

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

CLOSURE OF INVESTIGATION OF)	CASE NO.
OCTOBER 29, 2018 INCIDENT – KENTUCKY)	2019-00170
UTILITIES COMPANY)	

ORDER

The Commission, on its own motion, initiates this proceeding to close the investigation of an incident that occurred on October 29, 2018, near 2125 Lake Jericho Road, in Pendleton, Kentucky, as the result of which an employee of Pike Construction, a Kentucky Utilities (KU) contractor, suffered shock and burn injuries requiring hospitalization. The employee, Robert Joyce, was part of a Pike Construction crew that was using a digger derrick truck to load utility poles and other materials onto a trailer near an energized 7,200 volt, 3-phase system of Shelby Energy Cooperative Corporation. The operator of the truck rotated the truck's boom and inadvertently caused the boom to make contact with one of the energized conductors. At the time, Mr. Joyce was on the ground adjacent to the truck attempting to unhook a sling from a steel pole on the trailer. He received a shock and suffered burn injuries when the boom made contact with the conductor and was admitted to the University of Louisville Hospital for overnight observation.

Commission Staff (Staff) investigated the incident and found five probable violations of the National Electrical Safety Code. Staff issued KU a Demand for Remedial Measures and Penalty Assessment, a copy of which is attached to this Order as an Appendix, to resolve all compliance and enforcement matters pertaining to the October

29, 2018 incident. KU paid the proposed penalty and completed all remedial measures required by Staff.

The Commission finds that KU has addressed to its satisfaction the probable violations cited by Staff in connection with the October 29, 2018 incident. The Commission further finds that the Commission's investigation of the incident should be closed.

IT IS THEREFORE ORDERED that:

1. KU's payment of Staff's proposed penalty and completion of remedial measures required by Staff is accepted and resolves all alleged violations of KRS 278.042, 807 KAR 5:006, or 807 KAR 5:041, as well as any penalty that could be assessed under KRS 278.990(1), arising out of the October 29, 2018 incident.

2. KU's payment of Staff's proposed penalty is not an admission by KU that it willfully violated any provision of KRS Chapter 278 or any administrative regulation promulgated pursuant thereto.

3. The Commission's investigation of the October 29, 2018 incident is closed.

4. This case is closed and removed from the Commission's docket.

By the Commission

ENTERED
JUL 09 2019
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:



Executive Director

Case No. 2019-00170

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2019-00170 DATED JUL 09 2019

EIGHTY PAGES TO FOLLOW



Matthew G. Bevin
Governor

Charles G. Snively
Secretary
Energy and Environment Cabinet

Commonwealth of Kentucky
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, Kentucky 40602-0615
Telephone: (502) 564-3940
Fax: (502) 564-3460
psc.ky.gov

Michael J. Schmitt
Chairman

Robert Cicero
Vice Chairman

Talina R. Mathews
Commissioner

April 12, 2019

Robert M. Conroy
Vice President – State Regulation and Rates
Kentucky Utilities Company
220 W. Main Street
P.O. Box 32010
Louisville, KY 40202

Re: October 29, 2018, Incident

**DEMAND FOR REMEDIAL MEASURES AND
FOR PENALTY ASSESSMENT**

Dear Mr. Conroy:

This letter is in reference to an incident that occurred on October 29, 2018, near 2125 Lake Jericho Road, Pendleton, Kentucky. As a result of the incident, Robert Joyce, an employee of Pike Construction, a Kentucky Utilities (KU) contractor, suffered shock and burn injuries requiring hospitalization. Kentucky Public Service Commission Staff (Staff) investigated the incident and prepared the attached Accident Investigation Staff Report (Report).

According to KU's 7-day summary report, a Pike Construction crew was using a digger derrick truck to load utility poles and other materials onto a trailer in the vicinity of an energized 7,200 volt 3-phase system of Shelby Energy Cooperative Corporation (Shelby Energy). The incident occurred when the operator of the truck rotated the truck's boom and inadvertently caused the boom to make contact with one of the energized conductors. At the time, Mr. Joyce was on the ground adjacent to the truck attempting to unhook a sling from a steel pole on the trailer. He had his arm on the pole and received a shock when the boom made contact with the conductor. He suffered burn injuries and was admitted to the University of Louisville Hospital for overnight observation. The employee operating the truck was examined as a precaution, but he did not suffer any injury.

Based on its investigation of the incident, Staff has determined that KU's contractor violated the following provisions of the 2017 National Electrical Safety Code (NESC):

1. NESC Part 4, Section 42, Rule 420(C)(4), (5) – Safeguarding Oneself and Others. Pike Construction employees working in the vicinity of Shelby Energy's energized lines failed to take account of their own safety on the job site. Pike Construction employees brought a conductive object within the minimum approach distance for Shelby Energy's energized lines.
2. NESC Part 4, Section 42, Rule 421(A) – Duties of a first-level supervisor or person in charge. Pike Construction's person in charge at the time of the incident failed to adopt such precautions as were within his control to prevent accidents and failed to see that all safety rules and operating procedures were observed by employees under his supervision.
3. NESC Part 4, Section 42, Rule 422(A)(1), (2) – Setting, moving, or removing poles in the vicinity of energized electric supply lines. When moving poles in the vicinity of Shelby Electric's energized lines, the Pike Construction crew failed to take adequate precautions to avoid direct contact of the truck boom with the lines, failed to use suitable protective equipment, and failed to avoid contact with equipment being used to move poles.
4. NESC Part 4, Section 44, Rule 441(A)(1), (3) – Minimum approach distance to energized lines or parts. The Pike Construction crew approached and brought a conductive object within the minimum approach distance of an ungrounded energized conductor without being insulated from the energized conductor by protective equipment.
5. NESC Part 4, Section 44, Rule 443(A)(3), (6) – Work on energized lines and equipment; General requirements – The Pike Construction crew worked in the vicinity of lines exposed to voltages higher than those guarded against by the safety equipment provided without assuring that the lines had been effectively grounded.

KRS 278.042 provides that the Commission shall ensure that each electric utility constructs and maintains its plant and facilities in accordance with accepted engineering practices as set forth in the Commission's administrative regulation and orders and in the most recent edition of the NESC. 807 KAR 5:041, Section 3(1) requires each electric utility to construct and maintain its plant and facilities in accordance with accepted engineering practices, adopting the provisions of the NESC as applicable standards of accepted good engineering practices. Based on its investigation of the incident and its determination that KU committed a violation of the NESC, Staff finds that KU is in violation of 807 KAR 5:041, Section 3(1), for failing to maintain its plant and facilities in accordance with accepted engineering practices.

REMEDIAL MEASURES

In order to resolve the above violations, the following remedial measures must be completed:

- Within 30 days of the date of this letter, KU shall review the foregoing violations with Pike Construction to reinforce the safety requirements that were not followed by the Pike Construction crew.
- Within 60 days of the date of this letter, KU shall submit to the Commission documentation of its safety briefing with Pike Construction.

CIVIL PENALTY

KRS 278.990(1) provides that a utility's willful violation of any of the provisions of KRS Chapter 278, or any administrative regulation promulgated pursuant thereto, shall subject the utility to a civil penalty assessed by the Commission not to exceed \$2,500 for each violation. Under the statute, each act, admission or failure of a person acting for a utility within the scope of his employment shall be deemed to be the act, omission or failure of the utility. After investigation of this matter, it is Commission Staff's recommendation that KU be subject to a civil penalty in the amount of \$12,500 for five violations of the NESC and 807 KAR 5:041, Section 3(1).

If KU does not wish to contest the proposed civil penalty, KU should mail or deliver a company check, cashier's check or money order made payable to the "**Kentucky State Treasurer**" in the amount of \$12,500, within 30 days of the date of this letter, to:

Kentucky Public Service Commission
211 Sower Blvd.
Frankfort, Kentucky, 40602

Payment of the proposed civil penalty and completion of the remedial measures specified in this letter will satisfy and resolve any and all claims the Commission may have against KU for any violation of KRS 278.042 or of 807 KAR 5:041, Section 3(1) and for any penalty under KRS 278.990 arising out of the October 29, 2018, 2018 incident. KU's payment of the proposed civil penalty will not be considered an admission by KU that it willfully violated any provision of KRS Chapter 278 or any administrative regulation promulgated pursuant thereto. Upon payment of the proposed penalty and completion of the remedial measures, the Commission will confirm resolution of this matter by entry of an order. Payment of the penalty constitutes a waiver by KU of any right to a hearing in any proceeding initiated to close the investigation.

If KU does not pay the proposed civil penalty within 30 days of the date of this letter, the Commission will institute an administrative proceeding against KU and schedule a formal hearing, at which KU will have an opportunity to present evidence and

Robert M. Conroy
April 12, 2019
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show cause why it should not be subject to penalties in KRS 278.990(1) based on the October 29, 2018 incident.

This demand letter addresses only those matters specifically referred to in this document. This demand does not waive or otherwise affect any obligations or liabilities that may result from other activities by KU. If you have any questions, please contact John Park at 502-782-2589.

Sincerely,



Gwen R. Pinson
Executive Director

Attachment

one of Shelby Energy's 7,200 volt, three-phase conductors. At the time of the contact, another Pike employee was assisting on the ground trying to unhook a synthetic sling from a pole loaded on the trailer. According to the reports, the employee unhooking the sling had his left arm on the steel pole and received a shock when the boom made contact with the conductor. Employee working on the ground was transported by EMS to a hospital in Louisville KY, and kept overnight for observation. He was released the next day and instructed he could return to work on November 5, 2018.

The employee operating the digger derrick truck requested a medical evaluation. Employee operating the derrick was transported by EMS to a local hospital in LaGrange, KY. He was diagnosed with no injuries and released that evening.

Conclusion: Based on the information provided in the summary reports the Pike employees work site and digger derrick truck was in the vicinity of Shelby's energized conductors. The employee on the ground was not wearing PPE at the time of the incident. Based on the information contained in the summary reports the employees' actions inadvertently created five (5) probable violations of the National Electrical Safety Code (NESC).

Applicable Statutes, Codes, and Regulations:

278.042 Service adequacy and safety standards for electric utilities—National Electrical Safety Code.

(1) For the purposes of this section, "NESC" means the National Electrical Safety Code as published by the Institute of Electrical and Electronics Engineers, Inc.

(2) Except as otherwise provided by law, the commission shall, in enforcing service adequacy and safety standards for electric utilities, ensure that each electric utility constructs and maintains its plan and facilities in accordance with accepted engineering practices as set forth in the commission's administrative regulations and orders and in the most recent edition of the NESC.

Probable Violations: See Attachment A

1. NESC Rule 420-C (4&5)
2. NESC Rule 421-A (1&2)
3. NESC Rule 422-A (1&2)
4. NESC Rule 441-A-1 (a-d) & 3 (a&b)
5. NESC Rule 443-A (3&6)

Jeff Moore



Utility Investigator

Division of Inspections

Public Service Commission

- Attachments:
- A. Probable NESC Violations
 - B. Map of Incident
 - C. Shelby Energy's Summary Report
 - D. Kentucky Utilities Summary Report

Section 42.
General rules for employees

420. General**A. Rules and emergency methods**

1. Employees shall carefully read and study the safety rules, and may be called upon at any time to show their knowledge of the rules.
2. Employees shall familiarize themselves with approved methods of first aid, rescue techniques, and fire extinguishment.

B. Qualifications of employees

1. Employees whose duties require working on or in the vicinity of energized equipment or lines shall perform only those tasks for which they are trained, equipped, authorized, and so directed. Inexperienced employees shall: (a) work under the direction of an experienced and qualified person at the site, and (b) perform only directed tasks.
2. Employees operating mechanized equipment shall be qualified to perform those tasks.
3. If an employee is in doubt as to the safe performance of any assigned work, the employee shall request instructions from the employee's supervisor or person in charge.
4. Employees who do not normally work on or in the vicinity of electric supply lines and equipment but whose work brings them into these areas for certain tasks shall proceed with this work only when authorized by a qualified person.

C. Safeguarding oneself and others

1. Employees shall heed safety signs and signals and warn others who are in danger or in the vicinity of energized equipment or lines.
2. Employees shall report promptly to the proper authority any of the following:
 - a. Line or equipment defects such as abnormally sagging wires, broken insulators, broken poles, or lamp supports
 - b. Accidentally energized objects such as conduits, light fixtures, or guys
 - c. Other defects that may cause a dangerous condition
3. Employees whose duties do not require them to approach or handle electric equipment and lines shall keep away from such equipment or lines and should avoid working in areas where objects and materials may be dropped by persons working overhead.
4. Employees who work on or in the vicinity of energized lines shall consider all of the effects of their actions, taking into account their own safety as well as the safety of other employees on the job site, or on some other part of the affected electric system, the property of others, and the public in general.
5. No employee shall approach or bring any conductive object, without a suitable insulating handle, closer to any exposed energized part than allowed by Rule 431 (communication) or Rule 441 (supply), as applicable.
6. Employees should exercise care when extending metal ropes, tapes, or wires parallel to and/or in the vicinity of energized high-voltage lines because of induced voltages. When it is necessary to measure clearances from energized objects, only devices approved for the purpose shall be used.

D. Energized or unknown conditions

Employees shall consider electric supply equipment and lines to be energized, unless they are positively known to be de-energized. Before starting work, employees shall perform preliminary inspections or tests to determine existing conditions. Operating voltages of equipment and lines should be known before working on or in the vicinity of energized parts.

- (d) Other factors may increase the potential for accidental disengagement even if the hardware is compatible (e.g., foreign objects carried on the D-rings, condition of the snap hook, the shape of the D-ring).
- 7. Snap hooks shall not be connected to each other.
- 8. One hundred percent leather positioning straps or non-locking snap hooks shall not be used.
- 9. Wire rope lanyards shall be used in operations where the lanyard is subject to being cut. Wire rope lanyards shall not be used in the vicinity of energized lines or equipment.
- L. Fire extinguishers
In fighting fires or in the vicinity of exposed energized parts of electric supply systems, employees shall use fire extinguishers or materials that are suitable for the purpose. If this is not possible, all adjacent and affected equipment should first be de-energized.
- M. Machines or moving parts
Employees working on normally moving parts of remotely controlled equipment shall be protected against accidental starting by proper tags installed on the starting devices, or by locking or blocking where practical. Employees shall, before starting any work, satisfy themselves that these protective devices have been installed. When working or in the vicinity of automatically or remotely operated equipment such as circuit breakers that may operate suddenly, employees shall avoid being in a position where they might be injured from such operation.
- N. Fuses
When fuses must be installed or removed with one or both terminals energized, employees shall use special tools or gloves insulated for the voltage involved. When installing expulsion-type fuses, employees shall wear personal eye protection and take precautions to stand clear of the exhaust path of the fuse barrel.
- O. Cable reels
Cable reels shall be securely blocked so they cannot roll or rotate accidentally.
- P. Street and area lighting
 1. The lowering rope or chain, its supports, and fastenings shall be examined periodically.
 2. A suitable device shall be provided by which each lamp on series-lighting circuits of more than 300 V may be safely disconnected from the circuit before the lamp is handled.
EXCEPTION: This rule does not apply where the lamps are always worked on from suitable insulated platforms or aerial lift devices, or handled with suitable insulated tools, and treated as under full voltage of the circuit concerned.
- Q. Antennas
Employees working in the vicinity of antennas operating in the range of 3 kHz to 300 GHz shall use controls to mitigate exposure to radio-frequency sources that exceeds permissible exposure levels at the work station.
NOTE: See Rule 410A6.

421. General operating routines

- A. Duties of a first-level supervisor or person in charge
This individual shall:
 1. Adopt such precautions as are within the individual's authority to prevent accidents.
 2. See that the safety rules and operating procedures are observed by the employees under the direction of this individual.
 3. Make all the necessary records and reports, as required.
 4. Prevent unauthorized persons from approaching places where work is being done, as far as practical.

5. Prohibit the use of tools or devices unsuited to the work at hand or that have not been tested or inspected as required.
 6. Conduct a job briefing with the employees involved before beginning each job. A job briefing should include at least the following items: work procedures, personal protective equipment requirements, energy source controls, hazards associated with the job, and special precautions.
- B. Area protection
1. Areas accessible to vehicular and pedestrian traffic
 - a. Before engaging in work that may endanger the public, safety signs or traffic control devices, or both, shall be placed conspicuously to alert approaching traffic. Where further protection is needed, suitable barrier guards shall be erected. Where the nature of work and traffic requires it, a person shall be stationed to warn traffic while the hazard exists.
 - b. When openings or obstructions in the street, sidewalk, walkways, or on private property are being worked on or left unattended during the day, danger signals, such as safety signs and flags, shall be effectively displayed. Under these same conditions at night, warning lights shall be prominently displayed and excavations shall be enclosed with protective barricades.
 2. Areas accessible to employees only
 - a. If the work exposes energized or moving parts that are normally protected, safety signs shall be displayed. Suitable barricades shall be erected to restrict other personnel from entering the area.
 - b. When working in one section where there is a multiplicity of such sections, such as one panel of a switchboard, one compartment of several, or one portion of a substation, employees shall mark the work area conspicuously and place barriers to prevent accidental contact with energized parts in that section or adjacent sections.
 3. Locations with crossed or fallen wires

An employee, finding crossed or fallen wires that are creating, or may create, a hazard, shall remain on guard or adopt other adequate means to prevent accidents. The proper authority shall be notified. If the employee is qualified, and can observe the rules for safely handling energized parts by the use of insulating equipment, this employee may correct the condition.
- C. Escort
- Persons accompanying nonqualified employees or visitors or in the vicinity of electric equipment or lines shall be qualified to safeguard the people in their care, and see that the safety rules are observed.

422. Overhead line operating procedures

Employees performing work on or associated with overhead lines shall observe the following rules in addition to applicable rules contained elsewhere in Sections 43 and 44.

- A. Setting, moving, or removing poles in or in the vicinity of energized electric supply lines
 1. When setting, moving, or removing poles in or in the vicinity of energized lines, precautions shall be taken to avoid direct contact of the pole with the energized conductors. Employees shall wear suitable insulating gloves or use other suitable means when handling poles where energized conductors can be contacted. Employees performing such work shall not contact the pole with uninsulated parts of their bodies.
 2. Contact with trucks, or other equipment that is being used to set, move, or remove poles in or in the vicinity of energized lines shall be avoided by employees standing on the ground or in contact with grounded objects unless employees are wearing suitable protective equipment.

Section 44. Additional rules for supply employees

440. General

Supply employees shall observe the following rules in addition to the rules contained in Section 42.

441. Energized conductors or parts

A. Minimum approach distance to energized lines or parts

1. General

Employees shall not approach or bring any conductive object within the minimum approach distance listed in Table 441-1 or Table 441-5 to exposed energized lines or parts unless one of the following is met:

- a. The line or part is de-energized and grounded per Rule 444D.

EXCEPTION: For voltages less than 600 V where the making of the ground is impractical, the line or part may be isolated in lieu of installing temporary protective grounds provided the following conditions are met: (a) the lines and equipment are isolated from all sources and tested to be de-energized, (b) there is no possibility of contact with another energized source, and (c) the hazard of induced voltage is not present.

- b. The employee is insulated from the energized line or part. Electrical protective equipment insulated for the voltage involved, such as tools, rubber gloves, or rubber gloves with sleeves, shall be considered effective insulation for the employee from the energized line or part being worked on.
- c. The energized line or part is insulated from the employee and from any other line or part at a different voltage.
- d. The employee is performing barehand live-line work according to Rule 446.

NOTE 1: Minimum approach distances calculated under this rule for 0.301 kV to 0.750 kV contain the electrical component plus 0.31 m (1 ft) for inadvertent movement. Voltages 0.751 kV to 72.5 kV contain the electrical component plus 0.61 m (2 ft) for inadvertent movement. Voltages above 72.5 kV contain the electrical component plus 0.31 m (1 ft) for inadvertent movement.

NOTE 2: Methodology for calculating minimum approach distances were taken from OSHA 29 CFR 1910.269 Appendix B [B68].

NOTE 3: The voltage ranges are contained in ANSI C84.1-1995, Table 1.

NOTE 4: For the purpose of Section 44, *reach* is defined as the range of anticipated motion of an employee while performing a task, and *extended reach* is defined as the range of anticipated motion of a conductive object being held by an employee while performing a task.

2. Precautions for approach—Voltages from 51 V to 300 V

Employees shall not contact exposed energized parts operating at 51 V to 300 V, unless the provisions of Rule 441A1 are met.

3. Precautions for approach—Voltages from 301 V to 72.5 kV

At voltages from 301 V to 72.5 kV, employees shall be protected from phase-to-phase and phase-to-ground differences in voltage. See Table 441-1 or Table 441-5 for the minimum approach distances to live parts.

- a. When exposed grounded lines, conductors, or parts are in the work area, they shall be guarded or insulated.

EXCEPTION: When work is being performed on parts energized between 300 V and 750 V within equipment enclosures, (e.g., control panels and relay cabinets), insulating or guarding of all exposed

grounded lines, conductors, or parts in the work area is not required provided that employees use insulated tools and/or gloves and that exposed grounded lines, conductors, and parts are covered to the extent feasible.

- b. Rubber insulating gloves, insulated for the maximum use voltage as listed in Table 441-7, shall be worn whenever employee's working position is within the reach or extended reach of the minimum approach distances listed in Table 441-1 or Table 441-5, except as permitted by Rule 441A1c.
 - c. When using the Rubber Glove Work Method, rubber gloves shall be supplemented by one of the following two protective methods:
 - (1) The employee shall wear rubber insulating sleeves, insulated for the maximum use voltage as listed in Table 441-7, in addition to the rubber insulating gloves.
EXCEPTION: When work is performed on electric supply equipment energized at 750 V or less, rubber sleeves are not required if only the live parts being worked on are exposed.
 - (2) All exposed energized lines or parts, other than those temporarily exposed to perform work and maintained under positive control, located within the reach or extended reach of the employee's work position, shall be covered with insulating protective equipment.
 - d. When the Rubber Glove Work Method is employed at voltages above 15 kV phase-to-phase, supplementary insulation (e.g., insulated aerial device or structure-mounted insulating work platform), tested for the voltage involved shall be used to support the worker.
 - e. Cover-up equipment used to insulate phase-to-phase exposure shall be rated for not less than the phase-to-phase voltage of the circuit(s) in the work area. All other cover-up equipment shall be rated for not less than the phase-to-ground voltage of the circuit(s). The determination of whether phase-to-phase or phase-to-ground exposure exists shall be based on factors such as but not limited to: work rules, conductor spacing, worker position, and task being performed.
 - f. Cover-up equipment, when used, shall be applied to the exposed facilities as the employee first approaches the facilities from any direction, be that from the structure or from an aerial device, and shall be removed in the reverse order. This protective cover-up shall extend beyond the reach of the employee's anticipated work position or extended reach distance.
4. Precautions for approach—Voltages above 72.5 kV

When performing live line work, employees shall position themselves so that they are not within the reach or extended reach of the applicable minimum approach distance.

In lieu of using the minimum approach distances in Table 441-1, the minimum approach distance in Table 441-2 through Table 441-4 may be used provided the per unit transient overvoltage value (T) has been determined through an engineering analysis considering the system design, expected operating conditions, and control measures.

NOTE 1: Control measures include blocking reclosing, prohibiting switching during live line work, using protective air gaps, use of closing resistors and surge arrestors, etc.

NOTE 2: IEEE Std 516-2009 and OSHA 29 CFR 1910.269 Appendix B [B68] contain information that may be used to perform an engineering analysis to determine maximum transient overvoltage factors. The engineering analysis may be performed on a system basis or a per-line basis.

5. Temporary (transient) overvoltage control device (TTOCD)

TTOCD, which are designed and tested for installation adjacent to the worksite to limit the TOV at the worksite, may be used to obtain a lower value of T.

An engineering analysis, including laboratory testing, of the TTOCD shall be performed to determine and identify the range of sparkover voltages. The withstand and sparkover character-

Table 441-1—AC live work minimum approach distance ^①
(See Rule 441 in its entirety.)

Voltage in kilovolts phase-to-phase ^{① ② ③}	Distance to employee ^④					
	Phase-to-ground		Phase-to-phase			
	(m)	(ft-in)	(m)	(ft-in)		
0 to 0.050	Not specified		Not specified			
0.051 to 0.300	Avoid contact		Avoid contact			
0.301 to 0.750	0.33	1-1	0.33	1-1		
0.751 to 5.0	0.63	2-1	0.63	2-1		
5.1 to 15.0	0.65	2-2	0.68	2-3		
15.1 to 36.0	0.77	2-7	0.89	3-0		
36.1 to 46.0	0.84	2-10	0.98	3-3		
46.1 to 72.5	1.00	3-4	1.20	4-0		
Voltage in kilovolts phase-to-phase	Distance to employee from energized part ^{④ ⑤ ⑥ ⑩}					
	Without tools phase-to-ground		With tools phase- to-ground ^{⑦ ⑧}		Without tools phase- to-phase ^⑨	
	(m)	(ft-in)	(m)	(ft-in)	(m)	(ft-in)
72.6 to 121	1.06	3-6	1.13	3-9	1.42	4-8
121.1 to 145	1.21	4-0	1.30	4-4	1.64	5-5
145.1 to 169	1.36	4-6	1.46	4-10	1.94	6-5
169.1 to 242	1.87	6-2	2.01	6-8	3.08	10-2
242.1 to 362	3.19	10-6	3.41	11-3	5.52	18-2
362.1 to 420	3.99	13-2	4.25	14-0	6.81	22-5
420.1 to 550	4.78	15-9	5.07	16-8	8.24	27-1
550.1 to 800	6.53	21-6	6.88	22-7	11.38	37-5

①For single-phase lines off three-phase systems, use the phase-to-phase voltage of that system.

②For single-phase systems, use the highest voltage available.

③Inadvertent movement factors used in these tables are as follows:

0.301 kV to 0.750 kV = 0.31 m (1 ft)

0.751 kV to 72.5 kV = 0.61 m (2 ft)

72.6 kV to 800 kV = 0.31 m (1 ft)

④Distances listed are for standard atmospheric conditions defined as temperatures above freezing, wind less than 15 mi per h or 24 km per h, unsaturated air, normal barometer, uncontaminated air, and clean and dry insulators.

⑤For voltages above 72.5 kV, distances are based on altitudes below 900 m (3000 ft) above sea level. For altitudes above 900 m (3000 ft), Rule 441A6 applies.

EXCEPTION: If the automatic reclosing feature of a reclosing device is disabled by a Supervisory Control and Data Acquisition System (SCADA), the system shall provide for the following:

- (a) At the SCADA operating point
 - (1) A signal is received by the SCADA operator confirming that the disabling operation has occurred at the reclosing device location, and
 - (2) A readily visible tag or electronic display is used to inform any potential SCADA operator that a disabling operation has been initiated, and
 - (3) The tag or electronic display is removed before action is taken to re-enable the automatic reclosing feature.
 - (b) At the reclosing device location
 - (1) The reclosing feature is disabled in such a manner as to prevent manual override of the normal control by any potential on-site operator, or
 - (2) A signal, flag, or other display is used in such a manner as to alert any potential on-site operator that the reclosing feature has been disabled.
 3. The required tags shall be placed to clearly identify the equipment or circuits on which work is being performed.
- F. Restoration of service after automatic trip
1. When circuits or equipment upon which tags have been placed open automatically, the circuits or equipment shall be left open until reclosing has been authorized.
 2. When circuits open automatically, local operating rules shall determine in what manner and how many times they may be closed with safety.
- G. Repeating oral messages
- Each employee receiving an oral message concerning the switching of lines and equipment shall immediately repeat it back to the sender and obtain the identity of the sender. Each employee sending such an oral message shall require it to be repeated back by the receiver and secure the latter's identity.

443. Work on energized lines and equipment

- A. General requirements
1. When working on energized lines and equipment, one of the following safeguards shall be applied:
 - a. Insulate employee from energized parts
 - b. Isolate or insulate the employee from ground and grounded structures, and potentials other than the one being worked on
 2. Employees shall not place dependence for their safety on the covering (nonrated insulation) of wires. All precautions (see Section 44) for working on energized parts shall be observed.
 3. All employees working on or in the vicinity of lines or equipment exposed to voltages higher than those guarded against by the safety protective equipment provided shall assure themselves that the equipment or lines on which they are working are free from dangerous leakage or induction, or have been effectively grounded.
 4. Cutting into insulating coverings of energized conductors
 - a. A supply cable to be worked on as de-energized that cannot be positively identified or determined to be de-energized shall be pierced or severed at the work location with a tool designed for the purpose.
 - b. Before cutting into an energized supply cable, the operating voltage shall be determined and appropriate precautions taken for handling conductors at that voltage.
 - c. When the insulating covering on energized wires or cables must be cut into, the employee shall use a tool designed for the purpose. While doing such work, suitable eye protection

and insulating gloves with protectors shall be worn. Employees shall exercise extreme care to prevent short-circuiting conductors when cutting into the insulation.

5. Metal measuring tapes, and tapes or ropes containing metal threads or strands, shall not be used closer to exposed energized parts than the distance specified in Rule 441A. Care should be taken when extending metallic ropes or tapes parallel to and in the proximity of high-voltage lines because of the effect of induced voltages.
 6. Equipment or material of a noninsulating substance that is not bonded to an effective ground and which extends into an energized area, and which could approach energized equipment closer than the distance specified in Rule 441A, shall be treated as though it is energized at the same voltage as the line or equipment to which it is exposed.
- B. Requirement for assisting employee
- In inclement weather or at night, no employee shall work alone outdoors on or dangerously in the vicinity of energized conductors or parts of more than 750 V between conductors.
- EXCEPTION:* This shall not preclude a qualified employee, working alone, from cutting trouble in the clear, switching, replacing fuses, or similar work if such work can be performed safely.
- C. Opening and closing switches
- Manual switches and disconnectors shall always be closed by a continuous motion. Care should be exercised in opening switches to avoid serious arcing.
- D. Working position
- Employees should avoid working on equipment or lines in any position from which a shock or slip will tend to bring the body toward exposed parts at a potential different than the employee's body. Work should, therefore, generally be done from below, rather than from above.
- E. Protecting employees by switches and disconnectors
- When equipment or lines are to be disconnected from any source of electric energy for the protection of employees, the switches, circuit breakers, or other devices designated and designed for operation under the load involved at sectionalizing points shall be opened or disconnected first. When re-energizing, the procedure shall be reversed.
- F. Making connections
- In connecting de-energized equipment or lines to an energized circuit by means of a conducting wire or device, employees should first attach the wire to the de-energized part. When disconnecting, the source end should be removed first. Loose conductors should be kept away from exposed energized parts.
- G. Switchgear
- Switchgear shall be de-energized and grounded per Rule 444D prior to performing work involving removal of protective barriers unless other suitable means are provided for employee protection. The personnel safety features in switchgear shall be replaced after work is completed.
- H. Current transformer secondaries
- The secondary of a current transformer shall not be opened while energized. If the entire circuit cannot be properly de-energized before working on an instrument, a relay, or other section of a current transformer secondary circuit, the employee shall bridge the circuit with jumpers so that the current transformer secondary will not be opened.
- I. Capacitors
- Before employees work on capacitors, the capacitors shall be disconnected from the energizing source, short-circuited, and grounded. Any line to which capacitors are connected shall be short-circuited and grounded before it is considered de-energized. Since capacitor units may be connected in series-parallel, each unit shall be shorted between all insulated terminals and the capacitor tank before handling. Where the tanks of capacitors are on ungrounded racks, the racks shall also be grounded. The internal resistor shall not be depended upon to discharge capacitors.

ATTACHMENT B

KU-Pike Incident Site

Legend



Google Earth

© 2018 Google

300 ft

ATTACHMENT C



Shelby Energy Cooperative 7 Day Report

November 2, 2018

To Whom it may concern,

On October the 29th at 10:29 a.m., a Pike Construction Crew completing transmission work for Kentucky Utilities (KU) contacted a 7,200-volt Shelby Energy distribution line with a digger truck boom. This incident took place at 2125 Lake Jericho RD in Pendleton Ky. Shelby Energy crews reported to the scene and worked to restore power and secure the scene. Two Pike employees involved with the incident may have sustained injuries and were transported via ambulance.

Below is a timeline of events associated with this incident:

Timeline of events

10-29-18

- 10:29 am Jason Ginn, Shelby Energy Operations Manager, received a call from dispatch stating that SCADA showed Jericho Feeder 1 had operated and locked out
- 10:31 am Neil Raizor and Mike Mason both line technician's with Shelby Energy, were contacted by Ginn to inform them feeder 1 out of the Jericho substation was locked out and Shelby needed them to respond
- 10:32 am Joe Burchett, foreman with Davis H Elliot, was contacted by Ginn to respond to the outage for assistance with available crews
- 10:34 am Michael Nethery and James Crume both linemen with Shelby Energy, were contacted by Ginn to respond to the location of the outage to provide assistance
- 10:35 am Raizor and Mason arrived onsite and notified Ginn that a Pike Construction digger truck had contacted the 3-phase line and burned one phase down
- 10:37 am Sarah Newton, Shelby Energy Safety Coordinator, was informed by Ginn that there was an outage, and something had contacted Shelby Energy's line
- 10:39 am Ginn left the office to go to the site

www.shelbyenergy.com

620 Old Finchville Road · Shelbyville, Kentucky 40065-1714

Shelby Co. (502)633-4420 · Trimble Co. (502)255-3260 · Henry Co. (502)845-2845



Shelby Energy Cooperative

® A Touchstone Energy Cooperative 

- 10:40 am Newton left the office, accompanied by Tony Dempsey, KAEC Safety Loss Prevention Instructor
- 10:41 am Raizor called Ginn to verify that SCADA showed the feeder locked out
- 10:44 am Raizor talked to the Pike crews and asked if everyone was ok, no one stated otherwise
- 10:52 am Burchett's Elliot crew arrived onsite
- 10:54 am Raizor called Ginn to notify him the Shelby crew had the line back up and had removed their grounds and all Shelby and Pike employees were in the clear and he would like the line re-energized via SCADA
- 10:55 am Ginn contacted the Shelby Energy and Elliot crews that were in route and verified all were in the clear, so the line could be re-energized safely
- 10:55 am Ginn called Shelby dispatch and requested David Graham, Shelby Energy System Engineer, utilize SCADA to re-energize the feeder, restoring all outages
- 10:57 am Raizor checked once again to ensure the Pike crews were ok and again no one stated otherwise
- 11:02 am Ginn arrived onsite and checked in with all crews to inquire if everyone was ok and no one stated otherwise
- 11:04 am Nethery and Crume arrived onsite
- 11:07 am Newton arrived onsite along with Dempsey
- 11:13 am Ginn noticed a Pike employee with his shoe unlaced. Pike employee indicated that he was involved in the incident
- 11:14 am Newton then noticed the Pike employee sitting in the passenger side of a truck with his right shoe off looking at his foot
- 11:15 am Ginn ask employee involved if the ambulance had been called and the employee stated he had called 911



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- 11:20 am An additional Pike employee walked over the truck where the Pike employee with his shoe off was sitting and stated he was operating the truck at the time of the line contact
- Approx 11:30 Two ambulances arrived on scene and transported the two Pike employees involved in the incident
- 11:53 am Ginn contacted Jeff Moore, with the KY PSC, to notify him of the incident and discussed that an initial email notification would be coming later that day
- 12:00-2:00 pm Shelby Energy employees onsite collected measurements and photos from the scene
- 4:50 pm Ginn sent the mail notification was sent to the KY PSC

Additional Details:

Owner of Distribution Line: Shelby Energy Cooperative
Accounts effected by outage: 785 accounts
Outage start time: 10:29 am
Outage end time: 10:55 am
Nearest Site Address: 2125 Lake Jericho Rd, Pendleton Ky
Primary Voltage: 7,200 volts
Line Type: 3-phase
Conductor: #2 ACSR, Phases and Neutral
Ground to Line Clearances: Collected on 10-30-18 at 2:00 pm at 58 degrees
A Phase 29' 1" (see attached photos)
Neutral 24' 10" (see attached photos)

Party that contacted Line: Pike Construction
Pike Contact: Clifford Carroll
Safety Coordinator
606-205-3547 (cell)
ccarroll@pike.com

Working For: Kentucky Utilities
Kentucky Utilities Contact: Keith McBride
Electric Technical Training & Public Safety
502-664-0317
Keith.McBride@lge-ku.com

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Shelby Energy Cooperative



A Touchstone Energy Cooperative 

We are told that Pike along with KU are completing a full investigation into this incident to be submitted to the KY PSC.

The following pages are additional information associated with this incident. This 7-day report will serve as Shelby Energy's complete investigation report. If you need anything further, feel free to call or email.

Jason Ginn

Operations Manager

jason@shelbyenergy.com

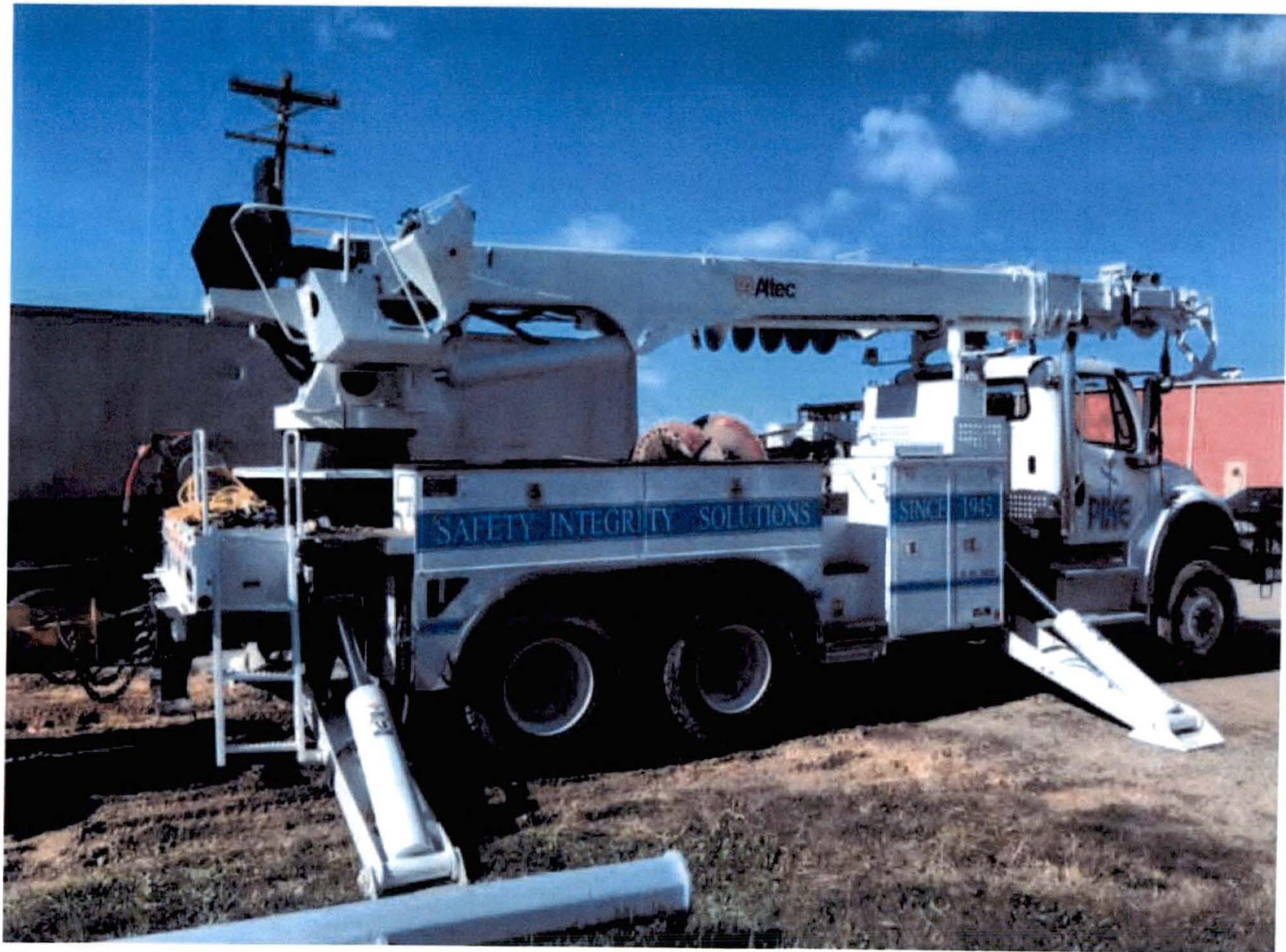
502-643-2778 (mobile)

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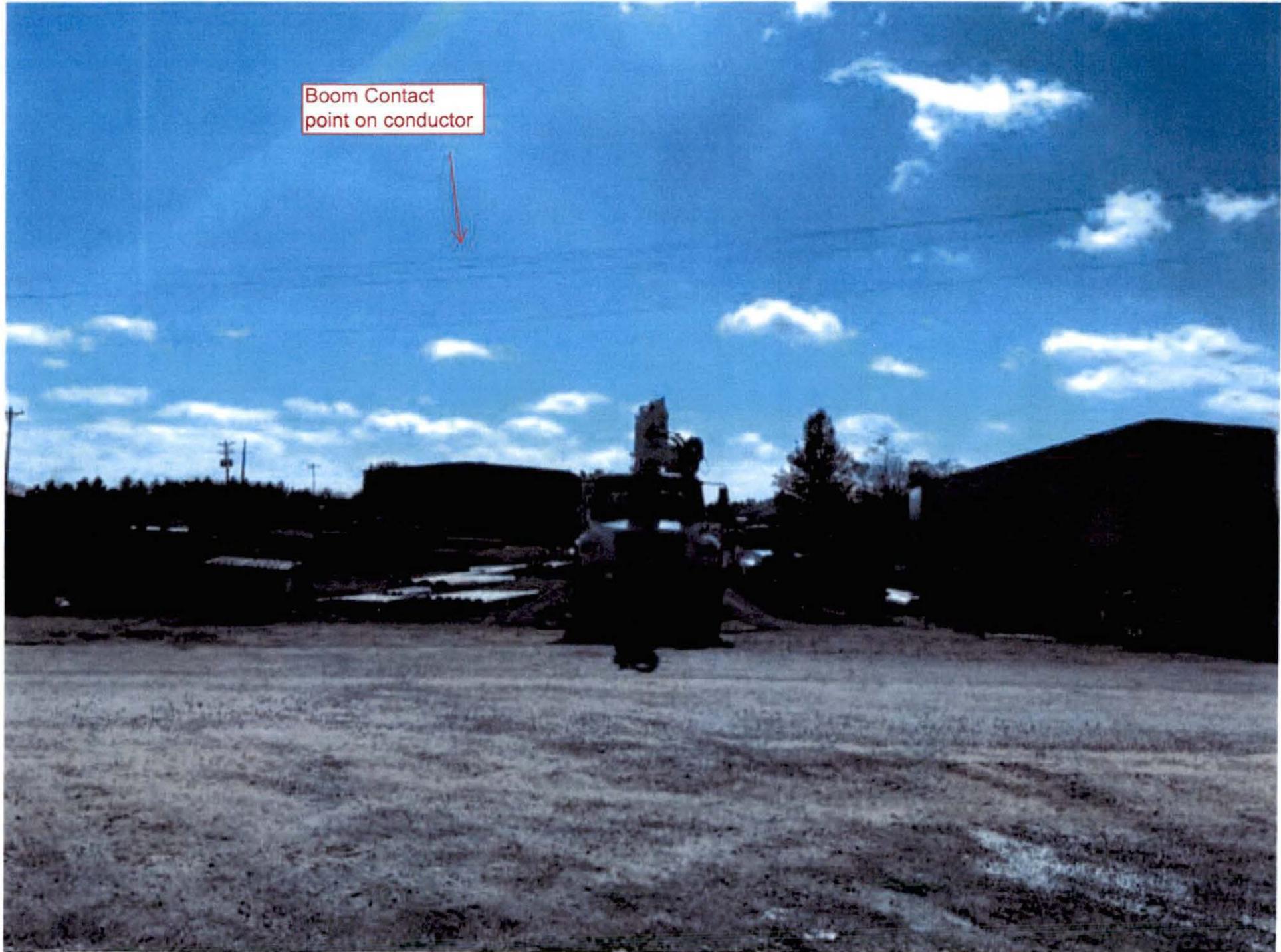






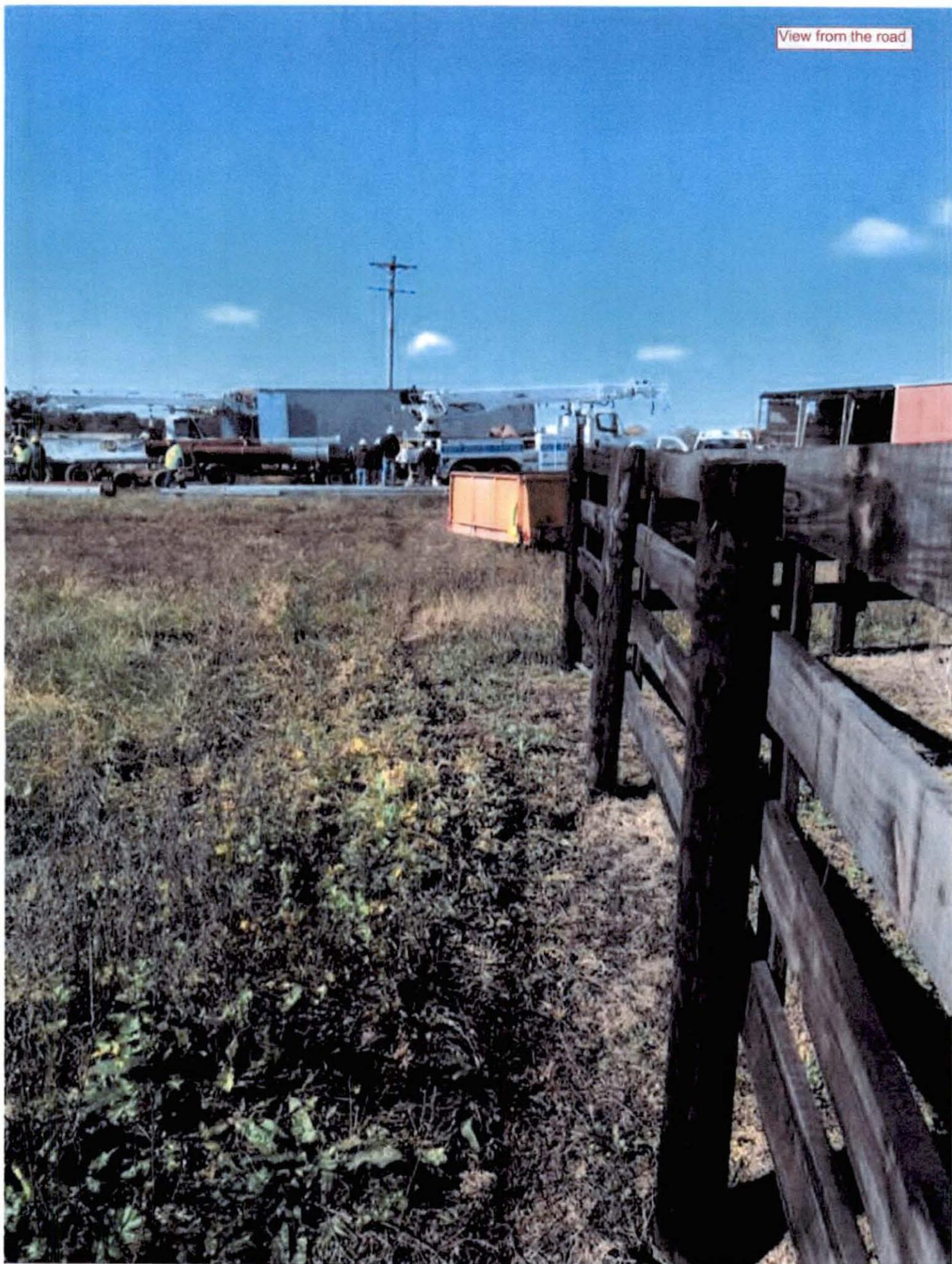


Boom Contact
point on conductor

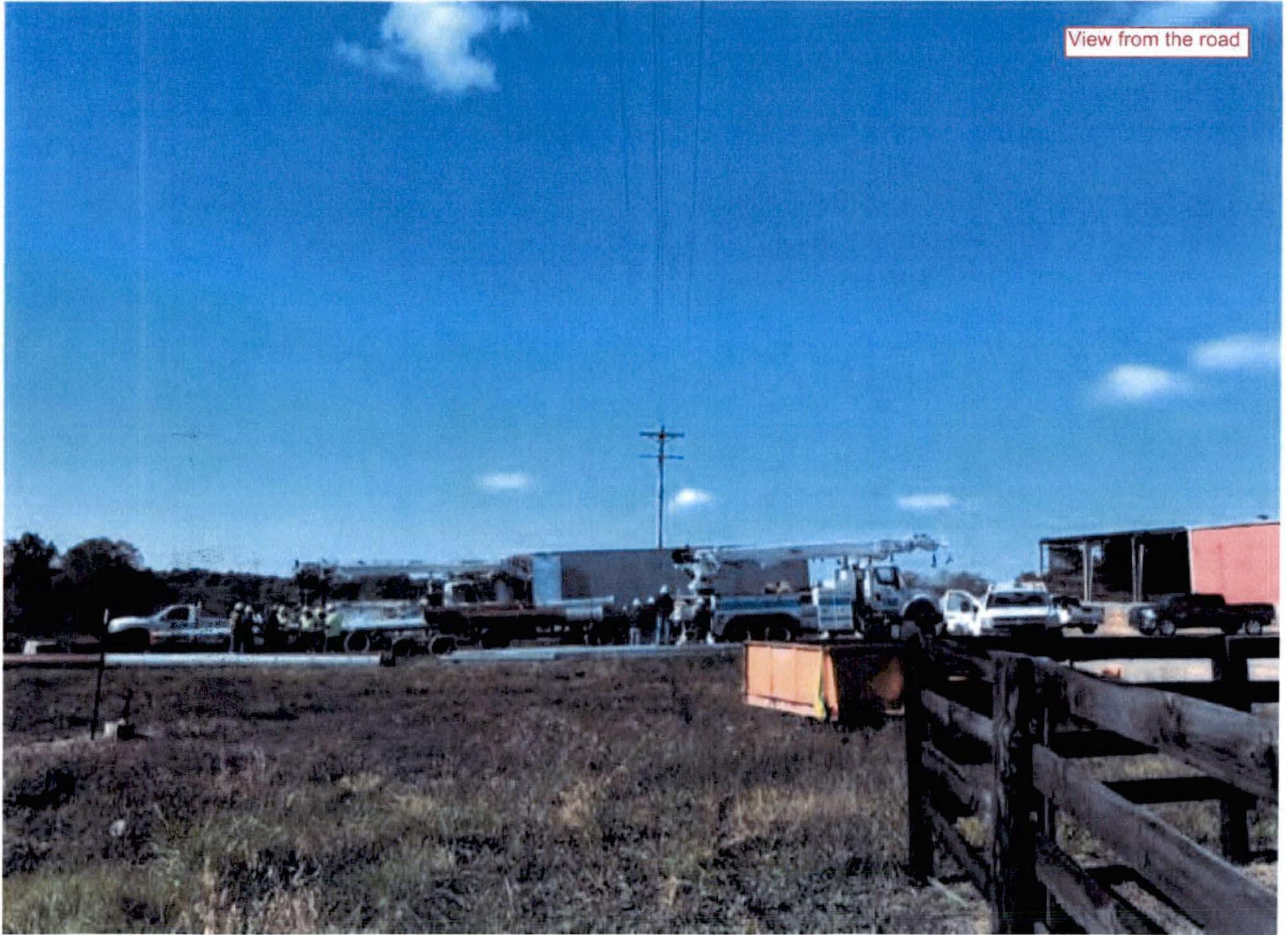




View from the road



View from the road

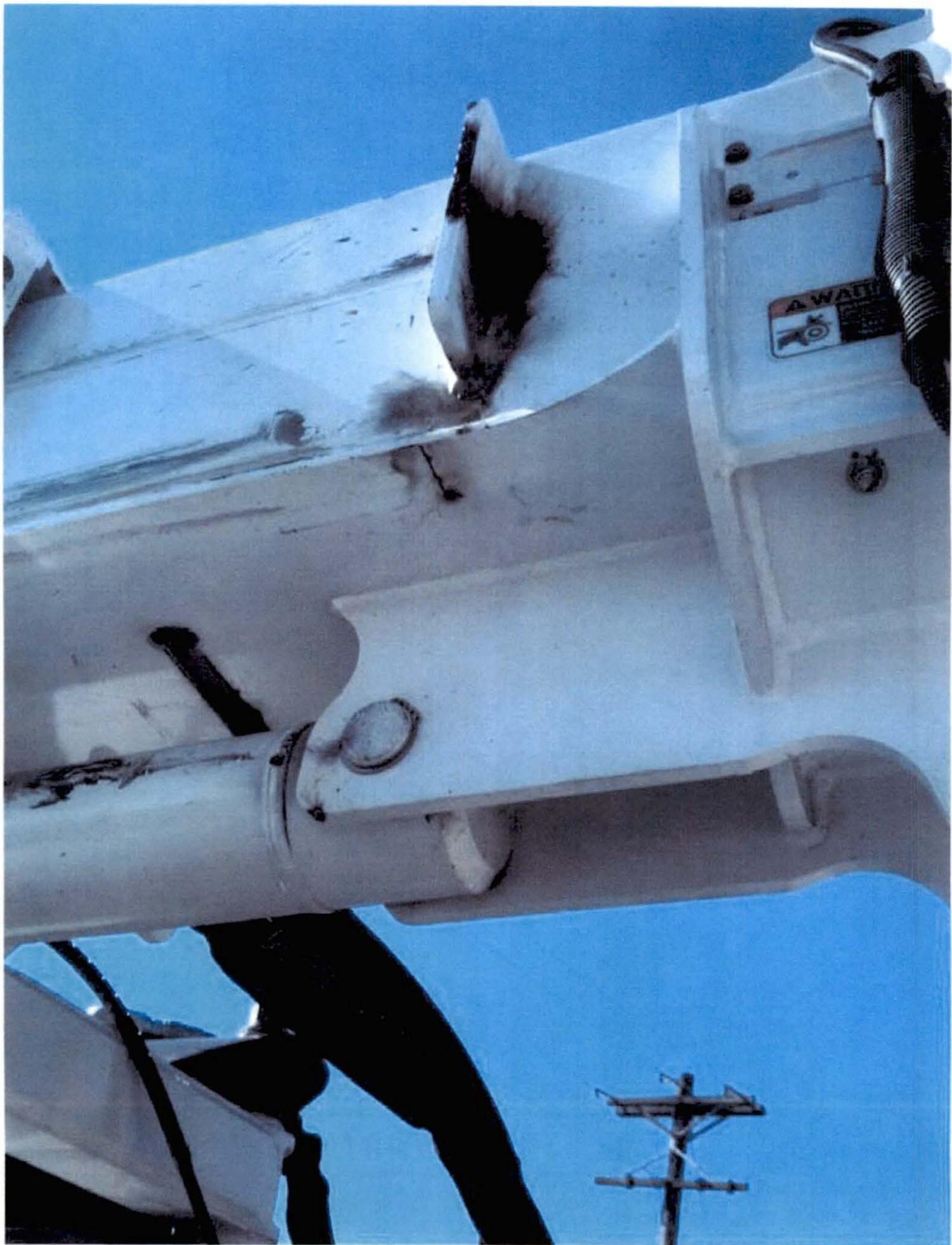


View from the road



Contact points on truck boom









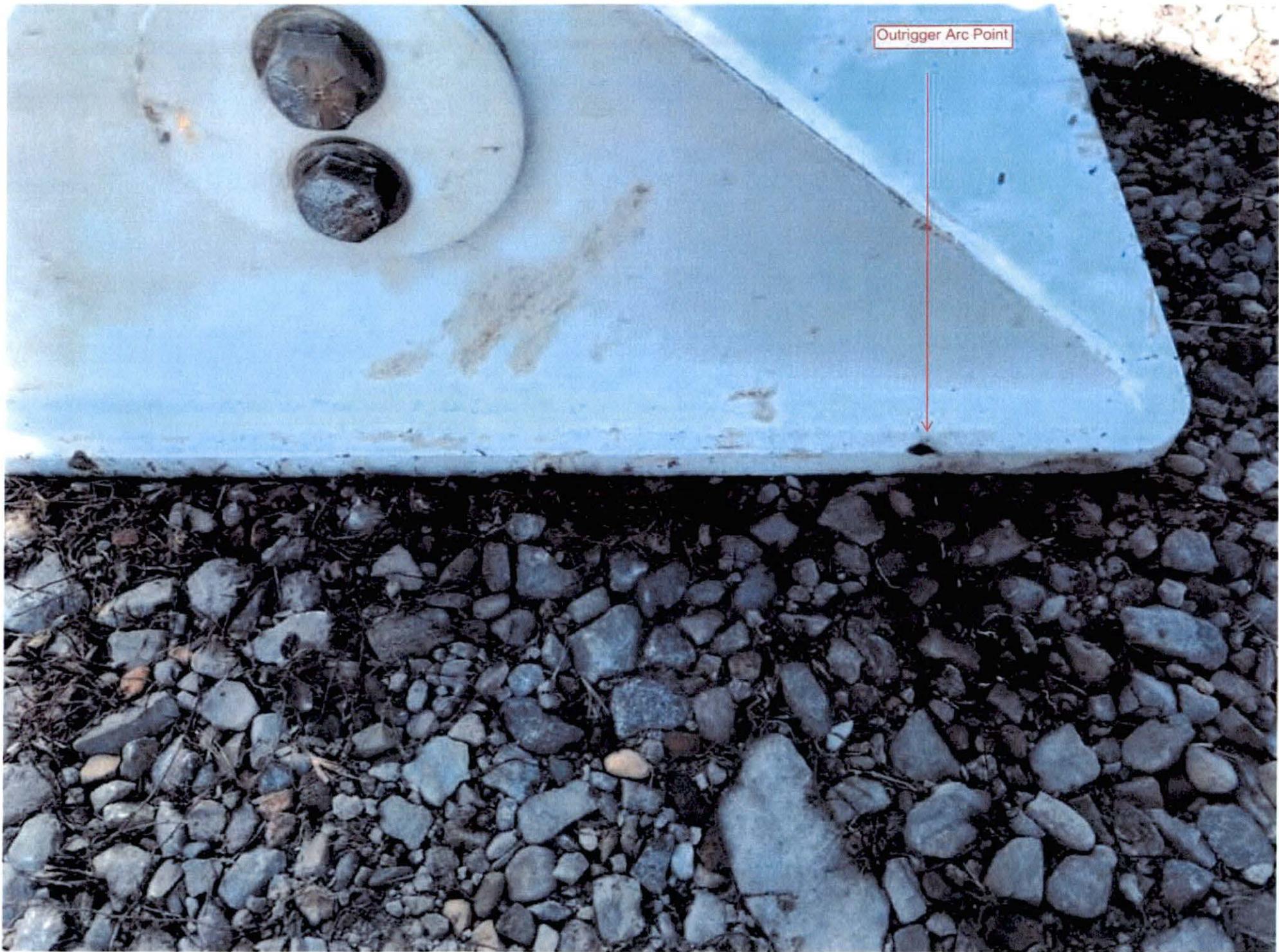
Outrigger Arc Point



Outrigger Arc Point



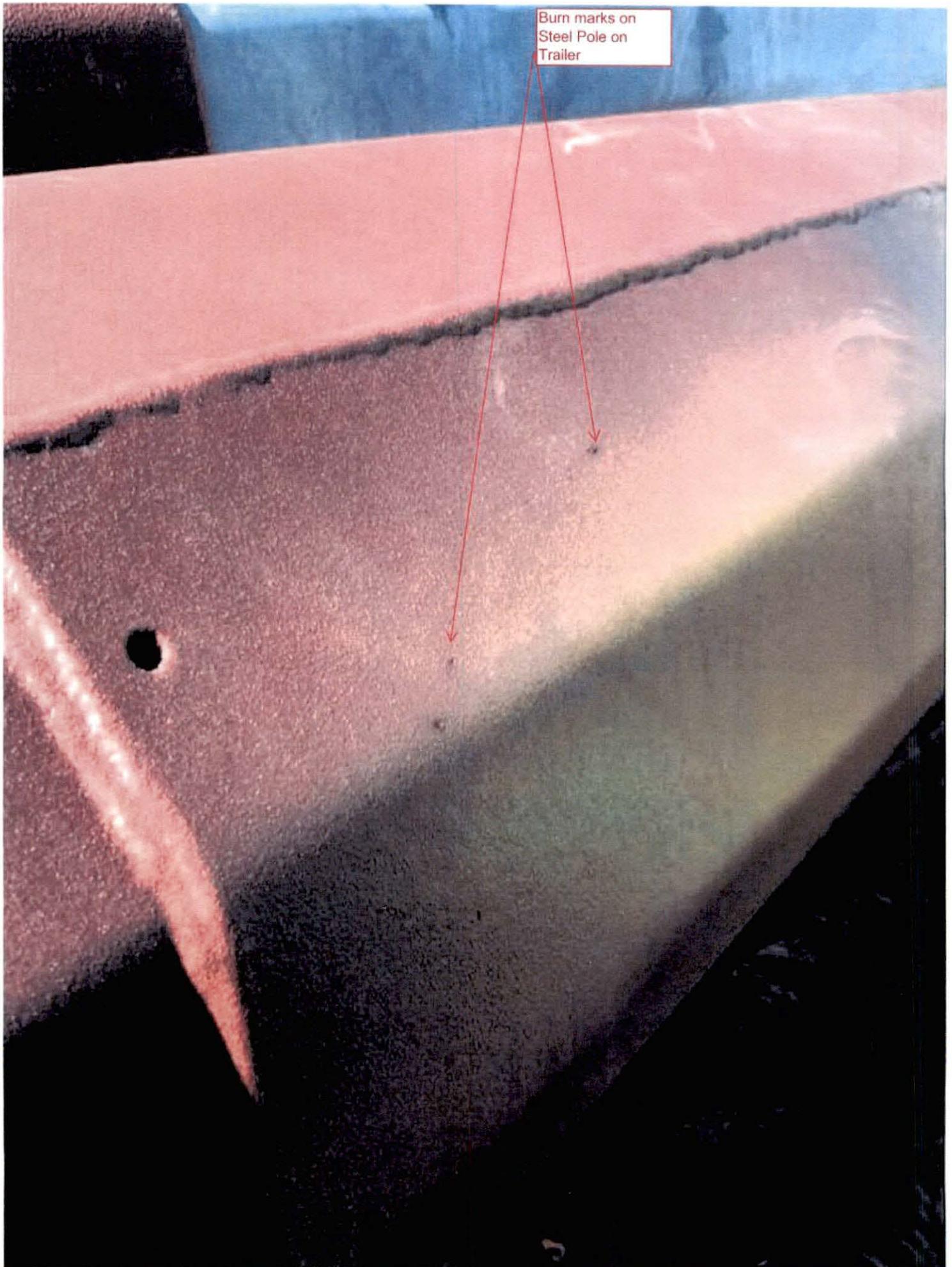
Outrigger Arc Point



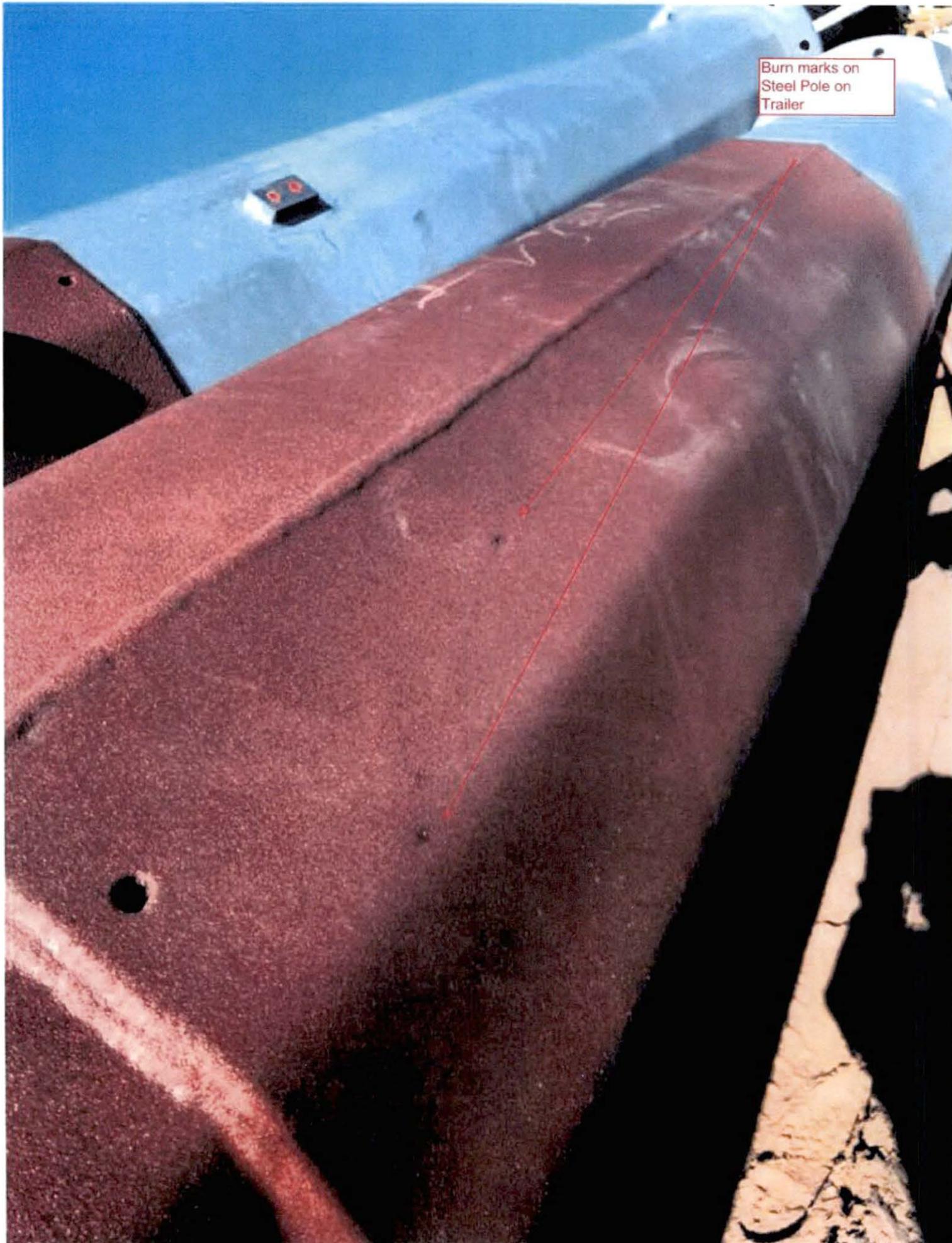
Outrigger Arc Point



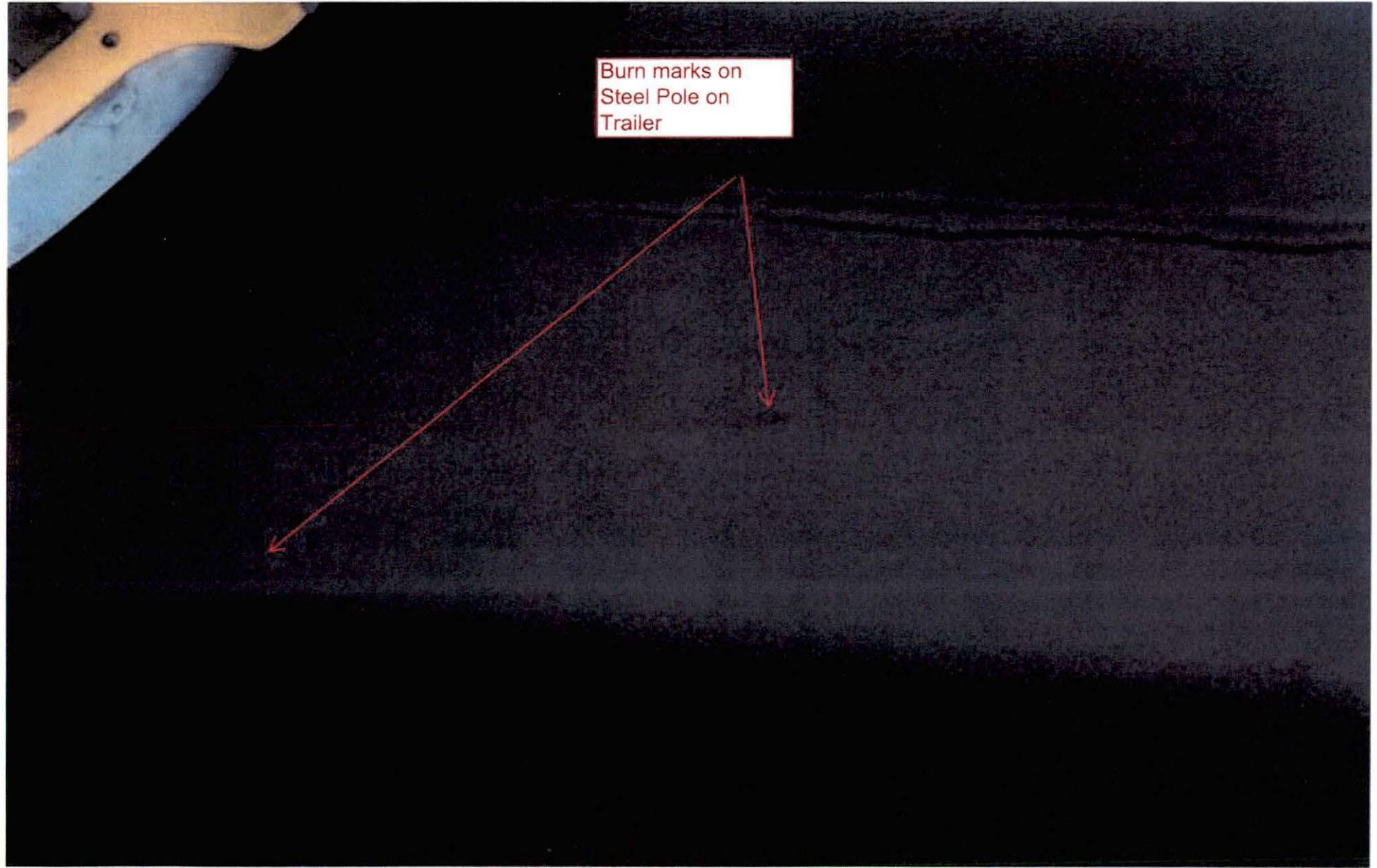
Burn marks on
Steel Pole on
Trailer



Burn marks on
Steel Pole on
Trailer



Burn marks on
Steel Pole on
Trailer



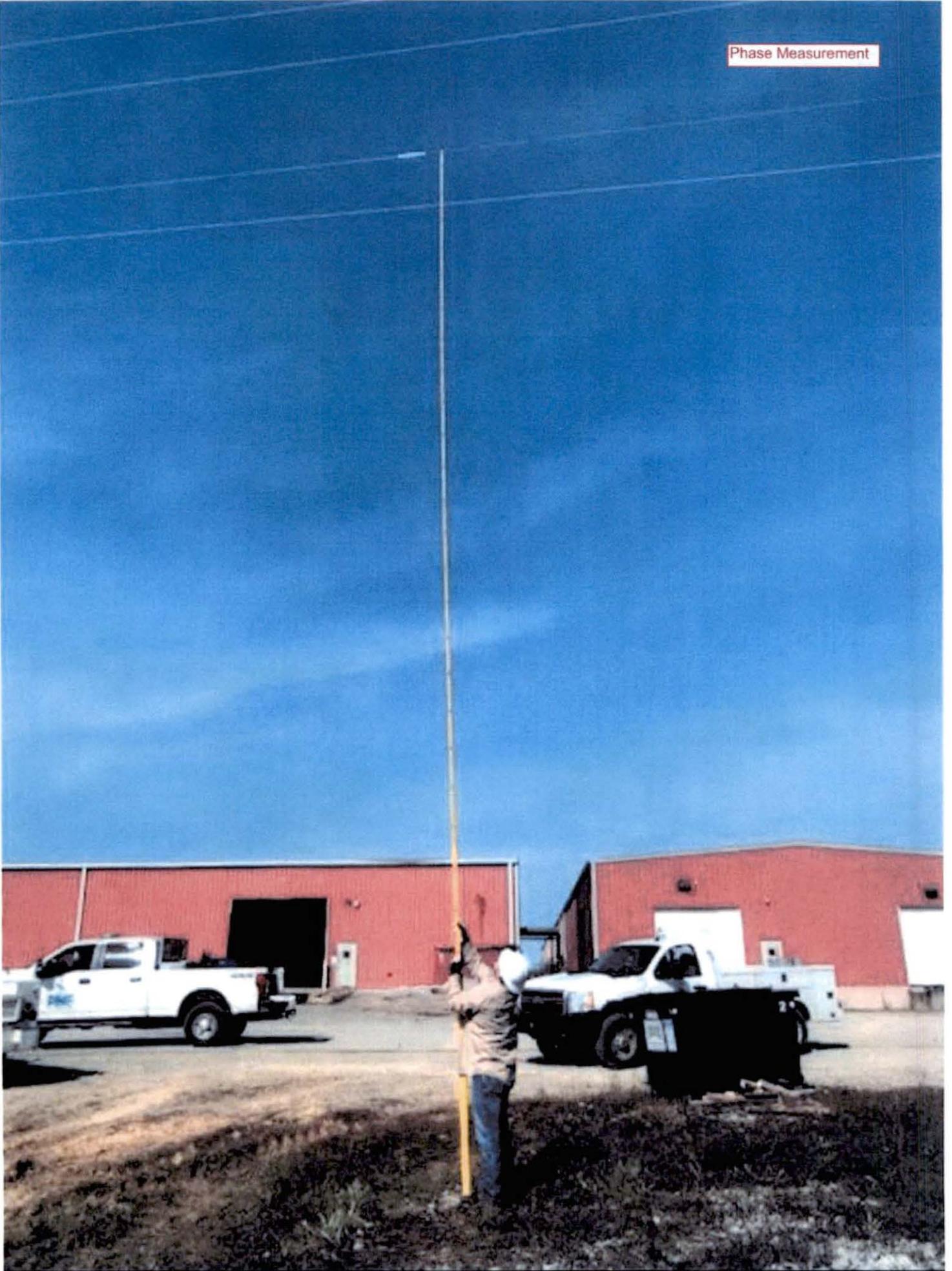


Burn marks on
Steel Pole on
Trailer

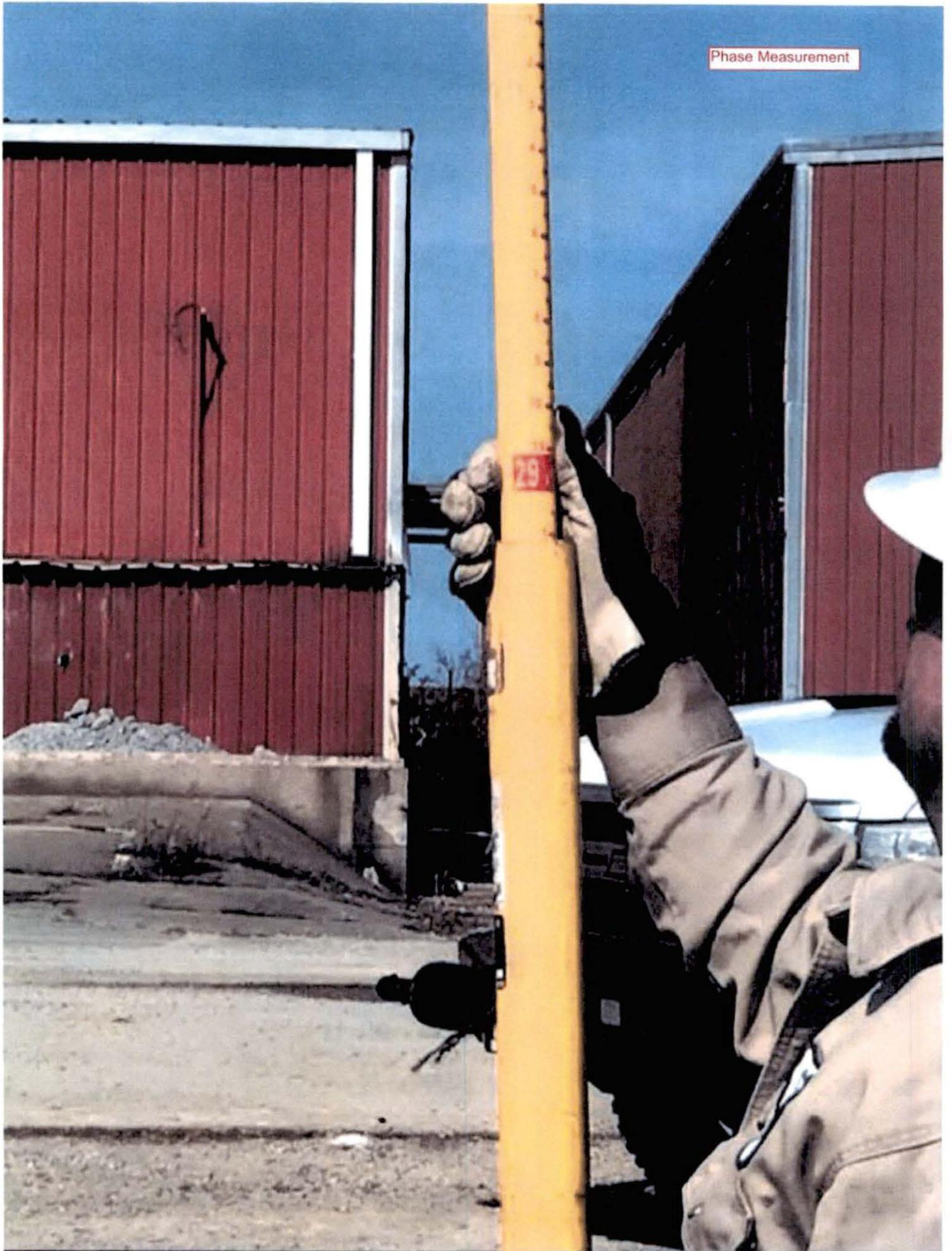
Boom contact point
and new sleeve in
line

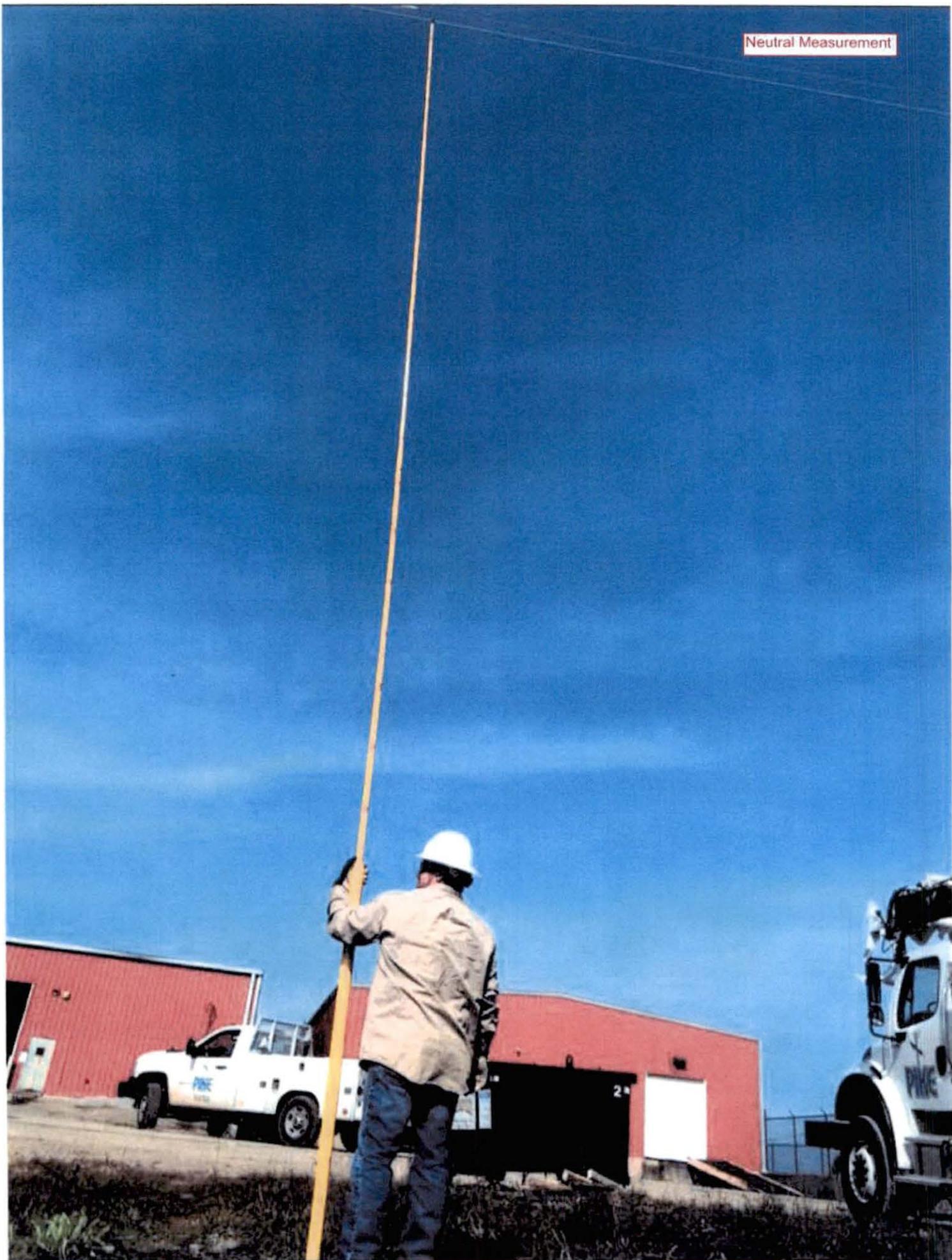


Phase Measurement



Phase Measurement





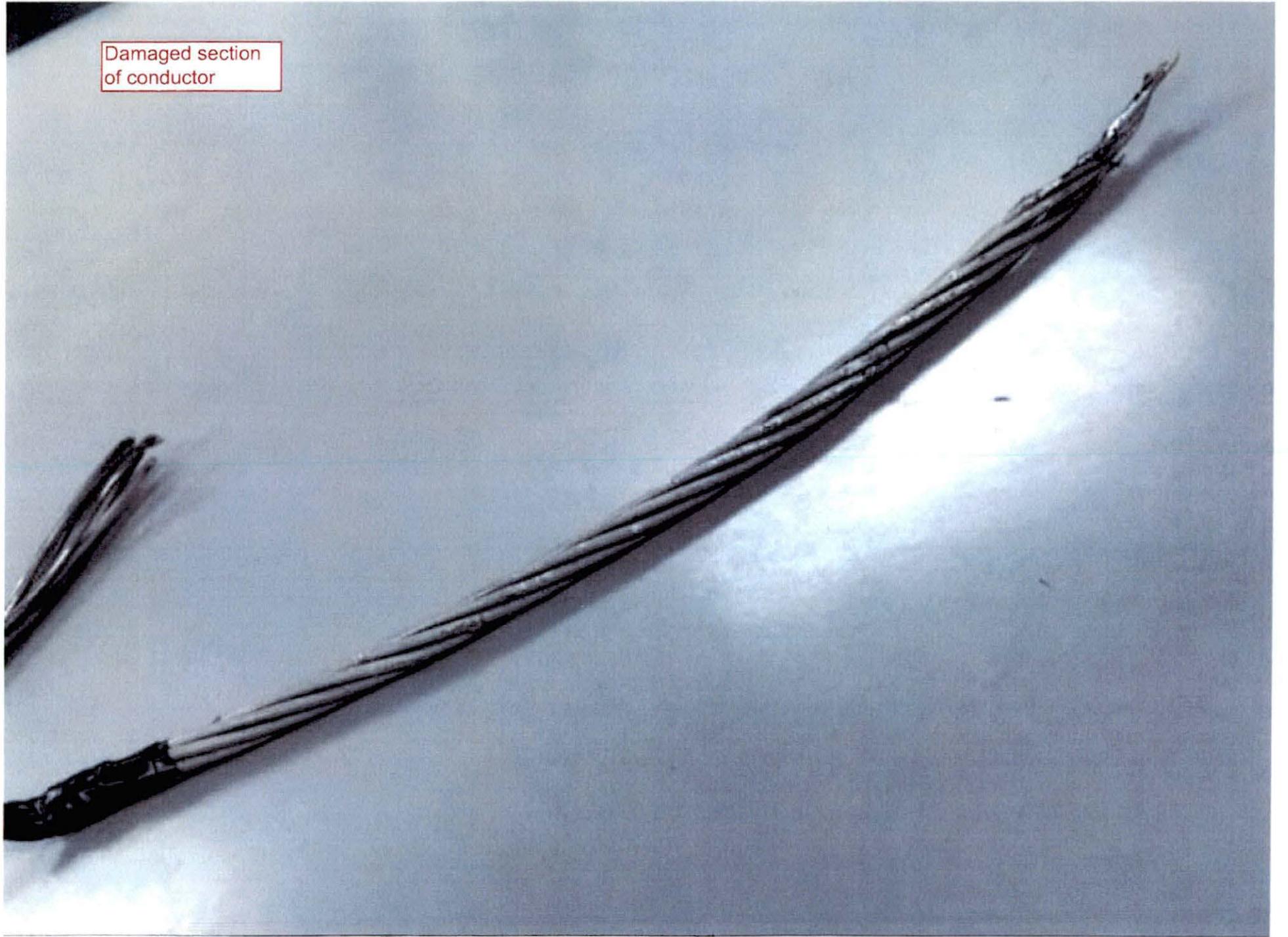
Neutral Measurement



Damaged section
of conductor



Damaged section
of conductor



ATTACHMENT D



PPL companies

November 5, 2018

Ms. Gwen Pinson
Executive Director
Kentucky Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, KY 40602

Re: Report No. 18-Trans-E-021-KU

Dear Ms. Pinson:

I am forwarding the enclosed Incident Report prepared by Keith McBride regarding the Pike Electric Employee Injury which occurred on October 29, 2018. Kentucky Utilities Company is providing this report to the KPSC in accordance with the applicable seven-day reporting requirement. Please return a file stamped copy of the report in the envelope provided.

Should you need additional information concerning this incident, please contact me at (502) 627-2756.

Sincerely,

Mark Gomsak

RECEIVED

NOV 05 2018

PUBLIC SERVICE
COMMISSION

LG&E and KU Energy, LLC
Corporate Law
220 W. Main Street
Louisville, Kentucky 40202
www.lge-ku.com

Mark Gomsak
Corporate Attorney
T 502-627-2166
F 502-627-3367
Mark.Gomsak@lge-ku.com

RECEIVED

NOV 05 2018

PUBLIC SERVICE
COMMISSION

KPSC INVESTIGATION REPORT

KU Contractor Admitted to Hospital

Type of Report

18-Trans-E-021-KU

Report Number

Keith Mc Bride

Investigator

October 29, 2018

Date of Incident

Location: 2327 Lake Jericho Road
Smithfield, Kentucky 40068

Incident Summary

On Monday, October 29, 2018, at 10:29A.M, two Pike Electric crews working for LG&E-KU Transmission were loading material at a staging property located at 2327 Lake Jericho Rd, Smithfield, Kentucky 40068.

While operating a digger derrick to load material, the truck's boom inadvertently contacted a single phase of a 3-phase 7200v system. At that time, the Pike employee operating the truck rotated the boom into the 7200v phase. Also at that time, a second Pike employee was standing next to the pole trailer which was attached to the truck, with his left arm resting on a steel pole butt as he attempted to unhook a synthetic sling from a pole section loaded on the trailer. This second Pike Electric employee received a shock from the boom contact.

EMS was called and the employee on the ground was taken to the University of Louisville Hospital with burns to his hands and foot, and was admitted to the hospital at approximately 2:30 P.M. for overnight observation. The derrick digger operator was taken to a local hospital as a precaution with no injuries.

Keith McBride, Senior Electric Technical Training and Public Safety Consultant, notified the Kentucky Public Service Commission (KPSC) via the incident notification email system. Mr. Kingsolver of the KPSC, was also notified at 2:33 P.M. of the incident.

Incident Investigation

On Monday October 29, 2018 at 10:29A.M., two Pike Electric crews working for LG&E-KU Transmission were loading material at a staging property, located at 2327 Lake Jericho Rd, Smithfield, Kentucky.

Utilizing a tandem axle digger derrick connected to a pole trailer, the crews had already loaded three steel pole tops and bottoms. After loading the poles, they repositioned the derrick and trailer beneath a Shelby Energy Cooperative three phase distribution circuit with plans to pick up a steel cross arm.

The Shelby Energy three phase distribution circuit was a one span three phase tap off the Jericho Substation Feeder 1 (named the Pendleton Truck Stop Circuit). This tap did not feed any customers.

The digger derrick was positioned so that the three phase tap was directly above the pintle hitch connection between the truck and trailer. Pike employee Cody Griffin was operating the digger derrick, booming up and rotating right with intentions of picking up a steel cross arm. Pike employee Robert Joyce was standing at the pole trailer, with his left arm resting on a steel pole butt, attempting to unhook a synthetic sling from a pole section loaded on the trailer.

Griffin, who was operating the digger, saw Joyce attempting to remove the sling and began advising him to get another sling from the truck bin. Griffin continued to boom up and rotate right as he was focused on Joyce. At this time the digger derrick boom second stage made contact with the C phase of the tap.

C Phase was 29'1" above the ground at the contact location, and the neutral was 24'10" at the location.

When the derrick boom contacted the #2ACSR conductor, the re-closer at the Jericho substation operated 3 times and locked open as the C phase burnt down and fell to the ground.

Robert Joyce who was leaning against the steel pole section on the trailer connected to the derrick felt an electric shock at the time of the event, receiving minor burns to his left forearm, back of his hand, and thumb, as well as the right side of his right foot. He was transported by EMS to University of Louisville Hospital and hospitalized overnight for observation. He was released the next day Tuesday, October 30, 2018 with instructions to return to work on Monday November 5, 2018.

Cody Griffin was startled by the event, and also requested medical evaluation. He was transported by EMS to LaGrange Hospital and evaluated. He was diagnosed with no injuries and released that afternoon, Monday, October 29, 2018, and returned to work receiving no treatment.

Truck type: 2017 Freightliner DT65 Tandem Axle, Altec Digger Derrick

Contact point: Second stage, approximately 3' down from boom tip

Measurements: C-phase conductor to earth – 29ft-1in
Neutral to earth – 24ft-10in

Contractor Information:

Robert Joyce
Pike Electric Line Technician C (hire date 8/26/2018)
863 Melanie Lane
Richmond, KY 40475

Cody Griffin
Pike Electric Line Technician C (hire date 6/25/2018)
248 Wilder Lane
Booneville, KY 41314

DATE OF REPORT: November 5, 2018

END OF REPORT

PIKE PRE/POST JOB BRIEFING

Use this form as a tool to foster an interactive and empowering discussion on how to plan the best way to perform the job and to fully identify and mitigate existing and potential hazards.

Purpose: Identify and mitigate existing and potential hazards.

Reasons: Health and happiness; family; customer satisfaction; being prepared; regulatory and company requirement; others:

Job Information

Date: 10-29-18 Pike Job #: _____ Customer: LGE-K4

Project Name: _____ Job Location: Emilio to LA Garage

Work Plan: load poles on material dig holes spot poles

Emergency Contact Number: 911 Nearest Medical Facility: Baptist Health

Safe Driving / Vehicle Operations

- | | |
|---|---|
| <p>Route Planning</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Safe Stops for Fueling, Eating, Etc. (avoid the need to back) <input checked="" type="checkbox"/> Avoid Heavy Traffic and Sun Glare <input checked="" type="checkbox"/> Limit Left Turns and Try to Turn at Intersections with Traffic Signals <input checked="" type="checkbox"/> Take Everything Needed to Avoid Unnecessary Return Trips | <p>Vehicle and Driver Preparedness</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Thorough Pre-Trip Inspection Conducted and Documented <input checked="" type="checkbox"/> Driver is Not Fatigued and has Valid License and Medical Card <input checked="" type="checkbox"/> Driver is Trained and Qualified for the Vehicle to be Driven <input checked="" type="checkbox"/> Cargo is Secured - truck can turn over and nothing fall out |
|---|---|

- Driving**
- | | |
|--|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> At Least 1 Second Following Distance for every 10 Feet of Vehicle Length <input checked="" type="checkbox"/> Limit Lane Changes and Do Not Make Lane Changes in or Around Intersections | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Cover the Brake when Approaching Intersections <input checked="" type="checkbox"/> Drive - no texting or other distractions such as eating; no handheld mobile device use allowed in commercial vehicles |
|--|---|

Discussion Topic Guide (Check all that apply)

- Work Planning (SSM Section 3)**
- | | |
|--|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Work Procedures Involved / Individual Task Assignments <input checked="" type="checkbox"/> Potential Emergencies / Emergency Action Plan <input checked="" type="checkbox"/> Conditions that may Change / Weather Forecast <input type="checkbox"/> Work Area Protection (flagging, work zones) SSM Section 14 <input checked="" type="checkbox"/> Personal Protective Equipment SSM Section 4 <input checked="" type="checkbox"/> Responsibility to Stop When Unsure SSM 301 | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Employee Preparedness, Medical, or Emotional Concerns—training, fatigue, medications, stress <input type="checkbox"/> Environmental Concerns <input checked="" type="checkbox"/> Interruptions and Distractions <input checked="" type="checkbox"/> Other Work Groups in the Area <input checked="" type="checkbox"/> Communication (work planning, echo protocol) <input checked="" type="checkbox"/> Situations When Another Job Brief is Required SSM 304 |
|--|---|

- | | |
|---|--|
| <p>Excavations / Trenching (SSM 710)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Utility Locates (Marked / Unmarked) <input type="checkbox"/> Inspected by Competent Person <input type="checkbox"/> Means of Egress (within 25 feet of each worker if 4 feet or deeper) <input type="checkbox"/> Soil Classification and Protective Systems <input type="checkbox"/> Spoil Piles and Other Materials (at least 2 feet from edge) | <p>Confined / Enclosed Spaces (SSM 709)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Atmospheric Testing and Ventilation <input type="checkbox"/> Entry and Rescue Procedures <input type="checkbox"/> Definition and Classification (reclassify to lowest level) <input type="checkbox"/> Public Safety (signs, guards, barricades) |
|---|--|

- | | |
|---|---|
| <p>Equipment Operation (SSM Section 16)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pre-Flight and Pre-Use Inspections Conducted <input type="checkbox"/> Qualified Operator (cranes and forklifts require certification) <input type="checkbox"/> Outriggers (echo protocol to clear outrigger travel path) <input type="checkbox"/> Three-Point Contact (entering or exiting equipment) <input type="checkbox"/> Set up and Use according to Manufacturer Guidelines <input type="checkbox"/> Adhere to Load Charts and Capacities | <p>Tools and Machinery (SSM Section 17)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tools Must be Company Provided or Approved (includes knives) <input type="checkbox"/> Follow Manufacturer's Instruction and Use for Intended Purpose <input type="checkbox"/> Inspect Before each Use |
|---|---|

- | | |
|---|--|
| <p>Energized Work (Alive With Five)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Know Your Voltage; Plan Your Work (SSM 201 AWF #1) <input type="checkbox"/> Wear Rubber Gloves and Sleeves (SSM 201 AWF #2) <input type="checkbox"/> Cover Up (SSM 201 AWF #3) <input type="checkbox"/> Flag, Tag, and Ground (SSM 201 AWF #4) <input type="checkbox"/> Secure Jumpers (SSM 201 AWF #5) | <p>Material Handling (SSM 1306)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Use Equipment or Get Help with Awkward or Heavy Loads <input checked="" type="checkbox"/> Inspect Rigging Components Before Use <input checked="" type="checkbox"/> Adhere to Working Limits of Rigging Components and Hardware |
|---|--|

- | | |
|--|---|
| <p>Energized Work (Other Requirements)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Energy Source Controls SSM 601 <input type="checkbox"/> Echo Protocol (required for jumpers and grounds) SSM 305 <input type="checkbox"/> Mechanical Jumpers (site specific discussion) SSM 804 <input checked="" type="checkbox"/> Required Rating for FR Clothing: _____ | <p>Gas Operations</p> <ul style="list-style-type: none"> <input type="checkbox"/> Employees Trained and Competent in Task Being Performed <input type="checkbox"/> Operator Qualifications as Required <input type="checkbox"/> Leak Detection and Reporting <input type="checkbox"/> Tapping or Stopping Pipelines <input type="checkbox"/> Air Testing and Purging of Lines |
|--|---|

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Minimum Approach Distance SSM 704 <input checked="" type="checkbox"/> Qualified Observer (no other duties) SSM 703 | <p>Circuit Number: _____ Voltage: _____</p> <p>Circuit on "One Shot" YES NO</p> |
|---|---|

Energized Work (Host Employer Information Transfer)

Per §29 CFR 1910.269(a)(3), host employers (Pike customers) must inform contract employers (Pike) of the following. Check each box if the information has been communicated and is known to the crew.

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Nominal voltage of lines and equipment <input type="checkbox"/> Maximum switching transient voltage (TOV) <input type="checkbox"/> Line-to-ground voltage | <ul style="list-style-type: none"> <input type="checkbox"/> Location of circuits and equipment <input type="checkbox"/> Environmental conditions related to safety <input type="checkbox"/> Construction of lines | <ul style="list-style-type: none"> <input type="checkbox"/> Location and condition of protective grounds and equipment grounding conductors <input type="checkbox"/> Other safety related system info such as (lockout/tagout, MAD distance, AR) |
|--|--|--|

PIKE PRE/POST JOB BRIEFING

Job Hazard Analysis

Job Step	Hazard(s)	Control(s)
Load poles	Rigging Pole	in spot rigging
Load material	hurt body	get help with load
Set up truck	over head hazards	be aware
working on tracks	fall hazards	3 points of contact
working around others	various hazards	have good communication
moving to site	wrecks	obey traffic laws

What Could Go Wrong -- Discuss Worst Case Scenarios and Past Events on Similar Jobs

Rigging Pole, wrecks, rope broken get into over head lines

Error Precursors (TWIN)

Task Demands	Work Environment	Individual Capabilities	Human Nature
<input type="checkbox"/> Time pressure (in a hurry)	<input checked="" type="checkbox"/> Distractions / Interruptions	<input checked="" type="checkbox"/> Unfamiliarity with task / First time	<input checked="" type="checkbox"/> Stress (limits attention)
<input type="checkbox"/> High workload (memory requirements)	<input checked="" type="checkbox"/> Changes / Departures from routine	<input checked="" type="checkbox"/> Lack of knowledge (mental model)	<input checked="" type="checkbox"/> Habit patterns
<input checked="" type="checkbox"/> Simultaneous, multiple tasks	<input checked="" type="checkbox"/> Confusing displays or controls	<input checked="" type="checkbox"/> New technique not used before	<input checked="" type="checkbox"/> Assumptions
<input checked="" type="checkbox"/> Repetitive actions, monotonous	<input type="checkbox"/> Workarounds / OOS instruments	<input type="checkbox"/> Imprecise communication habits	<input checked="" type="checkbox"/> Complacency / Overconfidence
<input checked="" type="checkbox"/> Irrecoverable acts	<input checked="" type="checkbox"/> Hidden system response	<input checked="" type="checkbox"/> Lack of proficiency / Inexperience	<input type="checkbox"/> Mindset (Intentions)
<input checked="" type="checkbox"/> Interpretation requirement	<input checked="" type="checkbox"/> Unexpected equipment conditions	<input checked="" type="checkbox"/> Indistinct problem solving skills	<input checked="" type="checkbox"/> Inaccurate risk perception
<input checked="" type="checkbox"/> Unclear goals, roles, and responsibilities	<input checked="" type="checkbox"/> Lack of alternative indication	<input checked="" type="checkbox"/> "Can Do" or "Unsafe" attitude for critical task	<input checked="" type="checkbox"/> Mental shortcuts or biases
<input checked="" type="checkbox"/> Lack of or unclear standards	<input checked="" type="checkbox"/> Personality conflicts	<input checked="" type="checkbox"/> Illness or Fatigue; general health	<input checked="" type="checkbox"/> Limited short-term memory

Confirmation of Understanding

Pre Job Conducted By: Mark Campbell

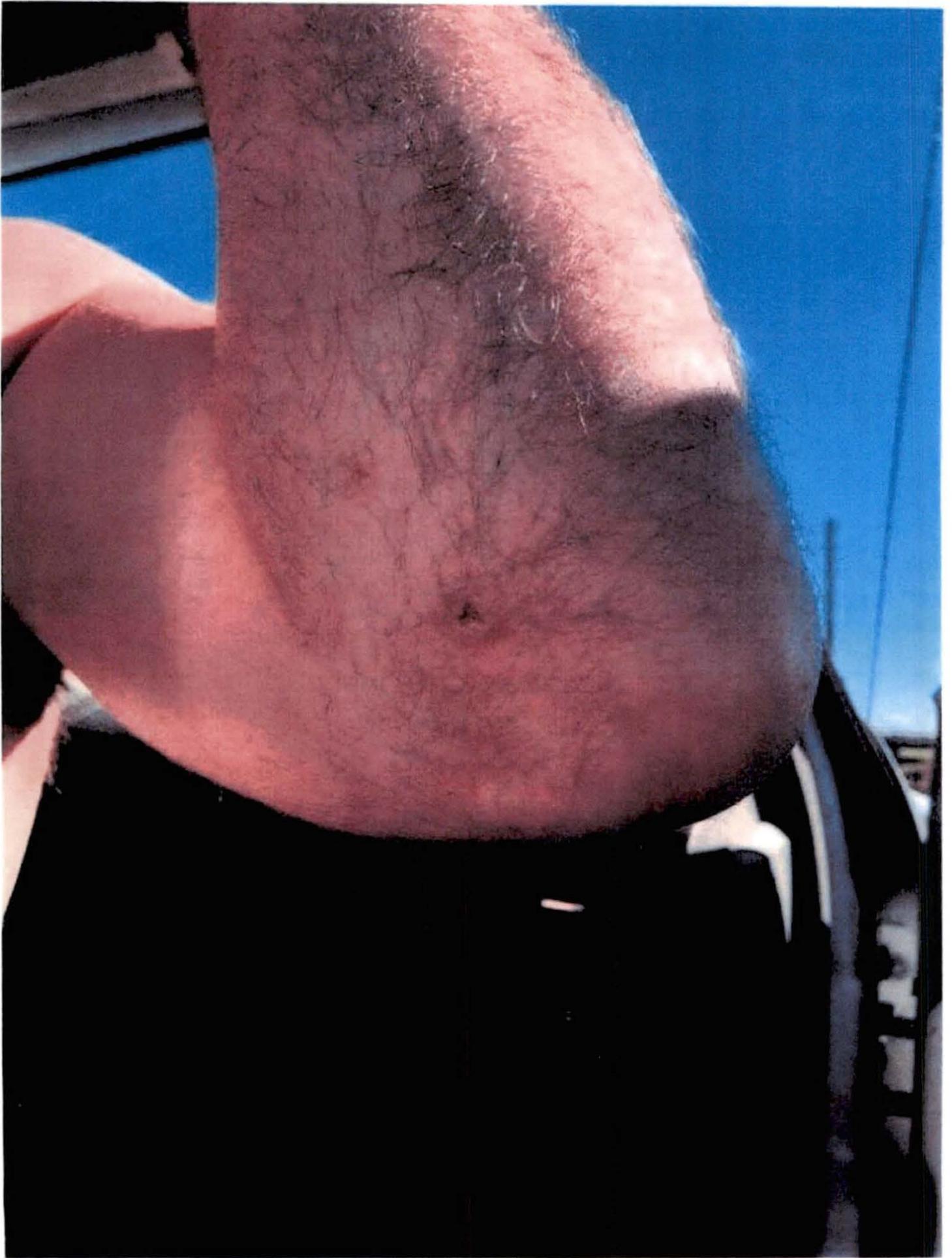
Each of the following employees has been included in this discussion involving the hazards of the work at this location, understands that any employee can stop the job at any time, and the necessary precautions to insure the safety of everybody involved:

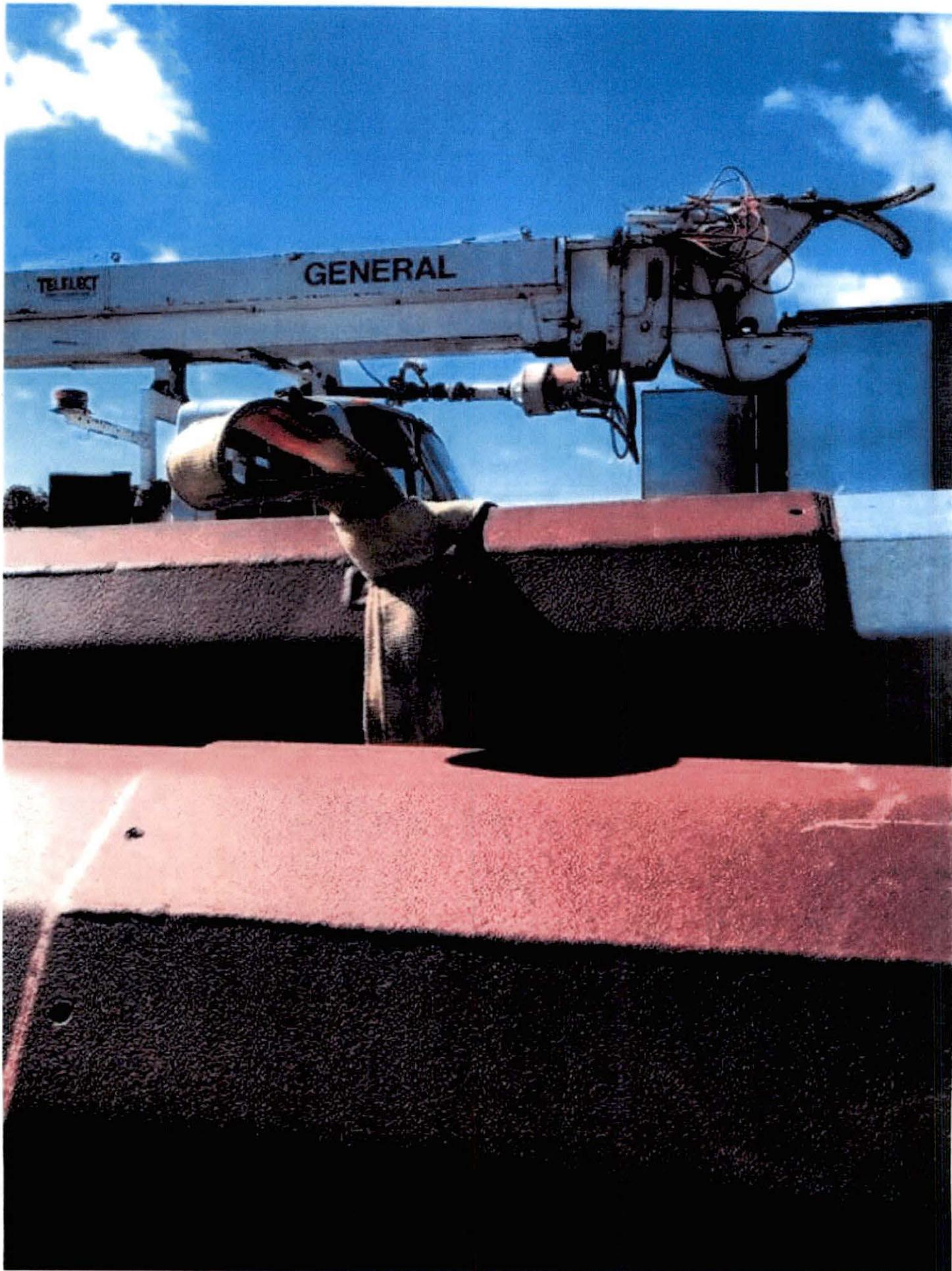
Employee Number	Signature	Employee Number	Signature
57745	<u>[Signature]</u>	47382	<u>[Signature]</u>
58471	<u>[Signature]</u>		
570873	<u>[Signature]</u>		
578780	<u>[Signature]</u>		
589341	<u>[Signature]</u>		
569182	<u>[Signature]</u>		
961422	<u>[Signature]</u>		
60070	<u>[Signature]</u>		

VIEWED BY: _____	SIGNATURE _____	EMPLOYEE NUMBER _____	DATE _____
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VIEWED BY: _____	SIGNATURE _____	EMPLOYEE NUMBER _____	DATE _____

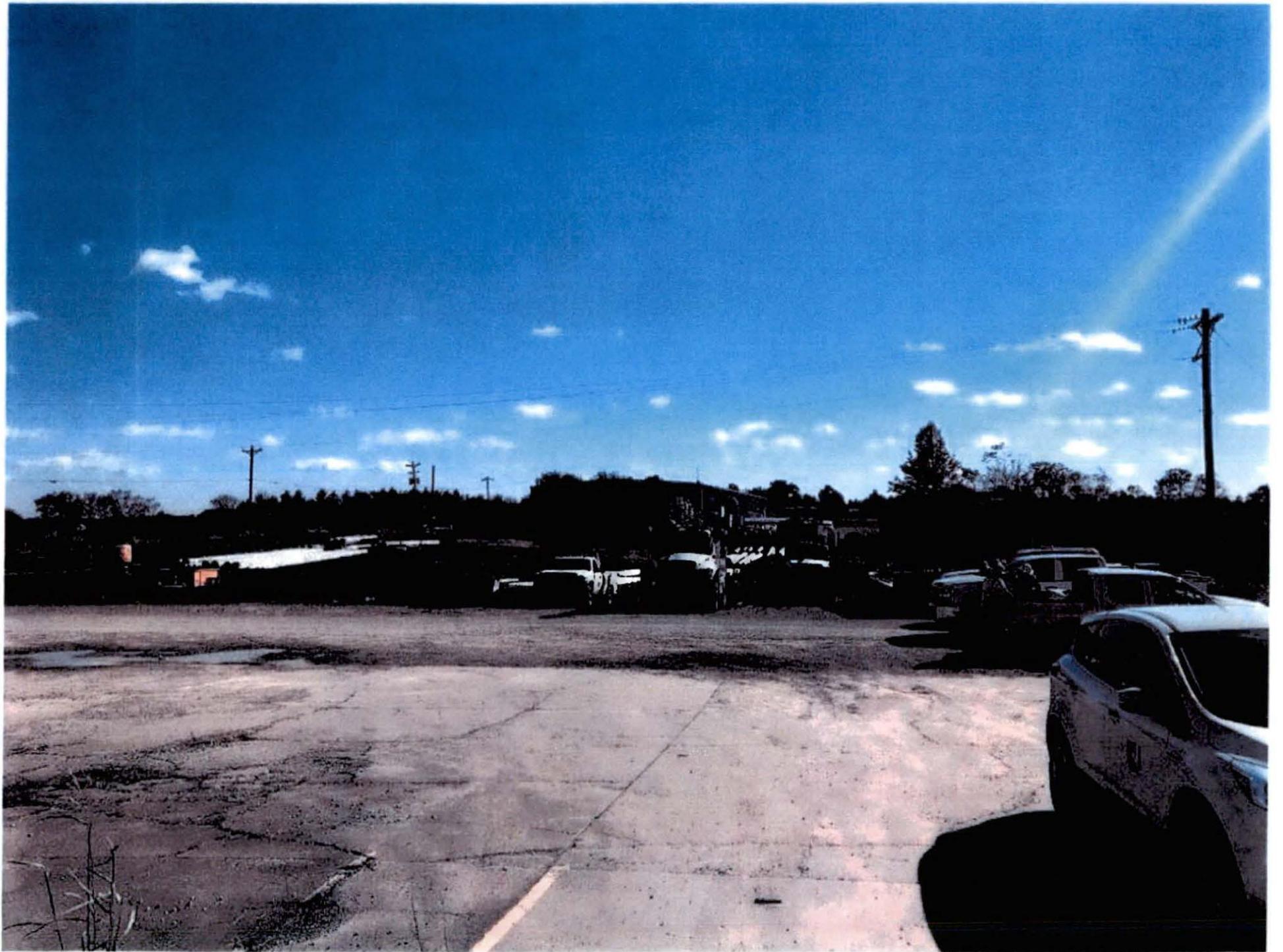










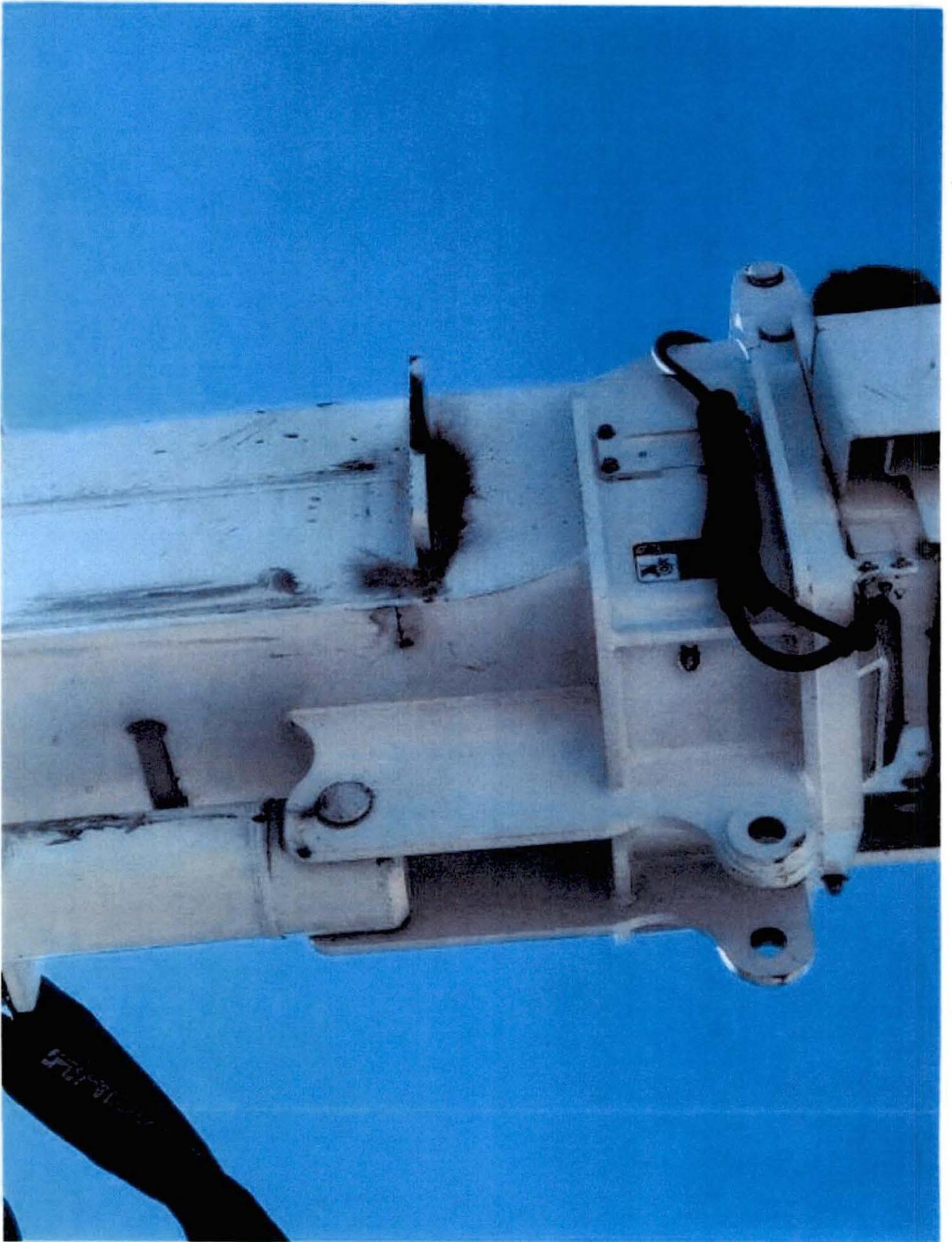






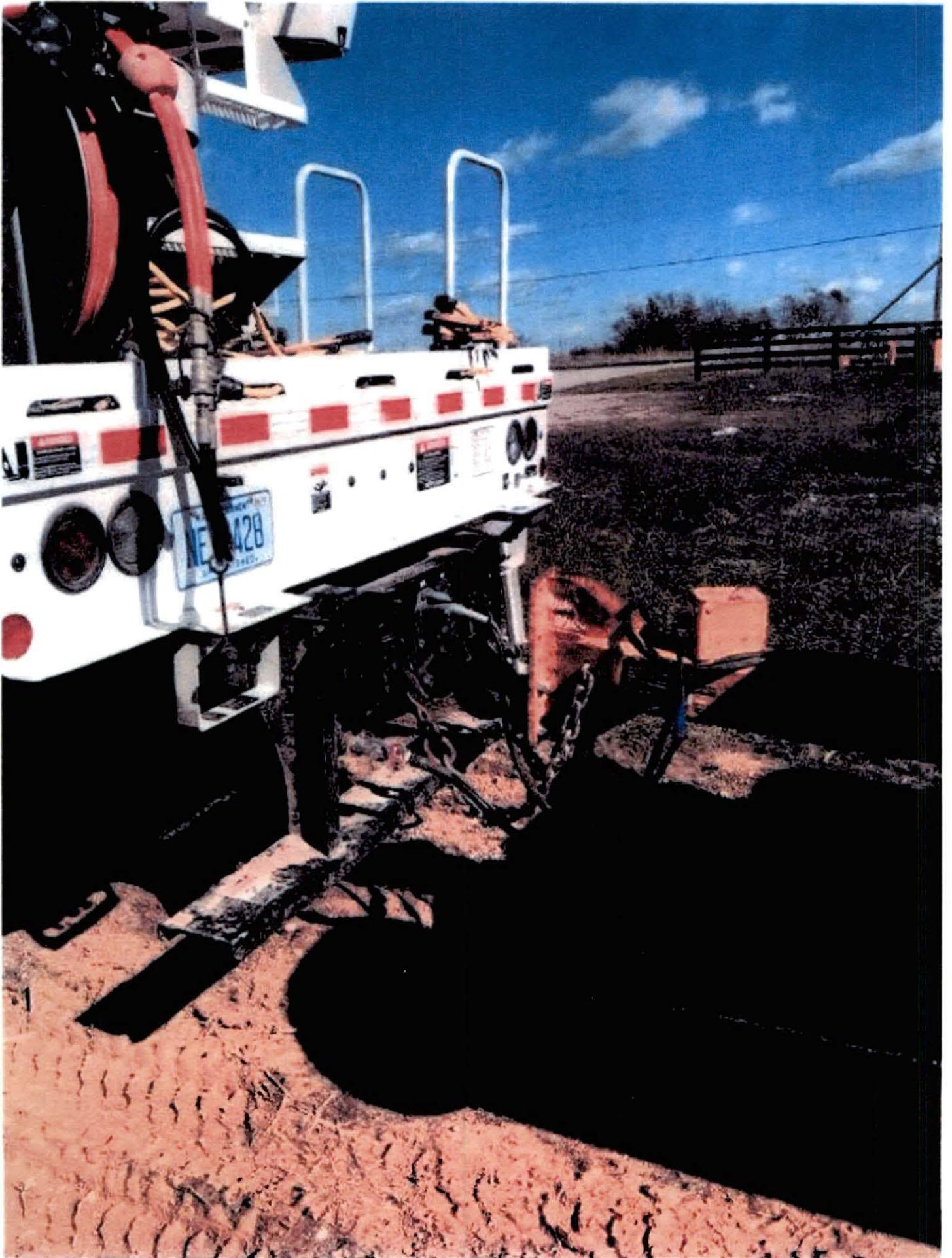




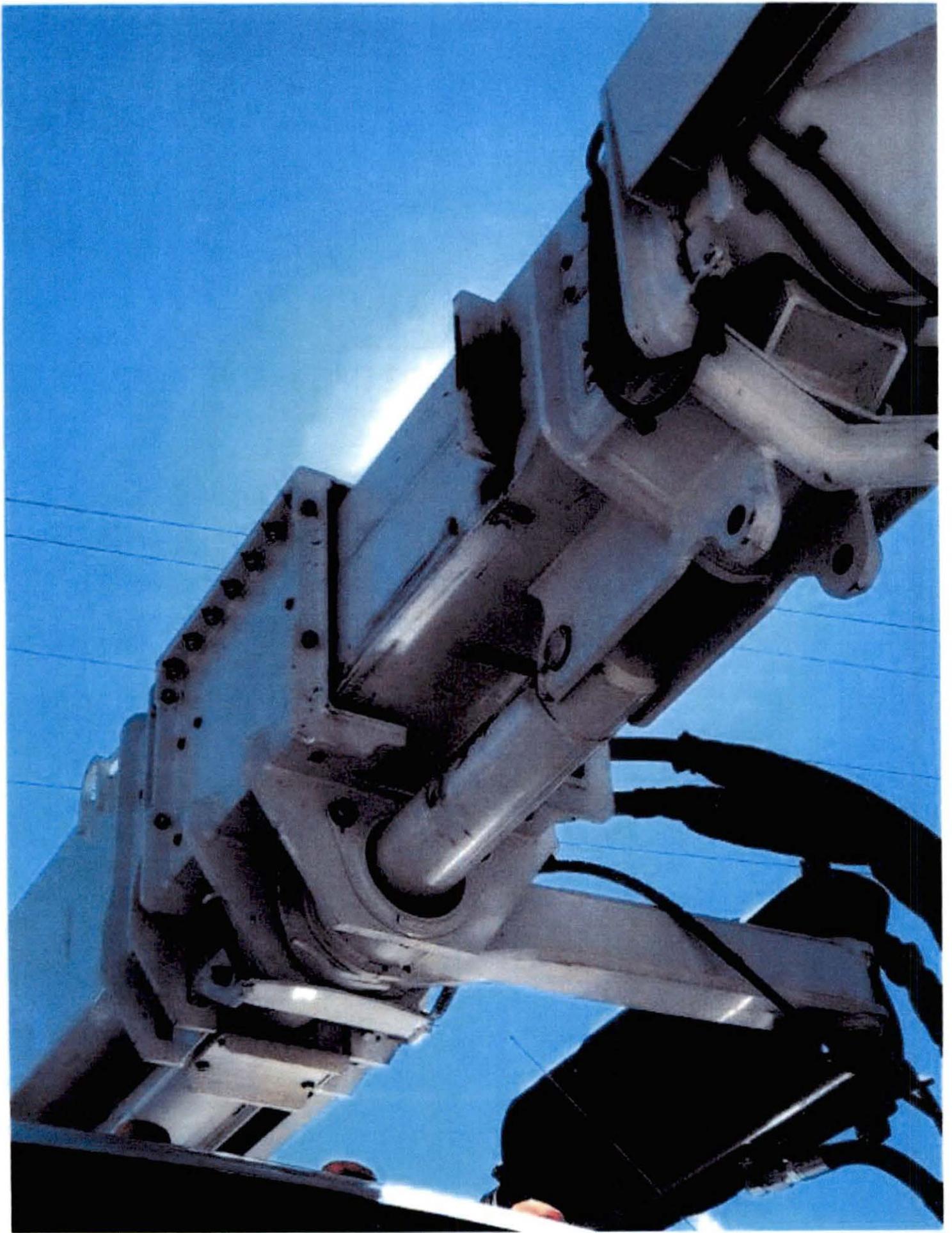






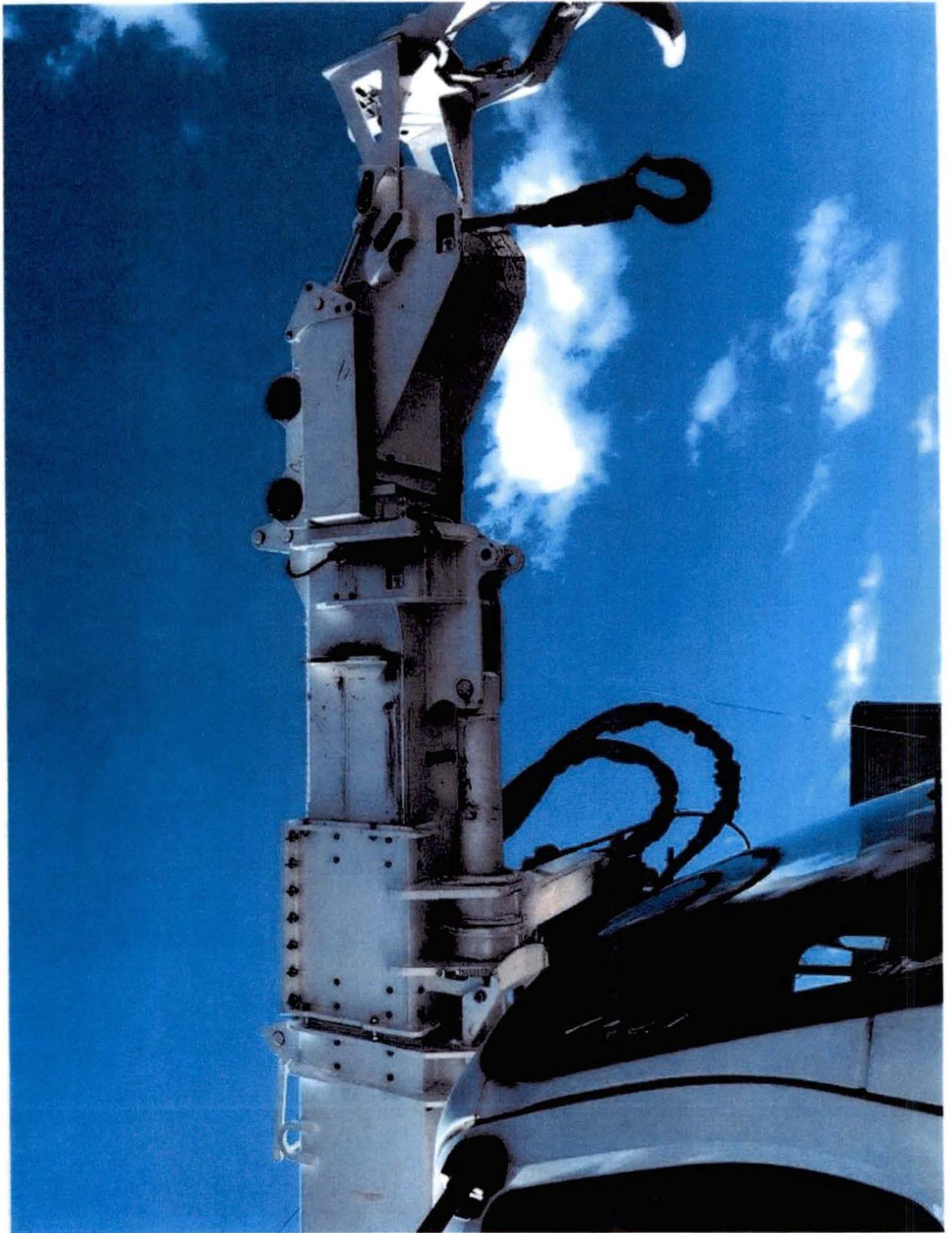


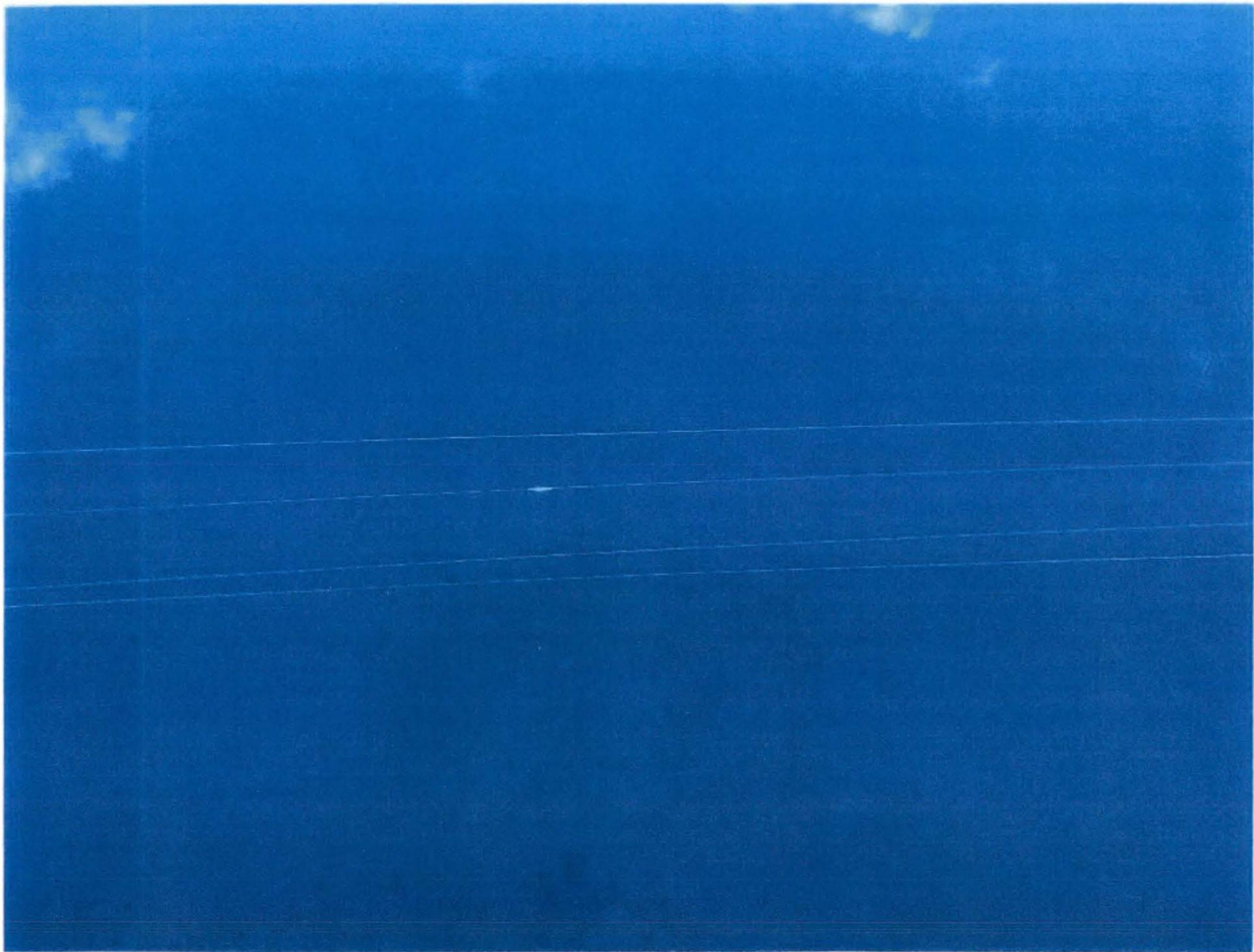






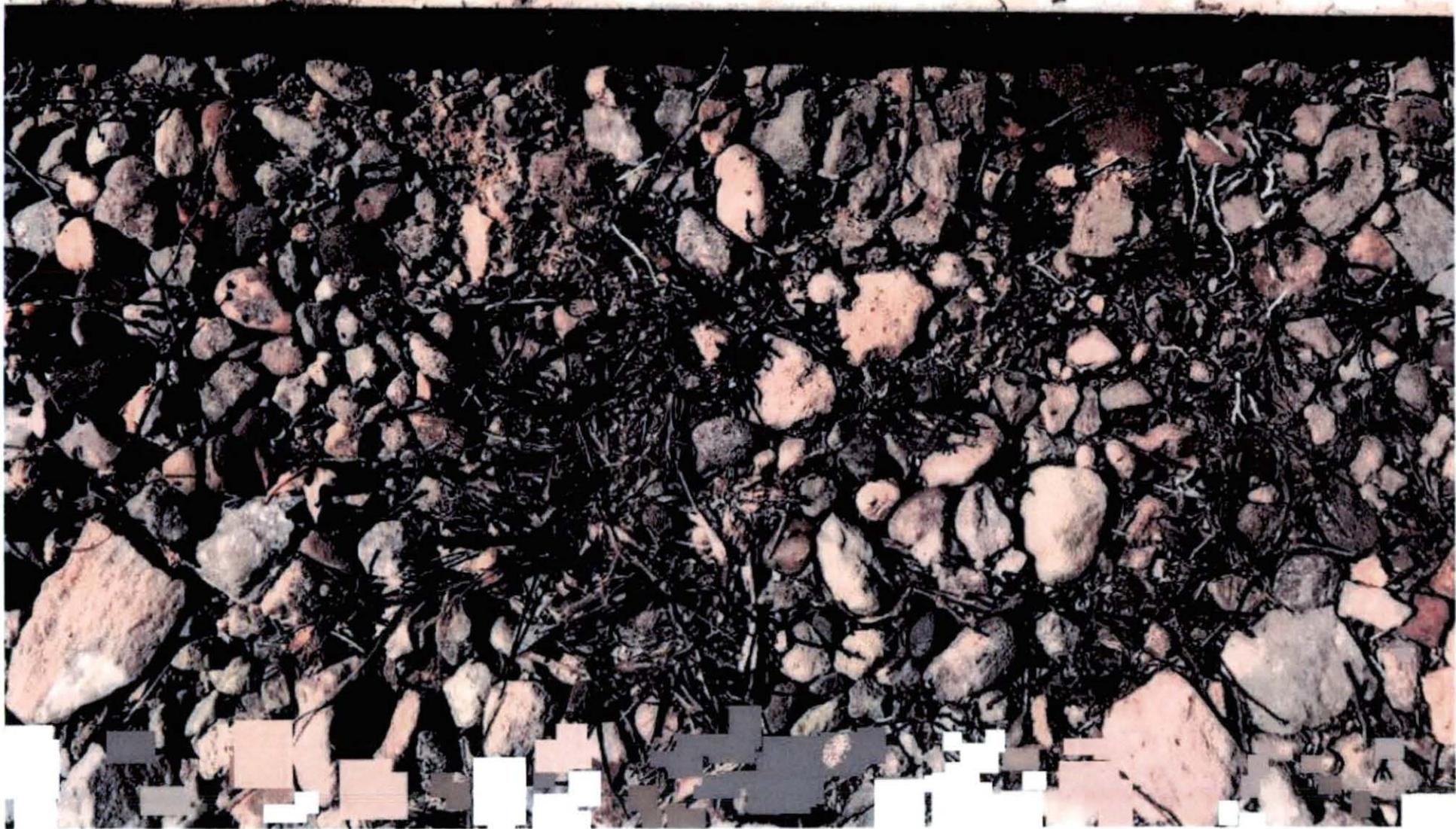




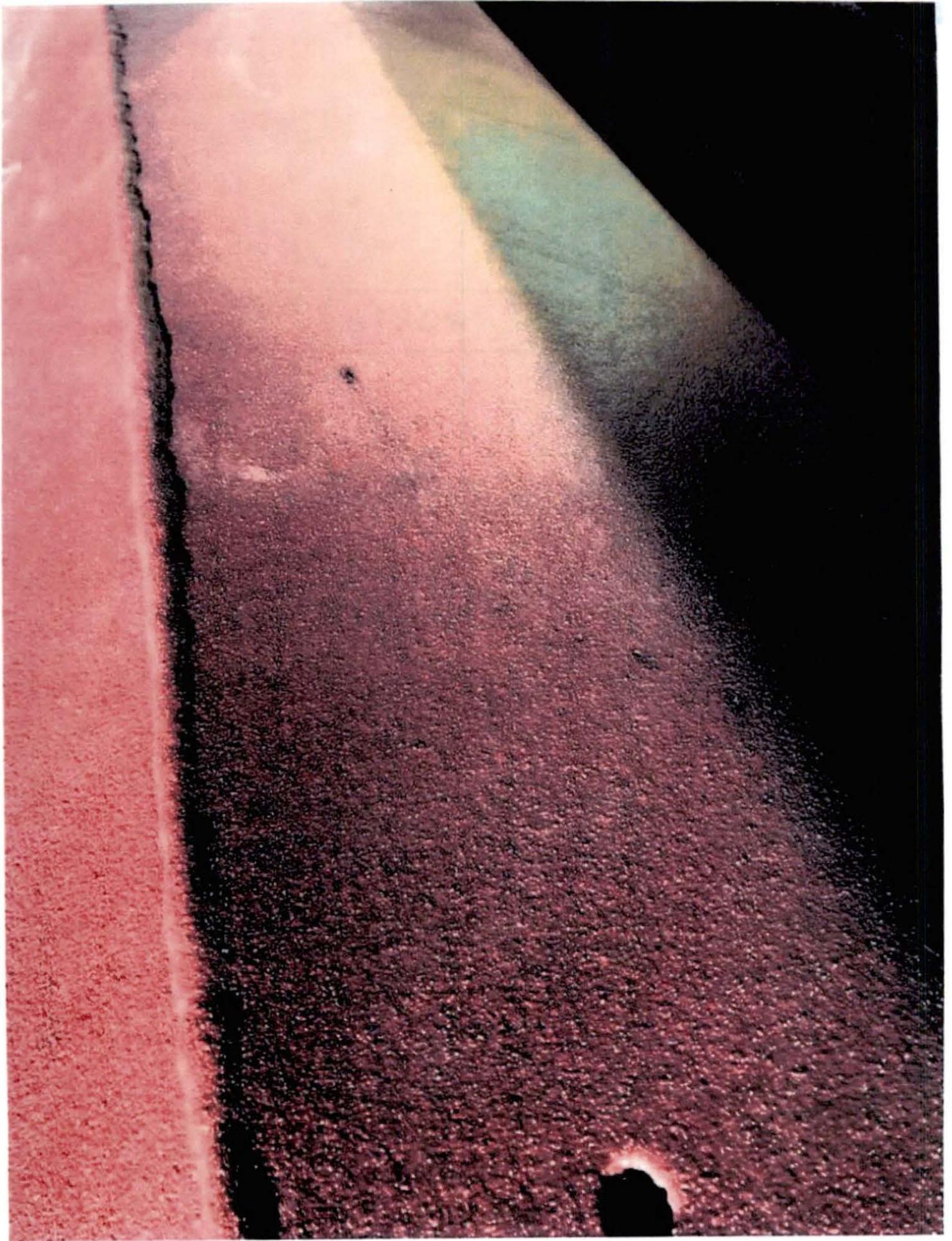












*Kentucky Utilities Company
220 W. Main Street
P. O. Box 32010
Louisville, KY 40232-2010

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P. O. Box 32010
Louisville, KY 40232-2010