply.

Simultaneously, appropriately qualified personnel are dispatched (within one (1) to three (3) hours based on ZONE) or scheduled to perform the work.

We have designated work contacts via area codes. If the work is located in the 602, 623 or 480 area codes, Greg Eastin (602-377-5143) is the primary contact during business hours. If the work is located in the 520 or 928 area codes, Jon Aalberg (520-979-9372) is the primary contact during business hours.

3. Sabino Electric, Inc.'s management team will ensure compliance with regulation, fulfillment of the contract by our technicians utilizing our project procedure below:
 - Service Manager or Sales Representative receives service request from client and, at that time, if needed will schedule on-site meeting to review scope/services that client is requesting/needings.
 - If client is requesting a proposal to be completed, the appropriate Sales Representative will complete the proposal and submit to client for approval. If proposal is not needed and work is to commence as a time and material project, then the work will be scheduled through Service Manager.
 - Service Manager assigns a lead electrician/technician.
 - Service Manager informs Service Administrator of service request and provides a point of contact, assigned electrician/technician, and on-site meeting date and time.
 - Service Administrator contacts client point of contact and begins gathering all service request specific documentation.
 - Service Manager, lead electrician/technician, and client representative complete on-site hand-off meeting.
 - Lead electrician/technician will gather project specific items, including but not limited to; material, equipment, additional electricians, subcontractors (if required), and safety equipment required to timely, safely, and efficiently complete the project.
 - Lead electrician/technician will arrive at designated site and complete electrical project per the scope and understanding per the on-site handoff meeting.
 - Lead electrician or technician will be in constant contact with client representative, as well as their service supervisor through-out the project and will address any issues that arise to make sure that the project stays on tract and is completed to the satisfaction of the client.
 - Service Administrator will follow up to ensure all aspects of performance meet or exceed Sabino Electric, Inc.'s standards.

4. Sabino Electric, Inc. has 2 TEGG Electrical Franchise licenses, one for Southern Arizona and one for the Metro Phoenix area. With these licenses, we have a computer based software program called TEGGPro, which allows us to document our client's electrical equipment assets per site location. Through this software, we can propose/build agreements based on the clients need. All documentation from our on-site technicians is entered into this software, and a summary report is produced which includes: nameplate data, equipment inventory, any electrical problems that were found, any infrared issues that were found, and is color-coded to show the severity level. Based on the testing results our DES Sales Representative will be able to provide a proposal to our clients on what corrective measures should be taken and the cost to correct. We are also able to provide our clients with on-line access to the TEGGPro software through the customer portal. Our clients are provided with a user name and password and are able to view as well as print the information documented in their site visit databases.

Our TEGG technicians are trained on how to perform electrical testing and how to properly document the information into our TEGGPro software database. Additionally, technicians that conduct the testing are Journeyman Wiremen, Foreman Wireman, or General Foreman Wireman and at least 1 of the 2 man team has a minimum of a Level 1 Thermographer certification. When testing is being performed, we always have a 2 man team per the electrical standard. All of our technicians wear the correct cal-rated protective clothing for the type of testing they are performing.

We also, own and maintain a complete line of IR Thermography, Ultrasonic, Power Quality Analysis, Surge Protection and Power Factor testing equipment; as well as a full line of service and construction tools/equipment for the Commercial Electrical Industry.

5. Sample Comprehensive Analysis Report-see Tab 4A1 report includes:
 - Problem County Summary
 - Equipment Inventory
 - Equipment Inventory with Variables (Nameplate)
 - Equipment Problems
 - Equipment IR Problems
 - Equipment Summary Report
6. Sample Invoice-see Tab 4A2

TAB 4A1.

Comprehensive Analysis Report



Sabino Electric Inc.
945 W 29th Street
Tucson, AZ 85713

Electrical System Analysis

Prepared For:
Sabino Electric, Inc.



Customer Contact:

Location of Facility: Sabino Electric, Inc.
945 W. 29Th Street
Tucson, Arizona 85713

Agreement Number: SAMPLE

TEGG[®]
SERVICE



Sabino Electric Inc.
 945 W 29th Street
 Tucson, AZ 85713



Equipment Item Problem Count Summary

Agreement: tTraining 1
 Site Name: Sabino Electric, Inc.
 Site Visit Dates: Sep 5, 213 Sep 9, 213
 Site Visit Status: Completed

Location Within Facility

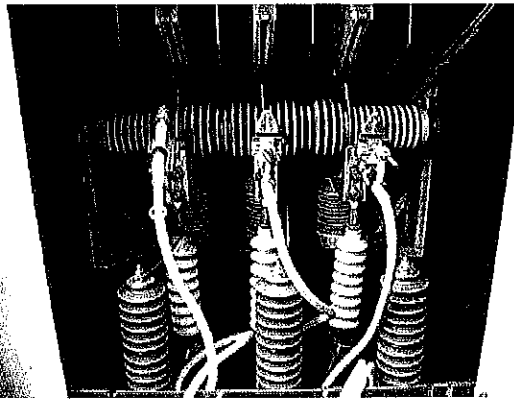
<u>Equip Tag ID</u>	<u>Equipment Item Description / Equipment Type</u>	<u>Problem Count</u>
<u>t Main Electrical</u>		
ATS41A7195	ATS Auto Transfer Sitch 4A	
CP4A7187	LP1 ranch Circuit Panel 4 amp	
MT5 719P1	1 Problem None Corrected Motors 5hp	
M17192	M rop ut Fuse 1 Problem None Corrected M rop ut Fuse	
SWISC7184	Chiller2 Sitchgear Safety isconnects 4A	
SWAW718	MCC2 1 Problem None Corrected Sitchgear raout rears	
SWMCC718	Sitchgear Molded Case rears 4A Sitchgear Molded Case rears 4A	
T25 7193	T1 1 Problem None Corrected Transformer ry 25 a	
T25 7194	SES3 1 Problem None Corrected 515 il Filled Transformers 515 A	
237191	9 oltage egulators 1 Problem 1 Corrected 9 oltage egulators	

May 4, 215

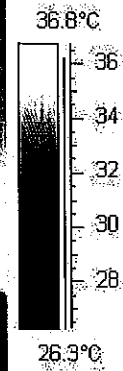
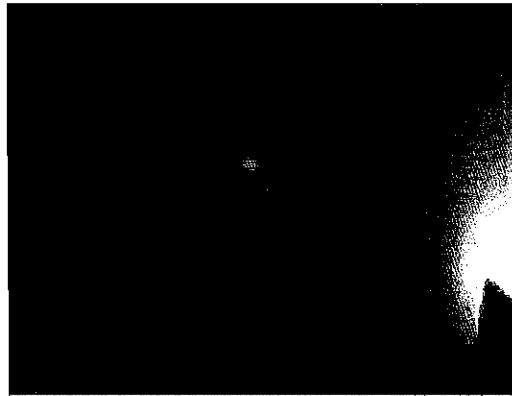
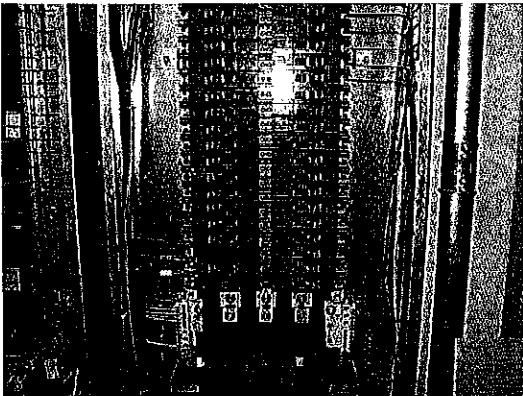
Equipment Inventory - Short Form with Images

(t) Main Electrical

Tag ID: ATS41A7195 ATS		Equipment Type: Auto Transfer Sitch 4A	
Serial :	Manufacturer: SC Padmount Euiqment	Model: PM9 ith ATS	

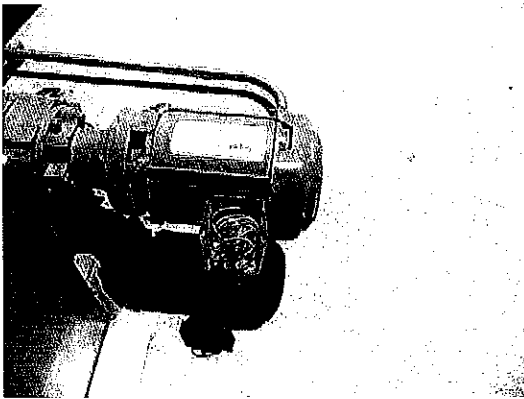


Tag ID: CP4A7187 LP1		Equipment Type: ranch Circuit Panel 4 amp	
Serial :	Manufacturer: ITE	Model: E12ML1125F	

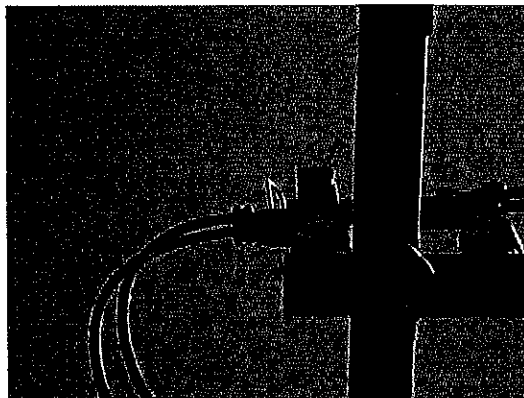


May 4, 215 **Equipment Inventory - Short Form with Images**

(t) Main Electrical		
Tag ID: MT5 719 P1	Equipment Type: Motors 5hp	
Serial : SNT121212	Manufacturer: aldor Industrial Motors	Model: EM3311T



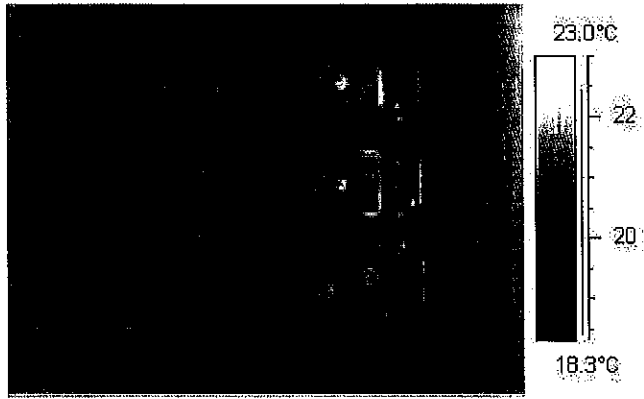
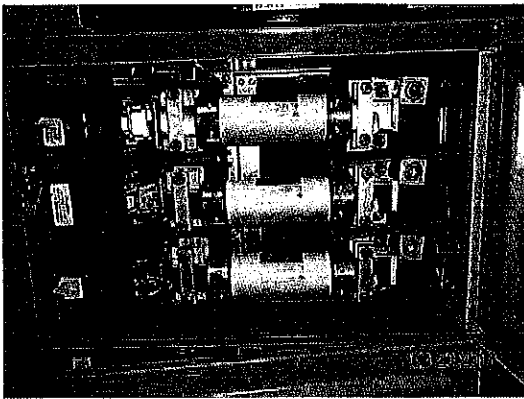
Tag ID: M17192 M rop ut Fuse	Equipment Type: M rop ut Fuse	
Serial :	Manufacturer: A	Model: 122412



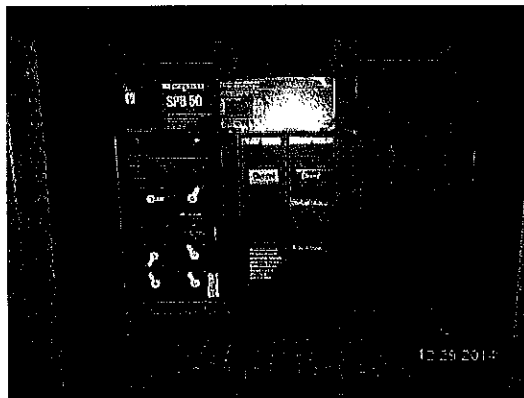
May 4, 215 **Equipment Inventory - Short Form with Images**

(t) Main Electrical

Tag ID: SWISC7184 Chiller2		Equipment Type: Sitchgear Safety isconnects 4A
Serial :	Manufacturer: Suare Company	Model: M33TW

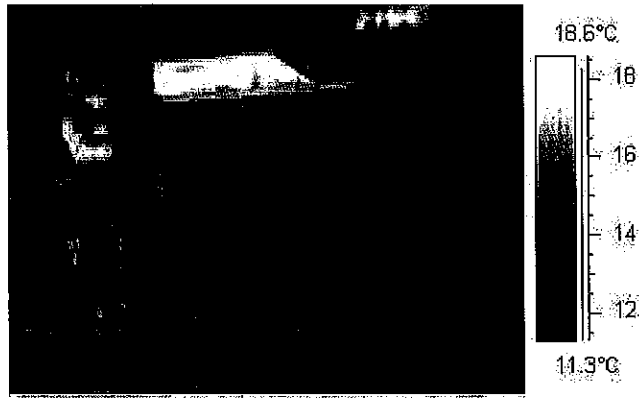
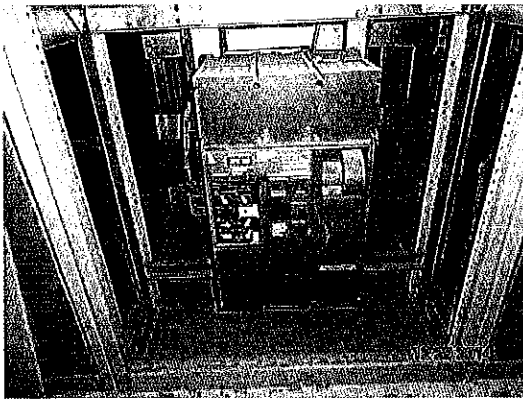


Tag ID: SWAW718 MCC2		Equipment Type: Sitchgear raout rears
Serial :	Manufacturer: Westinghouse	Model: SP5

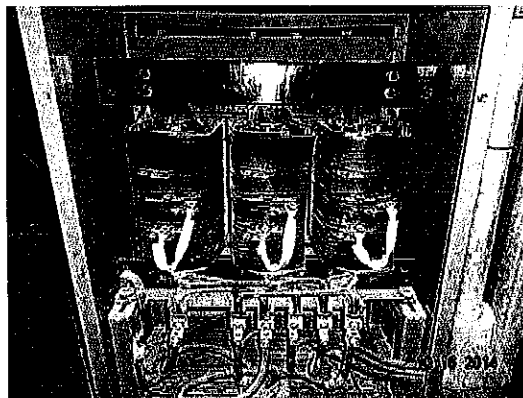


May 4, 215 **Equipment Inventory - Short Form with Images**

(t) Main Electrical		
Tag ID: SWMCC7185 Sitchgear Molded Case rears 4A		Equipment Type: Sitchgear Molded Case rears 4A
Serial :	Manufacturer:	Model:



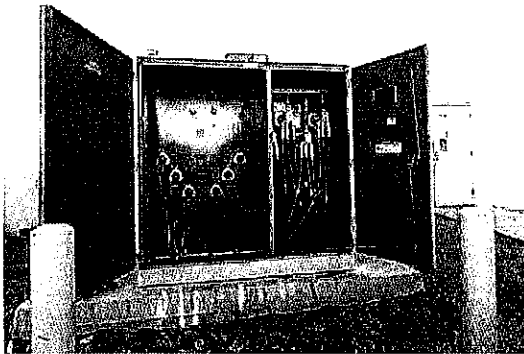
Tag ID: T25 7193 T1		Equipment Type: Transformer ry 25 a
Serial :	Manufacturer: SAE	Model: CAT 12595725



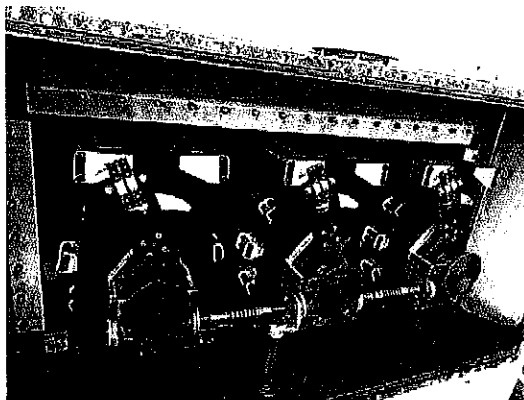
May 4, 215 **Equipment Inventory - Short Form with Images**

(t) Main Electrical

Tag ID: T25 7194 SES3		Equipment Type: 515 II Filled Transformers 515 A	
Serial: 1234578	Manufacturer: SAE	Model: cat1427771	



Tag ID: 237191 9 oltage egulators		Equipment Type: 9 oltage egulators	
Serial:	Manufacturer: hio rass Company	Model: 5	



Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: ATS41A7195

Item Desc: ATS

Serial :

Equip Type: Auto Transfer Sitch 4A

Mfg: SC Padmount Equipment

Model: PM9 ith ATS

Specifications	Value	Unit
Working Voltage	13,800	Volts
Current Rating	2	Amps
Normal Supply Conductor Size/Type/AlCu	4 Cu	mmil/gauge
Number of Poles	3	Tet
NEMA Type	3	NEMA
Control Voltage	120	Volts
AIC Rating	5	Amps
Ambient Temperature	32	degrees C
Humidity	3	%
Ratio	2:1	nitless
Class	3	nitless
Accuracy Class	99	nitless
IL	95	Volts
Frequency	60	Hz
Rating Factor	95	nitless
Emergency Feeder Conductor Size/Type/AlCu	4 Cu	nitless
Load Side Feeder Conductor Size/Type/AlCu	4	nitless
NFPA 7E: Normal Feeder Conductor Length	4"	Feet
NFPA 7E: Emergency Feeder Conductor Length	2	Feet
NFPA 7E: Normal Conduit Type and Size	4"	Inch
NFPA 7E: Emergency Conduit Type and Size	4"	Inch

Application:

Safety Notes: See Attachments

Equipment Inventory

Equipment Variables

TM - Variable/Unit	9/5/2013
ATS A NormalMegohms	2TΩ
ATS A EmergencyMegohms	2TΩ
ATS NormalMegohms	2TΩ
ATS EmergencyMegohms	2TΩ
ATS C NormalMegohms	2TΩ
ATS C EmergencyMegohms	2TΩ
ATS A NormalMegohms	2TΩ
ATS A EmergencyMegohms	2TΩ
ATS AC NormalMegohms	2TΩ
ATS AC EmergencyMegohms	2TΩ
ATS C NormalMegohms	2TΩ
ATS C EmergencyMegohms	2TΩ
ATS AN NormalMegohms	2TΩ
ATS AN EmergencyMegohms	2TΩ
ATS N NormalMegohms	2TΩ
ATS N EmergencyMegohms	2TΩ
ATS CN NormalMegohms	2TΩ
ATS CN EmergencyMegohms	2TΩ
ATS N NormalMegohms	2TΩ
ATS N EmergencyMegohms	2TΩ
ATS Phase A as Found Linemicroohms	.2
ATS Phase A as Left Linemicroohms	.2
ATS Phase as Found Linemicroohms	.2
ATS Phase as Left Linemicroohms	.2
ATS Phase C as Found Linemicroohms	.2
ATS Phase C as Left Linemicroohms	.2
ATS Phase A as Found Loaduhms	.2
ATS Phase as Found Loaduhms	.2
ATS Phase C as Found Loaduhms	.2
ATS Phase A as Left Loaduhms	.2
ATS Phase C as Left Loaduhms	.2
ATS Phase as Left Loaduhms	.2
ATS Normal Contact esistance A As Founduhms	.2
ATS Normal Contact esistance A As Leftuhms	.2
ATS Normal Contact esistance As Founduhms	.2
ATS Normal Contact esistance C As Founduhms	.2
ATS Normal Contact esistance C As Leftuhms	.2
ATS Normal Contact esistance As Leftuhms	.2
ATS Emergency Contact esist. A As Founduhms	.2
ATS Emergency Contact esist. As Founduhms	.2
ATS Emergency Contact esist. C As Founduhms	.2
ATS Emergency Contact esist. A As Leftuhms	.2
ATS Emergency Contact esist. As Leftuhms	.2
ATS Emergency Contact esist. C As Leftuhms	.2

Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: CP4A7187

Item Desc: LP1

Serial :

Equip Type: ranch Circuit Panel 4 amp

Mfg: ITE

Model: E12ML1125F

Specifications	Value	Unit
Working Voltage	48277	Volts
Current Rating	2Amps	
Main Breaker Type	NA	Model
Ranch Breaker Type	A	Model
Breaker Poles/Spaces Total	42	Total
Breaker Poles/Spaces In Use	38	Used
Breaker Poles/Spaces Spares/Unused	4	Spare
NEMA Type	1	Number
AIC Rating	5	Amps
Main Conductor Size Type AICu	4 Cu	cmilAW
Neutral Conductor Size Type AICu	4 Cu	cmilAW
Ground Conductor Size Type AICu	4 Cu	cmilAW
NFPA 7E: Feeder Conductor Length	2	Feet
NFPA 7E: Conduit Type and Size	2.5" EMT	Inch

Application:

Safety Notes:

Equipment Variables

TMI - Variable/Unit	9/5/2013
E MS Voltage Phase AVolts	48
E T Phase AT	5
E MS Current Phase AAmps	4
E TC Phase AT	12
E MS Voltage Phase CVolts	48
E T Phase CT	4
E MS Current Phase CAmps	55
E TC Phase CT	4
E MS Voltage Phase CAVolts	48
E T Phase CAT	5
E MS Current Phase CAmps	5
E TC Phase CT	7
E MS Voltage Phase ANeutralVolts	277
E T Phase ANeutralT	5
E MS Voltage Phase NeutralVolts	277
E T Phase NeutralT	5
E MS Voltage Phase CNeutralVolts	277
E T Phase CNeutralT	5
E MS Voltage NeutralVolts	.2
E MS Current NeutralAmps	19
E TC NeutralT	5
E MS Current NAmps	1.9
E TC Ground	3

Equipment Inventory

Agreement: Training 1

Site Name: Sabino Electric, Inc.

Equipment Location: Main Electrical

Tag I: MT5 719

Item Desc: P1

Serial: SNT121212

Equip Type: Motors 5hp

Mfg: Aldor Industrial Motors

Model: EM3311T

Specifications	Value	Unit
Working Voltage	480	Volts
Current Rating	2	Amps
orsepoer	5	HP
Poer Factor PF85		
Motor Insulation	F	Class
Frame Type	PT21	nitless
Motor ated PM	15PM	
uty ating Cont.Cont	nitless	
Service Factor	1.15	SF
Maimum Ambient Temperature	11C	Ma
Temperature ise	1C	ise
Efficiency NEMA Nom. Eff9		EFF
Number of Phases	3	Phase
Conductor SizeTypeAICu	8 Cu	cmilAW
Specification Number	12	nitless
NFPA 7E: Controlled by F		nitless
NFPA 7E: Normally unning		nitless
NEMA Loced otor Code Letter		nitless
Motor Type Induction or Synchronus	Induction	nitless
NFPA 7E: Feeder Conductor Length	2	Feet
NFPA 7E: Conduit Type and Size	1"	EMT Inch

Application:

Safety Notes:

Equipment Variables

TM - Variable/Unit	9/5/2013
E MS FLC 3Phase AAmps	1
E TC FLC 3Phase AT	5
E MS FLC 3Phase Amps	1
E TC FLC 3Phase T	5
E MS FLC 3Phase CAmps	1
E TC FLC 3Phase CT	5

Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: M17192

Item Desc: M rop ut Fuse

Serial :

Equip Type: M rop ut Fuse

Mfg: A

Model: 122412

Specifications	Value	Unit
Working voltage	41	voltage
Working height	28	Feet
Pole type	Steel Tower	Wood/Metal/Concrete
round installed	es	es/No
nderbuilt/erbuilt condition	erbuilt/ood/Poor	
Type overhead conductor	Multi	Single Strand/Multi
Type of ropout	pen	pen/enclosed
Fuse size	12	Amp
ropout condition	Fair	ood/Fair/ad
round obstacles present	es	es/No

Application:

Safety Notes:

Equipment Variables

Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: SWISC7184

Item Desc: Chiller2

Serial :

Equip Type: Sitchgear Safety isconnects 4A

Mfg: Suare Company

Model: M33TW

Specifications	Value	Unit
Working voltage	48	Volts
Current rating	4	Amps
Fuse Type Model LPN4SP		nitless
Load Side Phase Conductor Size Type AlCu	35	cmil Cu
round Conductor Size Type AlCu	2	Cu
Continuous Amps rating	4	Amps
Maximum voltage		Volts
		cmilAW
		cmilAW

Application:

Safety Notes:

Equipment Variables

TM - Variable/Unit	9/5/2013
E MS Voltage Phase Volts	48
E T Phase AT	4
E MS Current Phase AAmps	2
E TC Phase AT	12
E MS Voltage Phase Volts	48
E T Phase CT	3
E MS Current Phase Amps	199
E TC Phase T	12
E MS Voltage Phase CAolts	48
E T Phase CAT	5
E MS Current Phase CAmps	21
E TC Phase CT	11
E MS Current NAmps	.23
E TC round	92

Equipment Inventory

Agreement: Training 1

Site Name: Sabino Electric, Inc.

Equipment Location: Main Electrical

Tag I: SWAW718

Item Desc: MCC2

Serial :

Equip Type: Switchgear raout rears

Mfg: Westinghouse

Model: SP5

Specifications	Value	Unit
Working Voltage	480	Volts
Frame Current Rating	2	Amps
Breaker Plug Rating	8	Amps
Breaker Plug Type or Model Number	Micro	seconds
Conductor or Bus Size Load Side	4	AWG
Trip Unit Catalog or Model Number	12345	Unitless
AIC Rating	5	Amps
Trip Unit Setting	.2	Unitless
Long Time P Setting	.2	Amps
Long Time Delay Setting	.2	seconds
Short Time P Setting	.2	Amps
Short Time Delay Setting	.2	seconds
Short Time I2T Setting	.2	In
Ground Fault P Setting	.2	Amps
Ground Fault Delay Setting	.2	seconds
Instantaneous Setting		Amps
Conductor or Bus Size Line Side	4	AWG

Application:

Safety Notes:

Equipment Variables

Equipment Inventory

Agreement: Training 1

Site Name: Sabino Electric, Inc.

Equipment Location: Main Electrical

Tag ID: SWMCC7185

Item Desc: Switchgear Molded Case breakers 4A

Serial :

Equip Type: Switchgear Molded Case breakers 4A

Mfg:

Model:

Specifications	Notes	File
----------------	-------	------

Application:

Safety Notes:

Equipment Variables

Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: T25 7193

Item Desc: T1

Serial :

Equip Type: Transformer ry 25 a

Mfg: SAE

Model: CAT 12595725

Specification:	Value	Unit
Transformer Name	T1	nitless
Configuration eltaWyeWye		nitless
A rating	75	A
Primary voltage	480volts	
Primary Current Calculated Maimum9Amps		
Secondary voltage	2812volts	
Secondary Current Calculated Maimum28		Amps
Weight	5Lbs	
Manufacturer ate	1224	date
Phase 1 or 33		nitless
Winding Impedance	5.7	Z
Tap Position	3	nitless
Number of Taps	7	Taps
Primary Conductor Size Type AICu	2 Cu	cmilgauge
Secondary Conductor Size Type AICu	4 Cu	cmilgauge
Secondary Neutral Conductor Size Type AICu	4 Cu	cmilgauge
Secondary round Conductor Size Type AICu	4 Cu	cmilgauge
onding umper Conductor Size Type AICu	4 Cu	cmilgauge
Temperature ise	15degrees C	
Electrostatic Shield	es	nitless
ating	NA	nitless
NFPA 7E: Feeder Conductor Length PIMA2Feet		
NFPA 7E: Feeder Conductor Length SECNA5Feet		
NFPA 7E: Conduit Type and Size PIMA2" EMT		Inch
NFPA 7E: Conduit Type and Size SECNA2.5" EMT		Inch

Application:

Safety Notes:

Equipment Inventory

Equipment Variables

TM - Variable/Unit	9/5/2013
E Pri MS oltage Phase AoIts	48
E Pri T Phase A	5
E Pri MS Current Phase AAmps	4
E Pri TC Phase A	5
E Pri MS oltage Phase CoIts	48
E Pri T Phase C	5
E Pri MS Current Phase Amps	4
E Pri TC Phase	5
E Pri MS oltage Phase CAoIts	48
E Pri T Phase CA	5
E Pri MS Current Phase CAmps	4
E Pri TC Phase C	5
E Pri MS Current NAmps	.2
E Pri TC N	5
E Sec MS oltage Phase AoIts	28
E Sec T Phase A	5
E Sec MS Current Phase AAmps	8
E Sec TC Phase A	5
E Sec MS oltage Phase CoIts	28
E Sec T Phase C	5
E Sec MS Current Phase Amps	8
E Sec TC Phase	5
E Sec MS oltage Phase CAoIts	28
E Sec T Phase CA	5
E Sec MS Current Phase CAmps	4
E Sec TC Phase C	5
E Sec MS oltage Phase ANoIts	125
E Sec T Phase AN	5
E Sec MS oltage Phase NoIts	125
E Sec T Phase N	5
E Sec MS oltage Phase CNoIts	125
E Sec T Phase CN	5
E Sec MS oltage NeutralNoIts	.2
E Sec MS Current NeutralAmps	2
E Sec TC Neutral	5
E Sec MS Current NAmps	.12
E Sec TC N	5
uctorL Scale 12milliohms	.2
Winding esistance 12milliohms	.2
uctorL Scale 23milliohms	.2
Winding esistance 23milliohms	.2
uctorL Scale 31milliohms	.2
Winding esistance 31milliohms	.2
uctorL Scale 1milliohms	.2
Winding esistance 1milliohms	.2
uctorL Scale 2milliohms	.2
Winding esistance 2milliohms	.2
uctorL Scale 3milliohms	.2
Winding esistance 3milliohms	.2
atio "A" Tap 1Tet	.2
atio "A" Tap 2Tet	.2
atio "A" Tap 3Tet	.2
atio "A" Tap 4Tet	.2
atio "A" Tap 5Tet	.2
atio "A" Tap Tet	.2
atio "A" Tap 7Tet	.2
atio "" Tap 1Tet	.2
atio "" Tap 2Tet	.2
atio "" Tap 3Tet	.2
atio "" Tap 4Tet	.2
atio "" Tap 5Tet	.2
atio "" Tap Tet	.2

Equipment Inventory

TM - Variable/Unit	9/5/2013
atio "" Tap 7Tet	.2
atio "C" Tap 1Tet	.2
atio "C" Tap 2Tet	.2
atio "C" Tap 3Tet	.2
atio "C" Tap 4Tet	.2
atio "C" Tap 5Tet	.2
atio "C" Tap Tet	.2
atio "C" Tap 7Tet	.2
Calculated atio Tap 1Tet	.2
Calculated atio Tap 2Tet	.2
Calculated atio Tap 3Tet	.2
Calculated atio Tap 4Tet	.2
Calculated atio Tap 5Tet	.2
Calculated atio Tap Tet	.2
Calculated atio Tap 7Tet	.2
Tap 1 oltageTet	.2
Tap 2 oltageTet	.2
Tap 3 oltageTet	.2
Tap 4 oltageTet	.2
Tap 5 oltageTet	.2
Tap oltageTet	.2
Tap 7 oltageTet	.2
Amp ating Tap 1Tet	.2
Amp ating Tap 2Tet	.2
Amp ating Tap 3Tet	.2
Amp ating Tap 4Tet	.2
Amp ating Tap 5Tet	.2
Amp ating Tap Tet	.2
Amp ating Tap 7Tet	.2
Test oltage Priroundolts	
1 Minute Primary to roundTet	2 Ω
2 Minute Primary to roundTet	2 Ω
3 Minute Primary to roundTet	2 Ω
4 Minute Primary to roundTet	2 Ω
5 Minute Primary to roundTet	2 Ω
1 Minute Primary to roundTet	2 Ω
Test oltage PriSecTet	
1 Minute Primary to SecondaryTet	2 Ω
2 Minute Primary to SecondaryTet	2 Ω
3 Minute Primary to SecondaryTet	2 Ω
4 Minute Primary to SecondaryTet	2 Ω
5 Minute Primary to SecondaryTet	2 Ω
1 Minute Primary to SecondaryTet	2 Ω

Equipment Inventory

Agreement: Training 1

Site Name: Sabino Electric, Inc.

Equipment Location: Main Electrical

Tag I: T25 7194

Item Desc: SES3

Serial : 1234578

Equip Type: 515 II Filled Transformers 515 A

Mfg: SAE

Model: cat142771

Specifications	Value	Unit
Transformer Name	SES3	nitless
Configuration eltaWyeWye		nitless
A ating	25A	
Primary oltage	12,47olts	
Primary Current Calculated Maimum2Amps		
Secondary oltage	48277	olts
Secondary Current Calculated Maimum2Amps		
Manufacturer ate	1224	date
Phase 1 or 33	nitless	
Winding Impedance	3.7	Z
allons of Fluid	4allons	
Weight	297	Lbs
Tap Position	3	nitless
Insulating Fluid Type	F3	nitless
Number of Taps	5	Taps
Primary Conductor Size Type AICu	2 Cu	cmilgauge
Secondary Conductor Size Type AICu	5 MCM Cu	cmilgauge
Secondary Neutral Conductor Size Type AICu	5 MCM Cu	cmilgauge
Secondary round Conductor Size Type AICu	2 Cu	cmilgauge
onding umber Conductor Size Type AICu	Factory Strapping	cmilgauge
Temperature ise	15degrees C	
Electrostatic Shield	NA	nitless
ating	NA	nitless
Primary ushing Manufacturer	SuareTet	

Application:

Safety Notes:

Equipment Variables

Equipment Inventory

Agreement: tTraining 1

Site Name: Sabino Electric, Inc.

Equipment Location: t Main Electrical

Tag I: 237191

Item Desc: 9 oltage egulators

Serial :

Equip Type: 9 oltage egulators

Mfg: hio rass Company

Model: 5

Specifications	Value	Unit
A ating	25A	
Freuency	ertz	
Input oltage Tolerance a to b olts	9olts	
Input Amperage ating	2Amps	
Input Conductor Size Type AlCu	4 Al	cmilgauge
utput oltage ange	1247olts	
utput Current ating	4Amps	
utput Conductor Size Type AlCu	4" .25" Cu uss	cmilgauge
Style CT, SolidStateSolidstate	Tet	
Proides Poer To	15 Sitchgear	Tet
NFPA 7E: Feeder Conductor Length Load Side	45nitless	
NFPA 7E: Conduit Type and Size Load Side	4" PC	nitless
CT alio	2:1	nitless
NFPA 7E: Feeder Conductor Length Line Side	45Feet	
NFPA 7E: Conduit Type and Size Line Side	4" PC	Inch

Application:

Safety Notes:

Equipment Variables

85213 **Infrared Inspection Report Sheet** Page 2A

Technician: Don Aalberg Location: 1st Main Electrical

Tag I: M17192 M rop ut Fuse Equipment Type: M rop ut Fuse

Severity Criteria for Similar Comparisons

Normal Less Than 4.1C	Alert 4.1C 8.C	Seere 8.1C 15.C	Critical reater Than 15.C
--------------------------	-------------------	--------------------	------------------------------

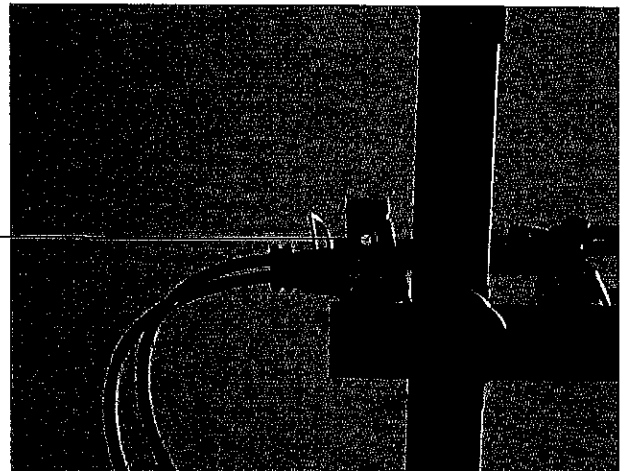
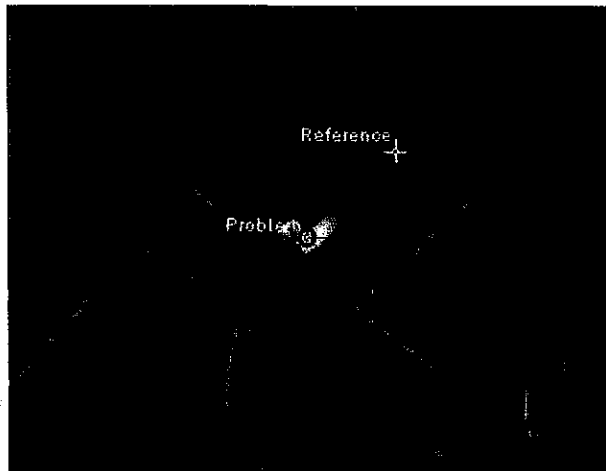
Reference Temperature 42.3C	Problem Temperature 111.5C	ifference Temperature 9.2C
--------------------------------	-------------------------------	-------------------------------

Variables	Problem Spot	Current ating Amps	Current ra Amps	TC TF	oltage rop olts
Phase A		nable to btain	nable to btain	nable to btain	nable to btain
Phase		nable to btain	nable to btain	nable to btain	nable to btain
Phase C		nable to btain	nable to btain	nable to btain	nable to btain

Problem escription Immediate azard Customer Notified Immediately
 Fuse assemble is a higher than normal temperature.

ecommendations For epair epair Equipment eplace Equipment
 Recondition as needed.

- Problem Corrected
- TightenedTorued Connection
- Corrodediscolored
- erloaded Circuit
- Ecessie Current armonics
- StrippedCrossthreaded ardare



95213 **Infrared Inspection Report Sheet** Page 2

Technician: on Aalberg Location: t Main Electrical

Tag I: M17192 M rop ut Fuse Equipment Type: M rop ut Fuse

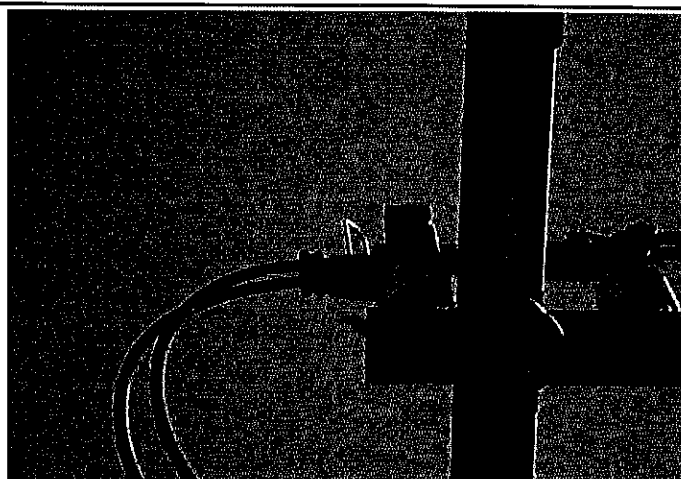
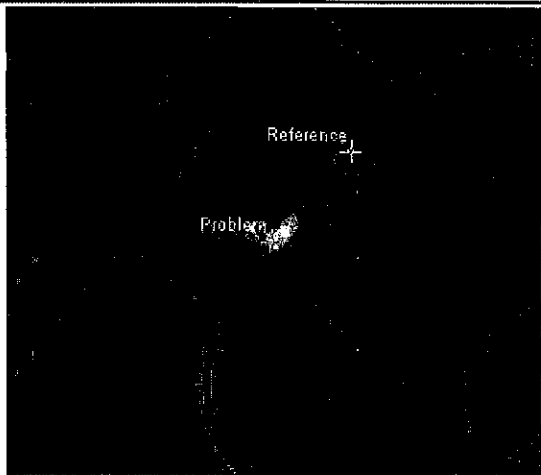
Consequences if Not Corrected

- Equipment Failure Fire azard Safety azard Poerusiness Interruption

Premature failure of the device can result in unscheduled outages and additional equipment damage.

Correctie Actions

- Fied uring isit Contractor Will Correct Customer Will Correct Estimate eured



Problem

95213 **Infrared Inspection Report Sheet** Page 3A

Technician: **Don Aalberg** Location: **1st Main Electrical**

Tag I: **T25 7193 T1** Equipment Type: **Transformer ry 25 a**

Severity Criteria for Similar Comparisons

Normal	Alert	Severe	Critical
Less Than 4.1C	4.1C - 8.0C	8.1C - 15.0C	Greater Than 15.0C

Reference Temperature	Problem Temperature	Difference Temperature
44.5C	48.3C	3.8C

Variables	Primary Current (A)	Primary TC (°C)	Secondary Current (A)	Secondary TC (°C)	Winding Temperature (°C)
Phase A	9	15	114	15	48
Phase B	9	12	111	12	51
Phase C	9	18	112	11	48

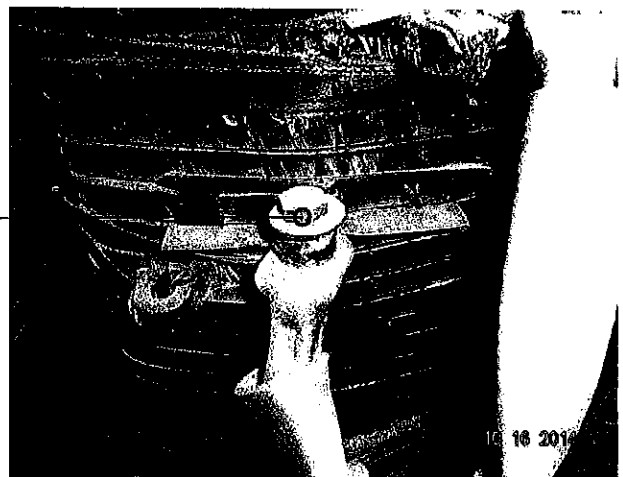
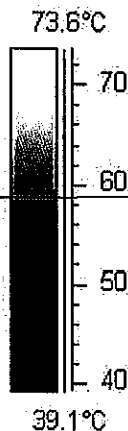
Problem description Immediate Hazard Customer Notified Immediately

Hot Termination. This may be caused by under or over torqued connections, carbon build up, or improper installation.

Recommendations For repair Repair Equipment Replace Equipment

De-energize the termination and clean the contact surfaces. Re-torque all the electrical connections. (Take voltage drop and resistance readings before and after the repairs. Record findings.)

- Problem Corrected
- Tightened/Torqued Connection
- Corroded/discolored
- Overloaded Circuit
- Excessive Current harmonics
- Stripped/Cross-threaded hardware



10 16 2019

95213

Infrared Inspection Report Sheet

Page 3

Technician:
 on Aalberg

Location:
 t Main Electrical

Tag I:
 T25 7193 T1

Equipment Type:
 Transformer ry 25 a

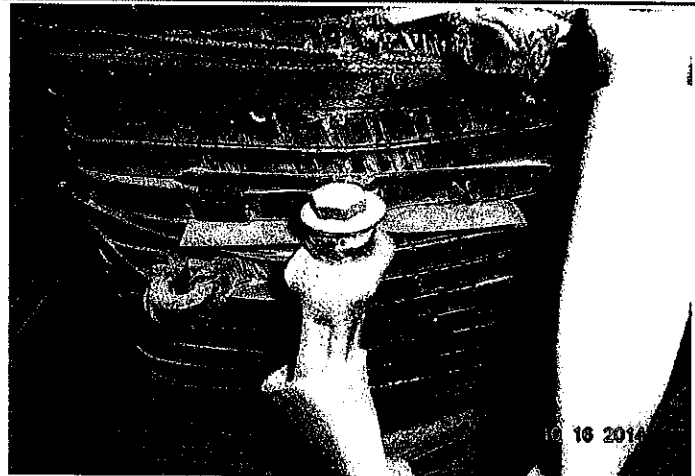
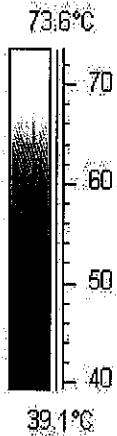
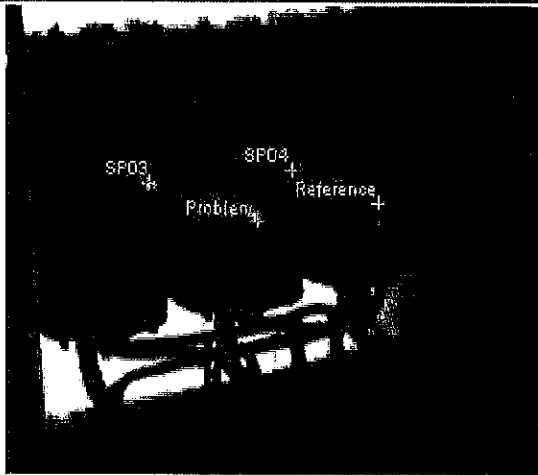
Consequences if Not Corrected

- Equipment Failure
 Fire azard
 Safety azard
 Poerusiness Interruption

If the termination is not properly cared for, the heat may cause damage to the conductor or failure in the breaker. Breaker failure may result in damage to the bussing and possible meltdown of the panel or gear.

Correctie Actions

- Fied uring isit
 Contractor Will Correct
 Customer Will Correct
 Estimate eured



Problem

95213 **Infrared Inspection Report Sheet** Page 4

Technician: on Aalberg Location: t Main Electrical

Tag I: T25 7194 SES3 Equipment Type: 515 il Filled Transformers 515 A

Consequences if Not Corrected

- Equipment Failure Fire azard Safety azard Poerusiness Interruption

Additional loading and continued exposure to this condition will more than likely accelerate a failure of this device.

Correctie Actions

- Fied uring isit Contractor Will Correct Customer Will Correct Estimate eured



Problem



952 13 Infrared Inspection Report Sheet Page 1A

Technician: on Aalberg Location: t Main Electrical

Tag I: T25 7194 SES3 Equipment Type: 515 II Filled Transformers 515 A

Severity Criteria for Similar Comparisons

Normal	Alert	Severe	Critical
Less Than 4.1C	4.1C 8.C	8.1C 15.C	greater Than 15.C

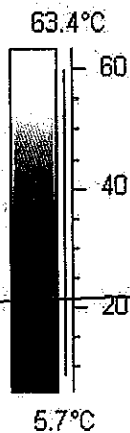
Reference Temperature	Problem Temperature	Reference Temperature
37.4C	5.4C	19.C

Variables	Primary Current ra	Primary TC TC F	Secondary Current ra Amps	Secondary TC TF	Winding Temperature deg C
Phase A	1	12	2	5	Not Applicable
Phase	1	12	2	5	Not Applicable
Phase C	1	12	2	5	Not Applicable

Problem description Immediate hazard Customer Notified Immediately
 Load Break contact is displaying abnormal thermal pattern.

Recommendations For repair Repair Equipment Replace Equipment
 Deenergize circuit, inspect and repair contacts as a matched set if applicable, or install properly rated replacement Load Break.

- Problem Corrected
- Tightened/Torued Connection
- Corroded/discolored
- overloaded Circuit
- Excessive Current harmonics
- Stripped/Cross-threaded hardware





Sabino Electric Inc.
945 W 29th Street
Tucson, AZ 85713



Sabino Electric, Inc. - t-Training 1
SUMMARY PAGE

Page #	Equipment Type	Location	Problem	Ref/Amb.	Diff.
2	M rop ut Fuse	t Main Electrical	111.5C	42.3C	9.2C
3	Transformer ry 25 a	t Main Electrical	.8C 44.5C		1.3C
4	515 il Filled Transformers 515 A	t Main Electrical	5.4C 37.4C		19.C

Page 5 **Alert** Seere **Critical**

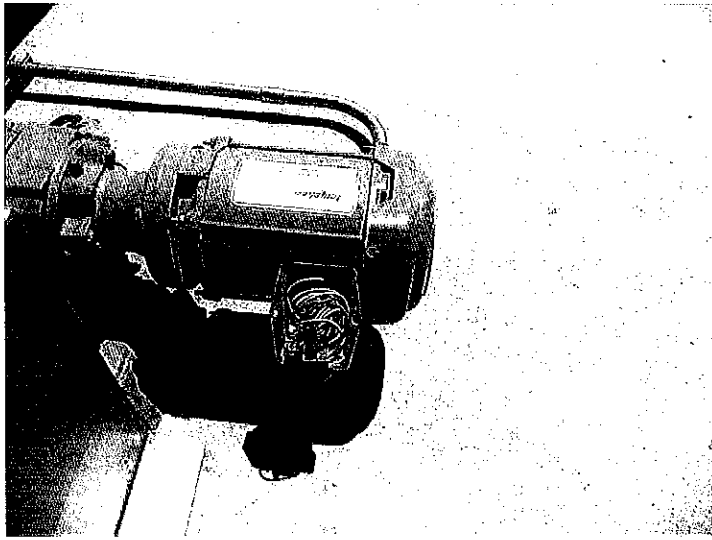
95213 **Equipment Item Problems Report** Page 1

Technician: on Aalberg Location: t Main Electrical

Tag I: MT5 719 P1 Equipment Type: Motors 5hp

Problem escription Alert Immediate azard Customer Notified Immediately

Ultrasonic Anomaly, Bad Bearing, see WAVE file in attachments.



Conseuences if Not Corrected

Eupment Failure Fire azard Safety azard Poerusiness Interruption

Bearing failure

ecommendations For epair epair Eupment eplace Eupment

Replace bearing.

Correctie Actions Problem Corrected

Fied uring isit Contractor Will Correct Customer Will Correct Estimate eured



Sabino Electric Inc.
945 W 29th Street, Tucson, AZ 85713

Sabino Electric, Inc. - t-Training 1

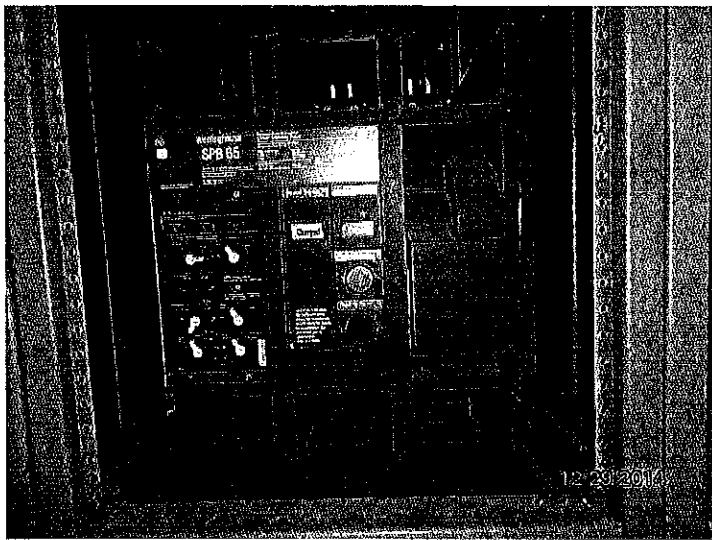


95213 **Equipment Item Problems Report** Page 2

Technician: on Aalberg	Location: t Main Electrical
Tag I: SWAW718 MCC2	Equipment Type: Sitchgear raout rears

Problem escription Immediate azard Customer Notified Immediately

Breaker shows no sign of testing or exercising. Manufacturer will show that a breaker must be exercised and maintained for proper operation.



Consequences if Not Corrected

Equipment Failure Fire azard Safety azard Poerusiness Interruption

Breaker may not operate under emergency conditions or under scheduled P.M. An unmaintained breaker will have an adverse affect on any arc fault study. An unmaintained breaker may not operate within the proper perimeters.

Recommendations For repair repair Eulpment eplace Eulpment

Breaker should be cleaned,exercised,load injected.

Correctie Actions Problem Corrected

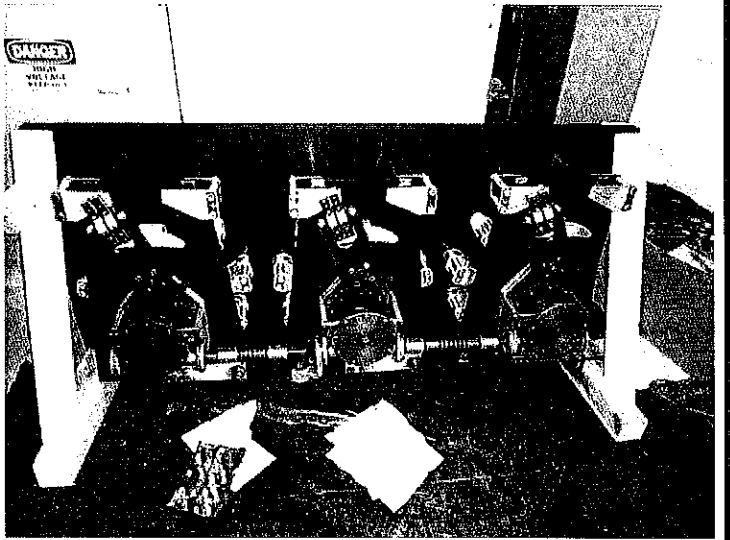
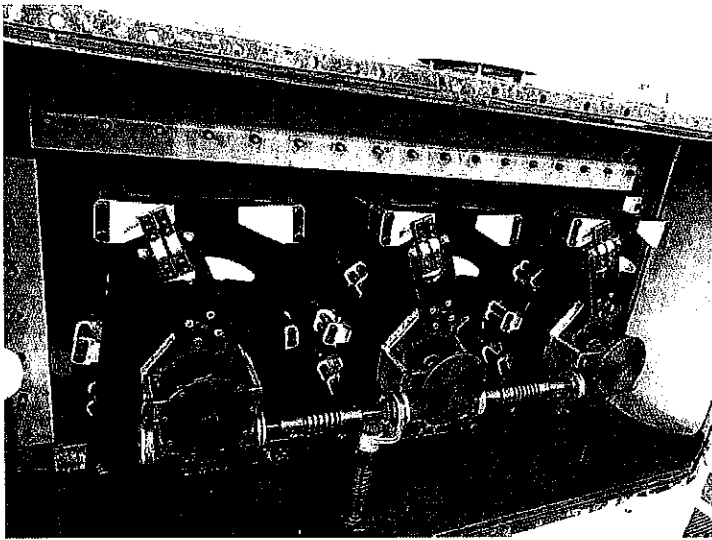
Fied uring isit Contractor Will Correct Customer Will Correct Estimate eured

95213 **Equipment Item Problems Report** Page 3

Technician: on Aalberg	Location: t Main Electrical
Tag I: 237191 9 oltage egulators	Equipment Type: 9 oltage egulators

Problem escription **Critical** Immediate azard Customer Notified Immediately

Oil test results show that the oil from the 15kV tap changer has been passing through the seals and contaminating the 69kV oil.



Consequences if Not Corrected

Equipment Failure Fire azard Safety azard Poerusiness Interruption

15kV oil is not rated for 69kV equipment. This will cause lower flash point leading to devastating damage, long down time.

Recommendations For repair repair Equipment eplace Equipment

Recondition tap changer, replacing seals as needed.

Correctie Actions Problem Corrected

Fied uring Isit Contractor Will Correct Customer Will Correct Estimate eured

Overhauled tap changer.

Sabino Electric, Inc. - t-Training 1

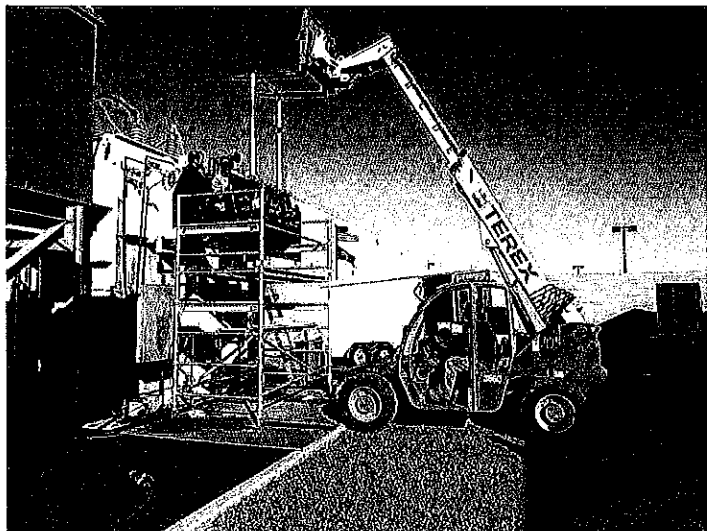
95213 **Equipment Item Problems Report** Page 3

Technician:
on Aalberg

Location:
t Main Electrical

Tag I:
237191 9 oltage egulators

Equipment Type:
9 oltage egulators





Sabino Electric Inc.
 945 W 29th Street
 Tucson, AZ 85713

EDS Component



Problem Summary

Sabino Electric, Inc.

tTraining 1

Tag ID	Customer Identification		
Date	Category	Problem Description	
Location: (t) Main Electrical			
MOT_50 -667190	P1		Repaired
95213	ULTRASONIC	ltrasonic Anomaly, ad earing, see WAE file in attachments.	<input type="checkbox"/>
MVDO-001-667192	M rop ut Fuse		Repaired
95213	HEAT	Fuse assemble is a higher than normal temperature.	<input type="checkbox"/>
SWG_DRAW-667186	MCC2		Repaired
95213	BREAKERS	reaer shos no sign of testing or eercising. Manufacturer ill sho that a breaer must be eercised and maintained for proper operation.	<input type="checkbox"/>
TRD_250 -667193	T1		Repaired
95213	HEAT	ot Termination. This may be caused by under or oer torued connections, carbon build up, or improper installation.	<input type="checkbox"/>
IRO2_5 -667194	SES3		Repaired
95213	HEAT	Load rea contact is displaying abnormal thermal pattern.	<input type="checkbox"/>
VR_230-667191	9 oltage egulators		Repaired
95213		il test results sho that the oil from the 15 tap changer has been passing through the seals and contaminating the 9 oil.	<input type="checkbox"/>

Priority Code:	Critical -- Immediate attention required!	Severe -- Attention Required within the next 30-90 days!	Alert -- Needs attention as time permits!
-----------------------	---	--	---

ie ate:

Customer epresentatie

TE Serice epresentatie

tTraining 1

Priority Code:	Critical -- Immediate attention required!	Severe -- Attention Required within the next 30-90 days!	Alert -- Needs attention as time permits!
-----------------------	---	--	---



Sabino Electric Inc.
 945 W 29th Street
 Tucson, AZ 85713



Surge Suppression Summary

Customer: Sabino Electric, Inc.

Agreement No.: t-Training 1

Site: Sabino Electric, Inc.

Location: (t) Main Electrical			
Tag ID	Customer Identification	Ins.	Rec.
ATS41A7195	ATS	<input type="checkbox"/>	<input type="checkbox"/>
CP4A 7187	LP1	<input type="checkbox"/>	<input type="checkbox"/>
MT5 719	P1	<input type="checkbox"/>	<input type="checkbox"/>
M1 7192	M rop ut Fuse	<input type="checkbox"/>	<input type="checkbox"/>
SWISC 7184	Chiller2	<input type="checkbox"/>	<input type="checkbox"/>
SWAW 718	MCC2	<input type="checkbox"/>	<input type="checkbox"/>
SWMCC 7185	Sitchgear Molded Case reakers 4A	<input type="checkbox"/>	<input type="checkbox"/>
T25 7193	T1	<input type="checkbox"/>	<input type="checkbox"/>
T25 7194	SES3	<input type="checkbox"/>	<input type="checkbox"/>
237191	9 oltage egulators	<input type="checkbox"/>	<input type="checkbox"/>



Sabino Electric Inc.
 945 W 29th Street
 Tucson, AZ 85713



Arc Flash Labeling Summary

Customer: Sabino Electric, Inc.

Agreement No.: t-Training 1

Site: Sabino Electric, Inc.

Location: (t) Main Electrical			
Tag ID	Customer Identification	Ins.	Rec.
ATS41A7195	ATS	<input type="checkbox"/>	<input type="checkbox"/>
CP4A 7187	LP1	<input type="checkbox"/>	<input type="checkbox"/>
MT5 719	P1	<input type="checkbox"/>	<input type="checkbox"/>
M1 7192	M rop ut Fuse	<input type="checkbox"/>	<input type="checkbox"/>
SWISC 7184	Chiller2	<input type="checkbox"/>	<input type="checkbox"/>
SWAW 718	MCC2	<input type="checkbox"/>	<input type="checkbox"/>
SWMCC 7185	Sitchgear Molded Case rears 4A	<input type="checkbox"/>	<input type="checkbox"/>
T25 7193	T1	<input type="checkbox"/>	<input type="checkbox"/>
T25 7194	SES3	<input type="checkbox"/>	<input type="checkbox"/>
237191	9 oltage egulators	<input type="checkbox"/>	<input type="checkbox"/>



Sabino Electric Inc.
 945 W 29th Street
 Tucson, AZ 85713



Infrared Windows Summary

Customer: Sabino Electric, Inc.

Agreement No.: t-Training 1

Site: Sabino Electric, Inc.

Location: (t) Main Electrical			
Tag ID	Customer Identification	Ins.	Rec.
ATS41A7195	ATS	<input type="checkbox"/>	<input type="checkbox"/>
CP4A 7187	LP1	<input type="checkbox"/>	<input type="checkbox"/>
MT5 719	P1	<input type="checkbox"/>	<input type="checkbox"/>
M1 7192	M rop ut Fuse	<input type="checkbox"/>	<input type="checkbox"/>
SWISC 7184	Chiller2	<input type="checkbox"/>	<input type="checkbox"/>
SWAW 718	MCC2	<input type="checkbox"/>	<input type="checkbox"/>
SWMCC 7185	Sitchgear Molded Case rears 4A	<input type="checkbox"/>	<input type="checkbox"/>
T25 7193	T1	<input type="checkbox"/>	<input type="checkbox"/>
T25 7194	SES3	<input type="checkbox"/>	<input type="checkbox"/>
237191	9 oltage egulators	<input type="checkbox"/>	<input type="checkbox"/>



Sabino Electric Inc.
 945 W 29th Street, Tucson, Arizona, 85713
 Phone: 520-623-6061
 Fax: 520-623-1655



Customer: Sabino Electric, Inc.		Site: Sabino Electric, Inc.		Agreement No: TTraining 1	
Date: 5/21/15 12:15 PM		Technician: Aalberg, on		Location: I Main Electrical	
Mfr: SAE		Model: CAT 12595725		SN:	
Type/Class: 48		Transformer Name: T1		KVA: 75	
Primary Voltage: 48		Secondary Voltage: 2812		Weight: 5	
Phase: 3		Impedance: 5.7		Mfr. Date: 1224	
				Tap Position: 3	

ANNUAL INSPECTION

inspect physical and mechanical condition including evidence of moisture, corona or brittleness	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> See Notes	DUST ON WINDOWS
verify that control and alarm setting on temperature indicators are operational	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	Major Accumulation: <input checked="" type="checkbox"/>
verify that cooling fans and/or pumps operate correctly	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	Minor Accumulation: <input type="checkbox"/>
inspect all bolted electrical connections for high resistance (as per NETA)	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> See Notes	Cleaned Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
Perform specific inspection and mechanical tests as recommended by manufacturer	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify that resilient mounts are free and that any shipping brackets have been removed	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify that the core, frame and enclosure are grounded (check connections)	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify the presence of transformer surge arresters (check condition and connections)	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Thoroughly clean unit prior to testing unless as found and as left tests are required	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify that as left connections are specified	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Bushings	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Case Exterior	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	

NOTES

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DEFICIENCIES

1 Loose term has effected insulation on core.
2
3



Sabino Electric Inc.
 945 W 29th Street, Tucson, Arizona, 85713
 Phone: 520-623-6061
 Fax: 520-623-1655



Customer: Sabino Electric, Inc.		Site: Sabino Electric, Inc.		Agreement No: T Training 1	
Date: 5/5/15 2:14:3 PM	Technician: Aalberg, on	Location: Main Electrical		Equipment Tag ID: SWAW 718	
Mfr: Westinghouse		Model 1:		S/N 1:	
Ambient F: 82	Percent Humidity: 12	Model 2:		S/N 2:	
NAMEPLATE DATA					
Catalog No: 2	Frame Rating:	Trip Unit: Microersa		Other:	
MECHANICAL INSPECTION					
Operation: 121	Cell Fit:	Connections:		Lubrication: Mobile 1	
TRIP UNIT SETTINGS					
Long Time P/U: .2	Short Time P/U: .2	Ground Fault P/U: .2			
Long Time Delay: .2	Short Time Delay: .2	Ground Fault Delay: .2			
	Short Time: .2	Inst:			
PRIMARY INJECTION TESTS					
TEST SETTINGS	TEST VALUES	A	B	C	LIMITS
LONG TIME P/U .2	1 AMP S	11 AMPS	11 AMPS	11 AMPS	11 AMPS
LONG TIME DELAY .2	1 AMPS	11 SEC C	11 SEC C	11 SEC C	11 SEC C
SHORT TIME P/U .2	1 AMPS	11 AMPS	11 AMPS	11 AMPS	11 AMPS
SHORT TIME DELAY .2	1 AMPS	11 SEC	11 SEC	11 SEC	11 SEC
GROUND FAULT P/U .2	1 AMPS	11 AMPS	11 AMPS	11 AMPS	11 AMPS
GROUND FAULT DELAY .2	1 AMPS	11 SEC	11 SEC	11 SEC	11 SEC
INSTANTANEOUS	3 AMPS				
CONTACT RESISTANCE(MILLI-OHMS)					
A		B		C	
.2		.2		.2	
INSULATION RESISTANCE (READING IN MEGOHMS)					
PHASE TO GROUND	A 2TΩ	B 2TΩ		C 2TΩ	
PHASE TO PHASE	A-B 2TΩ	B-C 2TΩ		C-A 2TΩ	
LINE TO LOAD	A 2TΩ	B 2TΩ		C 2TΩ	
OVERCURRENT TRIP INFORMATION					
Electromechanical: NA	Solid State: NA	Frame Rating: NA			
Type: NA	Plug: NA	Trip/CT Rating: NA			
T/C Curve: NA		Current Setting: NA			
Ins Range: NA	To: NA	Inst Setting: NA			
Std Range: NA	To: NA	Std Setting: NA			
Std Band: NA	To: NA	Band Setting: NA			
Ltd Range: NA	To: NA	Ltd Setting: NA			
Ltd Band: NA	To: NA	Band Set: NA			
Gr Flt Range: NA	To: NA	Gf Setting: NA			
Gr Flt Band: NA	To: NA	Band Set 2: NA			

RECORD OF OVERCURRENT TRIP DEVICE PERFORMANCE						
TEST	TEST @	TEST AMPS	CURVE SEC.	PHASE A	PHASE B	PHASE C
INST.	5	4	11			
S.T.D.	5	4	11			
L.T.D.	5	4	11			
G.F.	5	4	11			

MEGGER TEST @ 1KV IN MEGOHMS	A-B	B-C	C-A	A-GROUND	B-GROUND	C-GROUND
	2Ω	2Ω	2Ω	2Ω	2Ω	2Ω

CONTACT RESISTANCE IN MICO-OHMS	A	B	C
	.2	.2	.2

VISUAL AND MECHANICAL CHECKLIST						
Primary Fingers	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Arch Chutes	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Breaker Contacts	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Alignment	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Pressure	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Mechanical Operation	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Lubrication	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Racking Device	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Auxiliary Contacts	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Trip Mechanism	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Cell Interlocks	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
General Physical Condition	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	

	PHASE	AMP TAP	TIME DIAL	PICKUP AMPS	MULT AMPS. 3X	TIME	MULT AMPS 5X	TIME	INST.	TARGET SEAL IN	OTHE COIL
AS FOUND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AS LEFT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES



Sabino Electric Inc.
 945 W 29th Street, Tucson, Arizona, 85713
 Phone: 520-623-6061
 Fax: 520-623-1655



Customer: Sabino Electric, Inc.		Site: Sabino Electric, Inc.		Agreement No: TTraining 1	
Date: 55215 12:1:55 PM	Technician: Aalberg, on	Location: t Main Electrical		Equipment Tag ID: T25 7193	
Mfr: SAE		Model: CAT 12565725		SN:	
Type/Class: T1		Transformer Name: 75		KVA:	
Primary Voltage: 48	Secondary Voltage: 2812	Weight: 5	Mfr. Date: 1224		
Phase: 3	Impedance: 5.7	Tap Position: 3			

ANNUAL INSPECTION

Inspect physical and mechanical condition including evidence of moisture, corona or brittleness	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> See Notes	DUST ON WINDOWS
verify that control and alarm setting on temperature indicators are operational	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	Major Accumulation: <input checked="" type="checkbox"/>
verify that cooling fans and/or pumps operate correctly	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	Minor Accumulation: <input type="checkbox"/>
inspect all bolted electrical connections for high resistance (as per NETA)	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> See Notes	Cleaned Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
Perform specific inspection and mechanical tests as recommended by manufacturer	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify that resilient mounts are free and that any shipping brackets have been removed	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Verify that the core, frame and enclosure are grounded (check connections)	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
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Verify that as left connections are specified	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Bushings	<input type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> See Notes	
Case Exterior	<input checked="" type="checkbox"/> Ok	<input type="checkbox"/> Repair	<input type="checkbox"/> Replace	<input type="checkbox"/> NA	<input type="checkbox"/> See Notes	

NOTES

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DEFICIENCIES

1 Loose term has effected insulation on core.
2
3

TAB 4A2.

Sample Invoice

SABINO ELECTRIC, INC.
945 West 29th Street
Tucson, AZ 85713
(520) 623-6061 Fax (520) 623-1655

CUSTOMER #:
INVOICE #:
INVOICE DATE:
DUE DATE:

BILL TO:

JOB:

Site specific information

CODE	DESCRIPTION	CURRENT CONTRACT	PREVIOUS BILLED	PREV %	% COMPL	CURRENT BILLING
------	-------------	------------------	-----------------	--------	---------	-----------------

TOTALS:

SALES TAX:

NET DUE:

Thank you for your business!

Quoted work we reference in description-Cont##/PO # or Brief description of work, contract dollars and % of what is being invoiced.

Time and Material work we show all individuals that work per line item and the appropriate rate, material is listed as a separate line item as well as equipment. All supporting documentation is provided with invoice per contract.

7. Sabino Electric, Inc. has a full line of electrical parts and material that is housed at our Tucson warehouse location. We stock a full line of extension cords, temporary cabling for power distribution, temporary switches in various sizes, hand tools, equipment for breaker and transformer repair, full fleet of service vehicles, IR themography cameras, Ultrasonic, Power Quality Analysis, Surge Protection, and Power Factor Testing equipment. Our current approximate value of parts and material at Sabino Electric, Inc. is \$116,190.
8. Sabino Electric, Inc. would utilize Monrad Engineering as a subcontractor for this contract.

TAB 4B

Qualifications & Experience

Qualifications and Experience

1. Sabino Electric, Inc. was incorporated in the State of Arizona, September 9, 1981 and is privately held corporation with the same ownership for the past 34 years. Sabino's corporate office is located in Tucson with a satellite office located in Tempe to serve the Metro Phoenix area. Sabino currently has 34 employees, consisting of President, CFO, General Manager, Sales Representatives, Supervisors, General Foreman, Foreman, Journeymen, Apprentices, Purchasing Agent and Administrative Staff.
2. Experience on projects where Sabino Electric, Inc. performed **Inspections and Testing Service**.

Project #1

Electrical inspection and testing for 10 sites DOIM Fort Huachuca work performed May 2014. Sabino performed energized and de-energized testing for 10 different sites/locations per customer request. We provided turn-key solution for the inspection, testing, analysis, reporting, recurring maintenance, routine and emergency repair of Ft. Huachuca NEC PDS and its backup power system. We provided the services that were outlined in the PWS per manufacturer's specifications and ensure DoD, Army, national, state and local, electrical code, safety, and environmental compliance. We furnished all manpower, tools, and test equipment to fulfill contract requirements.

Contact Person: Ralph Dudy, Phone#: 520-533-2078, Email: Ralph.dudy@us.army.mil

Project #2

Electrical inspection and testing for Tucson Airport Authority work performed June 2014. Sabino performed thermographic and ultrasonic testing for central plant, west and east electrical switchgear; de-energized testing and service solution for central plant, east and west switchgear; energized/de-energized testing and service solution for generator output breakers; thermographic, ultrasonic and de-energized testing and service solution at international main electrical room; insulation resistance testing, primary and secondary injection testing at concourse A, B and central plant; thermographic and ultrasonic of branch panels throughout terminal. All testing was conducted per national, state and local, electrical code, safety and environmental compliance.

Contact Person: Tina Moore, Phone#: 520-573-4859, Email: tmoore@flytucson.com

Experience on projects where Sabino Electric, Inc. performed **repair maintenance and on-call services.**

Project#1

Electrical repairs for DOIM-Greely Hall Building 61801, Fort Huachuca work performed September 2014. Sabino performed de-energized maintenance along with electrical repairs from previous testing results. We provided all materials, labor and equipment necessary to replace an existing mechanical bus transformer located in Greely Hall Generator Shed and electrical repairs to 40 electrical components such as; ATS's, branch circuit panels, disconnect/safety switches, switchgear safety disconnects, bus ducts, individual combination motor starter, distribution panel single front, individual molded case breakers, switchgears, switchgear drawout breakers, switchboard safety disconnects, dry transformer, and liquid filled transformers. All electrical repairs were documented in clients data base to show repair and corrective measure that was taken. Contact Person: Ralph Dudy, Phone#: 520-533-2078, Email: Ralph.dudy@us.army.mil

Project#2

Electrical repairs/projects for Tucson Airport Authority, work performed in October and December 2014. Sabino performed a lighting upgrade at the airport facility for lots 20 and 21 and completed electrical repairs from previous testing results. For the lighting upgrade we installed interior and exterior LED and fluorescent fixtures. The work included all conduit, wire and hardware boxes. We performed electrical repairs on over 100 electrical components. Some of these electrical components were Branch circuit panels, switchgears, transformers, distribution panels and motor control center. All repairs were documented in clients data base to show repair and corrective measure that was taken.

Contact Person: Tina Moore, Phone#: 520-573-4859, Email: tmoore@flytucson.com

3. Sabino Electric, Inc. has been providing Electrical Systems Predictive Testing, Preventative Maintenance and Repairs for over 15 years. Our TEGG Franchise licenses provide an asset to us and to our clients. We have technicians that have been trained specifically for electrical testing and they receive continuing education support as well through our TEGG Franchise. We have unique electrical testing software that allows us to build a database for our clients based on their needs. The database also provides all safety procedures that are to be adhered to when the technicians are testing; all the proper PPE is also documented to make sure that all testing is being completed to the industry, local and state regulations. At Sabino, we believe our testing offerings are one of our greatest tools we can provide to our client to minimize electrical failure and unanticipated outages. We pride ourselves on the documentation and the results that it produces. The software that we utilize also allows our clients access on-line to view their information as well as they have the ability to print reports. All of the work that is performed at Sabino is to meet or exceed NEC, IEEE, NFPA 70E, 70B, OSHA and MSHA standards. Also, all of Sabino's personnel are trained on all of our safety standards as well they are trained on our electrical testing software and guidelines. All training is documented and maintained in employee's safety file.
4. The designated company representative for this contract is Jon Aalberg. Contact information: Office 520-623-6061, Fax 520-23-1655, Cell 520-979-9372 and email address: jaalberg@sabinoelectric.com. Jon is currently overseeing 39 projects and is our Testing and Service Supervisor.

Name: Jon Aalberg
Title: Testing and Service Supervisor
Years with Sabino: 10 years
Years in Industry: 30 + years

Experience:

Through my 30 plus years in the electrical industry I have worked and managed small and large projects. I have been a project manager as well as supervisor. I currently supervise 10 journeyman wiremen and 2 apprentices. I supervise all testing projects, oversees all Tucson electrical projects, and the day to day service calls. I handle all scheduling for projects, assigns service technicians to projects, am involved with projects from start to finish, complete technical review for all testing projects, and performs closeout documents as needed/requested.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman

Certifications:

- Project Management
- Mine MSHA
- TEGG/Thermal Infrared Level 2
- MSHA-General Industry
- NFPA 70E
- (NICET) Electrical Power Engineering Technology/Electrical Power Testing/Level 1
- Outstanding workmanship
- Driver safety class
- Asbestos Awareness
- Commercial Electrical Wiring and Codes
- Elastimold Medium Voltage Connectors and Termination
- Concentric Neutral Termination
- Confined Space, Lock Out/Tag Out and Respirator Use
- GHS Training
- 5 Day Motor Circuit Analysis & Electrical Signature Analysis
- TEGG Service-Overview Training
- Electrical Safety Seminar
- TEGG Service-Contractor International Sales & Operations
- TEGG Service-Operations Technical Training (2 week program)

****Copies of certificates available upon request****

5. The following is a list of key company officers and key employees that would perform or be involved with this contract. See next several pages for Resumes.

- Robert Magee, General Manger
- Louise Jones Magee, CFO
- Joe Castillo, Maintenance Sales Representative
- Eddie McComb, Maintenance Sales Representative
- Carson Mordecai, DES Sales Representative
- Gerald Gordon, Lead Testing Technician
- Roy McLemore, Lead Testing Technician
- Gregg McConnell, Testing Technician
- Rick Hines, Testing Technician
- Tamara Reilly, TEGG/Service Administrator

Name: Robert Magee
Title: General Manger
Years with Sabino: 10 years
Years in Industry: 30 + years

Experience:

Over 35 years of experience in the electrical industry. Managed all aspects of Tucson and Phoenix based TEGG/Service Division including sales, operations, and administrative personnel. Annualized sales of \$1.65 million, average GM of 36% in addition to management of three (3) sales professionals and two (2) service managers while maintaining minimum sales quota, contributed to 170% growth within service division, developed new client base for Phoenix based TEGG Division.

Education:

- TEGG/ABM Associates
- Small Business Administration
- Shielded Metal Arc Welding I
- Electronics (Associate Degree)
- IBEW Apprenticeship Training-Journeyman Wireman

Certificates:

- Project Management
- Basic First Aid
- Level 1 Infrared Thermography
- Level 2 Infrared Thermography
- MSHA Training-General Industry
- NFPA 70 E
- OSHA 30
- Service Representative on Operation, Maintenance, and Repair on Fincor Adjustable Speed Drives and Controls
- Fiber Optic Termination Course
- AMP Netconnect Contractor Training
- Elastimold Medium Voltage Connectors and Termination
- Data Center Cooling
- Data Center Mangement
- Electrical Safety for Industrial Facilities
- U of A Green Project Management
- Fundamentals of Leadership
- TEGG Service-Contractor International Sales & Operations (2008,2010 & 2012)
- Electrical Safety Seminar
- Key TEGG Staff Orientation Initial Training
- TEGG Operations Administrative Initial Training
- TEGG Operations Technical Training
- Business Leadership and Growth

Name: Louise Jones-Magee
Title: CFO and Office Manager
Years with Sabino: 12 years
Years in Industry: 20 +

Experience:

In my 20 + years working in an administrative position I have handled all business aspects related to the service and construction industry. I review all internal project documents to make sure that we have all information viable to assist our customers' needs. I complete all invoicing, assist with any close out documents, warranty letters, AIA documents etc. I work closely with the General Manager as well as the Project Managers on all projects for the company making sure that projects stay on task to help maintain job efficiency. I complete all financials for the company and review all contracts and subcontracts.

Education:

•U of A, BSBA, Dual Major, Accounting and Finance

Certificates:

- MSHA
- NFPA 70E
- TEGG Continuing Education Seminars

Copies of certificates available upon request

Name: Joe Castillo
Title: Maintenance Sales Representative
Years with Sabino: 10 years
Years in Industry: 15

Experience:

Over 15 years in the electrical industry, and has completed electrical work on small and large projects. As a TEGG Level 1 Infrared Certified Technician, I performed energized and de-energized testing throughout the state. In 2012, I became a Maintenance Sales Representative and have completed multiple preliminary system evaluations for our customers and provided them various Preventative Maintenance agreement options that best fit their needs while exceeding annual sales quotas.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman
- U.S. Army Helicopter Logistics School
- U.S. Army National Guard

Certificates:

- MSHA-General
- NFPA 70E
- TEGG Level 1 Infrared
- TEGG Certified Electrician
- TEGG Maintenance Sales Training/Seminar
- MSHA-Mine

Copies of certificates available upon request

Name: Eddie McComb
Title: Maintenance Sales Representative
Years with Sabino: 11 Months
Years in Industry: 10 years

Experience:

In my 10 years in the electrical industry I've acquired knowledge in building automation, fire alarm systems, structured cabling systems, power quality analysis, motors and motor control, instrumentation and semiconductors. Additionally, I have extensive knowledge in National Electric Code/RCW, AC and DC theory, service and repair maintenance, circuit breakers and transformer as well as acting as Foreman completing various residential and commercial projects. As a Maintenance Sales Representative, I've completed several preliminary system evaluations for our clients, and creating Preventative Maintenance agreements that best suits the client's needs.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman
- South Seattle Community College, Applied Science (Associates Degree)
- U of A, Mechanical Engineering (2 years)

Certificates:

- MSHA
- NFPA 70E
- TEGG- Maintenance Sales Seminar
- Electrician Commercial EL01 (WA)
- Electrician Residential EL02 (WA)
- OSHA 10
- First Aid/CPR

Copies of Certificates available upon request

Name: Carson Mordecai
Title: DES Sales Representative
Years with Sabino: 2 years
Years in Industry: 17 years

Experience:

Have 10 + years as a foreman/project manager. As a journeyman electrician I worked on small and large projects. Made internal move within the company to DES Sales Representative to enhance my work experience and to provide my electrical experience and background at a different level.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman
- High School

Certificates:

- MSHA
- NFPA 70E
- TEGG DES Sales Training
- OSHA 10

Copies of certificates available upon request

Name: Eddie McComb
Title: Maintenance Sales Representative
Years with Sabino: 11 Months
Years in Industry: 10 years

Experience:

In my 10 years in the electrical industry I've acquired knowledge in building automation, fire alarm systems, structured cabling systems, power quality analysis, motors and motor control, instrumentation and semiconductors. Additionally, I have extensive knowledge in National Electric Code/RCW, AC and DC theory, service and repair maintenance, circuit breakers and transformer as well as acting as Foreman completing various residential and commercial projects. As a Maintenance Sales Representative, I've completed several preliminary system evaluations for our clients, and creating Preventative Maintenance agreements that best suits the client's needs.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman
- South Seattle Community College, Applied Science (Associates Degree)
- U of A, Mechanical Engineering (2 years)

Certificates:

- MSHA
- NFPA 70E
- TEGG- Maintenance Sales Seminar
- Electrician Commercial EL01 (WA)
- Electrician Residential EL02 (WA)
- OSHA 10
- First Aid/CPR

Copies of Certificates available upon request

Name: Gerald Gordon
Title: Lead Testing Technician
Years with Sabino: 11 Years
Years in Industry: 20

Experience:

In my 20 years in the electrical industry I have worked on small and large electrical projects as a journeyman wireman. I have been trained in our testing service and am a lead testing technician. I am certified to perform infrared testing energized and de-energized. I have a full understanding on our TEGG Testing Software on how to document all items for report capability. I also, have been trained and have a thorough understanding on all testing equipment.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman

Certificates:

- MSHA-General
- NFPA 70E
- TEGG Certified Technician
- Level 1 ANST Certified Infrared Themographer
- Basic First Aid & CPR
- Power Quality Training
- OSHA 30
- MSHA-Mine

Copies of certifications available upon request

Name: Roy McLemore
Title: Lead Testing Technician
Years with Sabino: 9 Years
Years in Industry: 27 Years

Experience:

I have worked as a journeyman wireman on small and large projects. I have been project manager/foreman on several electrical projects overseeing the day to day operations, making sure projects stay on task and maintaining man power to complete the project efficiently. As lead testing technician I complete all testing of equipment that has been tasked/approved by our clients. Document all findings as testing is being completed energized and de-energized maintenance. Have knowledge and well adversed in using infrared camera's, fluke meters, and RPM meters.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman

Certificates:

- MSHA General and Mine
- NFPA 70E
- TEGG Certified Technician
- Infrared Level 1
- OSHA 30
- Concentric Neutral Termination
- Soares Grounding and Bonding-NEC
- Airborne Ultrasound Level 1

Copies of certificates available upon request

Name: Gregory McConnell
Title: Testing Technician
Years with Sabino: 8 Years
Years in Industry: 35

Experience:

During my electrical career I have been project manager, general foreman, foreman and supervisor from small projects to large projects. I have assisted with electrical testing, taking voltage measures, documenting information into our electrical testing software, review of components being tested, verifying all information entered, making sure all safety measures are adhered to while testing is being performed.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman

Certificates:

- MSHA-Industry Standard
- NFPA 70E
- TEGG Continuing Education Seminars
- CPR and First Aid
- MSHA-Mine Safety
- Concentric Neutral Termination
- Confined Space
- Medium Voltage
- Respiratory Protection

Copies of certifications available upon request

Name: Rick Hines
Title: Testing Technician
Years with Sabino: 1 Year
Years in Industry: 10 + Years

Experience:

In my 10 + years in working in the electrical industry I have completed electrical work on several projects as a journeyman wireman. I have been trained in our electrical testing software and with the electrical testing equipment to be able to assist with the electrical testing. I assist with documentation, meter readings, labeling of equipment and assist lead testing technician with anything while testing is being performed energized or de-energized.

Education:

- IBEW Apprenticeship Training-Journeyman Wireman

Certificates:

- MSHA
- NFPA 70E

Copies of Certificates are available upon request

Name: Tamara Reilly
Title: TEGG/Service Administrator
Years with Sabino: 15 Years
Years in Industry: 20 years - Administration

Experience:

With over 20 years experience working in service and construction administration, I have the ability to adapt to any situation that arises. My primary tasks include, working directly with service department to assist with the day to day items that arise, assisting with customer relations, accounting functions as needed, and key administrative person for our TEGG Software and service department.

Education:

- TEGG Electrical Services (Associates Degree)
- Ferris State University (MI), Applied Science (Associates Degree)
- Averill Career Center (MI), Business Technology and Information Processing

Certificates:

- NFPA 70E
- TEGG Continuing Education Seminars
- Asbestos Awareness
- Scaffold Awareness

Copies of Certificates available upon request

6. In addition to our Preventative Maintenance and Electrical Testing we can offer NFPA 70E training seminars. The next 4 pages include information on the training that we can provide as well as our ABM/TEGG Instructor credentials.

Does your facility need to be **NFPA 70E** Arc Flash Compliant?

Why do you need to be compliant?

OSHA is using NFPA 70E as a national consensus standard for citations. Being compliant helps you limit your liability and reduces the risk of violations and citations.

Compliance Checklist

- ✓ Maintain NFPA 70E Safety Plan
- ✓ Train and Qualify Employees
- ✓ Generate Diagram
- ✓ Perform Incident Energy Analysis
- ✓ Apply Arc Flash Labels
- ✓ Provide Employees PPE
- ✓ Preventive Maintenance

Arc Flash & Shock Hazard Appropriate PPE Required	
Flash Protection Flash Hazard Category 1 Incident Energy 2.8 (cal/cm²)	Shock Protection 480 VAC Shock Hazard When Cover is Removed
Flash Protection Boundary 30 inches	Limited Approach Boundary 42 inches
Glove Class 00	Restricted Approach Boundary 12 inches
PPE REQUIRED CAT 1 OR 2 PPE SMILE & PAINTS, AIR PACE SHIELD, SAFETY GLASSES, LEATHER GLOVES, EAR PLUGS	Prohibited Approach Boundary 1 inch <small>*Warning: Changes in equipment settings or system configuration will increase the risk of arc flash and PPE requirements. Review every 3 yrs. February 1, 2019</small>
Bus Name: CLKR-CLR-EF Prot. PD-CLKR-CLR	

OSHA'S General Duty Clause

Section 5(a)(1) of the Occupational Safety and Health Act requires an employer to furnish to its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to its employees.

What is the relationship between OSHA and NFPA 70E?

NFPA 70E is considered a national consensus standard and is intended for use by employers, employees, and OSHA. OSHA has not "adopted" NFPA 70E, simply because adoption would require the lengthy and expensive process. OSHA has instead referenced compliance to NFPA 70E using section 5(a)(1) of the Occupational Safety and Health Act of 1970, commonly referred to as the "general duty clause," as their basis for implementation. The general duty clause states that employers shall furnish to each of his employees : employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to its employees."

It is clear that OSHA is using NFPA 70E as a national consensus standard. Further, OSHA expects employers and employees to comply with provisions of NFPA 70E regardless of whether or not it has been "adopted" as an OSHA requirement.

6 POINT COMPLIANCE CHECKLIST

<p>1. Understand NFPA 70E and have a Complete Written NFPA 70E Safety Plan "110.3 Electrical Safety Program. (A) General. The employer shall implement and document an overall electrical safety program that directs activity appropriate for the electrical hazards, voltage, energy level, and circuit conditions." (1,pp70E-15)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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<p>2. Train and Qualify Employees in NFPA 70E Compliance "Qualified Person. One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved." (1,pp70E-12). "105.3 Responsibility. The employer shall provide the safety related work practices and shall train the employee, who shall then implement them." (1,pp70E-14). "110.2 Training Requirements. (E) Training Documentation. The employer shall document that each employee has received the training required by 110.2(D)." (1,pp70E-14-70E-15)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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<p>3. Generate and Post a Facility Electrical One-Line Diagram "120.1 Process of Achieving an Electrical Safe Work Condition. (1) Determine all possible sources of electrical supply to the specific equipment. Check applicable up-to-date drawings, diagrams, and identification tags." (1,pp70E-18). "205.2 Single Line Diagram. A single line diagram, where provided for the electrical system, shall be maintained in a legible condition and shall be kept current." (1,pp70E-44)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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<p>4. Perform an Incident Energy Analysis and Apply Labels to Equipment "130.5 Arc Flash Hazard Analysis. An arc flash hazard analysis shall determine the arc flash boundary, the incident energy at the working distance, and the personal protective equipment that people within the arc flash boundary shall use." (1,pp70E-26). "130.5 (B) Protective Clothing and Other Personal Protective Equipment (PPE) for Application with an Arc Flash Hazard Analysis. (1) Incident Energy Analysis. The incident energy analysis shall determine, and the employer shall document, the incident energy exposure of the worker (in calories per square centimeter)." (1,pp70E-26). "130.5 (C) Equipment Labeling. Electrical equipment such as switchboards, panel boards, industrial control panels, meter socket enclosures, and motor control centers that are in other than dwelling units, and are likely to require examination, adjustment, servicing, or maintenance while energized, shall be field marked with a label containing all the following information: (1) At least one of the following: a. Available incident energy and the corresponding working distance b. Minimum arc rating of clothing. c. Required level of PPE d. Highest Hazard/Risk Category (HRC) for the equipment (2) Nominal system voltage (3) Arc Flash Boundary The method of calculating and date to support the information for the label shall be documented." (1,pp70E-26 : 70E-27)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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<p>5. Provide the Appropriate PPE, Personal Protective Equipment "130.7 Personal and Other Protective Equipment. (A) General. Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment that is designed and constructed for the specific part of the body to be protected and for the work to be performed." (1,pp70E-28)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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<p>6. Perform Maintenance of Electrical Equipment 30.5. The arc flash hazard analysis shall take into consideration the design of the overcurrent protective device and its opening time, including its condition of maintenance." (1,pp70E-26) "Article 205. 205.3 General Maintenance Requirements. Electrical Equipment shall be maintained in accordance with manufactures instructions or industry consensus standards to reduce the risk of failure and the subsequent exposure of employees to electrical hazards." (1,pp70E-44) "Overcurrent Protective Devices. Overcurrent protective devices shall be maintained in accordance with the manufactures instructions or industry consensus standard. Maintenance, tests, and inspections shall be documented." (1,pp70E-44)</p>	<p>___/___/___ Planned Date of Completion</p> <p>___/___/___ Actual Date of Completion</p>
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Work Cited:



AT-A-GLANCE

DAY ONE

- What is Arc Flash?
- Flash Protection Boundary and Limits of Approach
- Personal Protection Equipment (PPE)
- NFPA Methods of Selecting PPE

DAY ONE - NFPA 70E Chapter 1: Electrical Safe Work Practices



WHAT IS ARC FLASH?

- Definition
- Reasons and Overview of Changes to NFPA 70E 2015
- Methods of Reducing Arc Flash Potential



FLASH PROTECTION BOUNDARY AND LIMITS OF APPROACH

- Electric Shock Potential
 - Unintended Contact with Electricity
 - Electric Shock and Effects on the Human Body
 - Current Limit Tolerances
- Definition of Boundaries and Spaces
 - Flash Protection Boundary
 - Limited Approach Boundary
 - Restricted Approach Boundary
- Applying Boundaries and Spaces to Electrical Tasks
- OSHA/NEC distinctions between Qualified and Unqualified Persons
 - Applying the Approach Limits for Unqualified Persons
 - Applying the Approach Limits for Qualified Persons
- Energized Work Permits
 - Work Conditions Requiring Energized Work Permits



DAY ONE - Continued



PERSONAL PROTECTION EQUIPMENT (PPE)

- Protective Clothing
 - Rating Systems of Clothing
 - Thermal Characteristics of Clothing
 - Flame Resistant vs. Flame Retardant
 - Clothing Care and Wear
 - Characteristics
- Arc Flash Protection
 - Single Layer vs. Multi Layer
 - Protective Systems
 - Eye/Ear Protection
 - Gloves and Footwear



NFPA METHODS OF SELECTING PPE

- NFPA Methods of Selecting PPE
 - Hazard Classifications
 - Simplified, 2 Category Response
 - Arc Flash Hazards of Electrical Work Procedures
 - Selection of PPE based upon Arc Flash Risk Assessment



AT-A-GLANCE

DAY ONE

- What is Arc Flash?
- Flash Protection Boundary and Limits of Approach
- Personal Protection Equipment (PPE)
- NFPA Methods of Selecting PPE

DAY TWO

- NFPA 70E Chapter 2 - Safety Related Maintenance Requirements
- NETA Maintenance Testing Specification

DAY ONE - NFPA 70E Chapter 1: Electrical Safe Work Practices



WHAT IS ARC FLASH?

- Definition
- Reasons and Overview of Changes to NFPA 70E 2015
- Methods of Reducing Arc Flash Potential



FLASH PROTECTION BOUNDARY AND LIMITS OF APPROACH

- Electric Shock Potential
 - Unintended Contact with Electricity
 - Electric Shock and Effects on the Human Body
 - Current Limit Tolerances
- Definition of Boundaries and Spaces
 - Flash Protection Boundary
 - Limited Approach Space Boundary
 - Restricted Approach Space Boundary
- Applying Boundaries and Spaces to Electrical Tasks
- OSHA/NEC distinctions between Qualified and Unqualified Persons
 - Applying the Approach Limits for Unqualified Persons
 - Applying the Approach Limits for Qualified Persons
- Energized Work Permits
 - Work Conditions Requiring Energized Work Permits



DAY ONE - Continued



PERSONAL PROTECTION EQUIPMENT (PPE)

- Protective Clothing
 - Rating Systems of Clothing
 - Thermal Characteristics of Clothing
 - Flame Resistant vs Flame Retardant
 - Clothing Care and Wear
 - Characteristics
- Arc Flash Protection
 - Single Layer vs Multi Layer
 - Protective Systems
 - Eye/Ear Protection
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NFPA METHODS OF SELECTING PPE

- NFPA Methods of Selecting PPE
 - PPE Category Classification
 - Simplified, 2 Category Response
 - Arc Flash Hazards of Electrical Work Procedures
 - Selection of PPE based upon Arc Flash Risk Assessment

DAY TWO - NFPA 70E Chapter 1: Safety-Related Maintenance Requirements



NFPA 70E CHAPTER 1 - SAFETY RELATED MAINTENANCE REQUIREMENTS

- Practical safety - related maintenance requirements for electrical equipment and installations in workplaces as included in 1012
- Identify maintenance directly associated with employee safety
- Describe how maintenance is defined as preserving or restoring the condition of electrical equipment and installations, or parts of either, for the safety of employees who work where exposed to electrical hazards
- Specific components discussed include, but are not limited to
 - Single-line drawing interpretation and data
 - Short circuit current and coordination considerations
 - Overcurrent protective devices
 - Power cables
 - Switchgear
 - Power and distribution transformers
 - Power circuit breakers
 - Molded/insulated case circuit breakers
 - Fuses

DAY TWO - Continued



NFPA 70E CHAPTER 11 - Continued

- NFPA 70B referenced for maintenance and testing methods (2011 NFPA 70B Chapter 11 considerations)
- Specific equipment type testing requirements and interval frequency of testing (2011 NFPA 70B Annex L)
- 2011 NETA maintenance testing specification results interpretation and recommendations
- How failed test results and/or inadequate maintenance impact arc flash energies
- What constitutes an effective EPM Program in a facility (2011 NFPA 70B Chapter 5)
- Planning and developing an EPM program (2011 NFPA 70B Chapter 11)



NETA MAINTENANCE TESTING SPECIFICATION

- Maintenance testing frequencies
- Visual/mechanical inspections
- Electrical tests
- Functional tests
- Specific test instruments
- Results-limits and interpretations
 - Positive results
 - Negative results
 - Courses of actions
 - Developing action plans





Joseph D. Gierlach, Jr.
Vice President - Technical Training & Support
ABM Franchising Group



EDUCATION

In 1984, Mr. Gierlach completed a 3-year Electronic Technology curriculum and entered the United States Air Force.



MILITARY SERVICE

Mr. Gierlach served 4 years (1984-1988) with the United States Air Force as an Aerospace Ground Support Equipment Technician.



CERTIFICATIONS

- Certified Electrical Safety Compliance Professional (CESCP) – 2014
- NICET Level 1 Certification – 2014
- OSHA 10 and 30 Hour Outreach Instructor Certification – 2013
- NFPA 70E 3-Day Certificate Course – 2012 (*renewal scheduled for June 2015)
- ITC Level III Certified Infrared Thermographer (SNT-TC-1A) – 2005
- UE Systems Level II Airborne Ultrasound Certification (UEQ-TC-1A) – 2005



EMPLOYMENT HISTORY

1988 Shipyard Electrician – Bath Iron Works (Bath, ME)
• *Construction and testing of electrical, communication, and combat systems on the US Naval Aegis Cruiser*

1988 thru 1997 Maintenance Electrician – Central Florida phosphate and chemical fertilizer mines
• *Maintenance functions and involvement in preventive maintenance programs including infrared testing*
• *Work involving process controls, DCS and DDS systems*
• *PLC process design, installation, programming, and commissioning*

1997 thru 2001 Electrician – Steel pipe production plant
• *PLC programming, troubleshooting, and repair*
• *Data highway maintenance and electronic and radio control repairs*

2001 thru 2002 Plant Electrician – Steel pipe production plant
• *Titanium mill manufacturing raw materials for Boeing, Airbus, and the US military*
• *Maintenance functions, testing and repair of equipment*



EMPLOYMENT HISTORY *Continued*

2002
thru
PRESENT

- Vice President of Technical Training □ Support, ABM Franchising Group
- *Responsible for the development and implementation of the TEGG Operations Initial Training Program*
- *Classroom instructor for the operations and technical sales educational program*
- *Develop hands-on technical experiments to simulate real-world deficiencies in the Technical Lab*
- *Onsite field support of network locations for continued training*
- *Research and development of TEGG's proprietary maintenance software package, TEGGPro*
- *Auditing and continued development of the safety program required for TEGG Service to ensure compliance with the most recent edition of NFPA 70E*
- *Instructor for seminar program, including topics such as NFPA 70E Electrical Safe Work Practices, Safety-Related Maintenance, Power Quality, and OSHA 10 and 30 Hour courses*
- *Instructor of ASNT Level 1 Infrared Certification courses*



AUTHORED ARTICLES

- *How the Eyes (and I □ camera) Can Be Misled □– Maintenance World (2004)*
- *Can Infrared Inspections Be Accomplished Without □Removing Covers□ □ Inframation Conference (2005)*
- *What □ou Can □See Can Hurt □ou□– Ultrasound World Conference (2008)*
- *Something For Nothing Hits Pay Dirt□– Ultrasound World Conference (2009)*
- *Electrical Equipment Screams for Attention□– Ultrasound World Conference (2010)*

7. Sabino Electric, Inc. would utilize Monrad Engineering as a subcontractor for this contract. Monrad Engineering would perform as an Electrical Engineering Consultant to Sabino for this contract.

Monrad Engineering
1926 E Ft. Lowell
Tucson, AZ 85719

The following few pages is Monrad Engineering's information including their project experience, company qualifications and key personnel resumes.

Past Project Experience for Inspection & Testing Service

Project 1: Tucson International Airport – Energized and de-energized testing for three double-ended service entrance switchboards and downstream distribution equipment;

Engineering Services Performed August 2014 through March 2015;

Monrad Engineering served as the owner's representative during all phases of the electrical contractor's testing and planned outages. MEI also reviewed test reports for recommendation and guidance as to remedial efforts; assisted with development of scope of work to target high risk electrical components and feeders. The contractor's work included thermal scans of all electrical service entrance and distribution equipment, stepdown transformers, and all circuit breaker panelboards. Subsequent to the energized thermal scans, a work plan was developed by the contractor, owner and MEI to implement de-energized corrective measures to the deficiencies and hazards identified in said thermal scans. The contractor then performed de-energized cleaning, torqueing, device exercising, insulation integrity testing, and inspection of all service entrance and distribution level equipment. Current injection testing was performed for all large frame circuit breakers and fusible switches with ground fault trip relays. MEI was present for the full duration of all outages and de-energized testing to provide real-time guidance to the contractor as anomalies arose.

The equipment being tested was critical to keeping the airport in service and functional, as MEI explained to the owner passive or catastrophic equipment failures could result in personal injury or death and could also disrupt airport operations for days or weeks. Safe execution of all energized and de-energized testing was paramount and supported by MEI engineers.

Nearly all of the work occurred within sterile/secure areas and all three Principal Electrical Engineers for Monrad Engineering maintain highest level security badging to provide ready access throughout the airport land- and air-side facilities during the course of the testing and other contracted services to the Tucson Airport Authority.

Project site was the Tucson International Airport, including East Concourse, West Concourse, Central Plant, Customs and Border Protection and Emergency Operations Center facilities

Reference:

Tina Moore, Director of Programs, Tucson Airport Authority, (520) 573-4859
tmoore@flytucson.com

Project 2: DMAFB AZ Data Center, Electrical System Assessment and Repairs

Engineering Services Performed November 2014 through March 2015;

Monrad Engineering assisted the electrical contractor in locating and troubleshooting source of system ground currents and review existing electrical utilization equipment operation. MEI provided guidance to contractor to restore proper electrical system operation.

MEI also provided a complete selective coordination study for system reliability and arc flash boundary calculations for placement of NFPA 70E warning labels and PPE prescriptions.

This secure location required escorting by USAF personnel.

Project location was Davis-Monthan Air Force Base, Tucson AZ

Reference: HOVEY, BRAD C MSgt USAF AFRC 610 CACS/SCS brad.hovey.1@us.af.mil

Past Project Experience for Repair, Maintenance & On Call Services

Project 1: Miami High School, Electrical Service Entrance inspection and evaluation

November 2014 – February 2015

Project site was in Miami AZ and consisted of assisting electrical contractor with evaluation of an existing 40 year old electrical service. In collaboration with the contractor, MEI prepared a deficiency / condition report with documentary photographs and cost estimate to guide the owner in the development of a project budget and scope to implement the necessary engineering and replacement of the service equipment.

Given that this equipment served the entire campus for the only high school in Miami AZ, replacing this equipment prior to a catastrophic failure was deemed to be of the highest priority.

Reference:

David Kennon, PE; AZ School Facilities Board, Phone: 602-290-2623, dkennon@azsfb.gov

Project 2: Cave Creek School District, Chiller Failure Investigation

December 2014 – February 2015

Project site was Cactus Shadows HS in Cave Creek AZ and consisted of assisting electrical contractor with trouble shooting and evaluation of an existing chiller that had failed. MEI then reviewed the contractor's findings, analyzed data from a recording power / power quality meter, and provided a documentary report to the owner.

Given that this chiller equipment was critical to the HVAC system function of the high school, determining the failure mode for was critical to avoid damage to replacement equipment.

Reference:

Cactus Shadows HS, John Muir, Director of Facilities and Construction, 480-575-2050,
muir@ccusd93.org

MONRAD ENGINEERING, INC.

Monrad Engineering, Inc. (AZ SBTR Firm License No. 11391) has been in continuous operation since 1983 and is located in Tucson AZ. The firm has provided professional engineering services for over 2800 projects of a diverse and challenging nature including street lighting, traffic signalization, corporate, municipal, industrial, commercial, justice, health care, collegiate, institutional, aviation, mining, educational, recreational, and hospitality facilities. Monrad Engineering, Inc. holds Pima County, City of Tucson, Tucson Airport Authority, Arizona Department of Transportation, and State of Nevada MBE/DBE/SBE status.

MEI provides on-staff LEED Accredited Professional status and Registered Communications Distribution Designer (RCDD) credentials to benefit our clients with sole-source full-services consulting engineering solutions (including REVIT 3D BIM capabilities) for the sophisticated high-performance and telecommunications-rich projects of today and the future. MEI has 10 LEED rated projects (including 3 LEED Platinum certified facilities) and one Zero-Net Energy project completed within southern Arizona.

Monrad Engineering, Inc. is in its 32th year of operation and is professionally managed by three registered Professional Engineers that have a long-lived and extraordinary continuity of service with the firm.

Fernando Galvez, P.E., RCDD, CTM (AZ SBTR License Number 23911) is Principal and President of Monrad Engineering, Inc. Fernando has over 33 years of experience (29 years with the firm) in electrical engineering. He is an active member and past president of ASPE Southern Arizona chapter and an active member of SAME. Fernando is a graduate of the University of Arizona with a BSEE, is a registered professional engineer in Arizona and Nevada. He is also a Registered Communications Distribution Designer (RCDD) with extensive experience in audio-visual, security and telecommunications systems for multi-million dollar projects.

Joseph F. Smith, P.E. (AZ SBTR License Number 29708) is Principal and Vice President of Monrad Engineering, Inc. Joe has over 34 years of experience (19 years with the firm) in electrical engineering, power system analysis, and the maintenance & operation of plant electrical systems. He is a graduate of Syracuse University with a BSEE and received a Masters of Engineering from Rensselaer Polytechnic Institute. Joe is a registered professional engineer in Arizona, New York, NJ, Virginia, Hawaii, and many other western states.

Christian K. Monrad, P.E., LEED AP (AZ SBTR License Number 37386) is Principal and Vice President of Monrad Engineering, Inc. Chris has over 32 years of experience (27 years with the firm) in electrical systems construction, estimating, engineering, design and construction phase administration. He is a registered professional engineer in Arizona and is active in the International Dark-Sky Association as Vice-President of the Board and is a past president of the Southern Arizona Section of IESNA. Chris is the firm's designated U.S. Green Building Council representative and is a LEED Accredited Professional. Chris has been on the Board of Directors of the International Dark-Sky Association for over 19 years and is an expert in 'dark sky friendly' exterior lighting applications to minimize off-site glare and skyglow, while providing high performance energy-efficient lighting designs that instill a safe, secure and attractive aesthetic for projects of every description.

Our support staff includes one senior CAD designer/project manager, three experienced CAD designers/technicians (with a total of six 3D REVIT/Autocad MPE, AGI32 and Microstation work stations).

Monrad Engineering, Inc. maintains a strong commitment to continuing education to stay abreast of evolving electrical safety and operational practices via conferences, seminars and symposia. MEI and/or its principals are members of NFPA, IAEE, IESNA, NSPE, IDA, BICSI, USGBC, AIA, and IEC.

Name/Company:

Joseph F. Smith, P.E., Principal and Vice President of Monrad Engineering, Inc.
19 Years with the firm

Residency: Tucson, AZ

Education:

Master of Engineering, Electric Power Engineering, Rensselaer Polytechnic Institute, 1979

Bachelor of Science in Electrical Engineering, Syracuse University, 1972

Registration:

Mr. Smith is registered as a Professional Engineer (Electrical) in Arizona (29708), New Jersey (31247), California (59152), New Mexico (17017), Colorado (39123), and numerous other states.

Experience Relevant to Proposed Assignment:

Mr. Smith has over 34 years experience in electrical engineering and maintaining/operating plant electrical systems. He has extensive experience in the design, specification, cost estimating, studies and construction administration of: lighting, power, communications, emergency, fire alarm, PA, sound, intercom and security systems for myriad types of projects. These include municipal, healthcare, industrial, institutional, collegiate and aviation facilities throughout Arizona. Joe has served the Tucson Airport Authority and Pima County via continuous open-end contracts for nearly 20 years and his experience includes electrical service switchgear modernizations, transformer replacements, central plant upgrades, standby generator systems, UPS systems, 400 Hertz ground power, mechanized security gates, airfield lighting and signage, and tenant improvements.

Mr. Smith is an expert at SKM Power Tools power system analysis, selective coordination studies, arc flash boundary studies / NFPA 70E, and power reliability assessments.

Christian K. Monrad, P.E., LEED AP, Principal Electrical Engineer
Vice President, Monrad Engineering, Inc. Tucson, Arizona;
Years With Firm: 27

Residency: Tucson AZ

Experience:

Chris Monrad is a licensed Electrical Engineer registered in Arizona with over thirty-three years of experience in electrical engineering, lighting and daylighting applications, telecommunications system design, and building construction. Chris has been responsible for complete electrical engineering and construction administration services on numerous institutional, aviation, municipal, transportation, university, and community college projects throughout Southern Arizona. His clients of significance include the University of Arizona, Pima County, City of Tucson, Pima Community College, the Tucson Airport Authority and the State of Arizona.

Registration: Professional Electrical Engineer (Arizona, 37386, Expires 3/31/17)

Education: Attended University of Arizona, Nuclear Engineering major (no degree)

Accreditation:

Mr. Monrad is a U.S. Green Building Council LEED Accredited Professional (2004) and is a Member of the Project Advisory Committee at the UC Davis - California Lighting Technology Center (CLTC) for the research of evolving lighting, daylighting, and lighting control systems.

Awards: 2015 TEP Energy Efficiency Program / BrightEE Contractor-Engineer of the Year; 2011 G.E. Edison Award for Sustainable Design; 2012 ENR Southwest Best Project for Hospitality; International Dark Association Quality Outdoor Lighting Design (6 time winner).

Non-Profit Endeavors: Chairman, Tucson Cactus and Succulent Society
Cactus Rescue Program (1999 to 2013)

Board of Directors, International Dark-Sky Association
(1994 to present)

Southern Arizona Section, Illuminating Engineering Society
Past President

Chair, Board of Appeals
Town of Sahuarita

Member, Advisory Board
University of Arizona Arboretum

TAB 4C
Price Proposal

PRICE PAGE

HOURLY RATES:

	Journey Level/ Supervisory	Trades Person	Laborer
Regular Hours	\$ <u>98.00</u> / Hour	\$ <u>72.00</u> / Hour	\$ <u>55.55</u> / Hour
Emergency & Afterhours	\$ <u>142.10</u> / Hour	\$ <u>104.40</u> / Hour	\$ <u>80.55</u> / Hour

Definitions of Terms:

Supervisory or Journey level = Certified with 4+ years of experience

Trades level = Certified with 2+ years of experience

Laborer = Non-certified or helper

Regular Business Hours: Monday through Friday, 7:00 am to 4:00 p.m., excluding holidays.

After Hours/Holiday Rate: Monday through Friday, 4:00 p.m. to 7:00 am, weekends, and the following City holidays.

New Year's Day
 Memorial Day
 Labor Day
 Christmas Day

Martin Luther King Jr. Day
 Independence Day
 Veteran's Day

President's Day
 Cesar Chavez Day
 Thanksgiving Day

PROMPT PAYMENT DISCOUNT: As stated in the Instructions to Offerors, Item 7- Payment Discounts, the price(s) quoted herein can be discounted by 2 %, if payment is made within 10 days.

NOTE: Unless otherwise specified in the offer, a two percent/twenty-one days (2%/21) cash discount will be assumed as allowable and will be considered in determining award.

CREDIT CARD PAYMENT:

- Will payment be accepted via commercial credit card? Yes No
- a. If yes, can commercial payment(s) be made online? Yes No
- b. Will a third party be processing the commercial credit card payment(s)? Yes No
- c. If yes, indicate the flat fee per transaction \$ 2.890 (as allowable, per Section 5.2.E of Visa Operating Regulations).
- d. If "no" to above, will consideration be given to accept the card? Yes