

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

|                                |   |            |
|--------------------------------|---|------------|
| KENTUCKY POWER COMPANY         | ) |            |
| _____                          | ) |            |
| ALLEGED FAILURE TO COMPLY WITH | ) | CASE NO.   |
| KRS 278.042                    | ) | 2010-00317 |

O R D E R

By Order dated August 20, 2010, the Commission initiated this proceeding to determine whether Kentucky Power Company ("Kentucky Power") should be subject to the penalties prescribed in KRS 278.990 for a probable violation of KRS 278.042, which requires an electric utility to construct and maintain its plant and facilities in accordance with the most recent edition of the National Electric Safety Code ("NESC"), 2007 edition.

The one probable violation of the NESC cited by the Commission's August 20, 2010 Order is as follows:

NESC Section 23 Clearances:

232. Vertical Clearances of Wires, Conductors, Cables, and Equipment Above Ground, Roadway, Rail, or Water Surfaces.

B. Clearance of Wires, Conductors, Cables, Equipment, and Support Arms Mounted on Supporting Structures.

1. Clearance to Wires, Conductors, and Cables.

The vertical clearance of wires, conductors, and cables above ground in generally accessible places, roadway, rail, or water surfaces, shall be not less than that shown in Table 232-1.

NESC Table 232-1<sup>1</sup> provides that supply conductors of zero to 750 volts crossing over “[s]paces and ways subject to pedestrians or restricted traffic only” shall have a minimum clearance of no less than 12 feet. The Order also alleged that Kentucky Power failed to document and investigate the conditions at the site where the probable violation occurred.

The Commission's August 20, 2010 Order arose out of an incident which occurred on June 15, 2009, when a member of the public, William Wolf, made contact with an energized 120/240-volt triplex service drop on Kentucky Power's system when he raised a weed-eater (weed-trimming power tool) he was using into the air. The site of the incident was a residence located at 68 Snake Valley Road, Hueysville, Floyd County, Kentucky. The contact incident occurred because the service drop was hanging well below the 12-foot height required by the 2007 edition of the NESC. At its lowest point, the height of the electric service drop was only six feet above the ground.

Kentucky Power personnel had visited the residence where the contact incident occurred on three occasions prior to the June 15, 2009 incident (January 2, 2008; January 3, 2008; and April 23, 2008). During each of the prior visits to the residence, Kentucky Power's employees observed the unsafe height of the service line at the residence. However, Kentucky Power failed to raise the line to a safe height, pursuant to NESC requirements, prior to the June 15, 2009 incident.

Kentucky Power filed an answer to the Show Cause Order and requested an informal conference, which was held at the Commission's offices on October 5, 2010. Those discussions led to the filing of a Stipulation of Facts and Settlement Agreement

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<sup>1</sup> See Report at 6.

("Stipulation") on January 6, 2011. The Stipulation, attached hereto as an Appendix and incorporated herein by reference, sets forth an agreed-upon summary of the facts (subject to the denials contained in Kentucky Power's September 8, 2010 Response), discusses the remedial action to be taken in conjunction with providing new safety training and procedures to its field personnel and accident investigation training for its Kentucky Safety Manager, and provides for the payment of \$2,500 in full settlement of this proceeding.

Determining whether the terms of the Stipulation are in the public interest and are reasonable, the Commission has taken into consideration the comprehensive nature of the Stipulation and Kentucky Power's willingness to provide new safety training and procedures to its field personnel and its willingness to send its Kentucky Safety Manager to AEP's "Public Liability Accident Investigation Training" in 2011 and to *consider* sending its safety manager to further, outside training seminars focused on accident scene investigation and documentation.

However, the Commission disagrees with the Stipulation's failure to make Kentucky Power's participation in outside accident scene investigation and documentation training mandatory. Therefore, by this Order, the Commission will require Kentucky Power to send its safety manager to an accident scene investigation and documentation training seminar within 12 months of the issuance of this Order. The Commission will also require Kentucky Power to file a report with the Commission within 30 days of its safety manager's completion of the accident scene investigation and documentation training seminar, verifying his attendance and providing a copy of the agenda for the training seminar.

The Commission is very concerned by the fact that Kentucky Power's employees visited the location where the accident occurred on three separate occasions preceding the accident and, in each instance, those employees failed to correct the unsafe condition. The Commission expects Kentucky Power and all utilities operating in Kentucky to make safety a priority and to ensure that, when hazardous conditions are discovered, they are corrected before someone is needlessly injured. The Commission finds that Kentucky Power's commitment to provide new safety training and procedures to its field personnel and to provide additional training to its safety manager is a good start, but the Commission expects Kentucky Power to continue improving its safety program by updating its safety procedures and maintaining adequate training for its personnel on a year-to-year basis.

Based on the evidence of record and being otherwise sufficiently advised, the Commission finds that the Stipulation is in accordance with the law and does not violate any regulatory principal. The Stipulation is a product of arm's-length negotiations among capable, knowledgeable parties, is in the public interest, and results in a reasonable resolution of all issues in this case.

IT IS THEREFORE ORDERED THAT:

1. Except as noted above and in ordering paragraphs 4 and 5 below, the Stipulation is adopted and approved as a complete resolution of all issues in this case.
2. Kentucky Power shall pay the amount of \$2,500 within 30 days of the date of this Order by cashier's check or money order made payable to the Kentucky State Treasurer and mailed or delivered to the Office of General Counsel, Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, KY 40602.

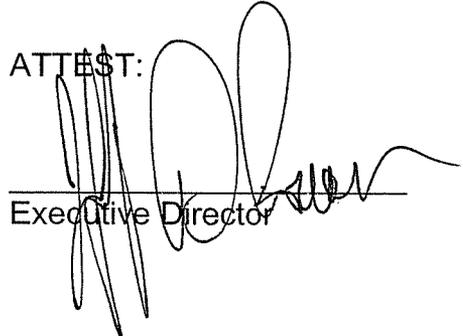
3. Kentucky Power shall require its Kentucky Safety Manager to attend AEP's 2011 "Public Liability Accident Investigation Training." Kentucky Power shall file a report with the Commission within 30 days after its Kentucky Safety Manager attends AEP's training seminar, verifying his attendance and providing a copy of the agenda for the training seminar.

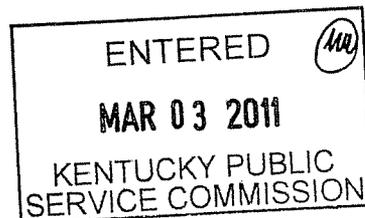
4. Within 12 months of the issuance of this Order, Kentucky Power shall require its Kentucky Safety Manager to attend a training seminar provided by a professional organization certified to instruct accident investigation and reconstruction methods for the electric utility industry in accordance with accepted professional standards and the NESC. Kentucky Power shall file a report with the Commission within 30 days after its Kentucky Safety Manager attends the training seminar, verifying his attendance and providing a copy of the agenda for the training seminar.

5. Upon the payment of \$2,500 by Kentucky Power, this case shall be closed and removed from the Commission's docket without further Order of the Commission. Any documents filed in the future pursuant to ordering paragraphs 3 or 4 herein shall reference this case number and shall be retained in the utility's general correspondence file.

By the Commission

ATTEST:

  
Executive Director



APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE  
COMMISSION IN CASE NO. 2010-00317 DATED MAR 03 2011

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

|                           |   |                     |
|---------------------------|---|---------------------|
| KENTUCKY POWER CO.        | ) |                     |
| _____                     | ) | CASE NO. 2010-00317 |
|                           | ) |                     |
| ALLEGED FAILURE TO COMPLY | ) |                     |
| WITH KRS 278.042          | ) |                     |

**STIPULATION OF FACTS AND SETTLEMENT AGREEMENT**

By Order dated August 20, 2010, the Commission initiated this proceeding to determine whether Kentucky Power Company ("Kentucky Power") should be subject to the penalties prescribed in KRS 278.990 for a probable violation of KRS 278.042, which requires an electric utility to construct and maintain its plant and facilities in accordance with the most recent edition of the National Electric Safety Code ("NESC"), 2007 edition.

The probable violation of the NESC cited by the Commission's August 20, 2010 Order is as follows:

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NESC Table 232-1<sup>1</sup> provides that supply conductors of zero to 750 volts crossing over “[s]paces and ways subject to pedestrians or restricted traffic only” shall have a minimum clearance of no less than 12 feet. The Order also alleged that Kentucky Power failed to document and investigate the conditions at the site where the probable violation occurred.

The Commission’s August 20, 2010 Order arose out of an incident which occurred on June 15, 2009, when a member of the public, William Wolf, made contact with an energized 120/240-volt triplex service drop on Kentucky Power’s system when he raised a weed-eater (weed-trimming power tool) he was using into the air. The site of the incident was a residence located at: 68 Snake Valley Road, Hueysville, Floyd County, Kentucky. The contact incident occurred because the service drop was hanging well below the 12-foot height required by the 2007 edition of the NESC. At its lowest point the height of the electric service drop was only 6 feet above the ground.

Kentucky Power personnel had visited the residence where the contact incident occurred on three occasions prior to the June 15, 2009 incident (January 2, 2008; January 3, 2008; and April 23, 2008). During each of the prior visits to the residence, Kentucky Power’s employees observed the unsafe height of the service line at the residence. However, Kentucky Power failed to raise the line to a safe height, pursuant to NESC requirements, prior to the June 15, 2009 incident.

On September 8, 2010, Kentucky Power filed a response to the Commission’s August 20, 2010 Order. In its response, Kentucky Power admits the violation of NESC Section 23 (“Kentucky Power admits the line did not comply with the applicable NESC

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<sup>1</sup> See Report at 6.

standard”).<sup>2</sup> However, Kentucky Power denies that it failed to properly investigate the accident site. Kentucky Power’s response states that its employee, Tim Hall, Manager Distribution Services, measured and photographed the service drop on June 15, 2009, prior to removing it from the utility pole. Kentucky Power states that the photographs attached to the Report as “Attachment C” are photographs which were taken by Mr. Hall on June 15, 2009 and that they document the alleged incident site and surrounding terrain and features.

Pursuant to a request by Kentucky Power, an informal conference was held on October 5, 2010, at the Commission’s Frankfort offices. Representatives of Kentucky Power and legal counsel were in attendance, as were Commission Staff. In response to Commission Staff’s questions at the informal conference, Kentucky Power filed a data request response on October 21, 2010 in which it describes its new safety training and procedures. A copy of Kentucky Power’s October 21, 2010 data response, Item No. 1, is attached hereto as Appendix A to this Settlement Agreement. Kentucky Power made a subsequent filing on December 13, 2010, in which it provided copies of the training materials it has distributed to its field employees. A copy of Kentucky Power’s December 13, 2010 filing is attached hereto as Appendix B to this Settlement Agreement.

As a result of discussions held during the informal conference and Kentucky Power’s subsequent data responses, Kentucky Power and Commission Staff submit the following Stipulations of Facts and Settlement agreement (“Stipulation”) for the Commission’s consideration in rendering its decision in this proceeding:

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<sup>2</sup> Kentucky Power Answer at 4.

1. Kentucky Power agrees that, subject to the denials contained in its September 8, 2010 Response, the Report, which is attached as an Appendix to the Commission's August 20, 2010 Order in this case fairly and accurately describes the June 15, 2009 contact incident and the events which led up to the contact incident.

2. Commission Staff agrees with Kentucky Power's statement in its response that the photographs provided to Commission Staff by Kentucky Power and attached to the Commission's Report as Attachment C were taken on June 15, 2009 by the Pikeville Service Manager.

3. Kentucky Power agrees that its seven-day summary report filed on June 18, 2010 pursuant to 807 KAR 5:006, Section 26(2) (Attachment A to Commission Staff's Report) did not state that a Kentucky Power employee took photographs of the original service drop at the incident scene on June 15, 2009, and that it was not clear from the summary report or any other information provided to Commission Staff, prior to its September 8, 2010 response, that Kentucky Power had documented the incident scene on June 15, 2010 through the photographs in Attachment C to the Report.

4. Kentucky Power agrees that its procedures for reporting unsafe conditions on its system prior to the June 15, 2009 incident were not adequate to ensure that the low service drop in this case was repaired or otherwise made safe in a timely manner.

5. Kentucky Power agrees to pay the amount of \$2,500 in full settlement of this proceeding. The scope of this proceeding is limited by the Commission's August 20, 2010 Order on whether Kentucky Power should be assessed a penalty under KRS 278.990 for a willful violation of the NESC rules as made applicable under KRS 278.042, with the violation having a maximum civil penalty of \$2,500, and the adequacy,

safety, and reasonableness of its practices related to the construction, installation and repair of electric facilities and whether such practices require revision. Neither the payment of the \$2,500 nor any other agreement contained in this Stipulation shall be construed as an admission by Kentucky Power of any liability in any legal proceeding or lawsuit arising out of the facts set forth in the Report, nor shall the Commission's acceptance of this Settlement Agreement be construed as a finding of a willful violation of any Commission regulation or NESC rule.

6. Kentucky Power agrees to fully implement the enhanced safety training and procedures relating to the prompt elimination of unsafe conditions, as described in Item 1 of its October 21, 2010 data response attached hereto as Appendix A.

7. Kentucky Power agrees to send its Kentucky Safety Manager ("safety manager") to AEP's "Public Liability Accident Investigation Training" in 2011 and to consider sending its safety manager to further, outside training seminars focused on accident scene investigation and documentation.

8. In the event that the Commission does not accept this Stipulation in its entirety, Kentucky Power and Commission Staff reserve their rights to withdraw from it and require that a hearing be held on any and all issues involved and that none of the provisions contained herein shall be binding upon the parties hereto, used as an admission by Kentucky Power of any liability in any legal proceeding or lawsuit arising out of the facts set forth in the Report or otherwise used as an admission by either party.

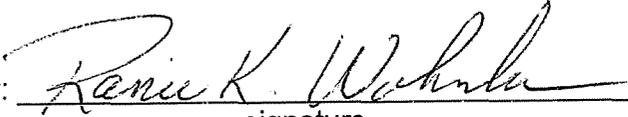
9. This Stipulation is for use in Commission Case No. 2010-00317. None of the provisions in this Stipulation establishes any precedent for any other case, and

neither Kentucky Power nor Staff shall be bound by any part of this Stipulation in any other proceeding, except that this Stipulation may be used in any proceedings by the Commission to enforce the terms of this Stipulation or to conduct a further investigation of Kentucky Power's service, and Kentucky Power shall not be precluded or estopped from raising any issue, claim or defense therein by reason of the execution of this Stipulation.

10. Kentucky Power and Commission Staff agree that the foregoing Stipulation is reasonable, is in the public interest, and should be adopted in its entirety by the Commission. If so adopted by the Commission, Kentucky Power agrees to waive its right to a hearing and will not file any petition for rehearing or seek judicial appeal.

Dated this 5<sup>th</sup> day of January, 2011.

**KENTUCKY POWER COMPANY**

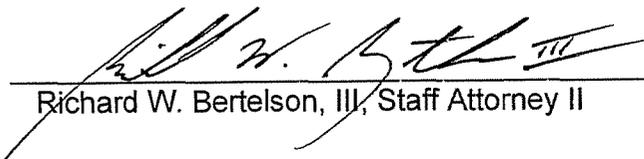
By:   
signature

Ranie K. Wohrhaas  
print name

Title: Managing Director, Regulatory & Finance

Date: January 5, 2011

**STAFF OF THE KENTUCKY PUBLIC SERVICE COMMISSION**

By:   
Richard W. Bertelson, III, Staff Attorney II

APPENDIX A

APPENDIX TO STIPULATION OF FACTS AND SETTLEMENT  
AGREEMENT OF THE KENTUCKY PUBLIC SERVICE  
COMMISSION IN CASE NO. 2010-00317

COMMONWEALTH OF KENTUCKY  
BEFORE THE  
PUBLIC SERVICE COMMISSION OF KENTUCKY

RECEIVED

OCT 21 2010

PUBLIC SERVICE  
COMMISSION

IN THE MATTER OF:

KENTUCKY POWER COMPANY )  
D/B/A AMERICAN ELECTRIC POWER )

\_\_\_\_\_ )  
ALLEGED FAILURE TO COMPLY WITH )  
KRS 278.042 )

) Case No. 2010-00317

KENTUCKY POWER RESPONSES TO COMMISSION STAFF'S  
OCTOBER 5, 2010 INFORMAL CONFERENCE DATA REQUESTS

October 21, 2010

## KENTUCKY POWER COMPANY

### REQUEST

Please describe the new or modified safety procedures undertaken by Kentucky Power Company in light of the issues presented in this proceeding.

### RESPONSE

Following the incident, Kentucky Power modified its training materials to include specific information on the issues presented. In addition, in its training since the incident the Company has emphasized the appropriate actions to be taken in similar situations. Finally, Kentucky Power has instituted a procedure to monitor on at least a weekly basis all active Unsafe Condition Investigation Orders (IO-02)

#### A. Modified Training Materials.

- Training materials have been developed and delivered to all field personnel (line, meter and engineering personnel) addressing what to look for while performing system inspection, damage assessment and normal execution of their daily work. The material specifically addresses actions to be taken when unsafe conditions are encountered.
  - *If a clear and immediate* endangerment to human life is found to exist, immediate safe guarding action is necessary until corrective action can be taken.
  - Immediately repair those facilities which present a risk to safety of the public & our employees.
  - If defects should be discovered that pose a safety risk, then timely corrective action by qualified personnel is required.
- Other reference material, such as a single sheet clearance table, has been developed and distributed to field employees. This reference material provides readily accessible information to the employee that aids in determining appropriate clearances.

- KPC periodically revises its training materials to improve clarity and to address specific situations which have been encountered in the field.

B. Focused Training

- Kentucky Power has also re-emphasized to all field personnel that deficiencies which cause an immediate safety concern to the public or our employees must be addressed immediately and completely. Specifically, during regular safety huddles, safety meetings, telephone conference calls and other operational meetings the Company has emphasized that:
  - Personnel are to remain on site to guard against accidental contact until the situation can be made safe.
  - If a permanent remedy cannot be promptly implemented, temporary measures are to be employed to remedy the immediate safety threat until a permanent solution can be implemented.

C. Additional Monitoring And Follow-up of IO-02s.

- As under prior procedures, Company personnel will continue to submit IO-2s whenever unsafe conditions are encountered that cannot be permanently corrected by the employee. To provide for better follow-up and remedy of such conditions, the Company now creates and distributes to distribution operations management personnel a weekly report of all active IO-02s. These reports are reviewed and addressed weekly at the Company's distribution operations staff conference call presently held on Monday morning. During this call temporary actions taken to make the situation safe and the schedule discussed.

**WITNESS: David P. Robinson/Larry J. Pemberton**

**KENTUCKY POWER COMPANY**

**REQUEST**

Please describe any additional planned first responder training and the steps AEP and Kentucky Power takes to ensure its accident and site investigation practices reflect "best practices."

**RESPONSE**

AEP's Risk Management department provides first responder site and contact incident investigation and documentation training for KPC personnel who respond to electrical contact cases. Additional training is scheduled to be provided in the first quarter of 2011. The Kentucky Safety Manager will participate in this training.

AEP contact incident training materials address site and incident investigation and documentation procedures to be employed in the event of a contact incident. These materials are periodically reviewed to ensure that they are up-to-date and incorporate the industry best practices for accident investigation. KPC will also consider sending its safety manager to an outside training session sometime in 2011.

**WITNESS: David P. Robinson/Larry J Pemberton**

APPENDIX B

APPENDIX TO STIPULATION OF FACTS AND SETTLEMENT  
AGREEMENT OF THE KENTUCKY PUBLIC SERVICE  
COMMISSION IN CASE NO. 2010-00317

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

**RECEIVED**

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In the Matter of:

**PUBLIC SERVICE  
COMMISSION**

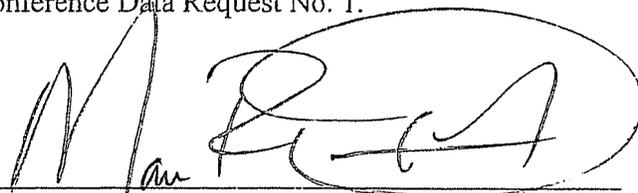
KENTUCKY POWER COMPANY )  
D/B/A AMERICAN ELECTRIC POWER )

\_\_\_\_\_ )

ALLEGED FAILURE TO COMPLY WITH )  
KRS 278.042 )

CASE NO. 2010-000317

Kentucky Power Company files the original and ten copies of the training materials  
referenced in its Response to Staff Informal Conference Data Request No. 1.



Mark R. Overstreet  
STITES & HARBISON PLLC  
421 West Main Street  
P.O. Box 634  
Frankfort, KY 40602-0634  
Telephone: (502) 223-3477  
COUNSEL FOR KENTUCKY POWER  
COMPANY

# PSC Inspection Program

Guidelines for Circuit Inspection

# Program Objective

The objective of this program is to visually inspect all overhead and the external, above ground portions of underground facilities on a 2 year cycle to identify and correct deficiencies necessary for the safety of employees and the public under the conditions specified in the NESC and for system reliability.

# Circuit Criteria

A list of Circuits to be inspected are identified on a biannual basis. Circuits are identified based on the circuit miles. Keeping a balance of miles in each 2 yr cycle. Planned Maintenance inspections (PM's) are generated in Storms from the list. From these PM's work requests are created for each circuit to be inspected in a cycle year. These Work Requests are assigned to the Non-exempt Service Supervisor in Each area for the Circuits to be inspected in the cycle year.

# What we are looking For

## Overhead :

Driving or foot patrol inspections are conducted as appropriate looking for obvious defects such as loose down guys, broken grounds, cracked insulators, lightning arresters with blown isolators, deteriorated crossarms having inadequate strength, low conductors, etc. Electrical and mechanical defects observed will be identified and the information will be collected so appropriate corrective action can be taken.

# What we are looking For

## Underground:

An external, visual inspection of the above ground portion of underground systems including pad-mounted equipment (transformers, switches, primary metering enclosures, junction cabinets, etc.), pedestals and the underground associated components of primary riser poles. The external inspection will be conducted to determine that the equipment is locked and secure and that there are no openings that might allow access to the interior of the equipment via soil erosion, cabinet or conduit deterioration or by other means such as vandalism.

# What to Report?

## Poles:

- Rotten Poles
- Leaning or Washed out
- Burned - Due to the rash of Cutout Failures this is becoming more of a issue.
- Broken or Split
- Pole Clearances - Poles resting against structures or through the eaves or a roof line or close enough to impede climbing. Pole being within 12" of a structure.

# What to Report?

- Transformers hanging directly over Structures or immediately adjacent to multi-story buildings (12" or less).
- UG transformers less than 10 feet without barrier walls.
- Missing Pole Grounds - Ever Increasing issue not only on distribution poles but also at Distribution stations.
- Missing grounds and Ground Grids on GOAB switches.

# What to Report?

## Guys and Anchors

- Guys and anchors loose
- Damaged guys
- Guys which may need insulators, breakers and markers.

\*KYP Co recommends to install insulators if you can take the end of a guy and walk around the pole and come in contact with energized bushings of equipment or conductors. Also refer to DS 406 notes 1,2,3

\*Guy markers shall be installed on guys in Pedestrian or Vehicular traffic areas. (DS 403 note 4,5)

# What to Report?

## Guy Insulators:

### NOTES:

1. GUY STRAIN INSULATORS ARE NOT REQUIRED IN GROUNDED GUYS BUT MAY BE INSTALLED IN THE GUY WIRE TO REDUCE GUY CLEARANCES. CLEARANCES CANNOT BE REDUCED TO METAL END FITTINGS OR GUY GRIPS ASSOCIATED WITH STRAIN INSULATORS.
2. A GUY INSULATOR IS REQUIRED ON A DELTA SYSTEM WHEN THE GUY IS NOT GROUNDED AND THE GUYED STRUCTURE SUPPORTS OPEN SUPPLY CONDUCTORS OF MORE THAN 300 VOLTS (PHASE TO GROUND), OR IF THE GUY IS EXPOSED TO SUCH VOLTAGES.
3. MULTIPLE GUY INSULATORS MAY BE USED TO ISOLATE A SEGMENT OF GUY WIRE EXPOSED TO ANOTHER CONDUCTOR OR CABLE.

### AMERICAN ELECTRIC POWER COMPANY DISTRIBUTION STANDARDS

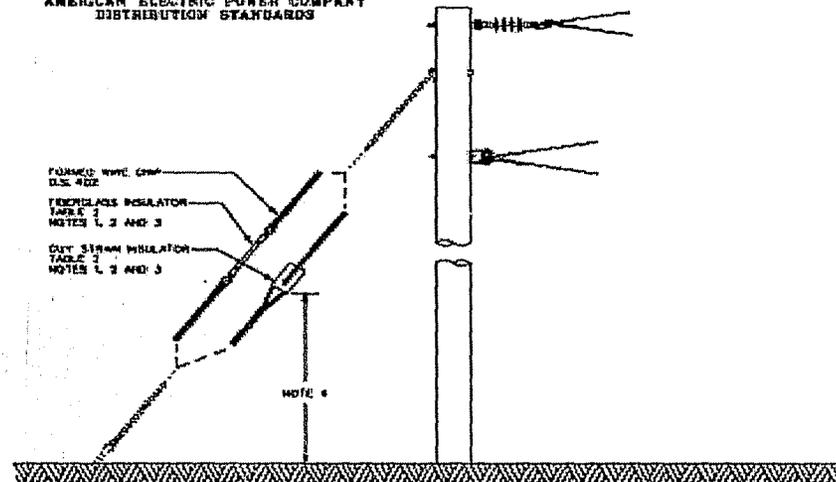


TABLE I

| EXTRA HIGH STRENGTH GUY WIRE |               |                          | 24" FIBERGLASS INSULATOR ALL DISTRIBUTION VOLTAGES |            |                          | GUY STRAIN INSULATOR "JOHNNY BALL" TO WT AND DELTA |            |                          |
|------------------------------|---------------|--------------------------|--|------------|--------------------------|--|------------|--------------------------|
| MATERIAL TYPE                | SIZE (INCHES) | ESTIMATE STRENGTH (LBS.) | ULTIMATE STRENGTH (LBS.)                           | C10 NUMBER | CONSTRUCTION UNIT NOTE D | ULTIMATE STRENGTH (LBS.)                           | C10 NUMBER | CONSTRUCTION UNIT NOTE E |
| CAL. STEEL                   | 3/4           | 15,400                   | 21,000   | 48502421   | GUY-38-F-242-28          | 20,000   | 62549000   | GUY-38-F-242-28          |
|                              | 1/2           | 28,900                   | NOTE 6   | ---        | ---                      | ---  | ---        | ---                      |
| STAINLESS STEEL              | 3/4           | 12,200                   | 15,000   | 48502425   | GUY-38-F-242-28-C        | 20,000   | 62549000   | GUY-38-F-242-28-C        |
|                              | 1/2           | 16,200                   | 21,000   | 48502421   | GUY-38-F-242-28-C        | ---  | ---        | GUY-38-F-242-28-C        |

### NOTES:

1. GUY INSULATORS ARE NOT REQUIRED IN GROUNDED GUYS BUT MAY BE INSTALLED IN THE GUY WIRE TO REDUCE GUY CLEARANCES. CLEARANCES CANNOT BE REDUCED TO METAL END FITTINGS OR GUY GRIPS ASSOCIATED WITH GUY INSULATORS.
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3. MULTIPLE GUY INSULATORS MAY BE USED TO ISOLATE A SEGMENT OF GUY WIRE EXPOSED TO ANOTHER CONDUCTOR OR CABLE. GUY WIRES WITH A GUY INSULATOR IN THE LOWER PORTION OF THE GUY NEED NOT BE GROUNDED.
4. GUY INSULATORS MAY BE INSTALLED IN THE LOWER PORTION OF A GUY WHERE A LOOSE GUY WIRE COULD INADVERTENTLY MAKE CONTACT WITH A PRIMARY CONDUCTOR. THIS CAN BE A CONSEQUENCE WHEN A GUY WIRE IS ATTACHED ABOVE OR PASSES BY A PRIMARY CONDUCTOR. PITCH OR INSULATION TO MAINTAIN A MINIMUM OF 6 FEET FROM INSULATOR TO GROUND FOR BROOKLYN GUY INSULATOR.
5. CONSTRUCTION UNITS INCLUDE WIRE AND GUY GRIPS.
6. INSULATOR NOT AVAILABLE USE 20,000 LB. 10" FIBERGLASS INSULATOR C10 48500000 GUY-38-F-242-28.

### GUY INSULATOR ASSEMBLIES

ALL DISTRIBUTION VOLTAGES  
DOWN TO 25KV GUY APPLICATIONS

A4.7 IS. 2004

D.S. 406

# What to Report?

## Guy Markers:

- A GUY MARKER SHALL BE INSTALLED ON THE GROUND END OF ANCHOR GUYS EXPOSED TO PEDESTRIAN TRAFFIC. GUYS MAY BE CONSIDERED EXPOSED TO PEDESTRIAN TRAFFIC WHERE THERE IS EVIDENCE OF ROUTINE PEDESTRIAN USAGE; THAT IS, AN ESTABLISHED WALKWAY, PATH, SIDEWALK, ETC. GUY MARKERS MAY ALSO BE INSTALLED AT LOCATIONS WHERE GUYS ARE EXPOSED TO POSSIBLE VEHICULAR DAMAGE; THAT IS, PARKING LOTS, DRIVEWAYS, ETC. WHERE THERE ARE MULTIPLE, PARALLEL, DOWN GUYS, ONLY THE GUY FURTHEST FROM THE POLE NEEDS TO BE MARKED WHEN MARKERS ARE REQUIRED.
- RESIDENTIAL GUY MARKERS MAY BE GRAY.

AMERICAN ELECTRIC POWER COMPANY  
DISTRIBUTION STANDARDS

CONNECTION  
TABLE II  
NOTE 2

FORMIC WIRE  
GUY WIRE  
0.75 402

GUY WIRE  
0.75 402

GUY MARKER  
YELLOW  
GUY WIRE  
0.75 402  
OR  
GRAY  
GUY WIRE  
0.75 402  
NOTES 4 & 5

POLE GUY ATTACHMENT  
CURVED WASHER  
DOUBLE OAK LOCK WASHER  
MACHINE BOLT

3/8 COPPER S.D.  
GUY WIRE  
NOTE 1

3/8 GALV STEEL STAPLE  
SPACED 12" TO 18"  
GUY WIRE

CONNECTION  
0.75 402

TABLE II

| MATERIAL TYPE             | GUY WIRE SIZE       | SELECT CONNECTIONS WITH MIN OR LAP SIZES SUITABLE FOR | REFER TO  |
|---------------------------|---------------------|---|-----------|
| GALV. STEEL               | 3/8"                | 1/2" - 2 1/2" S.W.                                    | D.S. 70-8 |
|                           | 1/2" STRAND OF 1/4" | 5 S.W.  |           |
| STAINLESS STEEL (304/316) | 3/8"                | 3/4" S.W.   | D.S. 70-8 |
|                           | 1/2"                | 5/8" S.W.   |           |

TABLE III  
DOWN GUY ASSEMBLIES

| EXTRA HIGH STRENGTH GUY WIRE |               | ULTIMATE STRENGTH (LBS) | POLE GUY ATTACHMENT GUY MARKER | WASHER GUY MARKER | MACHINE BOLT GUY MARKER NOTE 4      | CONSTRUCTION UNIT NOTE 3 |
|------------------------------|---------------|-------------------------|--------------------------------|-------------------|-------------------------------------|--------------------------|
| MATERIAL TYPE                | SIZE (INCHES) |                         |                                |                   |                                     |                          |
| GALV. STEEL                  | 3/8"          | 15,400                  | 47084000                       | 0712010           | 3/8" x 1 1/2" LENGTH 0702100 NOTE 1 | GUY-38-D-4000-100        |
|                              | 1/2"          | 28,900                  | 47084010                       | 0712010           | 3/8" x 1 1/2" LENGTH 0702100 NOTE 1 | GUY-1/2-D-4000-100       |
| STAINLESS STEEL (304/316)    | 3/8"          | 15,200                  | 47084010                       | 3320700           | 0702100 AND 3309710                 | GUY-38-D-4000-100-C      |
|                              | 1/2"          | 16,200                  | 47084020                       | 3320700           | 0702100                             | GUY-1/2-D-4000-100-C     |

NOTES:

- ALL DOWN GUYS ASSOCIATED WITH 7.2 MEGAVOLTAGE NEUTRAL SYSTEMS AND ON STRUCTURES CARRYING SUPPLY CAPACITORS OF MORE THAN 300 VOLTS PHASE TO GROUND ARE TO BE EMPLOYED BY DESIGN TO AN EXISTING NEUTRAL-GROUNDED NEUTRAL CONDUCTOR OR BE ELECTRICALLY ISOLATED. IT IS RECOMMENDED THAT THE GUYS BE GROUNDED. FOR THE INSTALLATION OF GUY INSULATORS, REFER TO D.S. 403 AND 404.
- DO NOT ALL STRANDS OF GUY WIRE TO GROUNDING CONDUCTOR FOR 3/8" AND 1/2" EACH GUY. DO NOT A SINGLE STRAND OF 1/2" EACH GUY WIRE TO GROUNDING CONDUCTOR.
- CONSTRUCTION UNITS INCLUDE GUY ATTACHMENT, GUY GRIPS AND MOUNTING HARDWARE.
- A GUY MARKER SHALL BE INSTALLED ON THE GROUND END OF ANCHOR GUYS EXPOSED TO PEDESTRIAN TRAFFIC WHERE THERE IS EVIDENCE OF ROUTINE PEDESTRIAN USAGE; THAT IS, AN ESTABLISHED WALKWAY, PATH, SIDEWALK, ETC. GUY MARKERS MAY ALSO BE INSTALLED AT LOCATIONS WHERE GUYS ARE EXPOSED TO POSSIBLE VEHICULAR DAMAGE; THAT IS, PARKING LOTS, DRIVEWAYS, ETC. WHERE THERE ARE MULTIPLE, PARALLEL, DOWN GUYS, ONLY THE GUY FURTHEST FROM THE POLE NEEDS TO BE MARKED WHEN MARKERS ARE REQUIRED.
- RESIDENTIAL GUY MARKERS MAY BE GRAY.
- USE DOUBLE OAK LOCK WASHER AS AVAILABLE.
- TWO MOUNTING BOLTS ARE REQUIRED FOR GUY 47084010.

JUNE 15, 2005

DOWN GUY ASSEMBLIES  
ALL DISTRIBUTION VOLTAGES

D.S. 403

# What to Report?

## Cross Arms:

- Broken or Split
- Broken Braces
- Sagging arms in long spans
- Pins leaning or pulling out of arms

# What to Report?

## Hardware Damaged:

- Blown Lighting Arrestors
- Bad Cutouts
- Damaged Insulators -Chipped, Missing Skirts, deformed composite insulators.
- Cracked or Overloaded Cluster Brackets

# What to Report?

## Transformers / Other Equipment:

- In-Active Xfmers
- Services or Conductors Rolled up on Poles
- By-passed equipment.
- Leaking Xfmers and Equipment
- Damaged - Pad mounts dented/pushed off foundations, Pedestals broken, Conduit Risers Broken/Cracked or Pulled apart.
- Locks missing on equipment either Underground or Overhead, re: GOAB SW. Recloser Controls etc.

# What to Report?

## Conductors:

Proper Clearance - While performing inspections of existing facilities we need to take consideration of when the facilities were installed and if those facilities fall under a previous code. Generally the New code requires less clearance than previous codes requirements. While performing inspections reference should be made to the following table for Vertical/Horizontal Clearances of Neutrals, Secondary & Service conductors as defined the NESC code:

# What to Report?

**Minimum vertical clearances of wires/conductors above ground, roadways and other surfaces**

| Type of Surface<br>↓   | Neutral Wire,<br>Span Gays,<br>Messenger Wire,<br>Telecommunications Cables | Duplex, Triplex,<br>Quadriplex<br>0V to 750V<br>L-G | Open Wire<br>Secondary<br>0V to 750V<br>L-G<br><br>See Note 2 | Open Wire<br>Primary<br>751V to 22kV<br>L-G<br><br>See Note 2 |
|--|---|---|---|---|
| Roads, Streets,<br>Areas with<br>Truck Traffic<br><br>See Note 1 | 15.5 Ft.  | 16 Ft.  | 16.5 Ft.  | 18.5 Ft.  |
| Driveways,<br>Parking Lots,<br>Alleys                            | 15.5 Ft.  | 16 Ft.  | 16.5 Ft.  | 18.5 Ft.  |
| Cultivated<br>Land,<br>Orchards,<br>Forests,<br>Grazing Land     | 15.5 Ft.  | 16 Ft.  | 16.5 Ft.  | 18.5 Ft.  |

This document is not a design guide and is to be used as a field resource only. Refer to the 2007 NESC Book for additional information on the above chart, and for clearances over railroad tracks, water, buildings, swimming pools, etc.

- \* If measured clearance is less than the value in this table prompt corrective action is required. If a clear and immediate endangerment to human life is found to exist, immediate safe guarding action is necessary until corrective action can be taken.
- If measured clearance is at or within 1 foot higher than the value in this table, additional review is required.
- If broken or out of sag conductors are being replaced or repaired, a one foot buffer should be added to the clearance values in the tables to determine the required clearance.

**Notes:**

1. Interstates, limited access highways, and certain other roadways may require additional clearance.
2. If current carrying conductors are not loaded to their maximum capability additional clearance is required.

# What to Report?

## Conductors:

- Clearances for Primary and Secondary and service drop conductors above roofs, Decks and porches needs to be taken into consideration.
- In general where Primary crosses directly over a Roof of a Residence or Mobile Home and the neutral is less than 3'-0" or the Primary conductor is less than 12'-6" feet above the structure, report of the issue shall be made. If the conductor is rubbing against the roof immediate action shall be taken to correct the condition.

# What to Report?

- Where secondary or a service drop crosses directly over a Roof of a Residence or Mobile Home and is less than 3'-0", report of the issue should be made. If the drop is rubbing against the roof immediate action shall be taken to correct the condition.
- Where a service crosses a deck or porch and is less than 8'-0", report of the issue shall be made. If the conductor is rubbing against the deck, handrail or any portion of immediate action shall be taken to correct the condition.

# What to Report?

## Long Conductor Spans

- Report spans of 3 phase conductor exceeding 500ft on Single pole structures.
- Report any 3 phase Spans which have excessive sagging of the 3 phase conductors.

# What to Report?

## Antennas, Signs, Billboards, Tanks, Chimneys:

KYPCo recommends that customer install antennas at least  $1\frac{1}{2}$  times their height from our lines. The NESC code, Table 234-1, 750v to 22 kV, requires a clearance of 7'-6" from our lines at rest (no blow out) and 4.5 at the Blow out condition.

Antennas found during the inspection that are less than the KYPCo recommended distance of  $1\frac{1}{2}$  time their height from our lines shall be reported. A report of the approximate distance the antenna is from our facilities will be required.

# Priority for Repairs

- Immediately repair those facilities which presently are a risk to safety of the public & our employees. Repair any item that could cause an outage if not immediately attended to.

RE: A rotten pole which is badly leaning if would fall could cause an outage or is hazard to the public or may cause damage to public property.

# Priority for Repairs

- A unattached guy wire which could come in contact with energized conductors or equipment.
- Services rolled up and attached to the pole.
- NESC clearance violations where low hanging energized conductors could come in contact with vehicle or pedestrian traffic. (this could be moved to a #2 priority if deemed nonurgent).

# Priority for Repairs

- Repair those items which could become a safety or outage risk within a reasonable amount of time (3 to 6 months).

RE: A deteriorated pole which is stabilized by wires and guys and could be expected to remain in service for some time.

- Repair items which would not cause a safety or reliability concern within the next year. RE: Failed arresters, rotten crossarms.

# Priority for Repairs

- NESC clearance violations which are not a Hazard to our employees, the public or other joint users of our facilities.
- "If defects should be discovered that pose a safety risk, then timely corrective action by qualified personnel is required."

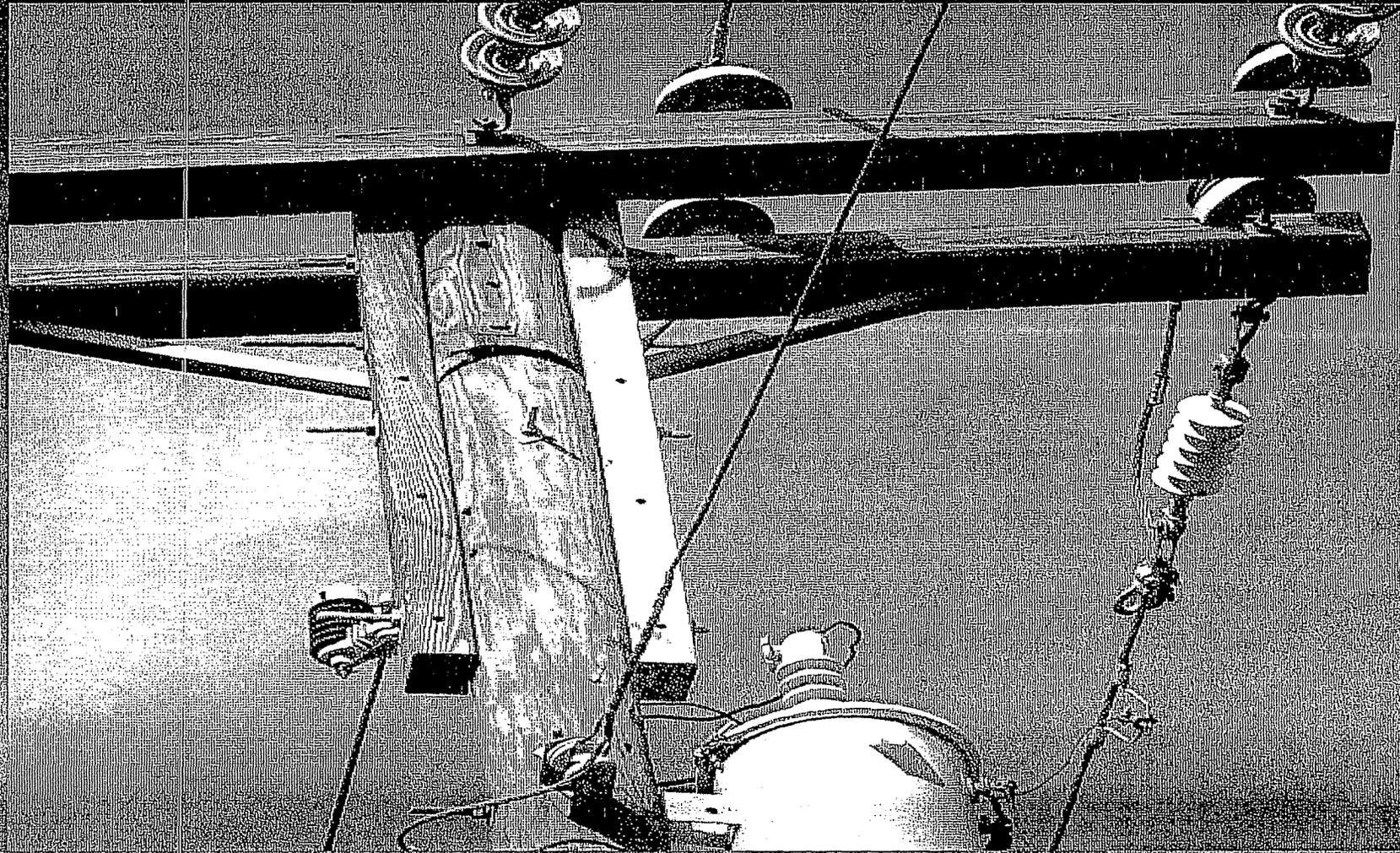
# Examples \ Pole in Slip



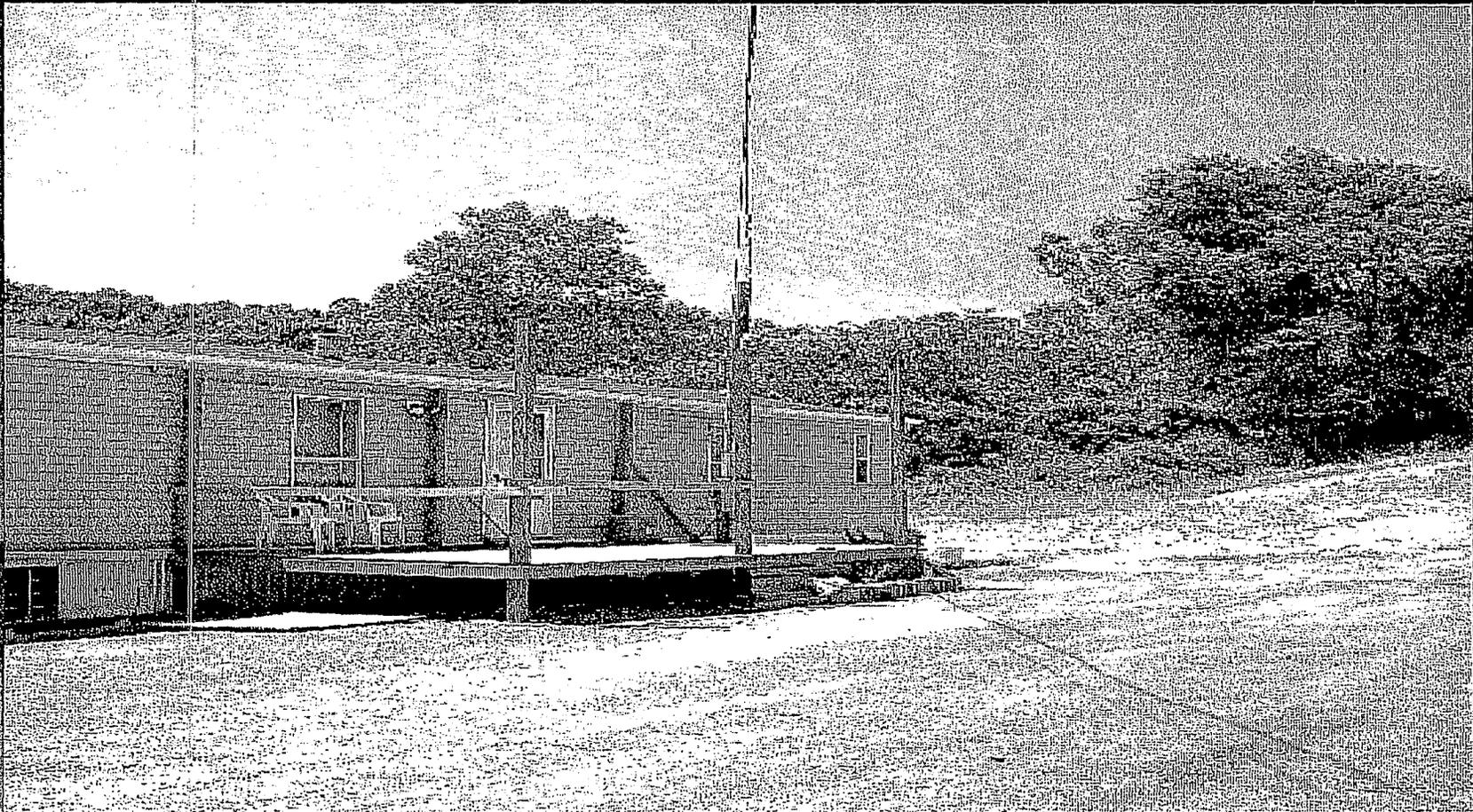
# Examples \ Broken Learning



# Examples \ Pole Fire



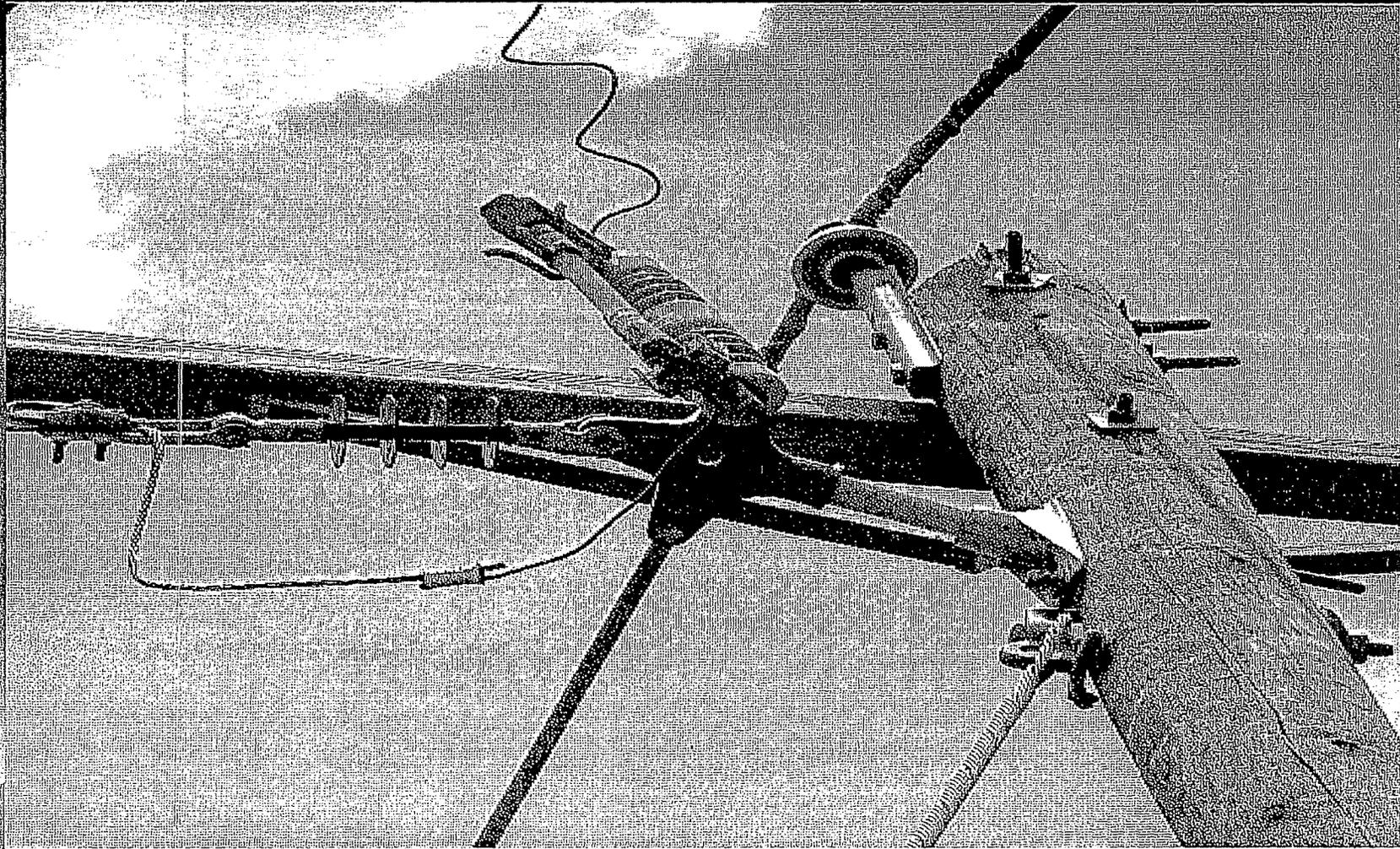
# Examples \ Drop Over Deck



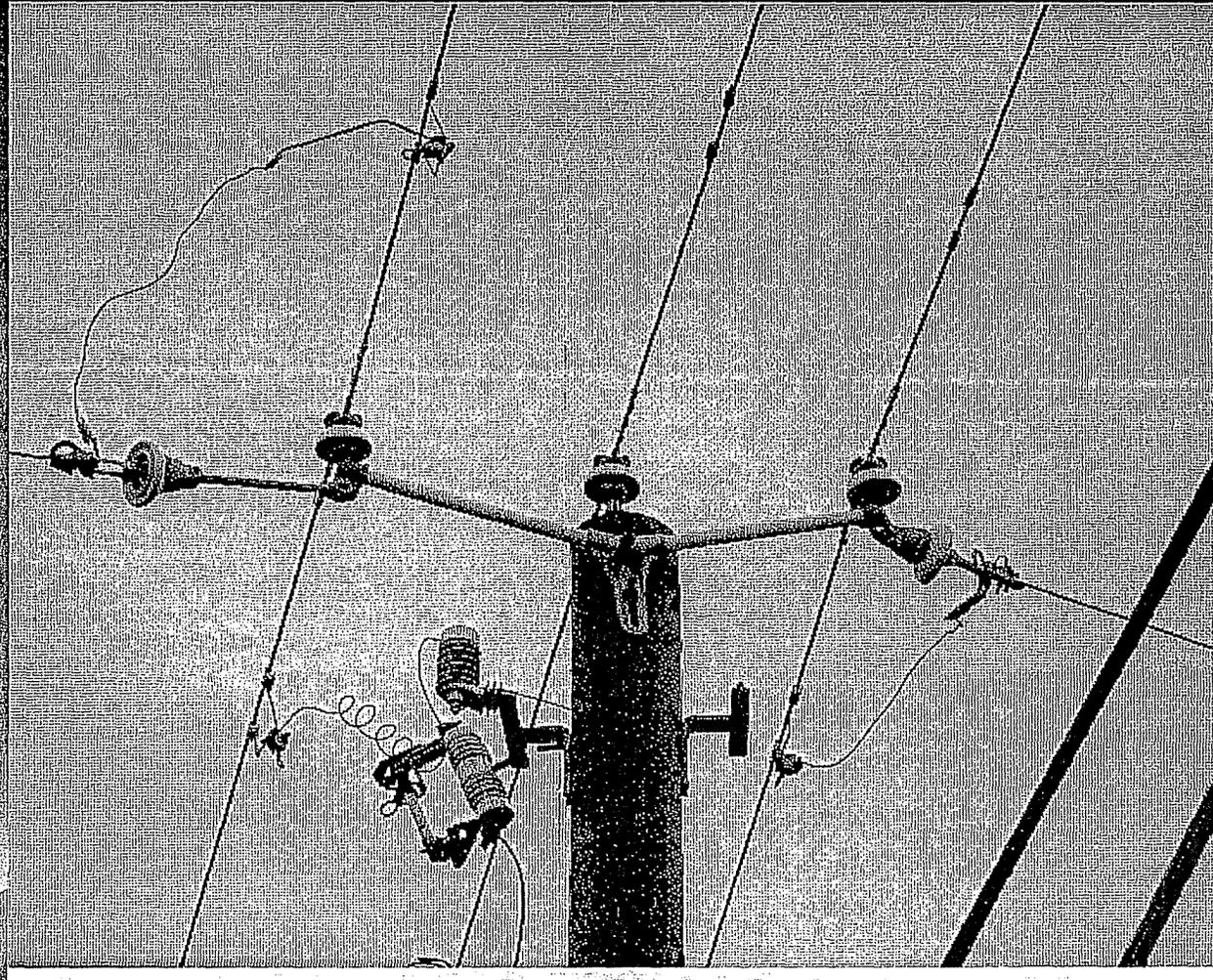
# Examples \ Bad XARM



# Examples \ Non-Standard Const.



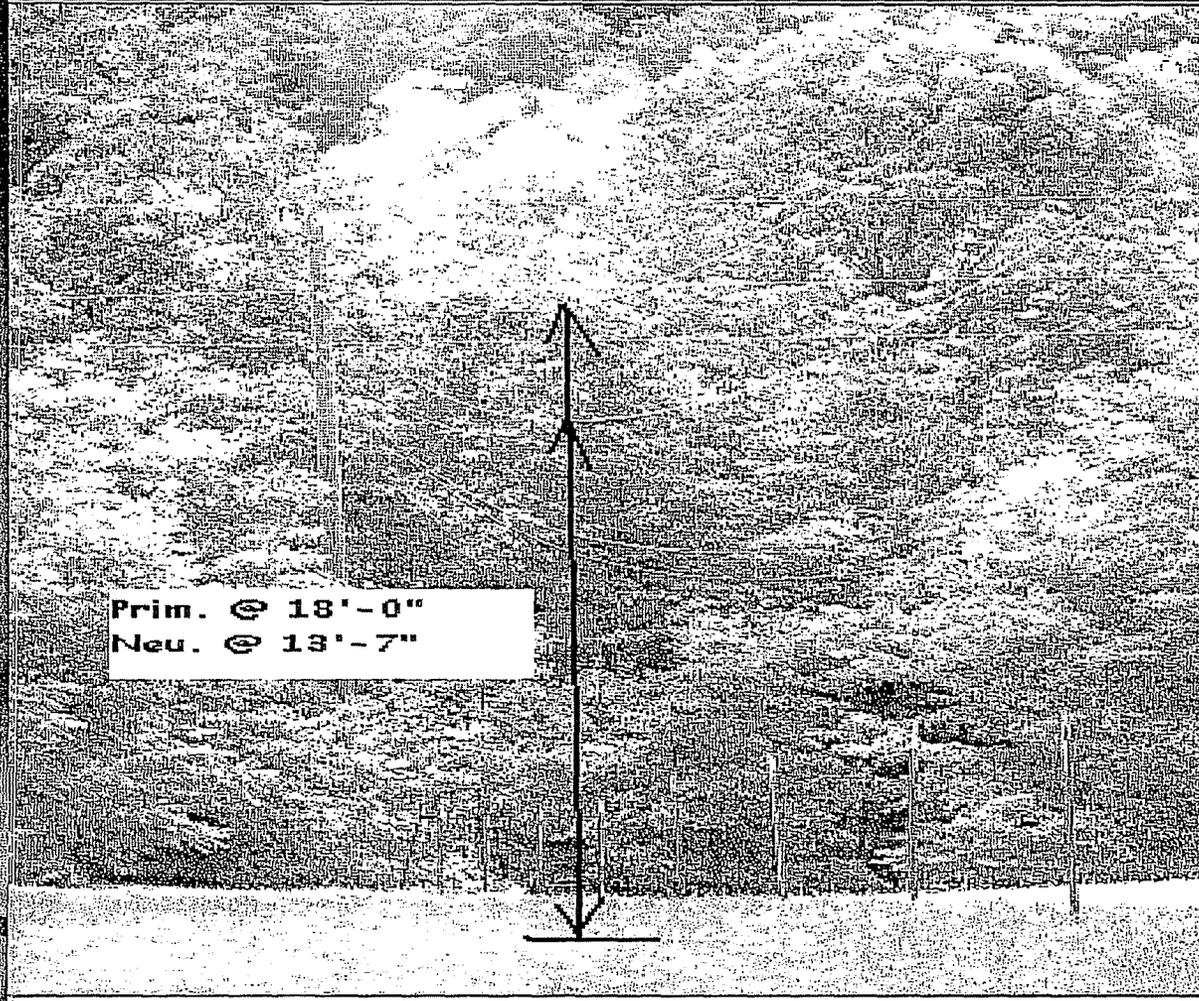
# Examples \ Non-Standard Const.



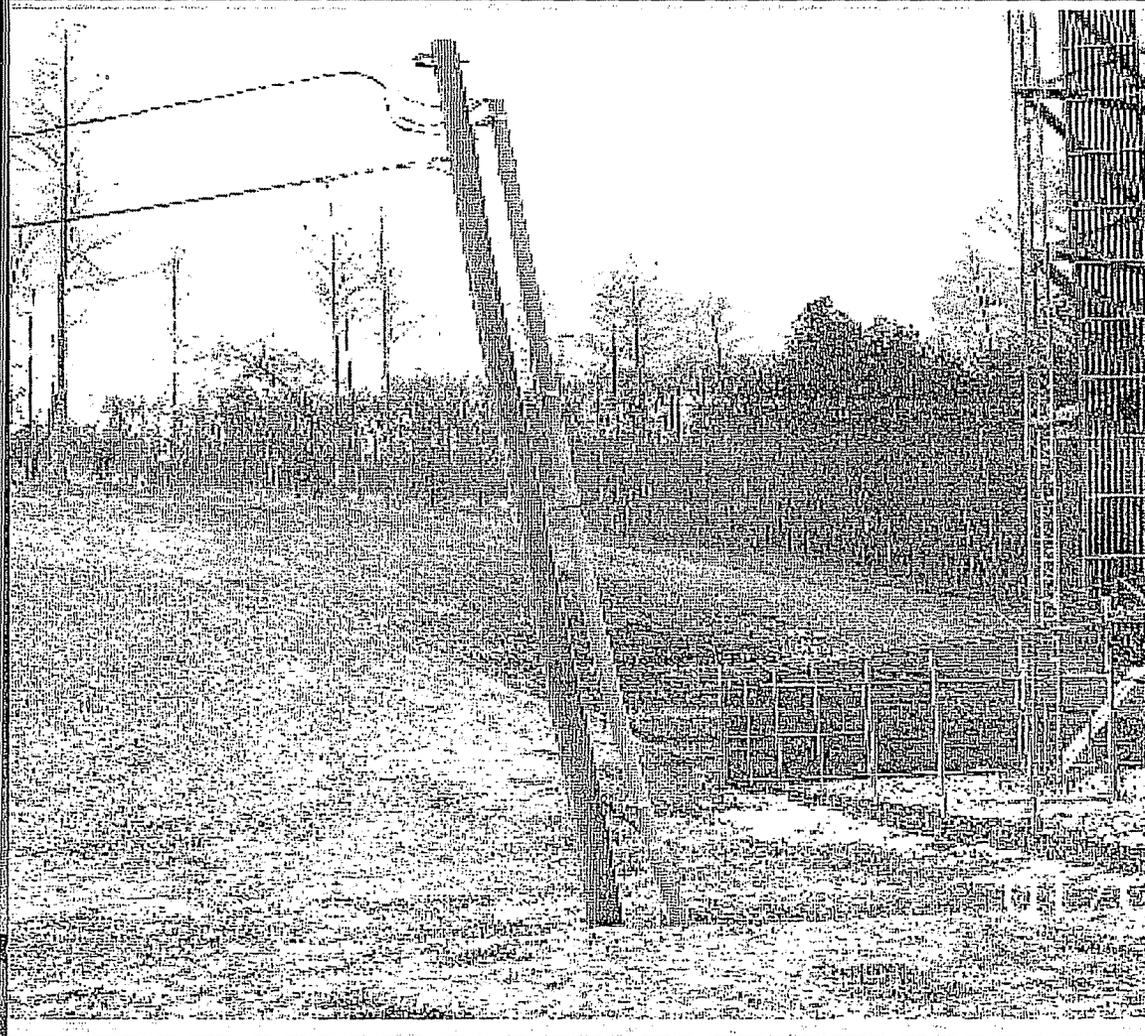
# Examples \ Loose Ground



# Examples \ Low Clearance



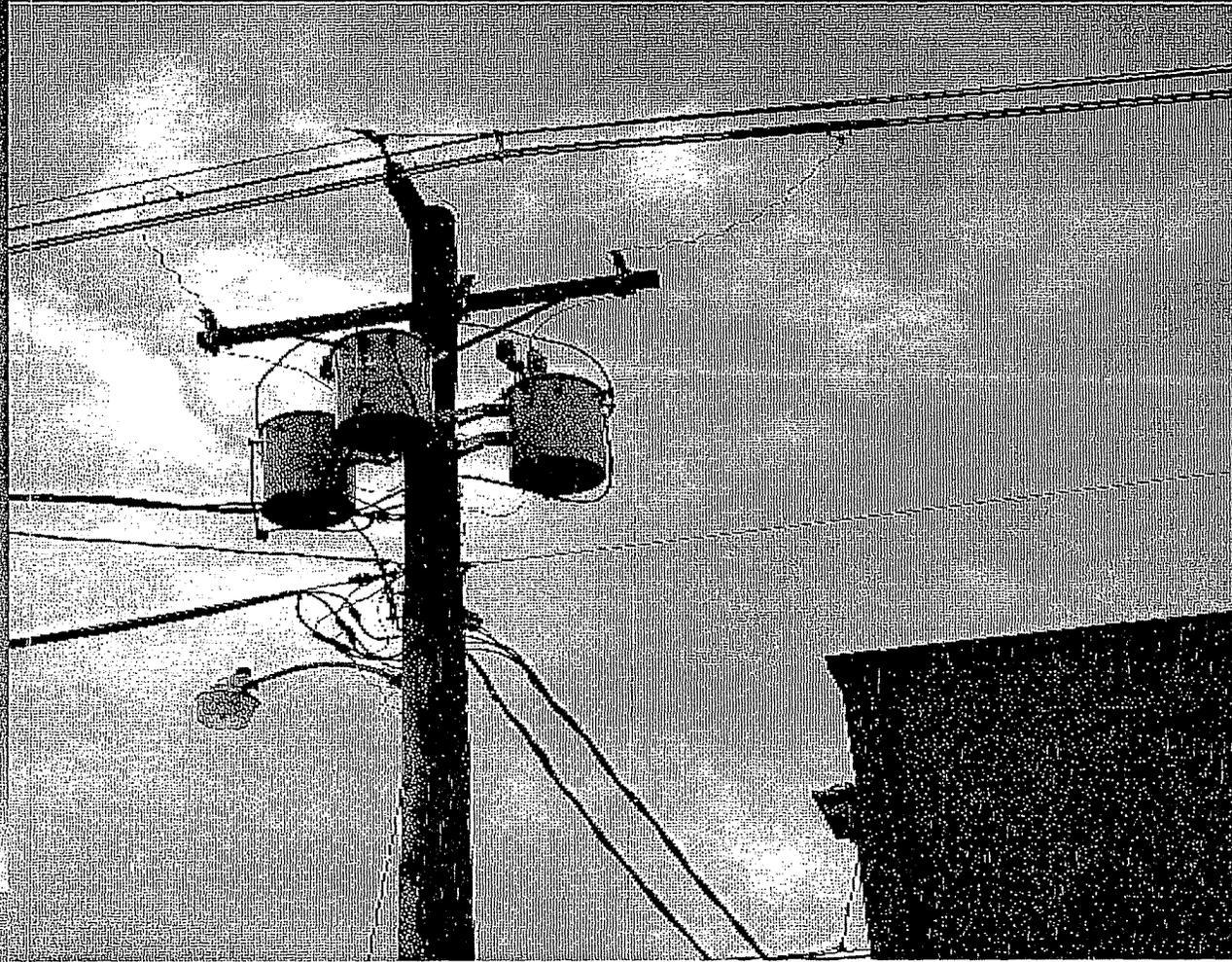
# Examples \ Un Guyed pole leaning



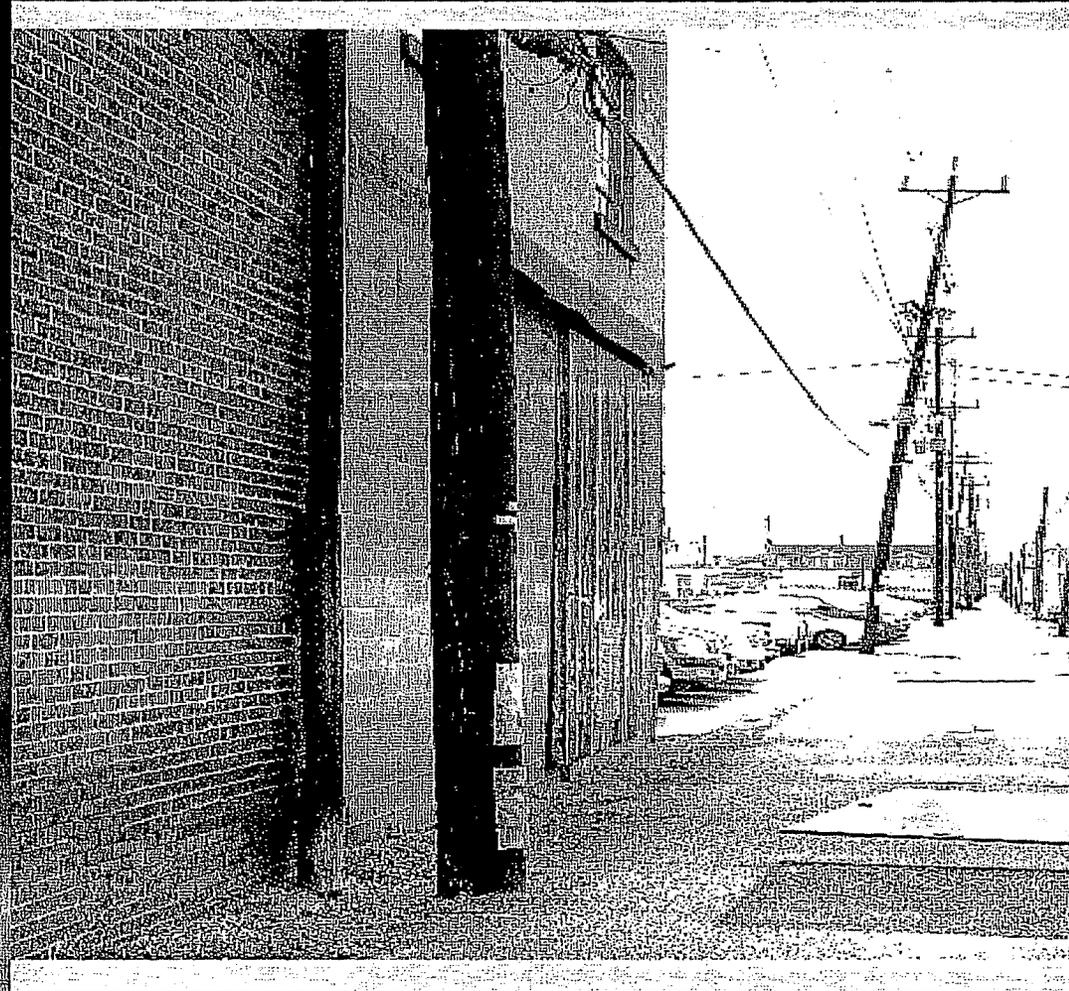
# Examples \ Pole Adjacent to Buildings



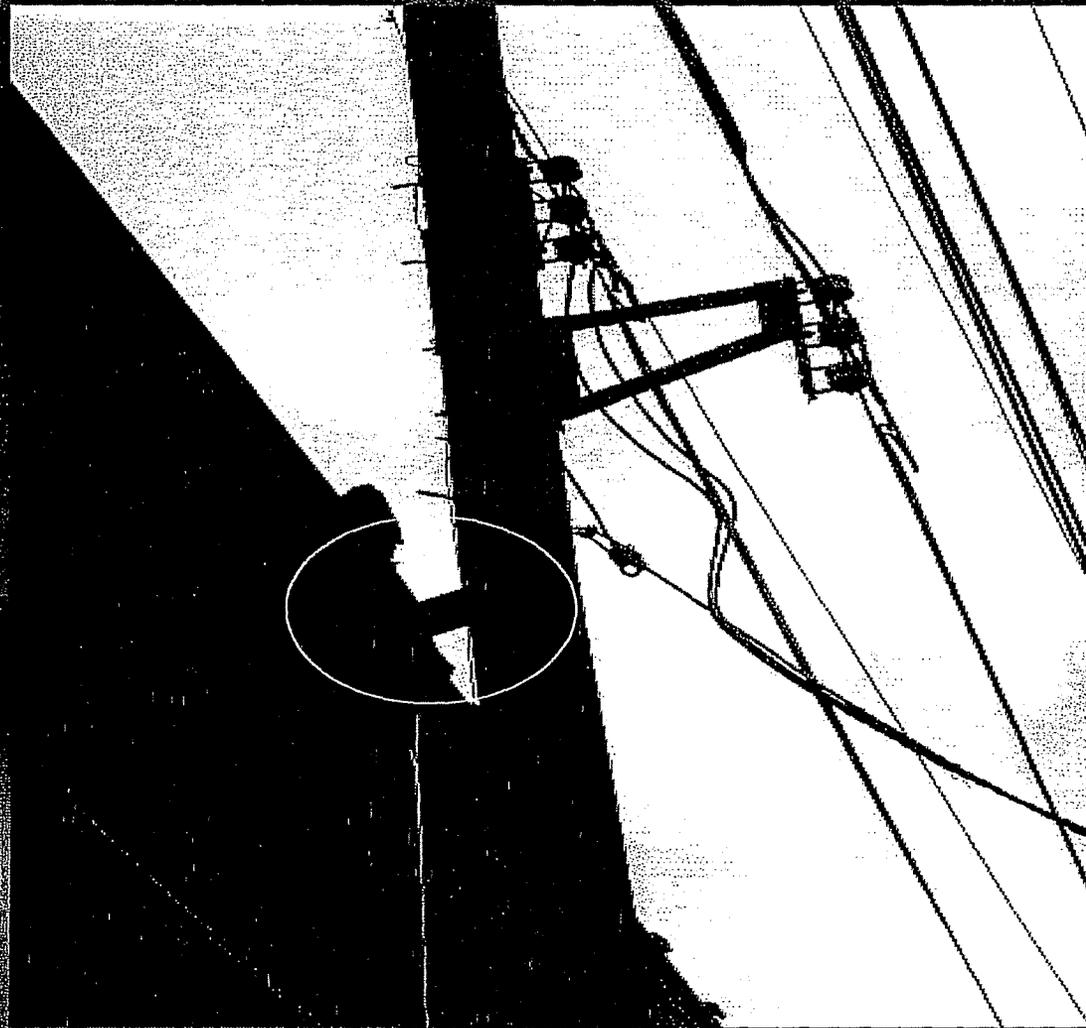
# Examples \ Pole Adjacent to Buildings



# Examples \ Pole Adjacent to Buildings



# Examples \ Pole Adjacent to Buildings



# Examples \ Pole Adjacent to Buildings



# Examples \ Slab



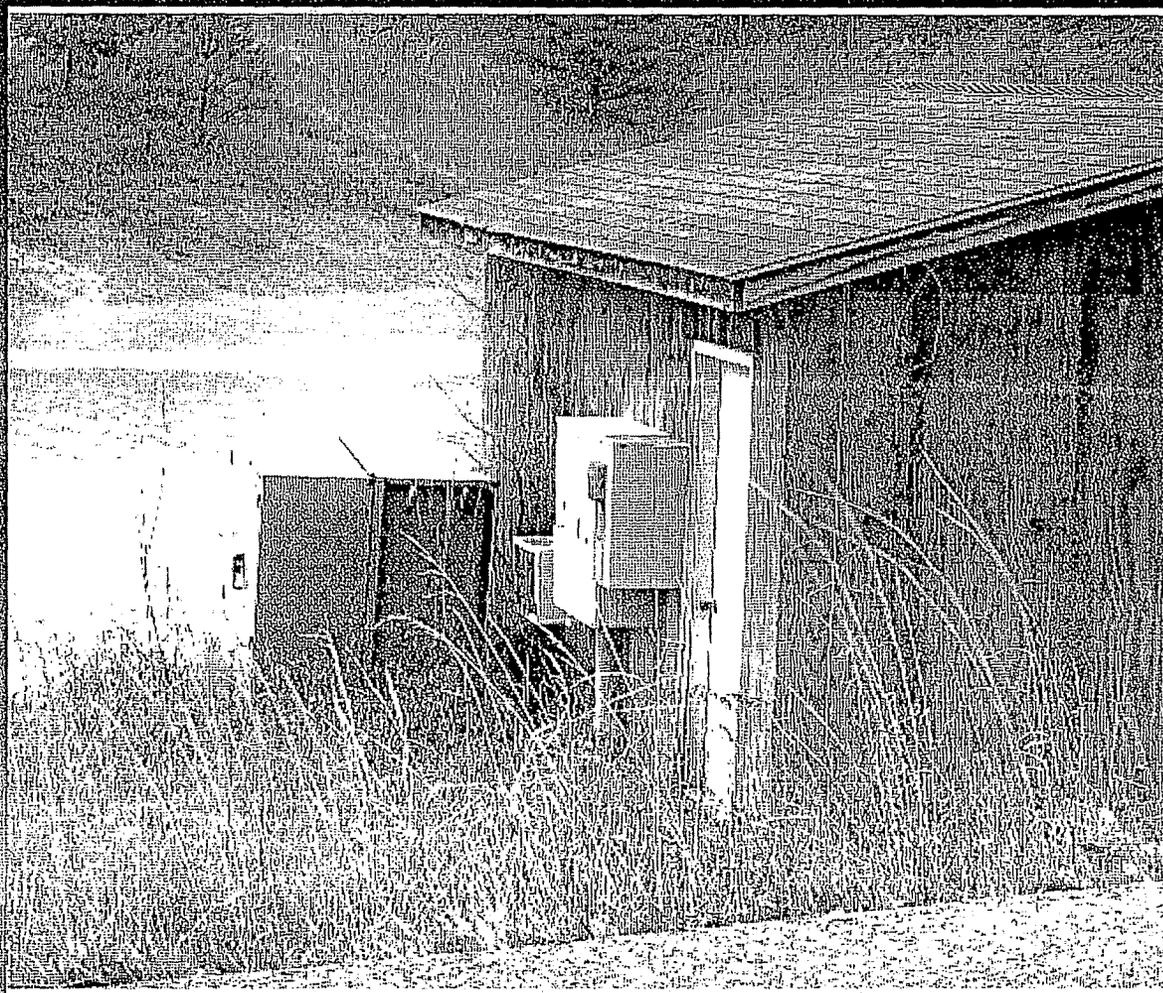
# Examples \ Vines



# Examples \ Pad Mount



# Examples \ Pad Mount



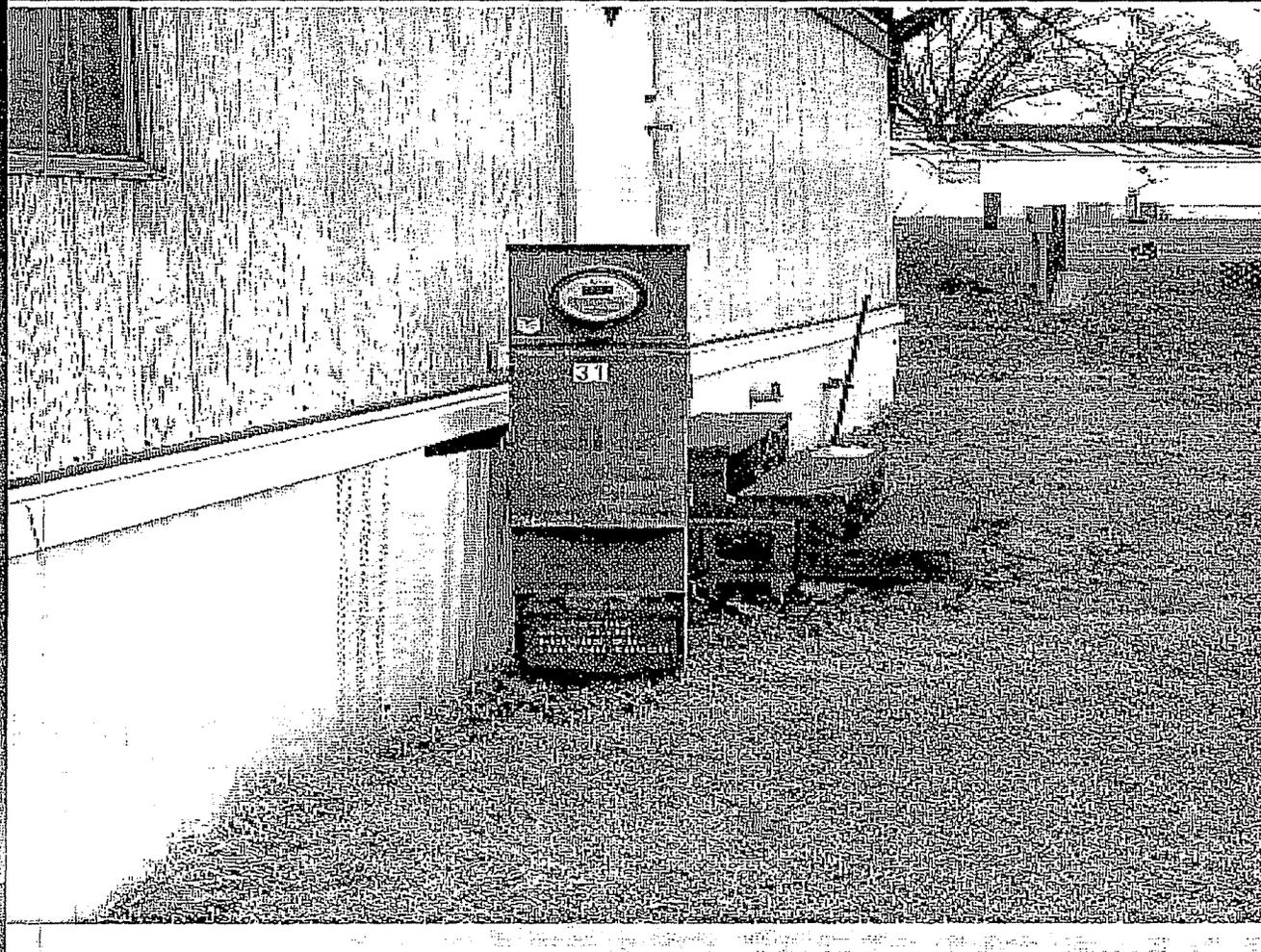
# Examples \ Pad Mount



# Examples \ UG



# Examples \ Meter Pedestals



# PSC Inspection Program

Guidelines for Circuit Inspection  
Service Premise Inspection

# Overall Program Objective

The objective of this program is to visually inspect all overhead and the external, above ground portions of underground facilities on a 2 year cycle to identify and correct deficiencies necessary for the safety of employees and the public under the conditions specified in the NESC and for system reliability.

# Circuit Criteria

A list of Circuits to be inspected are identified on a biannual basis. Circuits are identified based on the circuit miles. Keeping a balance of miles in each 2 yr cycle.

# What we are looking For

## Overhead :

Driving or foot patrol inspections are conducted as appropriate looking for obvious defects such as loose down guys, broken grounds, cracked insulators, lightning arresters with blown isolators, deteriorated crossarms having inadequate strength, low conductors, etc. Electrical and mechanical defects observed will be identified and the information will be collected so appropriate corrective action can be taken.

# What we are looking For

## Underground:

An external, visual inspection of the above ground portion of underground systems including pad-mounted equipment (transformers, switches, primary metering enclosures, junction cabinets, etc.), pedestals and the underground associated components of primary riser poles.

# What we are looking For

The external inspection will be conducted to determine that the equipment is locked and secure and that there are no openings that might allow access to the interior of the equipment via soil erosion, cabinet or conduit deterioration or by other means such as vandalism.

# Meter Inspection Criteria

Due to the conversion from mechanical meters to automated meters we are not visiting each premise as we did when reading mechanical meters. To meet the requirements of the PSC inspection we must make a visit to each of these automated meters every 2 years.

# Meter Inspection Criteria

To help meet these requirements the MRO group will perform a biannual inspection of the cycle routes which have automated metering devices.

Following is the process to be followed for the inspection.

# Meter Inspection Process Outline

The process for inspecting services metered by automated meters:

- The Route to be read is loaded in Meter readers Road Runner.
- A print out of the Cycle\Route containing automated meters is printed and assigned to a inspector. ( Copy will remain in the office until inspection is complete)
- The inspector reads the route and at each premise inspects the overhead or underground portions of the service from the service pole to the meter base.
- Deficiencies which are meter reading issues, broken seals, Cracked (not broken) meter covers, programming or communication issues are noted in the Road Runner as Investigation orders.

# Meter Inspection Process Outline

- Deficiencies found which are hazards to the public re: open hot meter base, hot conductor on ground, Shall be immediately called into Field Com. And an Investigation Order created (IO02)
- Deficiencies found which are not immediate Hazards but require investigation are low service drops (greater than 8ft), house knob pulled loose, meter base pulled loose, Damaged or leaning mast, damaged or leaning mast pipe. Shall be immediately called into Field Com. Appropriate Investigation Order created.
- Field com. reviews IO report for route and denotes inefficiencies found on paper copy of route report.

# Meter Inspection Process Outline

- The Supervisor reviews the report for deficiencies and has the meter reader review and sign off on the report.
- The route report with the recorded deficiencies which were not investigated by a first responder is forwarded to the lead techs in customer design for action.
- Customer design will create work request for any repairs needed and record work request numbers for the repairs on the report.
- The Lead Tech will return the report to the MRO supervisor to file.

# Meter Inspection Process Detail

Investigation Orders to be reported are as followed:

IO02 Unsafe Condition - Immediate attention required.

IO10 Equipment repair - To be issued for loose house knobs, meter base loose.

IO16 Damage Pole - Customer pole leaning or KYPCO pole leaning or damaged.

IO32 Service Relocate - Service Drop crossing over deck or swimming pool and is less than code clearance.

IO47 Re-sag Drop - Low Service less than 12'-0" that needs to be pulled up but is not a Hazard.

# Meter Inspection Process Detail

Deficiencies found which are hazards to the public re: open hot meter base, hot conductor on ground, Shall be immediately called into Field Com. (IOO2 Unsafe Condition - Immediate attention required).

- Meter Reader will report to Field Com the condition found.
- If the condition is a Hazard to the public Meter Reader will barricade area if required and will remain at premise until released by a First Responder.
- Field Com will generate a trouble order for the premise. Routing order to the DDC.
- Field Com will generate a IOO2 (Unsafe Condition) for the condition and route the order to the First Responder for completion along with the trouble order.

# Meter Inspection Process Detail

- DDC will route First responder to premise to investigate.  
Upon arriving at site First responder will determine if Meter reader can be released or stand by until Hazard is cleared.
- First Responder will make repairs and complete trouble order and IOO2 Noting Corrections made.
- When repairs require additional crew to repair, First Responder will contact Duty Supervisor requesting crew assistance.
- If the servicer stays on site the repair order will remain with on the servicers spectrum. If he leaves the order should be transferred to the repair crew.

# Meter Inspection Process Detail

- Deficiencies found which are not immediate Hazards but require investigation are low service drops (greater than 8ft), house knob pulled loose, meter base pulled loose, Damaged or leaning mast, damaged or leaning mast pipe.
- Meter Reader calls Field Com to report condition found.
- Field Com associate will create the appropriate Investigation order (IO) for the condition found. Noting the issue found.
- The IO is then routed to a First Responder to investigate.
- First Responder determines if repairs can be made at the time of the investigation. Repairs that can be made by the First Responder will be completed.  
The order will be completed noting the correction made.

# Meter Inspection Process Detail

- When First responder determines repairs will require a work order from Customer Design, the IO will be updated with comments of repairs needed by engineer, such as relocate drop, needs secondary, Needs Pole to relocate drop or Pole to raise drop.
- First Responder notes issue found in the IO. Then updates the order.
- First responder then transfers the IO order to the Lead Technicians spectrum ID for review.

# Meter Inspection Process Detail

- The Lead Technician reviews the Order in Spectrum. If required the order will be transferred to area technician to review for repairs needed.
- When a work orders is required, The work order will be created from the IO order

# What to Report?

## Conductors:

Proper Clearance - While performing inspections of existing facilities we need to take consideration of when the facilities were installed and if those facilities fall under a previous code. Generally the older codes require less clearance for services than previous code requirements. While performing inspections reference should be made to the following tables for Vertical/Horizontal Clearances of Neutrals, Secondary & Service conductors as defined the NESC code:

# What to Report?

**Minimum vertical clearances of wires/conductors above ground, roadways and other surfaces**

| Type of Surface<br>↓   | Neutral Wire,<br>Span Gays,<br>Messenger Wire,<br>Telecomin Cables | Duplex, Triplex,<br>Quadruplex<br>0V to 750V<br>L-G | Open Wire<br>Secondary<br>0V to 750V<br>L-G<br><br>See Note 2 | Open Wire<br>Primary<br>751V to 22kV<br>L-G<br><br>See Note 2 |
|--|--|---|---|---|
| Roads, Streets,<br>Areas with<br>Truck Traffic<br><br>See Note 1 | 15.5 Ft.   | 16 Ft.  | 16.5 Ft.  | 16.5 Ft.  |
| Driveways,<br>Parking Lots,<br>Alleys                            | 15.5 Ft.   | 16 Ft.  | 16.5 Ft.  | 16.5 Ft.  |
| Cultivated<br>Land,<br>Orchards,<br>Forests,<br>Grazing Land     | 15.5 Ft.   | 16 Ft.  | 16.5 Ft.  | 16.5 Ft.  |

This document is not a design guide and is to be used as a field resource only. Refer to the 2007 NESC Book for additional information on the above chart, and for clearances over railroad tracks, water, buildings, swimming pools, etc.

- \* If measured clearance is less than the value in this table prompt corrective action is required. If a clear and immediate endangerment to human life is found to exist, immediate safe guarding action is necessary until corrective action can be taken.
- \* If measured clearance is at or within 1 foot higher than the value in this table, additional review is required.
- \* If broken or out of sag conductors are being replaced or repaired, a one foot buffer should be added to the clearance values in the tables to determine the required clearance.

**Notes:**

1. Interstate, limited access highways, and certain other roadways may require additional clearance.
2. If current carrying conductors are not loaded to their maximum capability additional clearance is required.

# What to Report?

## SERVICE DROP CABLE CLEARANCES

| NATURE OF SURFACE UNDERNEATH SERVICE DROP CABLE  | VERTICAL CLEARANCE ABOVE SURFACE FOR SERVICE DROP CABLE (FEET) NOTES 1 AND 2 |
|--|--|
| TRACK RAILS OF RAILROADS   | 24.0   |
| ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC<br>NOTE 3 | 16.0   |
| DRIVEWAYS, PARKING LOTS, AND ALLEYS  | 16.0<br>NOTE 4   |
| SPACES AND WAYS SUBJECT TO PEDESTRIANS OR RESTRICTED TRAFFIC ONLY<br>NOTE 5                        | 12.0<br>NOTE 6   |
| ROOFS OR BALCONIES   | 11.0<br>NOTE 7   |
| SWIMMING POOLS   | 22.5<br>NOTE 8   |

# What to Report?

## NOTES:

1. ALL CLEARANCES LISTED ARE SPECIFIED BY THE NESC. THESE ARE MINIMUM CLEARANCES WHICH MUST BE MET FOR THE SAG CONDITION WHICH CAN OCCUR EITHER AT: MAXIMUM OPERATING CONDUCTOR TEMPERATURE OR, MAXIMUM LOADING AT 32° F, NESC ICE, FINAL SAG.

AN INCREASE IN DESIGN CLEARANCE AT TIME OF INSTALLATION IS RECOGNIZED AND ACCEPTABLE TO ACCOUNT FOR FUTURE RESURFACING OR GRADE CHANGES. A 12 INCH INCREASE IS TYPICAL IN LIEU OF ANY SPECIFIC INFORMATION. IT IS RECOMMENDED THAT THIS FACTOR SHOULD BE CONSIDERED AND, AS APPROPRIATE, INCLUDED WHEN PLANNING SERVICE INSTALLATIONS.

A POINT OF CLARIFICATION IS NECESSARY REGARDING WHAT CAN APPEAR TO BE A 2 FOOT INCONSISTENCY BETWEEN THE NESC AND THE NEC FOR CLEARANCES OVER "ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC" (NESC - 15 FEET VS. NEC - 18 FEET). NEC CLEARANCES ARE SPECIFIED (WITH LESS SAG) AT A CONDUCTOR TEMPERATURE OF 60° F., NO WIND, WITH FINAL UNLOADED SAG IN THE CONDUCTOR. THE 2 FOOT DIFFERENCE IS PARTIALLY ATTRIBUTED TO COMPARATIVELY LARGER SAG BY NESC SPECIFICATIONS. ADDITIONAL ALLOWANCES MADE FOR RESURFACING, ETC. IN APPLICATION OF THE NESC RULE WILL ACCOUNT FOR THE REST OF THE 2 FOOT DIFFERENCE. A SERVICE INSTALLED TO EITHER SPECIFICATION WOULD BE VERY SIMILAR WHEN ANALYZED BY THE OTHER. THEREFORE, THERE IS NO PRACTICAL INCONSISTENCY BETWEEN THE TWO CODES IN THIS SITUATION.

2. IN ADDITION TO PROPER DESIGN FOR GROUND/SURFACE CLEARANCES, BE CAREFUL TO PROVIDE CLEARANCES FROM BUILDING OPENINGS, WINDOWS, DOORS ETC. (TYPICALLY 5'-0"). PROVIDE A MINIMUM CLEARANCE OF 3 INCHES FROM DOWNSPOUTS AND EAVES FOR SERVICE CONDUCTORS 0 TO 750 VOLT. FOR CONDUCTORS MEETING NESC RULE 230C1, 230C2 OR 230C3 THIS CLEARANCE MAY BE REDUCED TO 1 INCH. ROUTE SERVICES SO THAT RAISED PATIO/DECK AREAS CAN BE AVOIDED IF POSSIBLE. AS AN ALTERNATIVE, CONSIDER PROVIDING ADDITIONAL CLEARANCE, WHEN FEASIBLE.
3. TRUCKS ARE DEFINED AS ANY VEHICLE EXCEEDING 8 FEET IN HEIGHT. AREAS NOT SUBJECT TO TRUCK TRAFFIC ARE AREAS WHERE TRUCK TRAFFIC IS NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.

4. FOR RESIDENTIAL DRIVEWAYS ONLY, WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 15 FEET OF CLEARANCE, THE CLEARANCES MAY BE REDUCED TO:

### SERVICES 277 VLG:

IN-SPAN GROUND CLEARANCE - 12.5 FEET  
DRIP LOOP GROUND CLEARANCE - 10.5 FEET

### SERVICES 120 VLG:

IN-SPAN GROUND CLEARANCE - 12.0 FEET  
DRIP LOOP GROUND CLEARANCE - 10.0 FEET

5. SPACES AND WAYS SUBJECT TO PEDESTRIAN OR RESTRICTED TRAFFIC ONLY ARE THOSE AREAS WHERE RIDERS ON HORSEBACK, VEHICLES OR OTHER MOBILE UNITS EXCEEDING 8 FEET IN HEIGHT, ARE PROHIBITED BY REGULATION OR PERMANENT TERRAIN CONFIGURATIONS OR ARE OTHERWISE NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.
6. WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 12 FEET OF CLEARANCE, THE CLEARANCE MAY BE REDUCED TO:

### SERVICES 277 VLG:

IN-SPAN GROUND CLEARANCE - 10.5 FEET  
DRIP LOOP GROUND CLEARANCE - " "

### SERVICES 120 VLG:

IN-SPAN GROUND CLEARANCE - 10.0 FEET  
DRIP LOOP GROUND CLEARANCE - " "

7. WHERE ROOFS OR BALCONIES ARE NOT READILY ACCESSIBLE AND WHERE VOLTAGE BETWEEN SERVICE CONDUCTORS DOES NOT EXCEED 300 VOLTS OR WHERE CABLES MEETING NESC RULE 230C2 OR 230C3 AND VOLTAGE DOES NOT EXCEED 750 VOLTS, CLEARANCE MAY BE REDUCED TO 3.0 FEET.
8. CLEARANCE IN ANY DIRECTION FROM THE POOL WATER LEVEL, EDGE OF POOL, BASE OF DIVING PLATFORM OR ANCHORED RAFT. CLEARANCE IN ANY DIRECTION TO A DIVING PLATFORM IS 14.5 FEET.

# What to Report?

## Conductors:

- Clearances for Primary and Secondary and service drop conductors above roofs, Decks and porches needs to be taken into consideration.
- In general where Primary crosses directly over a Roof of a Residence or Mobile Home and the neutral is less than 3'-0" or the Primary conductor is less than 12'-6" feet above the structure, report of the issue shall be made. If the conductor is rubbing against the roof immediate action shall be taken to correct the condition.

# What to Report?

## Services:

- Where service drop crosses over a Roadway and is less than 16ft.
- Where a Service crosses over a driveway and is less than 12ft.
- Where a service crosses over a yard and is less than 10ft.
- Where a service crosses over land that can be transverse by a vehicle or farm equipment 16ft.

# What to Report?

## Services:

- Where secondary or a service drop crosses directly over a Roof of a Residence or Mobile Home and is less than 3'-0", report of the issue should be made. If the drop is rubbing against the roof immediate action shall be taken to correct the condition.
- Where a service crosses a deck or porch and is less than 11'-0", report of the issue shall be made. If the conductor is rubbing against the deck, handrail or any portion of immediate action shall be taken to correct the condition.

# What to Report?

## Services:

- Services found rolled up on poles.
- Loose meter bases.
- Deteriorated meter bases
- Broken Glass\Plastic on meter
- Loose mast pipes
- Deteriorated entrance cables where the insulation is flaking off the conductors
- Any bare exposed conductors
- Connection that appear to be overheated
- Customer tampering.

# Priority for Repairs

- Immediately repair those facilities which presently are a risk to safety of the public & our employees. Repair any item that could cause an outage if not immediately attended to.

RE: A rotten pole which is badly leaning if would fall could cause an outage or is hazard to the public or may cause damage to public property.

# Priority for Repairs

- A unattached guy wire which could come in contact with energized conductors or equipment.
- Services rolled up and attached to the pole.
- NESC clearance violations where low hanging energized conductors could come in contact with vehicle or pedestrian traffic. (this could be moved to a #2 priority if deemed nonurgent).

# Priority for Repairs

- Repair those items which could become a safety or outage risk within a reasonable amount of time (3 to 6 months).

RE: A deteriorated pole which is stabilized by wires and guys and could be expected to remain in service for some time.

- Repair items which would not cause a safety or reliability concern within the next year. RE: Failed arresters, rotten crossarms.

# Priority for Repairs

- NESC clearance violations which are not a Hazard to our employees, the public or other joint users of our facilities.
- "If defects should be discovered that pose a safety risk, then timely corrective action by qualified personnel is required."

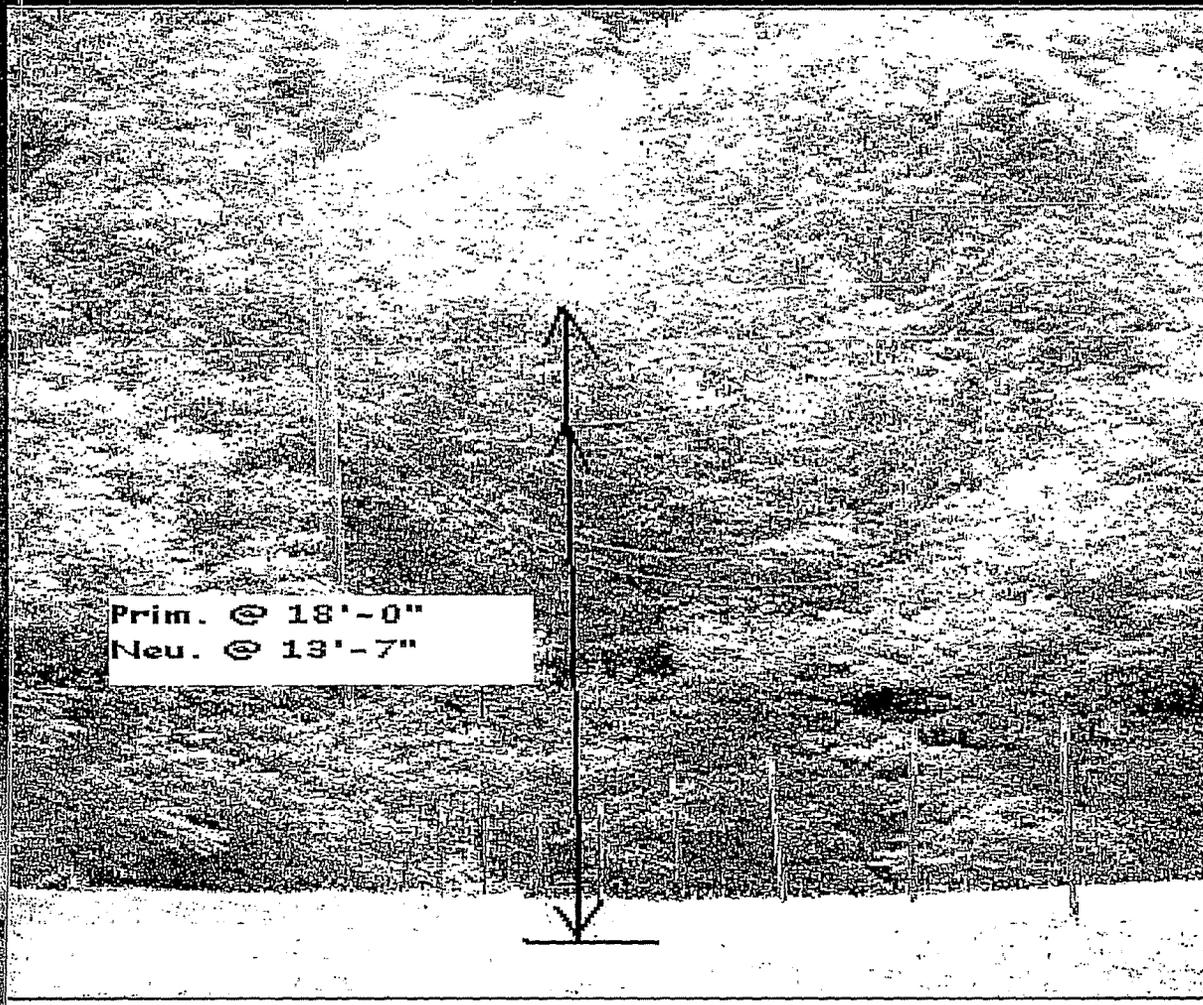
# Examples \ Pole in Slip



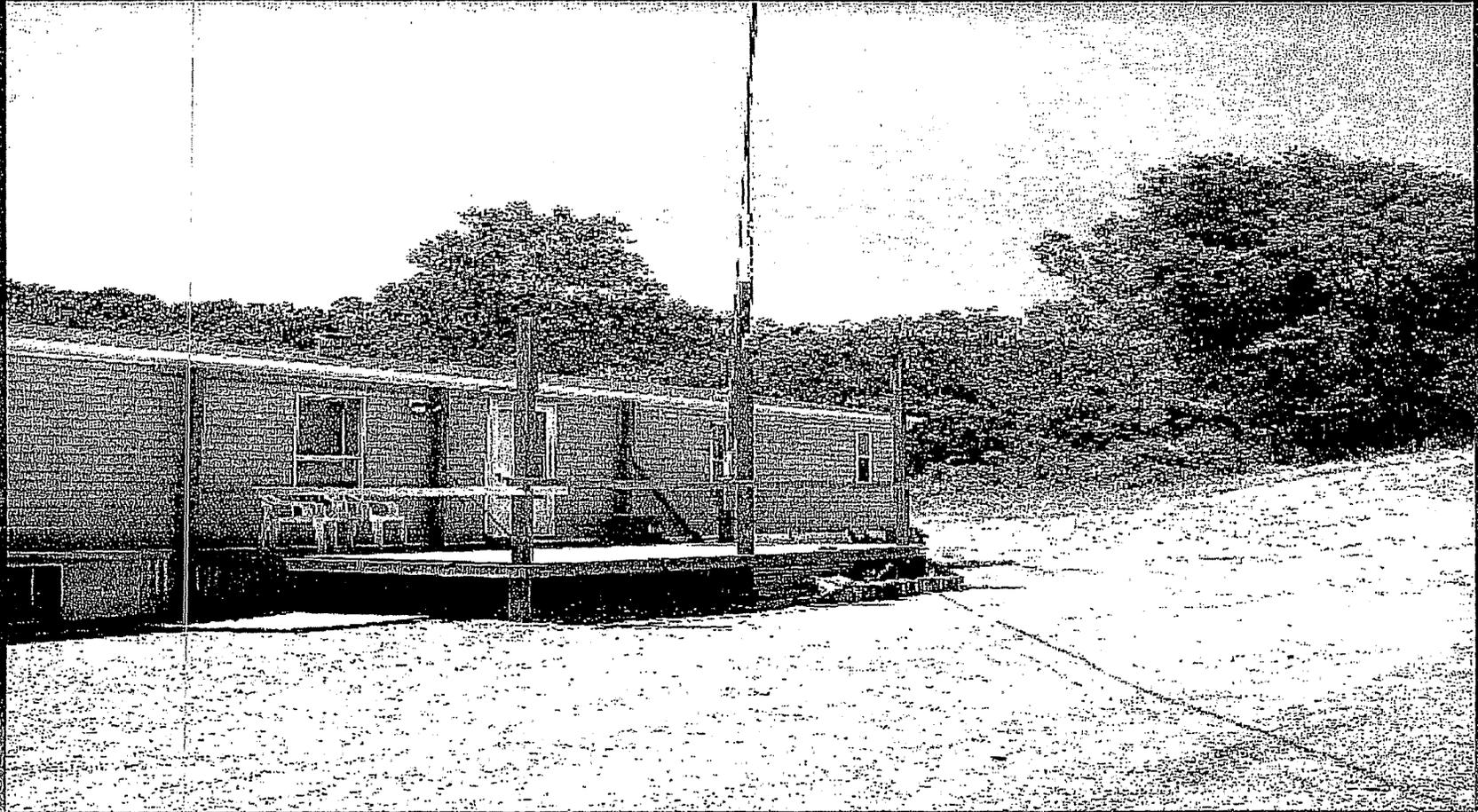
# Examples \ Broken Learning



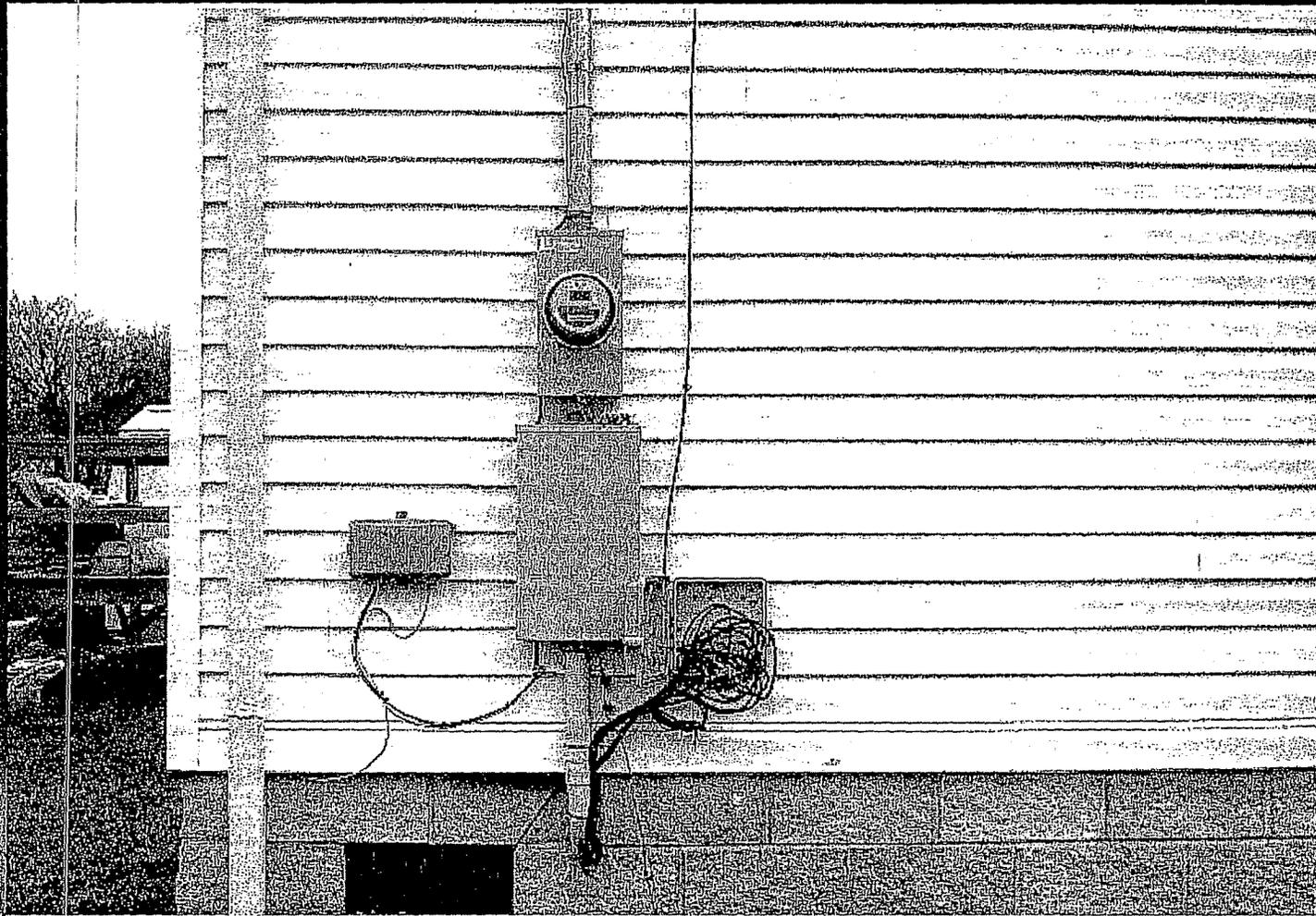
# Examples \ Low Clearance



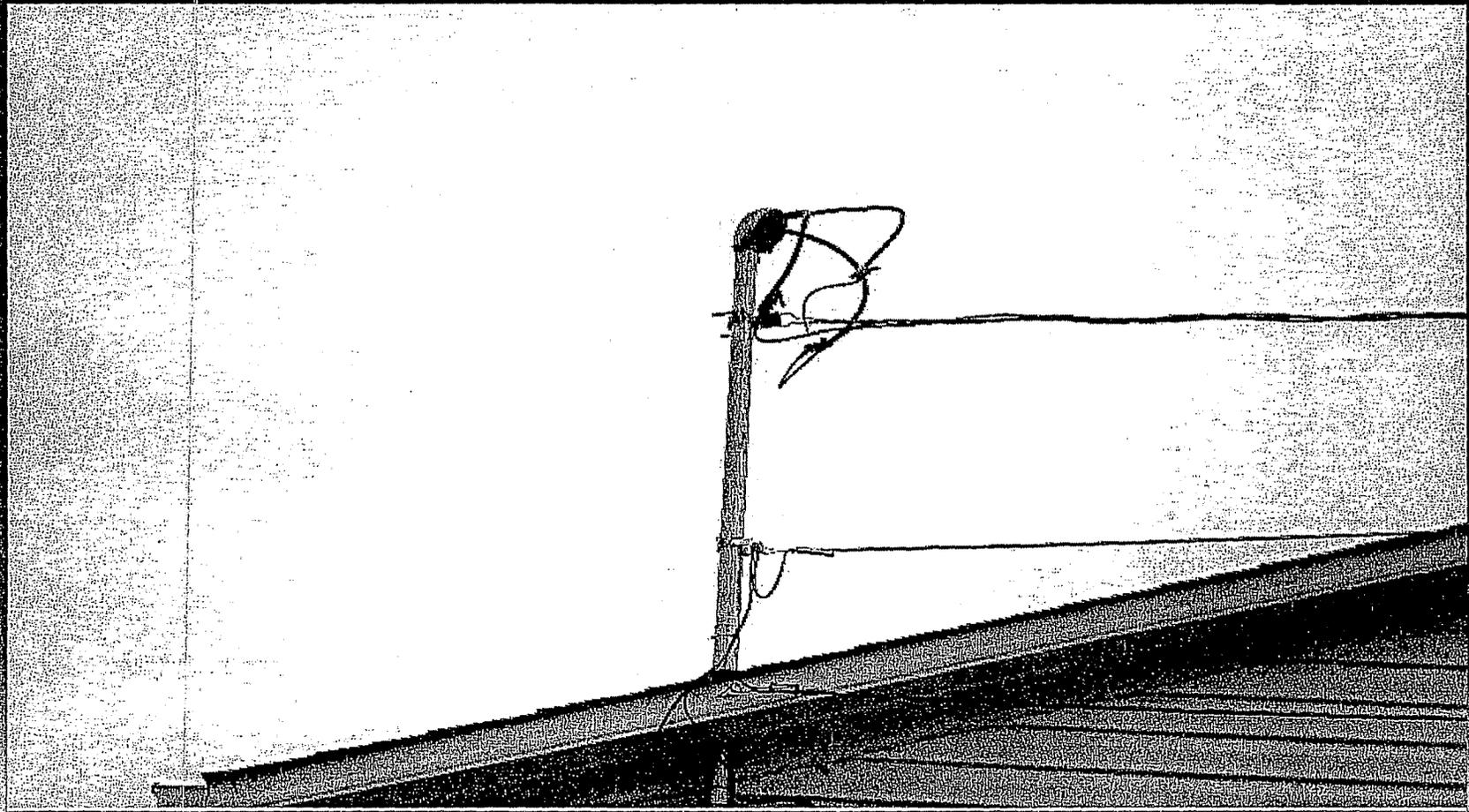
# Examples \ Drop Over Deck



# Examples \ Metering

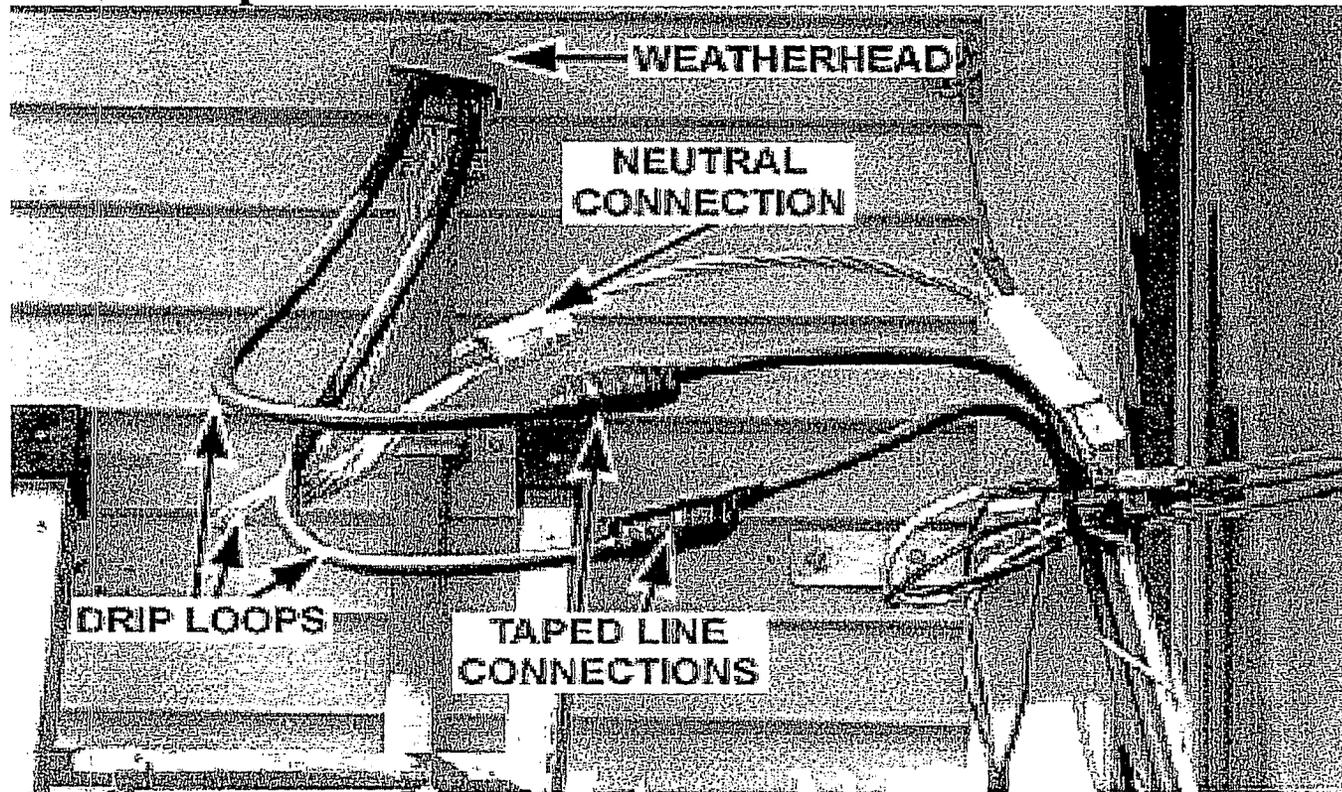


# Examples \ Metering



# Examples \ Weather head and Connections

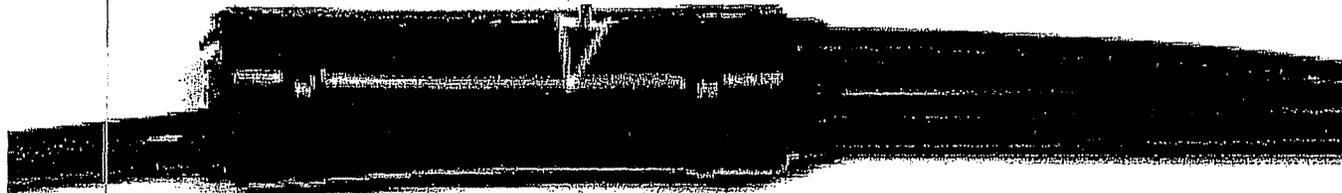
**Figure 3-6. Completed Residential Service Connections at the Weatherhead**



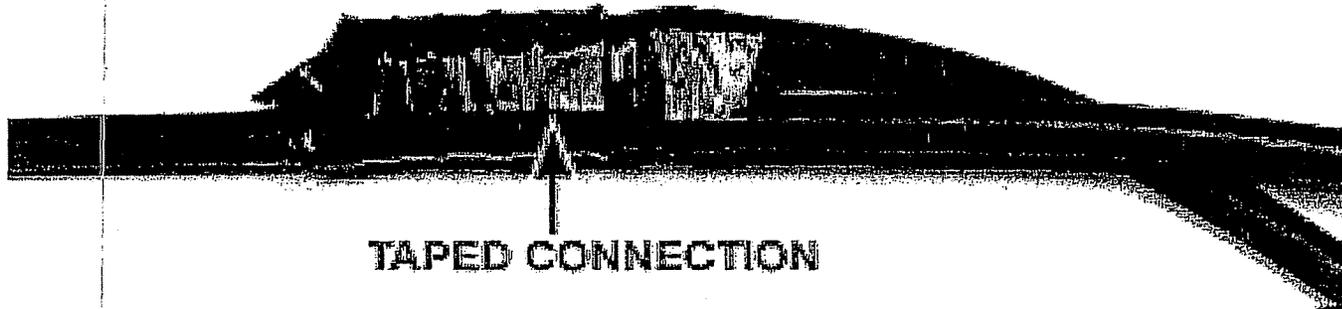
# Examples \ Connection Types

**Figure 2-14. Connection Covered with a Plastic, Snap-On Cover and  
Connection Covered with Tape**

**PLASTIC, SNAP-ON  
COVER**

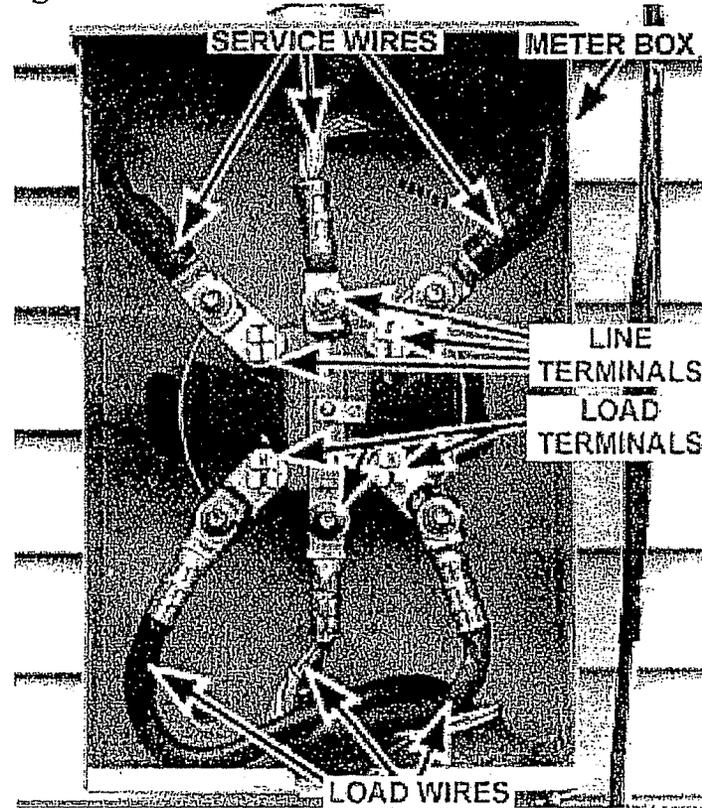


**TAPED CONNECTION**

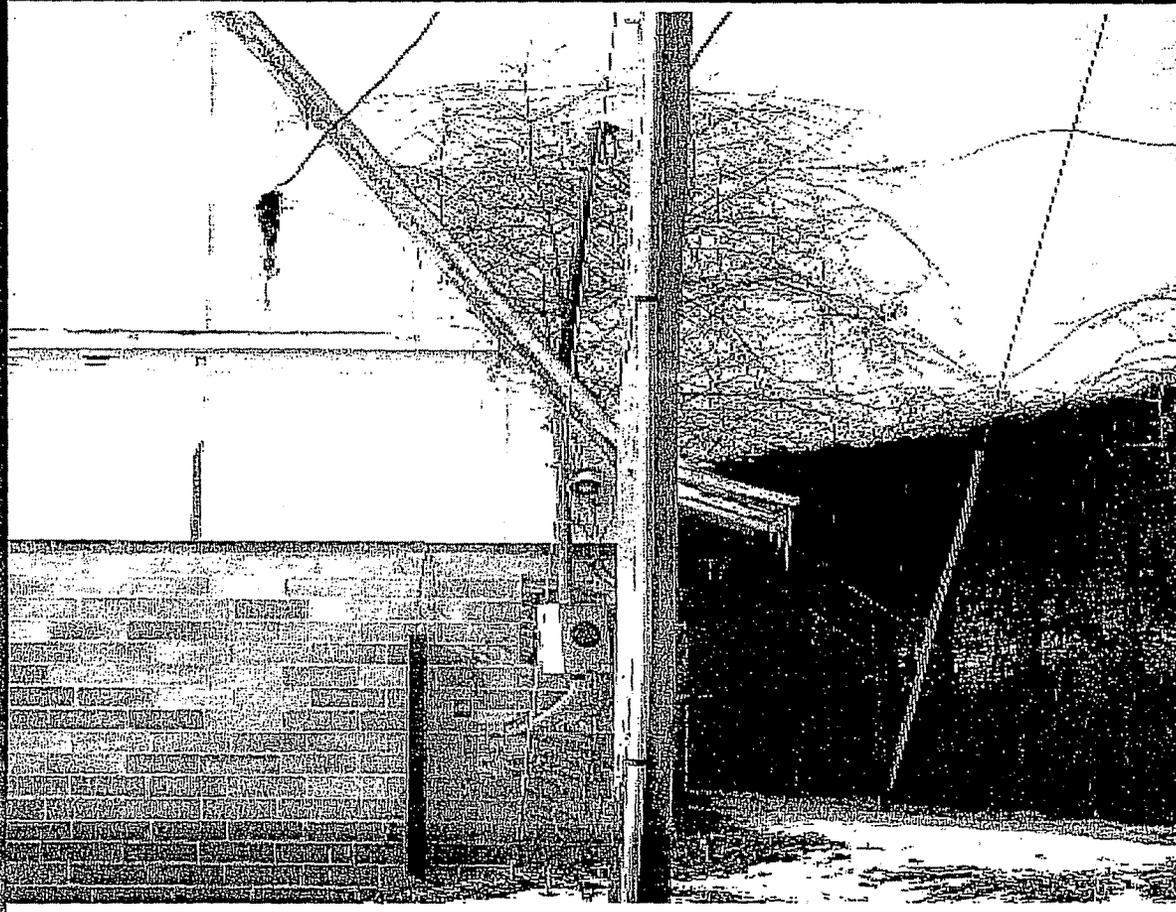


# Examples \ Load and Service Connections

Figure 3-2. Customer Meter Box and Connections



# Examples \ Loose Meter Base



# Examples \ Service in Tree



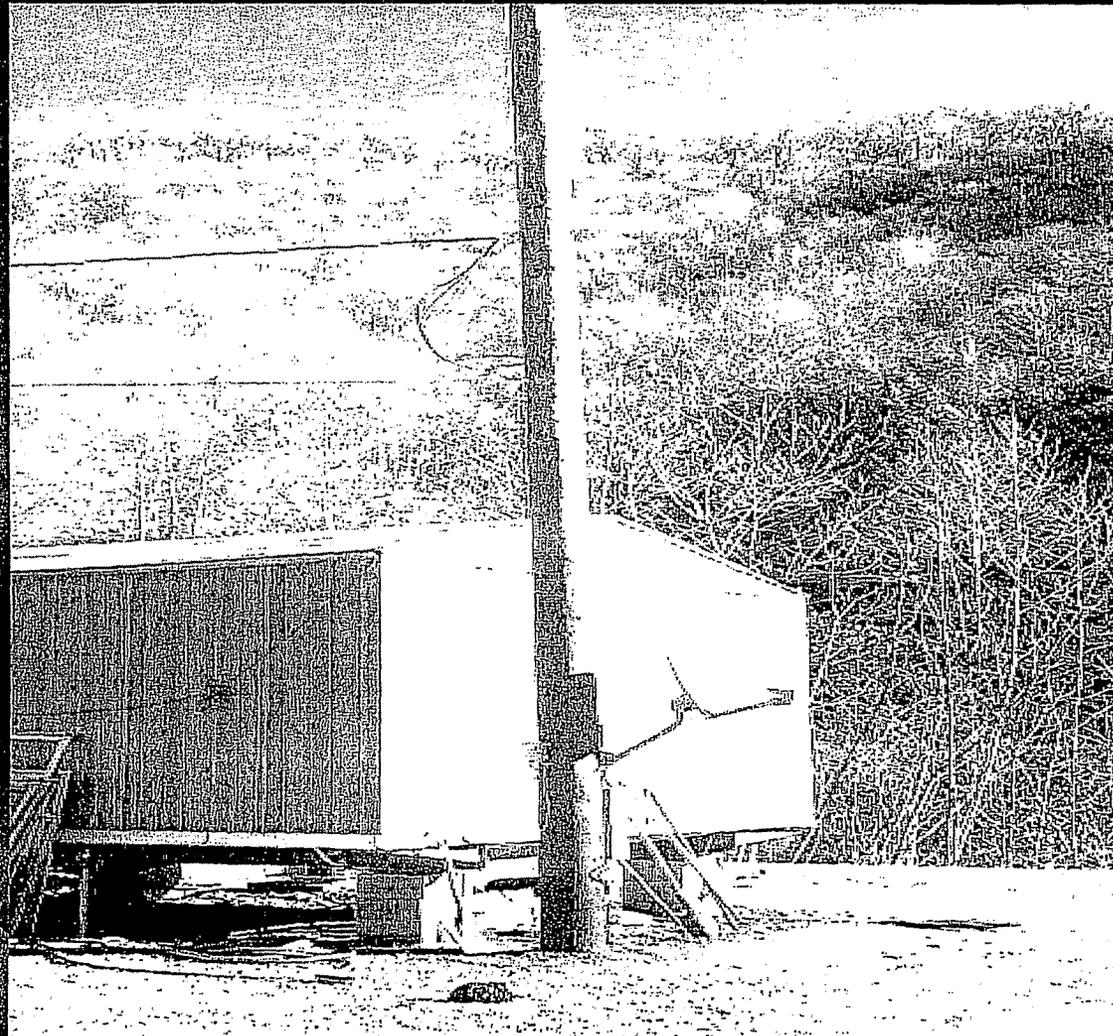
# Examples \ SD Across Deck



# Examples\ Tree Stand



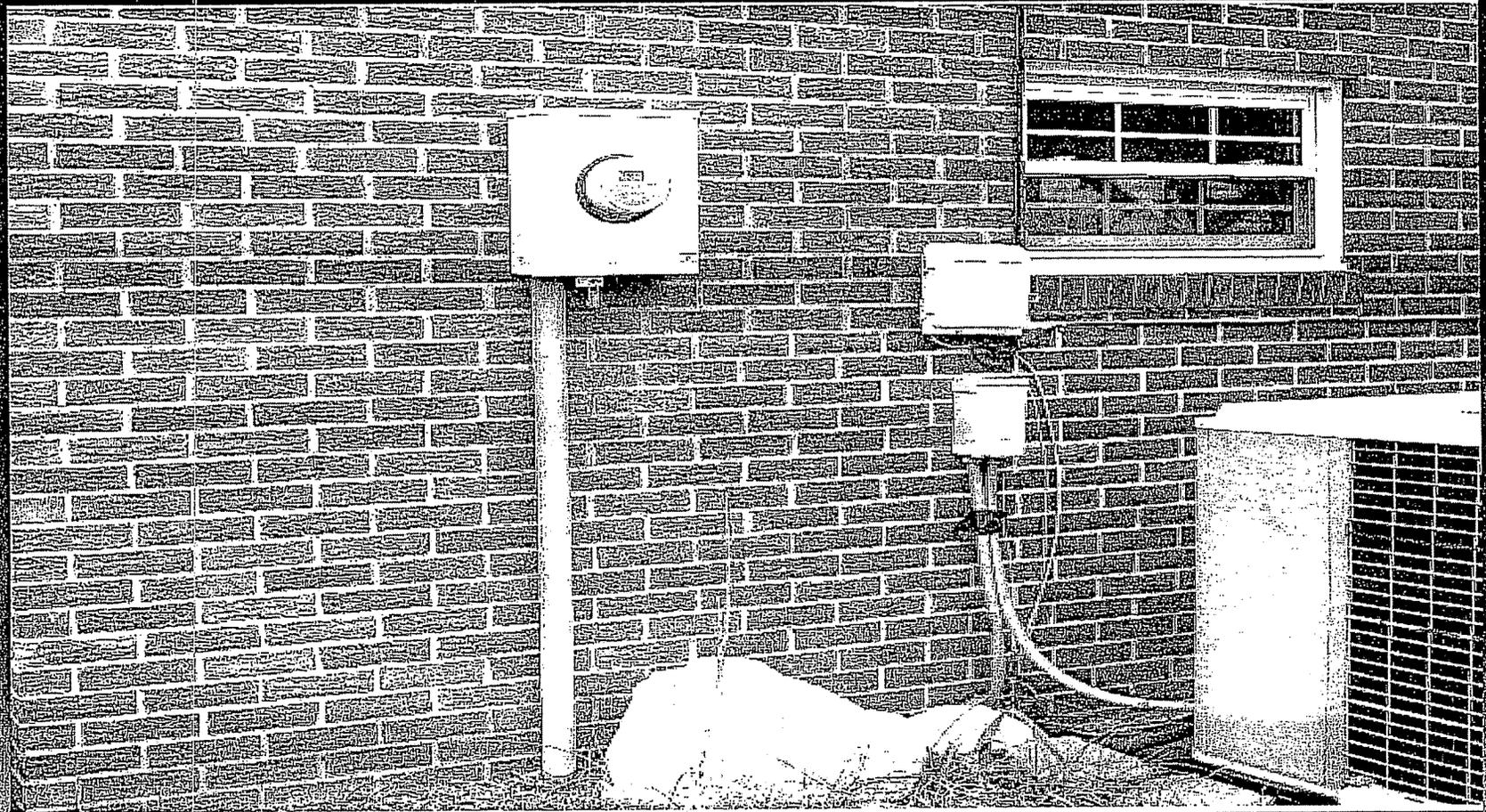
# Example\ Sat. Dish



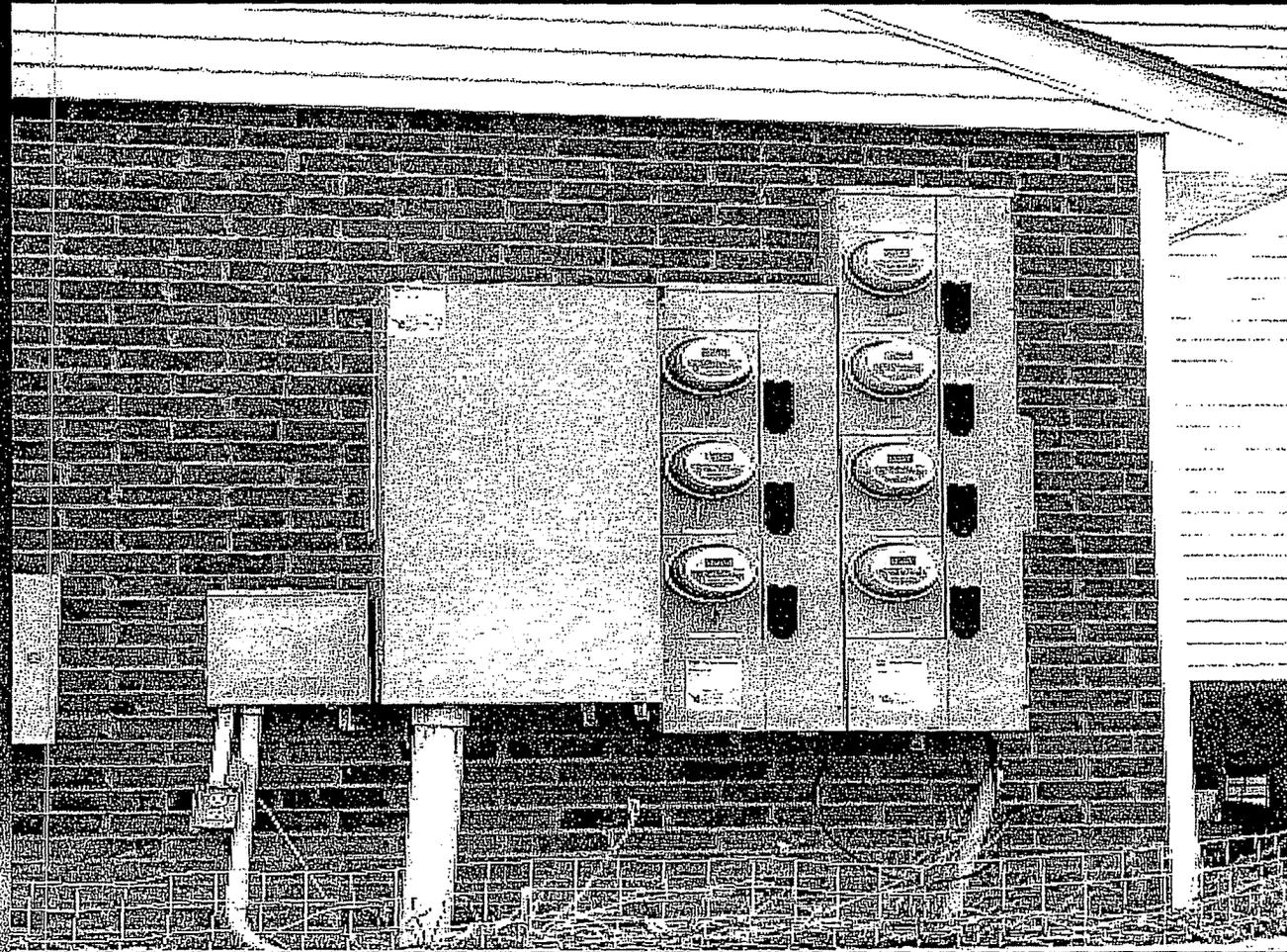
# Example\ Sat. Dish



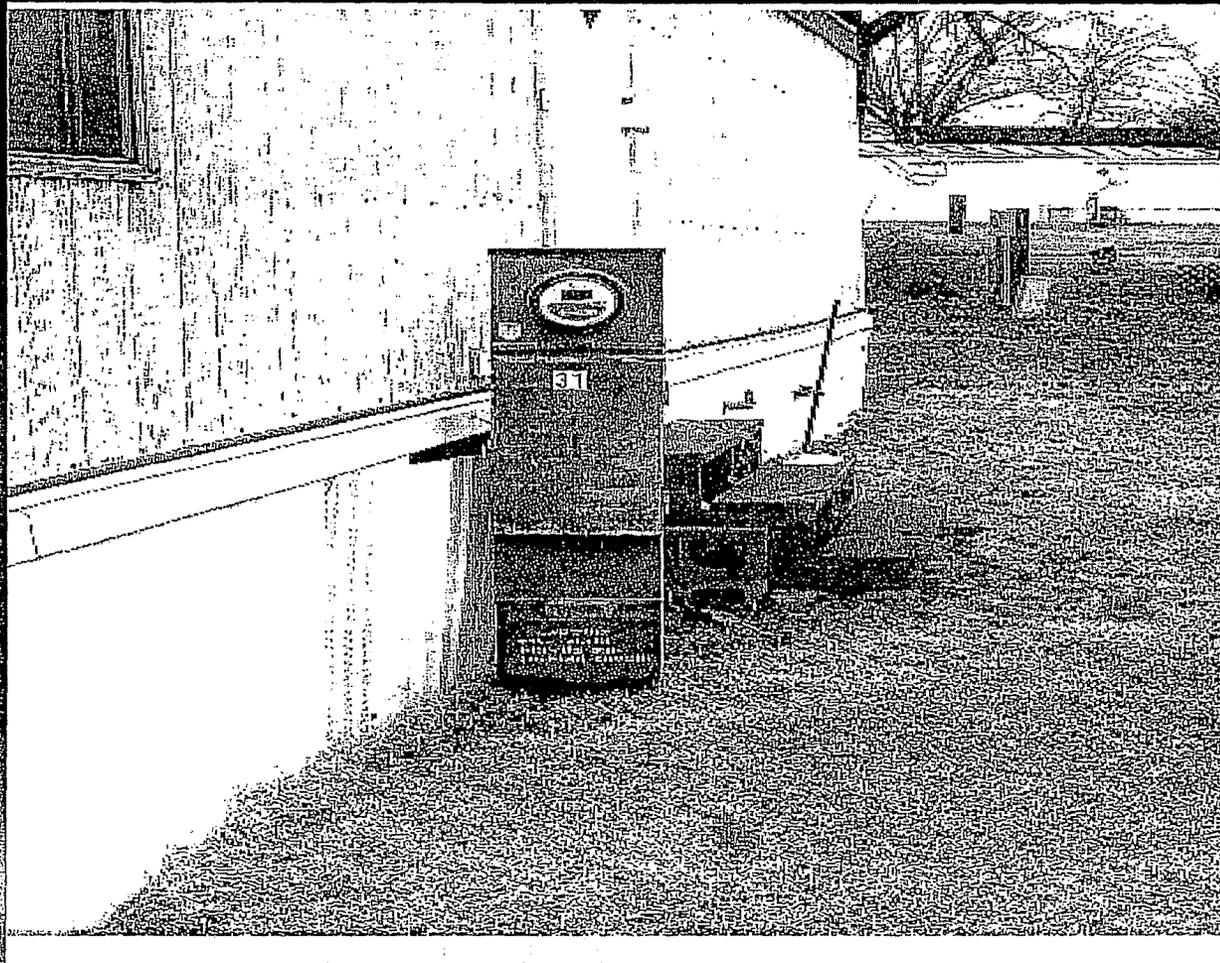
# Examples \ Metering UG



# Examples \ Loose Ground



# Examples \ Meter Pedestals



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