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I. General

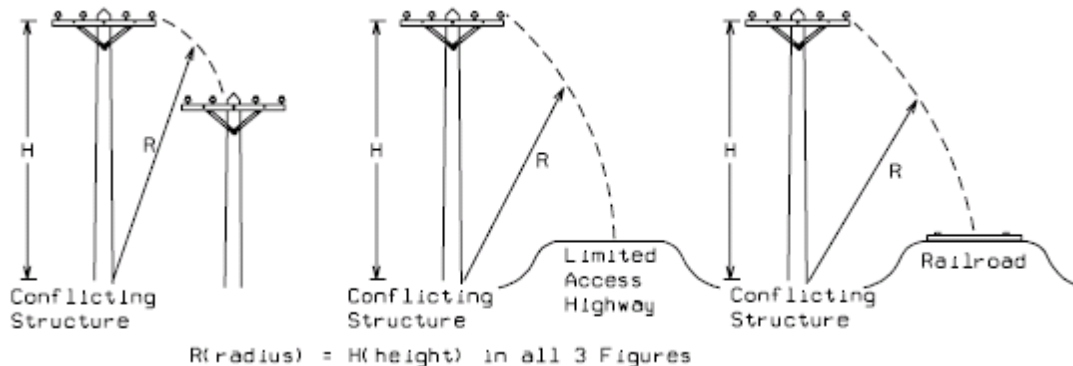
In addition to requiring grade B construction, some railroad crossings may require special guying. Railroad crossings which are not made at street or highway crossings will usually be licensed by the railroad because they cross railroad right-of-way. If the license specifies guying, we must guy as specified; if it does not specify guying, then the information on [Std C09B](#) applies.

II. Definition

- A. **At Crossing:** Wires, conductors, or other cables of one line are considered to be crossing when they cross over another line, whether or not on a common supporting structure, or when they cross over or overhang a railroad track or the traveled way of a limited-access highway. Joint use, parallel, or collinear construction in itself is not considered to be a crossing.
- B. **Structure Conflict:** A line situated with respect to a second line, such that the overturning of the first line will result in contact between its supporting structures or conductors and the conductors of the second line, assuming that no conductors are broken in either line.

The grade of construction required for a conflicting structure (first circuit) shall be determined from the requirements for crossings. The conflicting structure's conductors (first circuit) shall be assumed to cross the other circuit's conductors (second circuit) for the purposes of determining the grade of construction required for the conflicting structure. See diagrams below.

- C. **Limited-Access Highways:** As used herein, limited access highways are fully controlled highways where access is controlled by a governmental authority for purposes of improving traffic flow and safety. Fully controlled access highways have no at-grade crossings and have carefully designed access connections.

III. Grade B Crossing

- A. All railroad and limited-access highway crossings and conflicts. #3/12 copperweld cannot be used at railroad crossings.
- B. Crossings and conflicts where secondaries of 0-750 volts cross over or conflict with circuits exceeding 8.7 KV to ground in urban areas.
- C. Crossings and conflicts where circuits of 751 to 8.7 KV cross or conflict with over circuits exceeding 8.7 KV to ground in urban areas.
- D. Poles carrying service drops across limited-access highways and railroads.

IV. Grade C and N Crossing

All WPS distribution lines shall be built to grade C construction except for those that are required to have grade B construction. All service drops can have grade N construction except those that cross limited-access highways and railroads (see grade B).

I. General

Our principal conversion standard for three-phase, armless construction is conversion to conventional, 6-pin crossarm construction with porcelain, pin type insulators.

II. Angle Construction

Angle construction for angles up to 30 degrees can be handled in several ways:

1. Angle pin construction is the preferred method. Angle pin construction standards will be found in the Section C Standards on Stds C02-2, C02-2A, C02-3 and C02-3A. The stock number for the crossarm angle pin is 134-1315 and the pole top angle pin is 134-5882.
2. Stds C03, C08 and C08A are other options for handling angles from 0-30 degrees. Stds C02-1 and C02-1A are available for maintenance use but should not be used for new construction.

For angles greater than 30 degrees, Stds C03, C04 and C12 are the available options.

III. Poles with Line Tension (In-Line) Disconnects

1. Where existing crossarm construction is present, the porcelain post type insulators shall be replaced with vertical, (clamp top) silicone post type insulators (134-5082).
2. Where conventional armless construction is encountered, the construction shall be changed to crossarm construction using the silicone post type insulator discussed above. A 22-inch trunion (134-5373) may aid in preventing the need for wire cutting in order to make the change from steel armless brackets to crossarm construction.

IV. Pole Strength

Pole strength with respect to Class 5 poles shall be handled on a case-by-case basis. In cases where the existing Class 5 pole does not comply with NESC requirements for strength, the following alternatives shall be considered, based on the most reasonable approach to solve the problem:

1. Replace the pole
2. Add additional guying
3. Reinforce the existing pole

V. Tree Clearance Issues

In situations where additional tree clearance cannot be obtained due to prescriptive rights issues, a 6 foot fiberglass crossarm (134-0119) is available. Use of this arm will result in approximately the same horizontal spacings that were provided with steel armless construction. Note, however, that when mounting this arm in the conventional crossarm position, the vertical line clearance between the pole top phase and the crossarm phases, with respect to galloping conductors, may be unacceptable for very long spans, due to raising the arm phases higher on the pole than their original placement. For short span construction, we do not expect a problem. For long span construction (greater than 250 feet), please contact either your Designer, Field Application Engineer, or the Material & Standards group and request that the clearances be analyzed. Note that angle pins shall not be used on fiberglass crossarms.

VI. Capacitor Controls

The Fisher Pierce Current Sensor, used with some of our capacitor controls, houses the sensing coil within a porcelain, post type insulator. This insulator is much more robust than our conventional porcelain post insulators. We will continue to use the Fisher Pierce Current Sensor and these do not need to be replaced, unless visible damage is observed.

VII. Use of Fiberglass Armless Bracket

The fiberglass armless bracket 134-1310 does not need to be replaced under this program. However, due to its extreme cost, this bracket shall only be used for vertical construction or in unusual situations. The fiberglass crossarm (134-0119) shall be used in all other situations where spacing closer than six pin crossarm spacing is required or desirable.

In all cases, if a breakoff (including slack span breakoffs) is attached to the stringing eye of a fiberglass armless bracket (134-1310), the breakoff shall be removed from the fiberglass armless bracket and deadended on the pole.

VIII. Existing Vertical Construction

Where we have existing vertical construction using steel armless brackets and porcelain post insulators, three options for replacement are possible:

1. Convert to 6 pin crossarm construction.
2. Maintain use of the steel armless brackets but replace the porcelain insulators with horizontal, silicone post type insulators (134-5083).
3. Convert to the fiberglass armless bracket with porcelain pin type insulator (for angle restrictions, see [Std C21](#)).

When working with vertical construction, the conversion method chosen should be based on labor savings, ease of reconstruction, and cost of materials. Ideally, we would like to eliminate the steel brackets entirely, but the combination of steel brackets with silicone post insulators may strike the best balance between cost, ease of construction, and reliability. In these situations, the labor costs to convert to crossarm construction may be extremely high, compared with either of the other methods. These situations will have to be treated on a case-by-case basis with use of your best judgment.

I. General

Conversion to 24.94 KV is being done to improve voltage and/or provide increased feeder or substation capacity. This section is a guideline of the work to be performed.

II. Refer to the Indicated Standards Section

**200 Section**

Remove all pole steps closer than eight feet to the ground. Check U-guards and repair or replace as necessary. Add or replace "Danger High Voltage" and "U.G. Caution" signs as necessary.

Pole Considerations on PREP and Conversions Projects

WPSC has a pole inspection/treatment program that has cycle length of 12 years (see [EOP D2.20](#)). This program identifies reject and danger poles in a systematic way. This program physically inspects the poles from approximately 18" below ground line to 8' above ground line, the primary area for decay. The remainder of the pole is visually inspected for other broken, damaged, or deteriorated conditions on the poles and other components and noted.

Poles may be taken out of service for the following reasons:

- Clearance or code problems
- Class change upgrade needs
- Physical inspection above 8', principally, indicates pole is unsafe.

Note:

Visual inspection of poles and crossarms can be very misleading. The weathering process will gray the outside of poles, and a small amount of shell rot on poles is completely normal. Checking on poles is also normal. Checking past the center of the pole top is called a split top. A split top can be corrected with the use of a reinforcing bolt.

Poles should be primarily replaced because of insufficient ground clearance – not as a result of appearance or a specific age, except for cases of imminent danger. We have an ongoing pole inspection program which provides a professional evaluation of pole integrity. WPSC personnel generally are not appropriately trained, nor do they have the necessary tools and equipment to adequately inspect poles. The Historic Clearance document will be used as a reference when assessing clearances.

**300 Section**

The following minimum clearances shall be maintained in the conversion preparation:

1. Buckarms on the same circuit – 36 inches
2. Phase-to-phase jumpers – 15 inches
3. Energized parts and ground – 11 inches
4. Minimum wood between pin insulators and ground on poles without lightning arresters – 22 inches

Do not use the pole pin position for a phase conductor on 4 and 6 pin crossarms (exception: when using 48-inch crossarm braces as on [Std C09B](#)). Remove all existing pins from this position. Do not use the pin hole closest to the brace bolt hole for a phase conductor on 8-pin arms (exception: transmission underbuild as on [Std TR5](#) – double nut the pin and brace bolts, then bond with #8 copper tie wire).

**301**

Note application of 134-1400 spacers. When re-insulating with 134-4955 insulators, if an insulator skirt is three inches or less from the pole top, the pole top pin must be changed out. When changing out pole top pins having a four-inch mounting dimension, two methods of adding the present style pin may be used. Either drill the pin, giving it a four-inch mounting dimension or drill the pole for the five-inch dimension of the pin (new hole one inch from old hole). A pole top reinforcing bolt shall be added to any pole top which has double pole top pins or has any angle.

**500 Section General**

The code will allow less clearance between conductors than what is shown on the various construction pages. When it becomes necessary to reduce our standard clearance requirements to avoid pole replacements, it shall not be done without the approval of EDE Standards.

**601**

When converting, all brown suspension insulator deadends consisting of one insulator and operating at 7.2/12.5 KV shall be junked and replaced with one 134-5200 polymer deadend suspension insulator. Deadends consisting of two 6" suspension insulators or two 4-1/4" suspension insulators (134-5195) may remain. Back-to-back (in line) deadends on a pin or post insulator shall have all suspension insulators on one side of the supporting insulator.

134-4955 pin insulators – see [Std C40](#).

Pin insulators without radio free glaze shall be replaced with 134-4955 insulators which do have this glaze. Glass pin type insulators do not have the radio free glaze, so they shall be replaced also.

**602**

Wood pin crossarms, clamp type crossarm pins, and spring thread pins shall be replaced.

**1000 Section**

Bare open wire services shall be replaced.

**1100 Section**

Junk all ITT Blackburn line tension disconnects and replace with line tension disconnect (134-3161). Maintain all other 600 amp line tension solid blade disconnects as per Line Work Method ([LWM](#)) [2002](#).

**1200 Section**

Add a ground at each pole on the primary circuit adjacent to a transformer pole. Around a lake area is considered an urban area. On rural lines, a ground shall be connected to every pole which has a primary neutral attached to it. Add and replace moulding where necessary.

**1300 Section**

Fiberglass strain insulators shall be installed on all guys attached above the neutral position at 14.4/24.9 KV. Where a guy is not attached to the opposite end of the bolt that holds the primary deadend, this guy shall be moved and attached to a separate bolt. Any guy that is in the secondary or neutral position and isn't bonded to the neutral or properly insulated with a #2 strain shall be insulated with a fiberglass strain insulator. Guy guards shall be added or replaced as needed. See [Std G75](#) for guy grips.

**1400 Section**

Use caution when missing additive and subtractive transformers in one setting.

All 7200, 7200X14400, and 14400 V transformers can be protected by a 134-0377 arrester. See [Std CA5](#).

Series-parallel transformers shall be used only where required. Do not install a 7.2 x 14.4 KV transformer on a line already operating at 14.4 KV. Wait until after conversion of a line to replace 7.2 KV transformers with straight 14.4 KV units that serve loads such as signs, seasonal residences that are unoccupied at the time of conversion, etc.

In 12.5 KV areas which are formally planned to be converted to 24.9 KV, available 7200 V transformers 25 KVA and smaller shall be used, if conversion is more than seven years in the future.

When an existing 480 volt three-wire delta setting is converted, the connection shall be changed to wye, using 277 volt transformers. If the customer agrees to change his service voltage to 277/480 volt and modifies his service to bring out the neutral wire, we shall ground our secondary neutral and connect it to the customer's neutral.

If the customer will not modify his service to bring out the neutral conductor, then we shall float our secondary neutral at the transformer setting.

When the neutral is connected into the customer's neutral, it is necessary to install a four-wire meter.

### III. Pole Top Problems

The following cases represent some of the pole top problems more commonly encountered when converting to 14.4/24.9 KV. Existing 7200 V single-phase wye construction shall be checked for compliance with the following when converted to 14.4 KV. The methods stated under each case are listed in order of preference.

#### Case I

##### 4 Pin Crossarm with Steel Braces – Phase and Neutral in Outer Pin Position

1. Rebuild to vertical construction if adequate ground clearance can be maintained. The neutral shall be installed 45 inches below the pole top if pole height permits. This dimension may be reduced to a minimum of 33 inches when necessary.
2. If clearance cannot be maintained, install new wooden braces and a new crossarm, if needed.

#### Case II

##### 6 Pin Crossarm – Center Phase in Pole Pin Position

As stated previously, the standard pole pin position cannot be used at 14.4/24.9 KV. If arm is in either the nine-inch or 15-inch position from top of pole, add pole top pins, either above arm, side of pole, or opposite arm. If arm is at top of pole, drill new hole in arm eight inches from pole and install new pin and insulator for center phase. The hole in the arm should not be on same side as the neutral.

#### Case III

##### 8 Pin Crossarm – Center Phase in Pin Position Closest to Brace Bolt – Not on Transmission Pole

As stated previously, the pin position nearest the brace bolt cannot be used at 14.4/24.9 KV unless on a transmission pole. If the arm is either nine inches or 15 inches from top of pole, add pole top pin either above arm, side of pole, or opposite arm. If arm is at top of pole, move center phase to pole pin position.

### IV. Underground

In general, we will convert underground installation to 14.4/24.9 KV without replacing 15 KV cable. An exception to this is 15 KV cable with taped semicon conductor shield. 15 KV cable with this type of construction shall be replaced before conversion to 14.4/24 KV. If deemed necessary by the Regional Engineer, the 15 KV cable may be replaced at hospitals, large airports and shopping centers.

All silicon-carbide arresters on riser poles shall be replaced with a polymer riser pole arrester 134-0375.

Pennant or taped terminators and Elastimold 15 KV one-piece housing, rubber molded terminators shall not be operated at 14.4/24.9 KV. A 28 KV cable may be spliced to 15 KV cable. See [Std 3507](#) for list of 15 KV adaptor tubes. Former G&W porcelain terminators are suitable for 14.4/24.9 KV operation and need not be replaced.

When converting to 14.4/24.9 KV operation, elbow terminators in service with 15 KV cable shall be replaced with 134-7762.

When converting to 14.4/24.9 KV operation, all elbow terminators and bushing inserts not capable of being operated live at 14.4/24.9 KV shall be replaced.

Refer to [Std 3401](#) to determine the operation of elbow terminators at 14.4/24.9 KV using 28 KV cable.

V. Radio and TV Interference

Existing construction that is not causing radio noise at 7.2/12.5 KV can cause it at 14.4/24.9 KV. It is suggested that as areas are cut over to 14.4/24.9, they should be checked for radio noise just before, during and immediately after the cutover. This can be done by using an AM radio. In this way, radio noise can be isolated in the newly cutover area, making it easier to find.

Some of the things that should be watched for and corrected while preparing for the conversion are:

- Down guy attached to the same bolt as the primary deadend or within three inches of hardware holding energized jumpers or conductors.
- Down guy touching TV cable.
- Down guy within three inches of a transformer tank.
- Down guy on buckram corner within three inches of the double arming bolt on the lower set of arms.
- Down guy touching the neutral.
- Loose down guys.
- Guy rubbing against streetlight.
- Loose crossarm braces.
- Pin type insulators without radio free glaze. This includes glass pin type insulators and Ohio Brass 17 KV insulators without the ST on them.
- Westinghouse transformers manufactured in 1967 and 1968 which had primary oil-filled bushings that leaked oil. Kearney 18 KV arresters manufactured in 1967 and 1968 which had a current leakage problem which caused corona cutting of the black bakelite around the disconnectors.
- Broken neutral spool.
- Spring thread insulator pins.
- Clamp type insulator pins.
- Wood insulator pins.
- Loose wire or string hanging over primary conductors.
- Ground wire not tightly fastened to the pole.
- Loose tie wire. Tie wire ends should be bent down to the conductor, not left pointed out from the conductor.

VI. Clearances

During conversions, the clearances of conductors and rigid live parts of equipment from ground, buildings, and other structures should be observed and, if inadequate, shall be reported to the electric supervisor. Any problems or questions regarding clearances shall be referred to the Regional Electrical Engineer.

Ground clearance requirements are the same for 14.4/24.9 KV lines, 7.2/12.5 KV lines, and 2.4/4.16 KV lines. The ground, road, water and rail clearances required by Table I on [Std CL5](#) are absolute minimum under the conditions cited in paragraph I, Std CL5. Most of our conductors have maximum sags at 32°F with ice. For the conductor sizes where the maximum operating temperature produces greater sag, check with the Regional Electrical Engineer for what temperature to use.

At 14.4/24.9 KV, the clearance requirements for crossing over communications conductors is increased. See Std CL10. At 14.4/24.9 KV, the horizontal clearance requirements of conductors from buildings and most other structures increase from old code requirements. See Std CL25. See Std CL25, page 1, Par IIC for additional clearance requirements due to sag.

The vertical separation of primary and neutral/secondary line conductors at the pole is 19 inches for 14.4/24.9 KV. But generally much larger spacing at the pole is needed to maintain the required 14 inches in midspan. See Sag Information pages and examples on Stds CL5, CL10, and CL25 for worst case conditions.

For a general guide, it may be assumed that the vertical clearance above ground for rigid live parts and jumpers of transformers, capacitors, regulators, underground risers and OCRs is 18 feet. When lesser clearances are found, they shall be reported to the Regional Engineer who will determine if the clearances are adequate.



VII. Separating Circuits of Different Voltage

When a portion of a circuit is converted to a different voltage, the following methods shall be utilized to separate the circuit segments:

A. Circuit Segments Operating at Different Voltages for One Day or Less

For periods of one day or less, the segments may be separated by an open cutout or underhung disconnect with the jumpers to the line on one side of suspension insulators removed. An open line tension disconnect by itself cannot be used unless known voltage across the disconnect is 15 KV or less. 21.6 KV across disconnects is possible in eastern districts where 180° phase shift occurs between 12 KV and 24 KV systems. A line tension disconnect may be used at any voltage if three suspension insulators are used in series with it and where the jumper is removed from the disconnect to the line on the side where the insulators are.

B. Circuit Segments Operating at Different Voltages for Three Months or Less

For periods of three months or less, the segments may be separated by double deadends on the same crossarms. A warning sign shall be placed on this pole to inform operating personnel that two different voltage levels are present. These signs may be obtained from Electric Distribution Engineering. In addition, all operating personnel shall be informed that this condition exists.

C. Circuit Segments Operating at Different Voltages for More than Three Months

For periods of more than three months, a dead span shall be cut in between the two segments. At stepup or stepdown transformer installations, lines of different voltage may be deadended on opposite side of same crossarms.

VIII. Determining Voltage and Rotation for Conversion

To avoid unnecessary disconnection of customer's service and unnecessary delay for voltage and rotation checks, the following procedure shall be followed:

A. Prior to Conversion

1. The Regional Electrical Engineer, working with a district supervisor, shall:
  - a. Determine and provide a schematic diagram of the primary jumper arrangement necessary to obtain a phase sequence which will provide proper rotation upon energizing the converted line. This jumper arrangement shall be determined by voltage measurements taken between the two different circuits by a line crew. Map phasing shall not be relied upon.
  - b. Check and verify that all three-phase stepup and stepdown transformer settings, when energized, shall provide proper phase sequence needed to maintain proper rotation upon energizing the converted line. Proper phase sequence shall be determined by voltage test. Map phasing shall not be relied upon. Voltage test all stepup or stepdown transformers to verify the transformer ratio is correct and to determine what tap setting is needed to result in an acceptable customer-supplied voltage upon conversion of the line. Verification of the proper ratio setting needed shall be determined by using 240 or 120 volts to ratio test the stepdown. Use with a high-input impedance or digital volt meter; or use a potential transformer and regular voltage meter set on the lowest appropriate scale. Information on the name plate does not constitute an acceptable check.
2. The crew preparing the section of line for conversion shall follow all the requirements for identification tagging of three-phase service conductors as per [LWM 5011](#) and [LWM 1019](#).

B. At the Time of Conversion

## 1. Rotation checks

- a. Upon energizing a line at its new voltage, three-phase rotation shall be verified at one designated setting. The designated setting shall be dual voltage transformers that have been serving load prior to the conversion. This can be an open setting (two transformers) or closed setting.
- b. After verifying proper rotation at the designated setting, all dual voltage transformers that were serving load prior to the conversion may be re-energized after assuring that it has been switched for a new voltage. No further rotation checks are required at these settings.
- c. Proper phase rotation shall be verified at all three-phase settings where two or more transformers have been replaced or at any setting where the transformer connections have been disturbed such that it could affect rotation.
- d. If the converted line has no three-phase setting that qualifies as the designated setting, proper rotation shall be verified at each setting prior to energizing customer equipment.

## 2. Voltage checks

- a. At dual voltage transformers which were serving load prior to the conversion, a secondary voltage check is not required, providing the line is energized from a source known to have proper voltage.
- b. At any setting where one or more transformers have been energizing customer equipment. The local supervisor may waive this test, if, in his opinion, the potential for equipment damage is minimal.
- c. When a voltage check is required by "a" or "b" above, the check should be made at the transformer or at a convenient meter base location. The secondary voltage on any setting shall not be checked at more than one location unless further readings are necessary to locate a problem.

1. All jobs will require a pre-construct meeting onsite prior to the design with the Designer, Line Crew Leader for the job and the Field Application Engineer.
2. Leaning poles that will not be replaced shall be straightened and have gravel backfilled around them. This must be designed on the job.
3. All splices of underground cable will be designed on the job and outages worked out with the customer.
4. All brown pin insulators shall be removed. Existing grey insulators shall be reused unless they are cracked or flashed.
5. All sets of porcelain bell insulators shall be replaced with a silicone deadend insulator (134-5200).
7. On existing poles, the neutral may be located at either 45" or 60" from the pole top, depending on the circumstances. All new poles set shall have the neutral located 60" from the pole top.
8. Distribution transformers under 30 years old shall be reused for the same customer unless they are in poor condition. 10 kVA transformers can be reused pending loading verifications by NaviGate.
9. All poles class 8 and smaller should be replaced. Unbranded pole brands shall be determined by making a circumference measurement. Class 7 poles are acceptable as long as they pass the structural analysis.
10. Replace damaged poles and poles that show significant decay or deterioration. Age alone does not mean a pole needs to be replaced. The designer will sound check old poles and use binoculars to check for pole top deterioration.
11. Any guying or anchoring that is added onto private property (or significant change in lead lengths or angle) will require an easement. Verbal permission is not acceptable.
12. If building on the opposite side of the road, a survey shall be required. For same side reconstruct, a survey is only required if the poles/property line is not in straight line.
13. All new poles set shall be buried 10% + 2 feet of the length of the pole.
14. Structural and profile analysis must be run on all jobs. Galloping shall have a limit of 20%, anchors shall be modeled as 8" single helix (unless verified other), and all unbranded poles shall be modeled based on the circumference 6 ft from the butt (assume old burial depths).
15. All removed poles shall follow the salvage procedure outlined in the Standards book, or per the job site.
16. For rural copperweld replacement jobs, use the new 1/0 medium span sag table tensions for lines where the ruling span is less than 350 feet. For ruling spans greater than 350 feet, use the tensions in the existing long span sag table. Do not use the short span sag tables.
17. Designers should try to limit span lengths to less than 350 feet.
18. Replace all porcelain lightning arresters with polymer lightning arresters.
19. Verify or install a pole ground on every pole (new and existing) in a copperweld rebuild area.
20. Tamp the bottom of all pole holes prior to setting the pole to prevent the pole from sinking after it has been set.
21. Replace all existing anchors unless it is known that the existing anchor is less than 5 years old. In areas with poor soil conditions, consideration of using larger anchors should be given.
22. If an area is prone to galloping conductors or aeolian vibrations, contact the Material & Standards group for information to install dampening equipment.

WISCONSIN PUBLIC SERVICE ELECTRIC DISTRIBUTION STANDARDS

08/22/08

REF20

**STOCK MATERIAL LIST**

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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
		<u>Adapter</u>
134-0012	Ea	2-3/8" Tenon (Streetlight)
134-0014	Ea	3" Tenon (Streetlight)
134-0020	Ea	400 Watt Power Flood
134-0025	Pk	Splice Tube 15 to 28KV #2
134-0027	Pk	Splice Tube 15 to 28KV 350KCM
134-0029	Pk	Splice Tube 15 to 28KV 750KCM
134-0035	Ea	4/0 for Use with 134-7763 Elbow
134-0037	Ea	350KCM for Use with 134-7763 Elbow
134-0039	Ea	750KCM for Use with 134-7763 Elbow
		<u>Anchor</u>
134-0045	Ea	8" Expansion
134-0048	Ea	10" Expansion
134-0051	Ea	10" Screw
134-0053	Ea	8" Power Installed
134-0054	Ea	Twin Flite 4" Power Installed (Rock Only)
134-0055	Ea	11 5/16" Power Installed
134-0056	Ea	Twin Flite 10" Power Installed
134-0065	Ea	Expansion Rock
134-0075	Ea	Padmount Foundation (3 Required/Pad)
134-0076	Ea	Power, Streetlight Foundation
		<u>Arms</u>
134-0151	Ea	6 Pin Cross, Wood
134-0186	Ea	8 Pin Cross, Wood
134-0188	Ea	6 Pin Cross, Fiberglass, STD, Bronze
134-0189	Ea	6 Pin Cross, Fiberglass, STD, Black
134-0190	Ea	8 Pin Cross, Fiberglass, STD, Black
134-0191	Ea	8 Pin Cross, Fiberglass, STD, Bronze
134-0195	Ea	6 Pin Cross, Fiberglass, Heavy, Black
134-0196	Ea	6 Pin Cross, Fiberglass, Heavy, Bronze
134-0197	Ea	8 Pin Cross, Fiberglass, Heavy, Black
134-0198	Ea	8 Pin Cross, Fiberglass, Heavy, Bronze
134-0236	Ea	8' Deadend, Fiberglass, Bronze
134-0237	Ea	8' Deadend, Fiberglass, Black
134-0238	Ea	10' Deadend, Fiberglass, Bronze
134-0239	Ea	10' Deadend, Fiberglass, Black
134-0240	Ea	Arm, Deadend, Wood
134-0307	Ea	2-1/2' Mast (Alley)
134-0312	Ea	6' Mast Upsweep 1-1/4"
134-0315	Ea	6' Mast Upsweep 2"
134-0320	Ea	8' Mast Upsweep 1-1/4"
134-0321	Ea	8' Mast 1-1/4" with Underbrace
134-0330	Ea	12' Mast Upsweep 1-1/4"
134-0331	Ea	16' Mast Upsweep 1-1/4"
134-0344	Ea	Sidewalk Guy
134-1310	Ea	Fiberglass Arms
		<u>Arrester</u>
134-0373	Ea	18KV Elbow
134-0375	Ea	18KV UG Riser Pole
		<u>Attachment</u>
135-0058	Ea	Combination Guy
135-0060	Ea	Combination Guy

WISCONSIN PUBLIC SERVICE ELECTRIC DISTRIBUTION STANDARDS

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**STOCK MATERIAL LIST**

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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
		<u>Bag</u>
134-0500	Ea	Plastic for PCB Contaminated Materials
		<u>Ballast</u>
134-0501	Ea	100W HPS Amer Elec.
134-0507	Ea	250W HPS Asbly Amer Elec.
134-0511	Ea	150W HPS Asbly Amer Elec.
134-0518	Ea	400W Power Flood HPS GE
134-0519	Ea	250W HPS Asbly GE
134-0522	Ea	100W HPS Asbly Crouse-Hinds
134-0523	Ea	150W HPS Asbly Crouse-Hinds
134-0524	Ea	250W HPS Asbly Crouse-Hinds
134-0527	Ea	100W HPS Asbly GE
134-0528	Ea	150W HPS Asbly GE
134-0535	Ea	400W HPS Asbly GE
134-0547	Ea	70W HPS Asbly Cooper
134-0548	Ea	70W HPS Asbly Cooper
		<u>Band</u>
134-0565	Ea	Reinforcing Pole 2-1/4" x 70"
134-0569	Ea	Spar Pole Half
		<u>Blade</u>
134-1186	Ea	300A 14.4/24.9KV for 134-2906 cutout
134-1190	Ea	300A 14.4/24.9KV for 134-2912 cutout
		<u>Bolt – Carriage</u>
135-0107	Ea	3/8" x 4-1/2" Galv
135-0109	Ea	3/8" x 5" Galv
135-0110	Ea	3/8" x 6" Galv
134-1080	Ea	3/8" x 1-1/4" SS w/ Washers & Nut
135-0116	Ea	1/2" x 4-1/2" Galv
135-0121	Ea	1/2" x 6" Galv
		<u>Bolt – Double Arming</u>
135-0137	Ea	5/8" x 16" Galv
135-0139	Ea	5/8" x 18" Galv
135-0141	Ea	5/8" x 20" Galv
135-0143	Ea	5/8" x 22" Galv
135-0145	Ea	5/8" x 24" Galv
135-0147	Ea	5/8" x 26" Galv
		<u>Bolt – Insulator</u>
135-0240	Ea	5/8" x 9-15" Galv
135-0245	Ea	5/8" x 12-18" Galv
135-0250	Ea	5/8" x 16" Galv
		<u>Bolt – Machine</u>
135-0262	Ea	3/8" x 1-1/2" Galv
135-0264	Ea	3/8" x 2" Galv
135-0266	Ea	3/8" x 3" Galv
135-0268	Ea	3/8" x 4" Galv
135-0282	Ea	1/2" x 1-1/2" Galv
135-0284	Ea	1/2" x 2" Galv
135-0294	Ea	1/2" x 5" Galv
135-0298	Ea	1/2" x 6" Galv
135-0300	Ea	1/2" x 7" Galv

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<u>Bolt – Machine (Continued)</u>		
135-0310	Ea	1/2" x 10" Galv
135-0320	Ea	1/2" x 20" Galv
135-0332	Ea	5/8" x 1-1/2" Galv
135-0336	Ea	5/8" x 2-1/2" Galv
135-0338	Ea	5/8" x 3" Galv
135-0342	Ea	5/8" x 5" Galv
135-0350	Ea	5/8" x 8" Galv
135-0352	Ea	5/8" x 10" Galv
135-0354	Ea	5/8" x 12" Galv
135-0356	Ea	5/8" x 14" Galv
135-0358	Ea	5/8" x 16" Galv
135-0360	Ea	5/8" x 18" Galv
135-0364	Ea	5/8" x 20" Galv
135-0366	Ea	5/8" x 22" Galv
135-0368	Ea	5/8" x 24" Galv
143-0800	Ea	3/4" x 10" Galv
143-0801	Ea	3/4" x 12" Galv
143-0802	Ea	3/4" x 14" Galv
143-0803	Ea	3/4" x 16" Galv
143-0804	Ea	3/4" x 18" Galv
143-0805	Ea	3/4" x 20" Galv
<u>Bolt – Miscellaneous</u>		
134-1085	Ea	3/8" x 1-1/2" Tinned
135-0424	Ea	1/2" x 1-1/2" x 13THD
135-0426	Ea	1/2" x 2" x 13THD
135-0428	Ea	1/2" x 2-1/2" x 13THD
135-0430	Ea	1/2" x 3" x 13THD
<u>Bolt – Oval Eye</u>		
135-0172	Ea	5/8" x 8" Galv
135-0174	Ea	5/8" x 10" Galv
135-0176	Ea	5/8" x 12" Galv
135-0178	Ea	5/8" x 14" Galv
135-0184	Ea	5/8" x 20" Galv
<u>Bolt – Pentahead</u>		
135-0470	Ea	3/8" x 1-3/8"
135-0475	Ea	1/2" x 1-1/4"
135-0480	Ea	1/2" x 1-5/8"
135-0485	Ea	1/2" x 2"
<u>Bolt – Shoulder Eye</u>		
135-0220	Ea	5/8" x 8" Galv
135-0222	Ea	5/8" x 10" Galv
135-0224	Ea	5/8" x 12" Galv
<u>Brace</u>		
134-1255	Ea	2" x 2" x 10' Alley Arm
134-1260	Ea	28" Crossarm
<u>Bracket – Insulator</u>		
134-1323	Ea	Poletop – Armless
134-1326	Ea	Extension – Armless
134-1327	Ea	15 Degree Uplift – Single Side

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Stock #	Unit	Description
<u>Bracket – Miscellaneous</u>		
134-1400	Ea	Double Arming – Poletop Spacer
134-1402	Ea	Deadend 4000# 46" Spacing
134-1420	Ea	Cutout – Arrester T
134-1422	Ea	Cutout – Arrester Pole Mounting
134-1423	Ea	Cutout – Arrester Hanger
134-1425	Ea	Equipment Mounting – Three-Position
134-1426	Ea	12" Cloverleaf
134-1450	Ea	Terminator Mounting #2 through 750KCM
135-0550	Ea	Service Entrance – 1" to 3" Pipe
135-0553	Ea	Service Entrance – 3-1/2" to 4" Pipe
<u>Bracket – Streetlight</u>		
134-1365	Ea	2" – 19" for Power Flood
134-1370	Ea	2" – 30" for Power Flood
<u>Bracket – Transformer</u>		
134-1328	Ea	Cluster – 2 or 3 Small Transformers
134-1330	Ea	Cluster – 2 or 3 Large Transformers
134-1331	Ea	Two-Transformer Mounting
<u>Bushing</u>		
134-1487	Ea	200 Amp Loadbreak – Insert
134-1490	Ea	25KV Feedthrough – Insert Screw In
134-1492	Ea	25KV Feedthrough – Parking Stand Type
134-1494	Ea	25KV Grounding
134-1496	Ea	25KV Insulated Stand-Off Bushing (Parking Stand Type)
<u>Cap</u>		
134-1552	Ea	Insulating Dust 15.2/26.3KV for 134-1487 Bushing
134-1555	Ea	Insulating Dust 8.3KV for 134-1485 Bushing
134-1570	Ea	Cable End 3/8" to 1" Cable
134-1575	Ea	Cable End 1" to 2" Cable
135-0605	Ea	Shorting for Streetlighting
<u>Channel</u>		
134-1600	Ea	6" x 30" for Capacitor Banks
<u>Clamp – Deadend</u>		
134-1656	Ea	397 to 795KCM
134-1658	Ea	1272KCM
<u>Clamp – Ground</u>		
135-0625	Ea	1/2" with Hexhead Screw
<u>Clamp – Hotline</u>		
134-1700	Ea	#8 Sol to 2/0 Str Main #8 Sol to 1/0 Str Tap
134-1720	Ea	4 ACSR to 1/0 ACSR Main #8 Sol to 4/0 Str Tap
<u>Clamp – Miscellaneous</u>		
134-2070	Ea	Anode for Primary URD
134-2075	Ea	For 9 X 11 Slotted Danger Signs
134-2076	Ea	For Clamptop Post Insulator – Angle 1"
134-2077	Ea	For Clamptop Post Insulator -Straight 1"
134-2078	Ea	For Clamptop Post Insulator - Straight .7"
134-2079	Ea	For Clamptop Post Insulator – Angle 1/2" to 1"
134-2080	Ea	For Clamptop Post Insulator – Angle, 15 Deg 1/4" to 1/2"

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<u>Clamp – Miscellaneous (Continued)</u>		
134-2081	Ea	For Clamptop Post Insulator – Straight 1/4" to 1/2"
135-1750	Ea	Service Wedge for #6 and #4 Aluminum
135-1760	Ea	Service Wedge 1/0 Str Al - #2 and 1/0 ACSR
135-1770	Ea	Service Wedge 4/0 ACSR
<u>Clamp – Parallel Groove</u>		
134-1784	Ea	400KCM to 3/0 Main and Tap
134-1786	Ea	1000KCM to 450KCM Main; 400KCM to 3/0 Tap
134-1788	Ea	1000KCM to 450KCM Main and Tap
134-1790	Ea	1272KCM All Aluminum
134-1792	Ea	1272KCM Main 795 to 500 Str Tap
134-1794	Ea	1272KCM Main 336 to 3/0 Tap
134-1796	Ea	1272KCM Main 3/0 to #2 Tap
135-1000	Ea	#6 to 1/0 ACSR Over Armor Main #6 to 1/0 ACSR Tap
135-1015	Ea	#6 to 1/0 ACSR Main and Tap
135-1205	Ea	3/0 to #2 Main #2 to #6 Tap
135-1210	Ea	3/0 to #2 Main and Tap
135-1540	Ea	400KCM to 3/0 Main 3/0 to #2 Tap
135-1544	Ea	1000KCM to 397KCM Main 2/0 ACSR to 6W Tap
<u>Clamp – Suspension &amp; Strain &amp; Deadend</u>		
134-1656	Ea	397 to 795KCM
134-1658	Ea	1272KCM
134-1880	Ea	750 to 1000KCM
134-1881	Ea	Angle Suspension 1.02 to 1.55 Aluminum
134-1884	Ea	1/0 to 500KCM Copper
134-1886	Ea	Angle Suspension .50 to 1.04
134-1888	Ea	Straight Line for 4/0 and 336 ACSR and AA
135-1700	Ea	Strain for 3/12 through 2F and #6 Sol through #2 Sol Copper
135-1720	Ea	Angle Suspension .162 to .600
134-1889	Ea	Straight Line for #2 and 1/0 ACSR
<u>Cleaner</u>		
134-2165	Ea	Cleaner, Underground Electric Cable 1 PT
134-2167	Ea	Cleaner, Underground Electric Cable Towelette
<u>Clevis</u>		
135-1815	Ea	Insulated – Less Insulator
<u>Cloth</u>		
134-2175	Ea	Al Oxide 120 Grit
<u>Conduit</u>		
134-2506	Ft	2" Flex Corflo
134-2516	Ft	2" Black Poly
134-2519	Ft	3" Black Poly
134-2525	Ft	4" FRE
134-2526	Ft	4" Split PVC 10' Lengths
<u>Connector – Compression</u>		
135-2065	Ea	#6 Str to #2 Str Main #14 Sol to #8 Str Tap
135-2088	Ea	Insulated #6 Sol Al to #8 Sol Copper
135-2089	Ea	Insulated #8 Str or #6 Sol Copper or Al
135-2090	Ea	Insulated #4 Sol #6 Str Al to #8 Sol Copper
135-2091	Ea	Insulated #4 Sol #6 Str Al to #6 Sol #8 Str Copper
135-2092	Ea	Insulated #4 Sol #6 Str Al to #6 #4 Sol Cu
135-2094	Ea	Insulated #4 Sol #6 Str Al to #4 Str #2 Sol Copper



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Stock #	Unit	Description
<u>Connector – Compression (Continued)</u>		
135-2093	Ea	Insulated #2 Str Al or Cu to #4 Str Al or Cu
135-2096	Ea	Insulated 1/0 Str Al or Cu to #2 Str Al or Cu
135-2097	Ea	Insulated #2 Str Cu to #4 Sol #6 Str Al
135-2098	Ea	Insulated #2 to #2 Str Al or Cu
135-2099	Ea	Insulated 1/0 Str Al or Cu to #4 Sol Al or Cu
135-2100	Ea	Insulated 1/0 Str to 1/0 Str Al or Cu
135-2101	Ea	Insulated 2/0 or 3/0 Str to 1/0 or 2/0 Str Al or Copper
135-2102	Ea	Insulated 3/0 or 4/0 Str to 2/0 or 3/0 Str Al or Cu
135-2103	Ea	Insulated 3/0 or 4/0 Str to 1/0 or 2/0 Str Al or Cu
135-2104	Ea	Insulated 4/0 Str to 1/0 or 2/0 Str Al or Cu
135-2105	Ea	Insulated 2/0 or 3/0 Comp Str to #2 Str Al or Cu
135-2106	Ea	Insulated 3/0 or 4/0 Comp Str to #2 Str Al or Cu
135-2107	Ea	Insulated 4/0 Str to #2 Str Al or Cu
<u>Connector – Miscellaneous</u>		
134-2580	Ea	Connector, Streetlight
134-2600	Ea	Pin Type #6 Str to #4 Sol Al
134-2601	Ea	Pin Type #2 Str Al
134-2602	Ea	Pin Type #1/0 Str Al
134-2603	Ea	Pin Type #3/0 Str Al
134-2606	Ea	Pigtail 350KCM Al
134-2607	Ea	Pigtail 700KCM Al
134-2630	Ea	Neutral Spantap 1/0 ACSR
134-2633	Ea	Insulated Service Tap, Main #2-350KCM – 4 Taps with Insulating Cover
134-2639	Ea	4/0-28KV Pole Terminator Replacement, GE
134-2641	Ea	4/0 for Use with 600 Amp Nonloadbreak Elbow
134-2642	Ea	350KCM for Use with 600 Amp Nonloadbreak Elbow
134-2644	Ea	750KCM for Use with 600 Amp Nonloadbreak Elbow
134-2646	Ea	4/0 for 200 Amp Loadbreak Elbow
134-2647	Ea	#2 for Elbow RTE
134-2648	Ea	Fused Connector Kit
134-2649	Ea	#2 for Elbow GE
135-3100	Ea	Tank Grounding
<u>Connector – Split Bolt</u>		
135-3000	Ea	#8 Sol
135-3010	Ea	#6 Sol
135-3020	Ea	#6 Str
135-3030	Ea	#4 Sol
135-3070	Ea	#2 Str or Sol
<u>Connector – Versitap</u>		
134-2527	Ea	#1 to 4/0 Main #6 to #2 Tap
134-2528	Ea	#1 to 4/0 Main and Tap
134-2530	Ea	250 to 500KCM Main #6 to #2 Tap
134-2531	Ea	250 to 500KCM Main #1 to 4/0 Tap
134-2536	Ea	250 to 500KCM Main and Tap
134-2556	Ea	500 to 1000KCM Main #1 to 4/0 Tap
134-2561	Ea	500 to 1000KCM Main 200 to 500KCM Tap
134-2566	Ea	500 to 1000KCM Main and Tap
134-2568	Ea	500 to 1000KCM Main #6 to #2 Tap
<u>Contact</u>		
134-2660	Ea	Male, Arc Follower for 7761 & 7762 Elbows

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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
		<u>Control</u>
134-3163	Ea	Photoeye 120V (Streetlight)
134-3164	Ea	Photoeye 277V (Streetlight)
		<u>Coupling</u>
135-3185	Ea	Ground Rod
		<u>Cover</u>
134-2702	Ea	Insulating for Secondary Spades – Low Profile
134-2703	Ea	Insulating for 10 and 15KVA Padmounts
135-3210	Ea	Bushing Insulating
134-6644	Ea	Protective Cover for 134-6643
		<u>Culvert Pipe</u>
134-2750	Ea	21" x 8'
134-2752	Ea	30" x 10'
134-2754	Ea	36" x 10'
		<u>Cutout</u>
134-2906	Ea	100 Amp 14.4/25KV
134-2912	Ea	SMD 20
		<u>Deadend</u>
134-3060	Ea	795KCM Poly Covered, Straight Through
134-3068	Ea	#1 Sol or #2 Str Cu, Straight Through
134-3076	Ea	1/0 Str or 2/0 Sol Cu, Straight Through
134-3078	Ea	1/0 Str or 2/0 Sol Cu, Straight Through
134-3082	Ea	2/0 Str or 3/0 Sol Cu, Straight Through
134-3086	Ea	3/0 Str Cu
134-3092	Ea	4/0 Str Cu
134-3096	Ea	250KCM Str Cu
134-3099	Ea	336.4KCM Poly, Straight Through
135-3290	Ea	#4 Sol or #6 Str, Straight Through
135-3485	Ea	Preformed #2 ACSR 24" Long
135-3500	Ea	Preformed #1/0 ACSR 26" Long
		<u>Disconnect</u>
134-3157	Ea	300A XS 14.4/25KV
134-3160	Ea	900A 25KV Arm Mount
134-3161	Ea	600A 15KV Line Tension
		<u>Element</u>
134-3163	Ea	Photo Control 1000W 120V
		<u>Enclosure</u>
134-3170	Ea	Junction – 30" Wide
134-3171	Ea	Junction – 60" Wide
134-3174	Ea	Loop
		<u>Extension</u>
134-3186	Ea	Foundation Anchor
		<u>Eye</u>
134-3200	Ea	Aux for 5/8" to 3/4" Diameter Anchor Rods
		<u>Feedthrough (See "Junction")</u>

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Stock #	Unit	Description
		<u>Flag</u>
134-3275	Ea	4" x 5" Red for Marking UG Facilities
134-3280	Ea	4" x 5" Red for Staking
		<u>Fuse Containers</u>
134-4004	Ea	5" x 23" for SMD-20
		<u>Fuses: SMD-20</u>
134-4100	Ea	50E, 25KV
134-4175	Ea	100E, 25KV
134-4184	Ea	65E, 25KV
134-4185	Ea	125E, 25KV
134-4186	Ea	150E, 25KV
134-4187	Ea	175E, 25KV
134-4188	Ea	200E, 25KV
		<u>Fuse Holder</u>
134-4760	Ea	Bayonet for Padmounts
		<u>Fuses – Open Type</u>
135-3653	Ea	5 Amp
135-3659	Ea	10 Amp
		<u>Fuses – Padmount</u>
134-4204	Ea	5 Amp
134-4207	Ea	8 Amp
134-4209	Ea	12 Amp
134-4212	Ea	15 Amp
134-4217	Ea	25 Amp
134-4220	Ea	30 Amp
134-4222	Ea	35 Amp
134-4230	Ea	65 Amp
134-4238	Ea	140 Amp
		<u>Fuses – Streetlight</u>
134-4240	Ea	10 Amp
		<u>Fuses – SM-4, SML-42</u>
134-4317	Ea	200E, 25KV, Refill
134-4322	Ea	125E, 25KV, Refill
134-4323	Ea	65E, 25KV, Refill
134-4324	Ea	80E, 25KV, Refill
134-4326	Ea	50E, 25KV, Refill
		<u>Fuses – Universal</u>
134-4190	Ea	125 Amp, 2.4 through 15KV
134-4192	Ea	150 Amp, 2.4 through 15KV
134-4194	Ea	200 Amp, 2.4 through 15KV
135-3718	Ea	5 Amp, 2.4 through 24.9KV
134-3724	Ea	10 Amp, 2.4 through 24.9KV
135-3726	Ea	15 Amp, 2.4 through 24.9KV
135-3728	Ea	20 Amp, 2.4 through 24.9KV

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Stock #	Unit	Description
<u>Fuses – Universal (Continued)</u>		
135-3732	Ea	25 Amp, 2.4 through 24.9KV
135-3734	Ea	30 Amp, 2.4 through 24.9KV
135-3736	Ea	40 Amp, 2.4 through 24.9KV
135-3738	Ea	50 Amp, 2.4 through 24.9KV
135-3740	Ea	65 Amp, 2.4 through 24.9KV
135-3742	Ea	80 Amp, 2.4 through 24.9KV
135-3746	Ea	100 Amp, 2.4 through 24.9KV
<u>Gain</u>		
134-4377	Ea	For 7" to 10" Arms
134-4380	Ea	Double-faced Pole 8" to 16" Diameter
134-4382	Ea	Braceless Crossarm
135-3790	Ea	For 3-1/2" x 5-1/2" Arms
<u>Glove</u>		
134-4500	Ct	Poly for URD
134-4501	Pr	Neoprene for Handling PCB Material
<u>Grip</u>		
134-4530	Ea	Preformed for 5/16" Guy
134-4532	Ea	Preformed for 3/8" Guy
<u>Guard-Line</u>		
134-4593	St	For 795KCM AA Preformed
135-3845	St	For #2 ACSR Preformed
135-3855	St	For 1/0 ACSR Preformed
135-3875	St	For 4/0 AA Preformed
135-3885	St	For 4/0 ACSR Preformed
135-3895	St	For 336 AA Preformed
<u>Guard-Tree</u>		
134-4592	Ea	For 3/c-1/0 Al Service & 3/c-1/0 ACSR Secondary
134-4594	Ea	For 3/c-1/0 Service
135-3836	Ea	For 3/c-#4 Service
<u>Guard-U</u>		
134-4584	Ln	3" x 10' Plastic
134-4582	Ln	1" x 10' Steel
134-4585	Ln	2-1/4" x 5' Steel
134-4586	Ln	2" x 10' Plastic
134-4587	Ln	3-3/4" x 5' Steel
134-4589	Ln	5" x 5' Steel
134-4590	Ln	5" x 5' Plastic
<u>Inhibitor</u>		
134-4900	Ea	Inhibitor – Tube
134-4901	Pt	Inhibitor – Pint Cans
134-4903	Qt	Inhibitor – Qt Container

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Stock #	Unit	Description
<u>Insulators</u>		
134-4955	Ea	Pin Type
134-5070	Ea	Post 25KV Vertical Clamp Top
134-5074	Ea	Post 25KV Horizontal Clamp Top
134-5080	Ea	Post Tie Top
134-5200	Ea	Polymer Deadend Suspension, Clevis
134-5236	Ea	24" Guy Strain
134-1496	Ea	Standoff for 25KV Elbows
135-4240	Ea	Spool
135-4242	Ea	#2 Strain
135-4250	Ea	Spreader
<u>Junction</u>		
134-5259	Ea	Two-Way 25KV Bolt-in Type Junction Encloser
134-5260	Ea	Three-Way 25KV Bolt-in Type Junction Encloser
134-5262	Ea	Four-Way 25KV Bolt-in Type Junction Encloser
<u>Key</u>		
134-5268	Ea	Expanding Pole
<u>Kit</u>		
134-5278	Ea	Pedestal Connector
134-5282	Ea	Padmount Secondary-Multiple Connection 1 x 14
134-5284	Ea	PCB Screening
<u>Lag and Plate</u>		
135-4335	Ea	For Detachable Pole Steps
<u>Lamp</u>		
134-5302	Ea	70W HPS
134-5289	Ea	100W HPS
134-5290	Ea	150W HPS
134-5292	Ea	250W HPS
134-5293	Ea	400W HPS
134-5318	Ea	400W MH
134-5319	Ea	1000W MH
<u>Letters</u>		
135-4350	Ea	"A" Aluminum 3"
135-4351	Ea	"B" Aluminum 3"
135-4352	Ea	"C" Aluminum 3"
<u>Lubricant</u>		
134-5380	Ea	8 oz. Silicone for URD
134-5390	Gl	Wire Pulling
<u>Lug</u>		
134-5400	Ea	350KCM URD 90 Degree Right-hand Bend
134-5410	Ea	350KCM URD 90 Degree Left-hand Bend
134-5411	Ea	700KCM URD 90 Degree Right-hand Bend
134-5412	Ea	700KCM URD 90 Degree Left-hand Bend
134-5418	Ea	6-350 Set Screw
134-5420	Ea	350-750 Set Screw
134-5439	Ea	#6 Str Aluminum & Copper 9/16" Hole
134-5442	Ea	4/0 Stranded Aluminum
134-5443	Ea	4/0 Stranded Copper

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Stock #	Unit	Description
		<u>Lugs (Continued)</u>
134-5444	Ea	350KCM Copper
134-5446	Ea	750KCM Copper
134-5447	Ea	1000KCM Copper
134-5450	Ea	1000KCM Copper Stacking
134-5452	Ea	4/0 Stranded Aluminum
134-5454	Ea	350KCM Aluminum Meter Bases Only
134-5455	Ea	336 ACSR & 336/350 Aluminum
134-5456	Ea	500KCM Aluminum
134-5458	Ea	350KCM Aluminum Stacking
134-5459	Ea	500KCM Copper Stacking
134-5460	Ea	500KCM Copper
134-5462	Ea	700KCM & 750KCM Aluminum
134-5463	Ea	700KCM & 750KCM Aluminum Stacking
134-5464	Ea	795 AA
135-4380	Ea	#6 Stranded Copper 1/2" Hole
135-4382	Ea	#6 - #4 Al 1/2" Hole
135-4383	Ea	#2 Stranded Aluminum Two-Hole
135-4384	Ea	1/0 Stranded Aluminum & Copper Two-Hole
135-4385	Ea	3/0 Stranded Aluminum Two-Hole
135-4386	Ea	#2 Stranded Al 600V 9/16" Hole
135-4387	Ea	1/0 Stranded Al 600V 9/16" Hole
135-4388	Ea	3/0 Stranded Al 600V 9/16" Hole
135-4392	Ea	2/0 Stranded Copper
		<u>Luminaire</u>
134-5480	Ea	1000W MH Flood, Dark Bronze
134-5481	Ea	1000W MH Flood, Gray
134-5482	Ea	1000W MH Flood, Black
134-5483	Ea	100W HPS Post Top Ornamental
134-5484	Ea	100W HPS Post Top Ornamental
134-5485	Ea	100W HPS Post Top Ornamental
134-5486	Ea	70W HPS Post Top Ornamental
134-5487	Ea	70W HPS Post Top Ornamental
134-5488	Ea	70W HPS Post Top Ornamental
134-5490	Ea	100W HPS Two-way Cutoff
134-5491	Ea	150W HPS Two-way Cutoff
134-5492	Ea	250W HPS Two-way Cutoff
134-5493	Ea	250W HPS Two-way Cutoff
134-5494	Ea	400W HPS Two-way Cutoff
134-5495	Ea	400W HPS Two-way Cutoff
134-5497	Ea	400W MH Flood, Dark Bronze
134-5498	Ea	400W MH Flood, Gray
134-5499	Ea	400W MH Flood, Black
134-5500	Ea	150W HPS Two-way
134-5501	Ea	150W HPS Four-way
134-5503	Ea	250W HPS Two-way
134-5505	Ea	400W HPS Two-way
134-5507	Ea	400W HPS Flood
134-5508	Ea	100W HPS Two-way
134-5509	Ea	100W HPS Four-way
134-5510	Ea	250W HPS Flood
134-5511	Ea	400W HPS Flood, 277V
134-5512	Ea	250W HPS Four-way
134-5515	Ea	100W HPS Power Bracket
134-5517	Ea	150W HPS PowerBracket

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		<u>Luminaire (Continued)</u>
134-5520	Ea	100W HPS Post Top
134-5521	Ea	150W HPS Post Top Ornamental
134-5522	Ea	100W HPS Post Top Ornamental
		<u>Moulding</u>
135-4400	Ea	1/2" x 8' Wood for Ground Wire
135-4403	Ea	3/4" x 8' Wood for Ground Wire
135-4411	Ea	1" x 1" x 8' Plastic Control Wire
		<u>Nail</u>
134-5570	Ea	For 1" U-Guard
		<u>Nut</u>
135-4425	Ea	5/8" Eye Round
135-4445	Ea	5/8" Eye Twineye
135-4460	Ea	3/8" Lock
135-4470	Ea	1/2" Lock
135-4480	Ea	5/8" Lock
135-4494	Ea	Anchor – Tripleye
135-4496	Ea	3/4" Square for Anchor Rods
135-4498	Ea	5/8" Clevis
		<u>Padlock</u>
134-5817	Ea	Wilson-Bohannon
134-5818	Ea	Padlock w/ Large Shackle
		<u>Paint</u>
134-5820	Ea	Red – For UG Marking
		<u>Pedestal</u>
134-5849	Ea	10" Secondary
		<u>Pin</u>
134-5881	Ea	20" Poletop
135-4510	Ea	Cotter – Humpback
135-4514	Ea	5/8" x 1-1/2" Insulator
135-4516	Ea	5/8" x 5-3/4" Insulator
135-4700	Ea	Roll for Pentahead Bolt
		<u>Plate</u>
134-5950	Ea	Foundation Anchor
134-5955	Pr	Transformer Mounting to Cluster Mount Brackets
134-5960	Ea	Armless Adapter for Use at Railroad Crossings
		<u>Plug</u>
134-5980	Ea	Connector for 600A 25KV Nonloadbreak Elbow
134-5988	Ea	Insulating for 600A 25KV Nonloadbreak Elbows
134-5990	Ea	Replacement for 2" Knockouts – Metal
134-5991	Ea	Replacement for 2" Knockouts – Plastic
134-5994	Ea	Bushing Well
134-5995	Ea	2" Tapered for Flex Conduit
134-5996	Ea	4" for UG Conduit

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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
<u>Poles</u>		
132-0041	Ea	12' Stub
132-0044	Ea	14' Stub
132-0047	Ea	16' Stub
132-0280	Ea	25' All Classes
132-0554	Ea	30' Class 5
132-0556	Ea	30' Class 7
132-0828	Ea	35' Class 5
132-0830	Ea	35' Class 6
132-0834	Ea	35' Class 7
132-0991	Ea	40' Class 3
132-1099	Ea	40' Class 5
132-1264	Ea	45' Class 3
132-1291	Ea	45' Class 5
132-1520	Ea	50' Class 2
132-1537	Ea	50' Class 3
132-1650	Ea	55' Class H-1
132-1655	Ea	55' Class 1
132-1660	Ea	55' Class 2
132-1675	Ea	55' Class 3
134-7345	Ea	45' Class 3, Fiberglass
<u>Post</u>		
134-6000	Ea	Pedestal Mounting
134-6020	Ea	UG Cable Marking – Plastic 72"
134-6022	Ea	UG Cable Marking – Plastic 62"
<u>Preservative</u>		
134-6030	Ea	20" x 25" 25 lb/Roll
<u>Protector</u>		
134-6035	Ea	8' Guy
<u>Rack</u>		
134-6152	Ea	Three-position for UG Cable in Manholes
<u>Rod</u>		
134-6450	St	Armor Preformed 4/0 ACSR
134-6470	St	Armor Preformed 336 ACSR
135-5030	St	Armor Preformed #4 ACSR
135-5060	St	Armor Preformed #2 ACSR
135-5090	St	Armor Preformed 1/0 ACSR
134-6506	Ea	Anchor Extension 1-1/4" x 72" for Screw Anchor
134-6507	Ea	Anchor Extension 3/4" x 54" for Screw Anchor
134-6508	Ea	Anchor 3/4" x 7' Tripleye
134-6510	Ea	Anchor 1" x 7' Tripleye
134-6512	Ea	Anchor Extension 1" x 54" for Screw Anchor
134-6522	Ea	Anchor 3/4" x 9' Twineye
134-6525	Ea	Anchor 3/4" x 9' Tripleye
134-6529	Ea	Ground 1/2" x 8'
134-6530	Ea	Ground 1/2" x 8' with Threads
<u>Screw</u>		
135-5280	Ea	1/4" x 2" Lag for U-Guards
135-5290	Ea	3/8" x 3" Lag, Fetter Drive
135-5300	Ea	1/2" x 4" Lag
135-5330	Ea	5/8" x 5" Lag



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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
		<u>Shaft</u>
134-6643	Ea	Direct Burial Ornamental Standard Foundation
		<u>Sign</u>
134-6670	Ea	PCB Warning – Vinyl
134-6672	Ea	PCB Warning – Plastic
134-6675	Ea	“Danger – Keep Away” for Inside Padmounts
134-6679	Ea	“Caution – High Voltage Inside” 10” x 8”
134-6680	Ea	“Caution – High Voltage Inside” 7” x 10”
134-6684	Ea	“Triplex Core”
135-5460	Ea	“Danger – High Voltage” – Metal
135-5480	Ea	“Caution – UG Electrical Cable”
		<u>Sleeve</u>
134-6687	Ea	Ground for Single-phase Junction Enclosure
134-6689	Ea	Ground for Three-phase Junction Enclosure
134-6690	Ea	#2 - #2 UG
134-6691	Ea	#2 – 1/0 UG
134-6692	Ea	1/0 – 1/0 UG
134-6693	Ea	#6 - #6 UG
134-6695	Ea	#2 – 3/0 UG
134-6697	Ea	3/0 – 1/0 UG
134-6698	Ea	3/0 – 3/0 UG
135-5640	Ea	#8 Solid Nicopress Copper
135-5680	Ea	#6 Solid Nicopress Copper
135-5700	Ea	#6 Stranded Nicopress Copper
135-5720	Ea	#4 Solid Nicopress Copper
135-5740	Ea	#4 Solid to #6 Solid Nicopress Reducing Copper
135-5745	Ea	#4 Solid to #4 Stranded Nicopress Reducing Cu
135-5760	Ea	#4 Stranded Nicopress Copper
135-5780	Ea	#2 Solid Nicopress Copper
135-5800	Ea	#2 Solid to #2 Stranded Nicopress Copper
135-5820	Ea	#2 Stranded Nicopress Copper
135-5840	Ea	#1 Solid Nicopress Copper
135-5940	Ea	3/12 Nicopress
135-5960	Ea	3/12 Nicopress Split Repair
135-5980	Ea	8A Nicopress
135-6000	Ea	8A Nicopress Split Repair
135-6020	Ea	6A Nicopress
135-6040	Ea	6A Nicopress Split Repair
135-6060	Ea	4A Nicopress
135-6080	Ea	4A Nicopress Split Repair
		<u>Splice</u>
134-7005	Ea	#2 or #1 – 28KV Repair UG Splice
134-7012	Ea	#2 or #1 – 28KV Standard UG Splice
134-7013	Ea	#2 – 28KV Jacketed
134-7014	Ea	#2 or #1 – 28KV Heat Shrink
134-7015	Ea	4/0 – 28KV
134-7016	Ea	4/0 – 28KV Heat Shrink
134-7017	Ea	1000 28KV
134-7018	Ea	350KCM – 28KV
134-7020	Ea	750KCM – 28KV
134-7021	Ea	700KCM – 600V
134-7022	Ea	700KCM Al or 500KCM Copper
134-7024	Ea	#2 ACSR Tension
134-7026	Ea	1/0 ACSR Tension
134-7028	Ea	4/0 ACSR Hysplice

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Stock #	Unit	Description
		<u>Splice (Continued)</u>
134-7030	Ea	4/0 ACSR Tension
134-7032	Ea	336 ACSR, 336 AA, 350 Al Loop Hysplice
134-7034	Ea	336 ACSR Hysplice
134-7036	Ea	336 ACSR and 336 AA Tension
134-7038	Ea	795 AA Tension
134-7040	Ea	795 AA Hysplice
134-7045	Ea	795 AA Loop
134-7050	Ea	1272 AA Hysplice
134-7110	Ea	#1 Hysplice
134-7115	Ea	1/0 Solid Copper Hysplice
134-7125	Ea	1/0 Stranded Copper Hysplice
134-7130	Ea	1/0 Solid to 1/0 Stranded Copper Hysplice
134-7140	Ea	2/0 Stranded Copper Hysplice
134-7145	Ea	3/0 Stranded Copper Hysplice
134-7150	Ea	4/0 Stranded Copper Hysplice
134-7165	Ea	750KCM Copper Loop Hysplice
134-7170	Ea	500KCM Copper Loop Hysplice
134-7175	Ea	1000KCM Copper Hysplice
135-7150	Ea	#6 ACSR or #6 AA Service Tension
135-7160	Ea	#4 ACSR Tension
135-7195	Ea	#4 Str to #6 Str Reducer Service Tension
135-7210	Ea	#2 Stranded Hysplice
135-7230	Ea	#2 ACSR Loop Hysplice
135-7270	Ea	#2 ACSR Hysplice
135-7290	Ea	1/0 AA Hysplice
135-7300	Ea	1/0 ACSR Hysplice
135-7340	Ea	1/0 ACSR Loop Hysplice
135-7360	Ea	4/0 AA Loop Hysplice
135-7400	Ea	4/0 ACSR Loop Hysplice
135-7580	Ea	336 AA Hysplice
		<u>Stake</u>
134-7300	Ea	Wood, Red Top: 1 x 2 x 9
134-7301	Ea	Wood, Red Top: 1 x 2 x 24
134-7302	Ea	Wood, Red Top: 1 x 2 x 36
134-7304	Ea	Wood, Red Top: 1 x 2 x 48
		<u>Standard</u>
134-7325	Ea	12' Tenon Top, Fluted Ornamental Fiberglass
134-7327	Ea	15' Tenon Top, Fluted Ornamental Fiberglass
134-7328	Ea	15' Tenon Top, Smooth Ornamental Fiberglass
134-7329	Ea	25' Tenon Top, Smooth Fiberglass
134-7330	Ea	30' Tenon Top, Smooth Fiberglass
134-7331	Ea	35' Tenon Top, Smooth Fiberglass
134-7332	Ea	40' Tenon Top, Smooth Fiberglass
		<u>Staple</u>
135-7966	Ea	Small Cable Tie
135-7980	Ea	Large Cable Tie
135-8001	Ea	Ground Moulding
135-8003	Ea	Plastic Moulding
		<u>Step</u>
135-8020	Ea	Pole 5/8" x 10"
135-8050	Ea	Pole Detachable

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Stock #	Unit	Description
<u>Stirrup</u>		
134-7370	Ea	795 AA Hotline Snap-on
134-7375	Ea	4/0 through 300 Copper Hotline Snap-on
134-7377	Ea	#6 through #2 Copper Hotline Snap-on
134-7379	Ea	#6 through 1/0 ACSR Hotline Snap-on
134-7383	Ea	1/0 through 397 ACSR Hotline Snap-on
134-7385	Ea	#1 through 3/0 Copper Hotline Snap-on
<u>Strap</u>		
134-7412	Ea	Mounting for Cutouts – Arresters to Crossarm
<u>Strut</u>		
134-7420	Ea	24" Pole
<u>Stud</u>		
134-7430	Ea	Replacement for 600A 25KV Padmount Bushing
134-7438	Ea	5/8" x 1-3/4" Line Post
134-7440	Ea	5/8" x 7-1/2" Line Post
<u>Tag</u>		
135-8461	Ea	"A-Light" Aluminum
135-8463	Ea	"B-Light" Aluminum
135-8465	Ea	"C-Wild" Aluminum
135-8467	Ea	"C-Ground" Aluminum
135-8469	Ea	"Neutral" Aluminum
135-8471	Ea	"A" Aluminum
135-8473	Ea	"B" Aluminum
135-8475	Ea	"C" Aluminum
<u>Tape</u>		
134-7710	Ea	Semiconducting 3M #13 (Replacement Pad 135-4502)
134-7720	Ea	Shielding 3M #24
134-7721	Ea	Nontracking 3M #70
134-7723	Ea	Glass Cloth 3M #27, Used with 134-7725
134-7725	Ea	Arc & Fireproofing 3M #77, Used with 134-7723
134-7726	Ea	Vinyl-backed Insulating Compound Rolls
134-7730	Ea	Cold Temp 1" Wide Double Gummed
134-7737	Ea	Tape, Barricade
135-8535	Ea	Electrical Insulating
135-8540	Ea	White Marking
135-8541	Ea	Red Marking
135-8542	Ea	Yellow Marking
135-8543	Ea	Blue Marking
135-8550	Ea	Friction
<u>Terminator</u>		
134-7740	Ea	#1-28KV Pole Type
134-7740	Ea	4/0-28KV Pole Type
134-7741	Ea	350KCM-28KV Pole Type
134-7741	Ea	750KCM-28KV Pole Type
134-7742	Ea	1000KCM-28KV Pole Type
134-7761	Ea	#1-28KV Loadbreak Elbow for 28KV Cable
134-7762	Ea	#1-28KV Loadbreak Elbow for 15KV Cable
134-7763	Ea	#1-1000KCM 600 Amp Elbow
134-7764	Ea	4/0-28KV Loadbreak Elbow
134-7766	Ea	#2 or #1 – 28KV Elbow with Voltage Test Point

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Stock #	Unit	Description
		<u>Tie</u>
134-7780	Ea	Cable, Black Nylon 6" Dia. Cable Bundles
		<u>Tie – Preform</u>
134-7800	Ea	#2 ACSR Top (Replacement Pad 135-4501)
134-7802	Ea	1/0 ACSR Top (Replacement Pad 135-4501)
134-7804	Ea	4/0 ACSR Top (Replacement Pad 135-4502)
134-7806	Ea	336 ACSR Top (Replacement Pad 135-4503)
134-7807	Ea	477KCM
134-7808	Ea	795 AA Top
134-7810	Ea	#2 ACSR Side (Replacement Pad 135-4504)
134-7812	Ea	1/0 ACSR Side (Replacement Pad 135-4504)
134-7814	Ea	4/0 ACSR & AA Side (Replacement Pad 135-4505)
134-7816	Ea	336 ACSR Side (Replacement Pad 135-4506)
134-7817	Ea	477KCM Side Tie
134-7818	Ea	795 AA Side
134-7820	Ea	#2 ACSR Double Support Top (Replacement Pad 135-4501)
134-7822	Ea	1/0 ACSR Double Support Top (Replacement Pad 135-4501)
134-7824	Ea	4/0 ACSR & AA Double Support Top
134-7826	Ea	336 ACSR Double Support Top (Replacement Pad 135-4503)
134-7830	Ea	#2 ACSR Double Side (Replacement Pad 135-4504)
134-7832	Ea	1/0 ACSR Double Side (Replacement Pad 135-4504)
134-7834	Ea	4/0 ACSR & AA Double Side (Replacement Pad 135-4505)
134-7836	Ea	336 ACSR Double Side (Replacement Pad 135-4506)
134-7840	Ea	#2 ACSR Spool (Replacement Pad 135-4504)
134-7842	Ea	1/0 ACSR Spool (Replacement Pad 135-4504)
134-7844	Ea	4/0 ACSR Spool
		<u>Washer</u>
134-8100	Ea	3/8" Split Silicone Bronze
134-8102	Ea	3/8" Flat Silicone Bronze
135-9150	Ea	1/2" Flat
135-9600	Ea	1/2" Split
135-9610	Ea	3/8" Split for 135-0470 Pentahead Bolt
		<u>Wire</u>
133-0200	Lb	#4 Aluminum Triplex
133-0205	Lb	#4 Aluminum Quadruplex
133-0207	Lb	#2 Aluminum Triplex, ACSR Messenger
133-0210	Lb	1/0 Aluminum Triplex
133-0212	Lb	1/0 Aluminum Triplex ACSR Messenger
133-0215	Lb	1/0 Aluminum Quadruplex
133-0216	Lb	1/0 Aluminum Quadruplex ACSR Messenger
133-0217	Lb	336 Aluminum Triplex
133-0219	Lb	336 Aluminum Quadruplex
133-0228	Lb	#2 ACSR
133-0345	Lb	1/0 ACSR
133-0404	Lb	4/0 ACSR
133-0460	Lb	336 ACSR
133-0465	Lb	336 AA
133-0475	Lb	795 AA
133-0478	Lb	795 Poly
133-0485	Lb	1272 AA
133-0917	Lb	#6 Bare Copper
133-0976	Lb	#4 Bare Copper
133-1035	Lb	#2 Bare Copper
133-1212	Lb	2/0 Bare Copper
133-1271	Lb	4/0 Bare Copper

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<u>Stock #</u>	<u>Unit</u>	<u>Description</u>
		<u>Wire (Continued)</u>
133-2020	Lb	#4 Copperweld
133-2635	Lb	3/8" Guy
133-2655	Lb	1/2" Guy
133-2660	Lb	7/16" Guy
133-5140	Lb	#6 Streetlight UG
133-5361	Lb	#8 Tie Copper
133-5597	Lb	#6 Tie Copper
133-5602	Lb	#4 Tie Aluminum
133-6030	Ft	#2-28KV UG
133-6031	Ft	Cable in Conduit
133-6032	Ft	#1-28KV UG
133-6035	Ft	#2-28KV UG Jacket
133-6043	Ft	1/0-3/c 600V UG
133-6063	Ft	3/0-3/c 600V UG
133-6067	Ft	3/0-4/c 600V UG
133-6070	Ft	4/0-28KV UG
133-6075	Ft	4/0-28KV UG Jacket
133-6203	Ft	350KCM-3/c 600V UG
133-6207	Ft	350KCM-1/c 600V UG
133-6209	Ft	350KCM-28KV UG
133-6220	Ft	500KCM Copper 600V UG
133-6230	Ft	700KCM 600V UG
133-6257	Ft	750KCM-28KV UG
133-6258	Ft	750KCM-28KV UG Jacket
133-6260	Ft	1000KCM Copper 600V UG
133-6262	Ft	1000KCM 28KV Alum
133-6641	Lb	#4 Copper Poly Solid
133-6986	Lb	#2 Copper Poly Stranded
133-7163	Lb	2/0 Copper Poly Stranded
133-7517	Lb	500KCM Copper Poly Stranded

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**ELECTRIC OPERATIONS ACCOUNTING**

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\*RC – Use Site RC unless noted below

<b>Task/Activity</b>	<b>RC*</b>	<b>Proc 1</b>	<b>Proc 2</b>	<b>Project</b>	<b>Prod**</b>	<b>Comments</b>
<b>INSTALLATION: CONSTRUCTION (Use appropriate project number listed on the sketch)</b>						
OH conductor	*	2111		Required	100	Use for OH conductor and associated elements of wire and minor tree trimming
OH service conductors	*	2104		0053000000	100	
OH unit of poles/elements	*	2106		Required	100	Use for OH unit of poles and associated elements
UG conductors	*	2103		Required	100	Primary and secondary
UG service conductors	*	2105		Required	100	Install and terminate
Private lighting	*	2124		0053000000	100	Private lighting – includes ornamental standards, fixtures and elements
Public street lighting	*	2107		Required	100	Public street lighting – includes ornamental standards, fixtures & elements.
Temporary service	*	3600		Required	118	Install or remove temporary service (project not required)
Remove capitalized equipment	*	8122		Required	100	Remove capitalized equipment (tag removed equipment with Proc 1 8123 – include any associated project # or WR # on tag)
Flagging – DOT required	*	xxxx	2399	Required	100	Flagging – DOT required only. Use only as Proc 2 associated with capital or O&M Proc 1.
<b>OPERATE</b>						
OH TRC equipment	*	2213			100	Non-emergency switching, install & remove OH transfer, regulators, capacitors, OCRs, switches, cutouts, disconnects, arresters, elements
UG TRC equipment	*	2214			100	Non-emergency switching, install & remove padmounted transformers & switchgear
Operate services	*	2220			100	Disconnect and reconnect, inspect services
<b>MAINTAIN</b>						
Street lighting	*	2304			100	Street lighting luminaire elements. Excluding luminaire itself
Private lighting	*	2337			100	Private light luminaire elements. Excluding luminaire itself.
OH conductors	*	2307			100	Non-emergency OH poles, conductors, devices & services
UG conductors	*	2308			100	Non-emergency UG duct, conductors, devices & services
<b>EMERGENCY</b>						
OH operating – emergency	*	2293			100	Emergency switching, install & remove OH transformers, regulators, capacitors, OCRs & elements
OH maintenance – emergency	*	2397			100	Emergency maintenance of OH poles, conductors, devices & services
UG operating – emergency	*	2294			100	Emergency switching, install & remove padmounted transformers & switchgear
UG maintenance – emergency	*	2398			100	Emergency maintenance of UG duct, conductors, devices & services
Take truck home – on call	*	5127			100	Use earnings type OWT for weekdays, OST for Saturday, and OHT for Sunday/Holiday
<b>MISCELLANEOUS</b>						
Contractor support/rework	*	xxxx	7622		100	
External inspection of UG system	*	2311			100	External inspection to check condition of UG system (doesn't include inspection of new system)
Inclement weather – non-construction	*	5125			100	Inclement weather experienced during non-construction activities
Inclement weather – construction	*	xxxx	5125	Required	100	Inclement weather experienced during construction activities
K60 or K60 reconnect	900	4307			300	K60 disconnect or reconnect
Locate facilities	*	2235			100/200	Locate & mark UG electric facilities (Product 100 – electric, 200 – gas)
Meter operation	*	2201			100	Meter setting, removing, testing & exchanging

**WISCONSIN PUBLIC SERVICE ELECTRIC DISTRIBUTION STANDARDS**

12/14/07

**REF25**

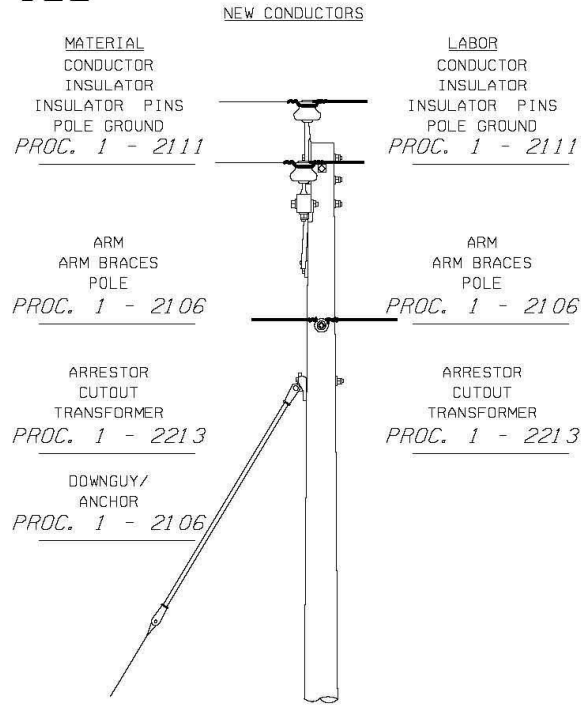
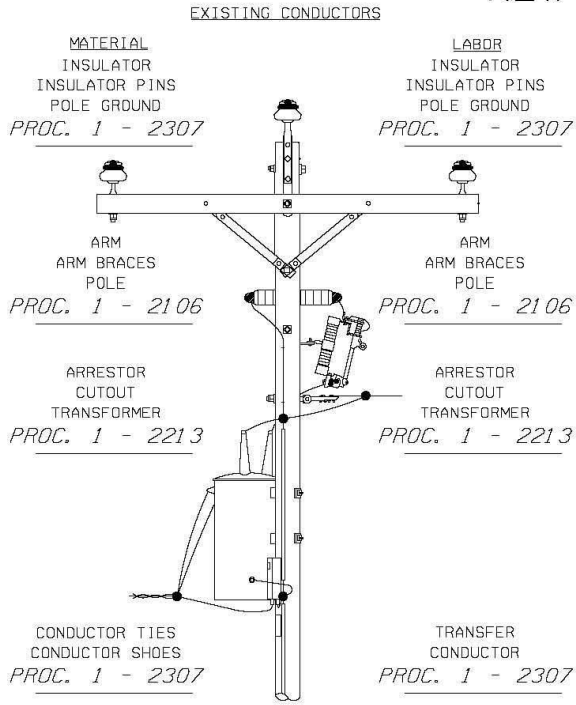
**ELECTRIC OPERATIONS ACCOUNTING**

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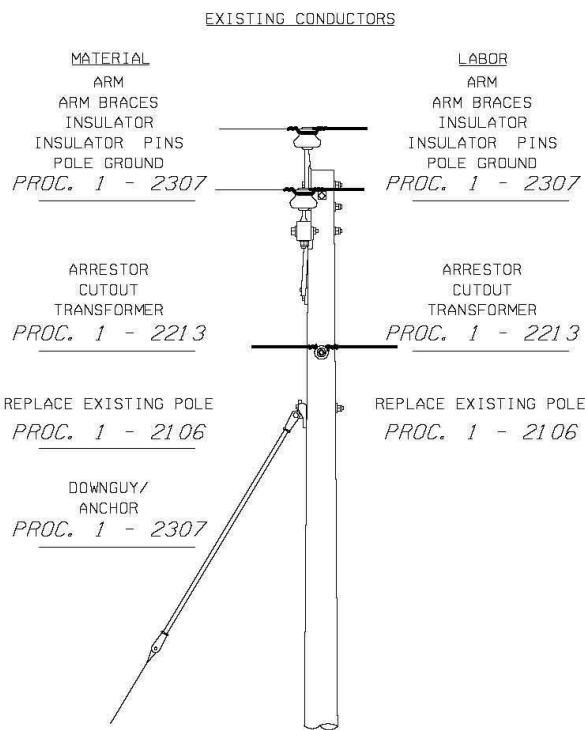
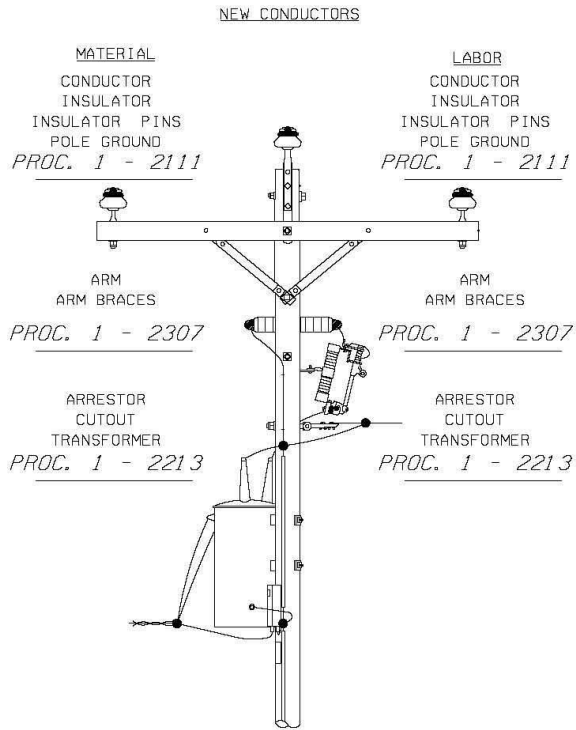
\*RC – Use Site RC unless noted below

<b>MISCELLANEOUS (Continued)</b>						
Non-billed work at customer premise	*	3802			100	Non-billed work on customer premise, RATV & voltage investigation
Office tasks – various	*	2200			100	Time slips, emails, etc.
Operational/general meeting	*	2200			100	Operational or general meeting with variety of subjects
Path to ground – formal customer education	645	4701			100	Formal customer education programs – Path to Ground
Periodic lamp replace	*	2215			100	Lighting – periodic lamp replacement
PPE changeout, was boom	*	5424			100	Change rubber goods, wax boom, hot line tool maintenance
PREP maintenance repair	*	xxxx	7618	Required	100	PREP maintenance repair or construction work
Radio/TV interference	*	2238			100	Investigate radio/TV interference. Time spent on repair work should be to project #0570003216
Small tools – manage	*	7615			100	Manage small tools (flame retardant clothing use Project #-0570096027)
Stray voltage	*	2241			100	Investigate stray voltage work not related to new farm wiring program
Stray voltage with farm wiring program	635	3700	2241	0570095230	100	Investigate stray voltage work that is related to new farm wiring program.
Voltage/Power Quality	*	2240		0570099282	100	Voltage investigation or investigate power quality (WPS system)
Wash vehicle	*	2200			100	Use site RC
<b>CUSTOMER-OWNED FACILITIES – BILLING</b>						
Customer's stray voltage – billed	*	3600			163	Investigate customer's stray voltage concerns (usually agriculture)
Miscellaneous billed customer work	*	3600			170	Miscellaneous billed work on customer premise – repair government-owned lighting (job tickets)
Disconnect, reconnect – billed	*	3600			171	Billed disconnect & reconnect
Communication companies – billed	*	3600			177	Work done for communication companies – install/remove poles, anchors, transfer wires, etc.
<b>SUBSTATIONS – Reference the RC listing for specific substation RC</b>						
Construct substations	SUB	1500			100	Also use Proc 1 8122 – removal and 8123 – salvage as needed
Construct substations -communication	SUB	1512				
Maintain substations	SUB	1700			100	Maintain substation facilities – trouble calls, facilities no longer working, troubleshooting
Operate substations	SUB	1600			100	Operate substation facilities – keep facilities running, annual/routine inspections, switching, readings, changing charts, telemetering.
<b>NON-CORE</b>						
Community	*	4500			**	Participate during workday in community events (e.g. donate blood, service clubs, Junior Achievement, Contributions Committee).
Drug & alcohol testing	*	5419			**	Drug & alcohol testing
Employee development	*	5000			**	Performance feedbacks, coaching, 1x1's
Employee selection/progression	*	5300			**	Hiring process, testing, job profiles, progression testing, CDL requirements
Employee training	*	5200			**	Learning, job training, training development, teaching
Financial	*	R300			**	Budget related, earnings updates
Planning	*	A100			**	Strategic planning, resource planning, leadership meetings
Regulatory	*	A400			**	Regulatory activities, legislative updates
Safety & Health	*	5400			**	Safety & health meetings & activities, audio/pulmonary testing
<b>HUMAN RESOURCES – See Group Template/Corp WPSC (471) in Corporate Labor. Use “Drag &amp; Drop” IFRIS combination for your labor group</b>						
Work-related injury	634	5105			300	Injury/damages on the job (complete WC form, if applicable)

NEW POLE



EXISTING POLE



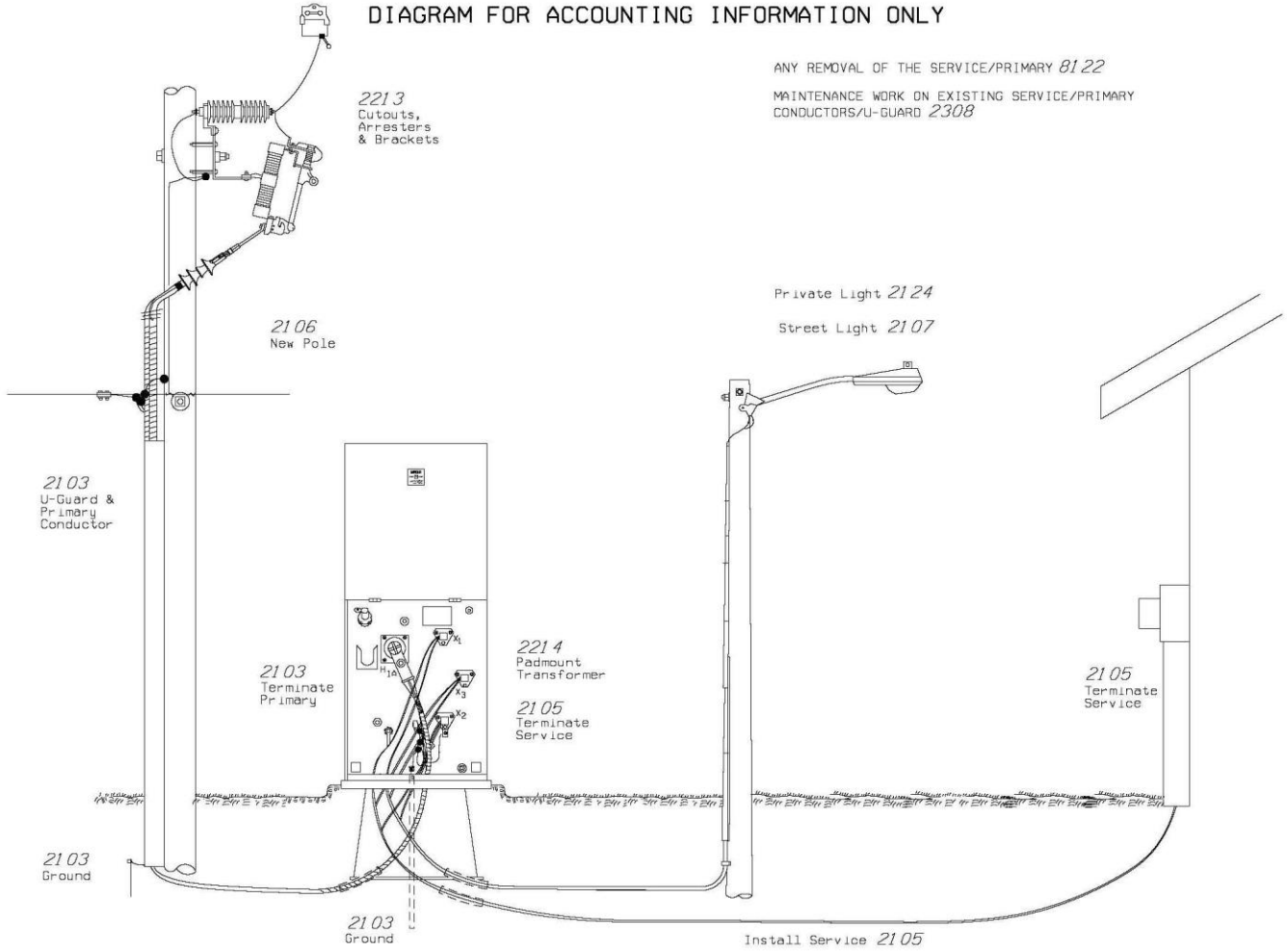
NOTE:  
REMOVAL OF EXISTING FACILITIES  
(EXCEPTION: ARRESTORS, CUTOUTS AND TRANSFORMERS)

MATERIAL *PROC. 1 - 8123*  
LABOR *PROC. 1 - 8122*  
*PROC. 1 - 2213*



NEW CONSTRUCTION WITH PROJECT  
DIAGRAM FOR ACCOUNTING INFORMATION ONLY

ANY REMOVAL OF THE SERVICE/PRIMARY 8122  
MAINTENANCE WORK ON EXISTING SERVICE/PRIMARY  
CONDUCTORS/U-GUARD 2308



I. Pole Type Transformers, Regulators, OCRs and Capacitors

A. Retirement Units:

1. Transformers
2. Regulators
3. Capacitor banks
4. Oil circuit reclosers

B. Elements:

1. Cutouts
2. Arresters
3. Controls
4. CTs
5. PTs
6. Oil switches
7. Individual capacitor units
8. Racks, clustermounts, hangers and platforms
9. Risers, primary & secondary, including conductor; connectors; hot line clamps, etc.

II. Overhead Services – Project 0053000000

A. Retirement Unit: Services – by size and kind

B. Elements: Minor items of the service

C. Charging Time & Material

1. Permanent services
  - a. When a permanent service is installed, charge time and all material associated with the service to process 2104 of the service blanket.
  - b. When a permanent service is removed, charge removal time to process 8122 and credit salvable material to process 8123 of the service blanket.
2. Normal temporary services – 1/0 200 amp and smaller
  - a. When temporary service is installed, charge time to process 3600 product 118. Charge the service conductor and any elements associated with it to process 2104 and project 0053000000.
  - b. When the service is swung over to permanent, charge time and any additional material required to process 2104 and project 0053000000.
  - c. If the service is not swung over as a permanent service, credit the material to process 2104, project 0053000000 and charge removal time to process 3600 product 118 and indicate “remove temporary service” on the time slip.
3. Large temporary services – 1/0 400 amp and larger and 3/0 (This may include a temporary 1/0 or 3/0 line extension.)
  - a. Charge all installation time and material to process 3600 product 118.
  - b. Charge removal time and credit material to process 3600 product 118.

Note: Use Division Prefix with process 3600 product 118.

III. Process 2107 – Street; 2124 – Area – Ornamental Lighting (Company-Owned)

A. Retirement Units:

1. Ornamental luminaire
2. Ornamental standard (pole)

## B. Elements:

1. Associated with luminaire
  - a. Mast arm or bracket
  - b. Ballast
  - c. P.E. control
  - d. Lamp
  - e. Relays
  - f. Wiring within standard
  - g. Other miscellaneous items of the luminaire
2. Associated with the standard (pole)
  - a. Concrete base
  - b. Grounds
  - c. Other miscellaneous items of the standard

## C. Charging Time

1. When any of the above luminaires or standards are installed, charge process 2107 (street) / 2124 (private) for time involved, including the unit and any of the above elements installed on it.
2. When any of the above luminaires or standards are removed, charge process 8122 of the project for time associated with removal of the unit and any of the above elements removed with it.
3. When installing or removing the above elements from a luminaire or standard which is not being installed or removed, charge time as follows:
  - a. When this work is being done as a part of a project, charge the time to the project and process 2304 (street) / 2337 (private).
  - b. When this work is being done and no project is involved, charge time to process 2304 (street) / 2337 (private).

## D. Charging &amp; Crediting Material

1. When an ornamental luminaire or standard is installed, the unit and any elements installed with it are charged to process 2107 (street) / 2124 (private) of the project.
2. When an ornamental luminaire or standard is removed, the salvable material, including the unit and any elements associated with it, are credited to process 8123 of the project.
3. When installing or removing any of the above elements from an existing ornamental luminaire or standard which is not being installed or removed, charge or credit salvable material as follows:
  - a. When this work is being done as a part of a project, charge or credit material to the project and process 2304 (street) / 2337 (area).
  - b. When this work is being done and no project is involved, charge or credit material to process 2304 (street) / 2337 (area).

IV. Underground Plant Processes

## A. 2103 Underground Conductors and Devices

1. Insulated conductors, buried primary and secondary, including splices, terminators and risers. Conduit and duct that does not qualify on process 2103.
2. Trenching and backfilling for direct buried cable.
3. Conductor cable installed in duct or conduit.
4. Lightning arresters used in padmount transformer or enclosures.
5. Permits associated with installation of direct buried cable.
6. Protection of street openings during installation.
7. Pedestals and junction enclosures, including padlock and insulating cap for permanently installed facilities.
8. Grounds for U-guard and padmount transformers.
9. Street lighting conductors – charge process 2126 product 111.

- B. Padmount Transformers
1. Elements:
    - a. Transformer pad
    - b. Screw anchors or columns for transformer pad
    - c. Bushing inserts
    - d. Insulating caps
    - e. Secondary hood covers
    - f. Bushing well plug
    - g. Padlocks
    - h. Secondary blocks
  2. Charging time for transformers and associated elements
    - a. When work is being done as a part of a project, charge the time to the project and process 2214.
    - b. When work is being done and no project is involved, charge time to process 2214.
  3. Charging and crediting material
    - a. Charge or credit material as follows:
      1. When this work is being done as a part of a project, charge or credit material to the project and process 2214.
      2. When this work is being done and no project is involved, charge or credit material to process 2214.
- C. Underground Services – Project 0053000000
1. Retirement unit: services by size and kind
  2. Elements: U-guard grounds, fiber duct and minor items of the service.
  3. Charging time and material
    - a. When a permanent service is installed, charge time and all material associated with the service to process 2105 and project 0053000000.
    - b. When a permanent service is removed, charge removal time to process 8122 and credit salvable material to process 8123 and project 0053000000.
    - c. When a temporary service is installed, charge time to process 3600 product 118. Charge conductor to process 2105 and project 0053000000.

V. Operation and Maintenance Processes

- A. Overhead Line Expense
- 2213 Not emergency related  
2293 Emergency related
1. Installing and removing transformers, voltage regulators, capacitors and oil reclosers and associated elements (See II-C-2). When transferring existing transformers, cutouts, and arresters from pole to pole, charge time to process 2307. This includes disconnects under 300 amp.
  2. Transferring loads, switching and reconnecting circuits for operations purposes.
  3. Paralleling transformer connections.
  4. Load tests and voltage survey of feeders, circuits and line transformers.
  5. Maintenance work done on WPS-owned equipment in surface setting.
- B. Underground Line Expense
- 2214 Not emergency related  
2294 Emergency related
1. Install and remove padmount transformers and associated elements (See III-C-2).
  2. Transferring loads, switching and reconnecting circuits for operations purposes.
  3. Maintenance work done on WPS-owned equipment in customer vaults.

- C. Streetlight Expenses – Street – 2304  
Streetlight Expenses – Private – 2337
  - 1. Replace lamps
  - 2. Clean glassware
  
- D. Meter Expenses (Billing Meters Only) – 2201
  - 1. Installing and removing meters
  - 2. Installing and removing instrument transformers
  
- E. 3600-170 Cost of Servicing Customer's Equipment – On-Premise Rate  
3600-177 Cost of Servicing Telephone/CATV
  
- F. Maintenance of Overhead Lines
  - 2307 Not emergency related
  - 2397 Emergency related
  - 1. Installing and removing elements of 2106 units where unit is not being installed or removed.
  - 2. Moving line or guy pole in relocation of pole or section of line.
  - 3. Realigning and straightening poles, crossarms, braces, pins, racks, brackets, and other pole fixtures.
  - 4. Relocating crossarms, racks, brackets, and other fixtures on poles.
  - 5. Stubbing poles already in service.
  - 6. Supporting conductors, transformers, and other fixtures and transferring them to new poles during pole replacement.
  - 7. Maintaining pole signs, tags, etc.
  - 8. Cleaning insulators or transformer bushings.
  - 9. Refusing line cutouts.
  - 10. Repairing grounds.
  - 11. Resagging, retying, or rearranging position or spacing of conductors.
  - 12. Install and remove auxiliary arms used to set out existing conductors.
  - 13. Covering energized conductors and devices.
  - 14. Leaning poles for new construction.
  - 15. Standing by phones, going to calls, cutting faulty lines clear, patrolling lines or similar activities at times of emergency.
  
- G. Maintenance of Underground Lines
  - 2308 Not emergency related
  - 2398 Emergency related
  - 1. Cleaning ducts and manholes.
  - 2. Minor alterations and handholes, manholes or vaults.
  - 3. Refastening, repairing, or moving racks, ladders or hangers in manholes or subsurface vaults.
  - 4. Repairing grounds.
  - 5. Retraining and reconnecting cables in manholes, including transfer of cables from one duct to another.
  - 6. Repairing conductors and splices for primary, secondary or streetlights.
  - 7. Repairing or moving junction enclosures or terminations.
  - 8. Installing loop pedestals and temporary enclosures.
  - 9. Installing temporary secondary pedestals.
  - 10. Repairing any underground service.
  
- H. Maintenance of Transformers – 2313 (OH) / 2314 (UG)
  - 1. Repair or paint transformers.
  - 2. Replace bushings, primary or secondary.

- I. Maintenance of Overhead Street Lighting – 2304  
Maintenance of Ornamental Street Lighting – 2304
  - 1. Installing and removing elements where a unit is not being installed or removed.
  - 2. Repair elements of the street lighting system (except underground cable).
  
- J. Maintenance of Miscellaneous Distribution Plant – 2337
  - 1. Installing and removing elements on non-governmental lighting when the unit is not being installed or removed.

VI. Pole Type Transformers, Regulators, OCRs and Capacitors

- A. Retirement Units:
  - 1. Transformers
  - 2. Regulators
  - 3. Capacitor banks
  - 4. Oil circuit reclosers
  
- B. Elements:
  - 1. Cutouts
  - 2. Arresters
  - 3. Controls
  - 4. CTs
  - 5. PTs
  - 6. Oil switches
  - 7. Individual capacitor units
  - 8. Racks, clustermounts, hangers and platforms
  - 9. Risers, primary & secondary, including conductor; connectors; hot line clamps, etc.
  
- C. Charging Time
  - 1. When a transformer, regulator, capacitor bank or OCR is installed or removed, charge time for this and all associated elements as follows:
    - a. When this work is being done as a part of a project, charge the time to the project and process 2213.
    - b. When this work is done with no project involved, charge time to process 2213.
  
- D. Charging and Crediting Material
  - 1. When a transformer, regulator, capacitor bank or OCR is installed or removed, charge or credit all associated elements as follows:
    - a. When this work is being done as a part of a project, charge or credit material to the project and process 2213.
    - b. When this work is done with no project involved, charge or credit material to process 2213.
  - 2. When the elements of a transformer, regulator, OCR or capacitor bank are added, replaced or removed, charge material to process 2213.
  - 3. Set and Remove form shall be filled out for each transformer, regulator, OCR or capacitor bank installed or removed.
  - 4. Charge replacement of fuses to 2307.

**WISCONSIN PUBLIC SERVICE ELECTRIC DISTRIBUTION STANDARDS**

12/14/07

**REF25**

**ELECTRIC OPERATIONS ACCOUNTING**

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<u>Line Number</u>	<u>Voltage</u>	<u>Resp Ctr</u>
A105	138KV	234
A27	138KV	234
A313	115KV	233
A53	115KV	233
A79	138KV	234
B106	115KV	233
B2	69KV	232
B28	69KV	232
B54	115KV	233
B80	69KV	232
C107	138KV	234
C55	69KV	232
D30	69KV	232
D56	115KV	233
D82	138KV	234
D108	138KV	234
E5	69KV	232
E31	69KV	232
E57	138KV	234
E83	69KV	232
F110	115KV	233
F32	69KV	232
F58	138KV	234
F6	69KV	232
F84	138KV	234
G111	138KV	234
G137	69KV	232
G59 (MI)	69KV	230
G59 (WI)	69KV	232
G7	115KV	233
G85	138KV	234
H112	138KV	234
H138	115KV	233
H60 (MI)	69KV	230
H60 (WI)	69KV	232
H8	115KV	233
H86	138KV	234
I113	138KV	234
I139	138KV	234
I35	115KV	233
I61	69KV	232
I9	115KV	233
J10	69KV	232
J114	115KV	233
J140	69KV	232
J36	115KV	233
J62	69KV	232
J88	69KV	232
K115	69KV	232
K141	69KV	232
K37	138KV	234
K89	69KV	232
L12	115KV	233
L142	138KV	234
L64	69KV	232
L90	138KV	234
M117	138KV	234
M13	115KV	233
M39	138KV	234
M65	69KV	232
M91	115KV	233
N118	138KV	234
N14 (MI)	69KV	230

<u>Line Number</u>	<u>Voltage</u>	<u>Resp Ctr</u>
N14 (WI)	69KV	232
N66	69KV	232
N92	115KV	233
O119	138KV	234
O145	69KV	230
O15	69KV	232
O41	115KV	233
O67	69KV	232
P146	138KV	234
P16	69KV	232
P68	69KV	232
Q147	138KV	234
Q303	345KV	235
Q43	69KV	232
Q95	115KV	233
R122	138KV	234
R148	115KV	233
R18	69KV	232
R304	345KV	235
R44	69KV	232
R70	69KV	232
R96	115KV	233
S123	138KV	234
S45	115KV	233
S71	115KV	233
S97	115KV	233
T124	115KV	233
T150 (MI)	69KV	230
T150 (WI)	69KV	232
T20	115KV	233
T72	115KV	233
T98	69KV	232
U47	69KV	232
U73	69KV	232
U99	69KV	232
V100	138KV	234
V152	138KV	234
V308	345KV	235
V74	115KV	233
W101	138KV	234
W127	115KV	233
W157	138KV	234
W23	115KV	233
W49	69KV	232
W75	138KV	234
X154	138KV	234
X24	69KV	232
X43	138KV	234
X50	138KV	234
X76	138KV	234
Y129	138KV	234
Y311	345KV	235
Y51	138KV	234
Y77	69KV	232
Z104	69KV	232
Z130	69KV	232
Z26	69KV	232
Z52	115KV	233
Z78	69KV	232

**Eastern Area Substation Responsibility Centers**

Contact: Don Alexejun (Ext. 1358) 7/11/2002

Distribution (196) vs. Transmission (208) vs. Generation (RC site specific)

**Pure Distribution Subs (D) – Resp Center 196**

Booster	Mountain	Scott Paper
Brillion Iron	Ogden St	Silver Cliff
Daves Falls	P&G East	Sister Bay
Goodman	P&G North	
James River	So Broadway	

**Pure Transmission Subs (T) – Resp Center 208**

Algoma SW Structure (SW)	DePere	J-10 Goab (Booster)
Canal	Finger Road SW Station	New Holstein SW Sta
Custer	Fitzgerald	Sawyer SW Sta
Danz Ave SW Station	Fox Hills Switching Sta	Tecumseh Road

**Michigan Transmission Subs (T) – Resp Center 620**

Fiber SW Structure	Rosebush	White Rapids
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**Combination Subs (T or D) or Joint Use – Resp Center 208 or 196  
(40/60 Split for 208/196 RC)**

12 <sup>th</sup> Avenue	James St	Red Maple
Algoma	Kellnersville	Rockland
Ashland	Lena	Roosevelt
Aviation	Liberty St	Rosiere
Barnett	Lost Dauphin	Ryan
Beardsley	Luxemburg	Sherwood
Bluestone	Manrap	Shoto
Bowen	Maplewood	South Broadway
Brusbay	Mason	St. Nazianz
Crivitz	Mears Corners	Suamico
Dunn Road	Mishicot	Sunset Point
Dyckesville	Mystery Hills	Thunder
East Krok	Nicolet	Tower Dr
Eastman	Oak St	University
Egg Harbor	Oconto	Van Buren
Ellinwood	Ontario	Velp
Glenview	Oshkosh	Wells
Glory Road	Pearl Ave	Wesmark
Gravesville	Pioneer	
Henry Street	Pound	
Highway V	Preble	
Howard	Progress	

**Michigan Combination Subs – Resp Center 621 (D) or 620 (T)  
(40/60 Split for Each RC)**

Bay De Noc	Fourth Ave	Second St
Bayshore	Menominee	Thirteenth Ave

**Combination Subs (T or D or G) – Resp Center 208 (T) or Individual Site # (G)**

Caldron Falls Hy	160	Kewaunee	237	Sandstone Rapids Hy	166
Grand Rapids Hy	971	Peshtigo Hydro	167	W Marinette	contact Don A.
High Falls Hy	164	Potato Rapids	168		
Johnson Falls Hy	165	Pulliam	950		



**Western Area Substation Responsibility Centers**

Contact: Don Alexejun (Ext. 1358) 7/11/2002

Distribution (196) vs. Transmission (208) vs. Generation (RC site specific)

Pure Distribution Subs (D) – Resp Center 212

Antigo	Norsau	Townline
Brokaw	Rothschild	Ward Paper
Kronen	Strowbridge	Winton
Merrill Mfg	Taylor St	

Pure Transmission Subs (T) – Resp Center 220

Baker	Coyne SW Sta	Skawanaw SW Sta
Blackbrook SW Sta	Dewey	Wien SW Sta
Bunker Hill SW Sta	Rocky Run	




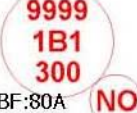


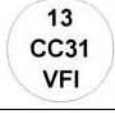







Combination Subs (T or D) or Joint Use – Resp Center 220 or 212  
(40/60 Split for 220/212 RC)

Aurora St	Hogan St	Stratford
Cassel	Hoover	Summit Lake
Clear Lake	Kelly	Sunnyvale
Cranberry	Maine	Three Lakes
Eastom	Morrison Ave	Venus
Golden Sands	Northpoint	Waupaca
Harrison	Pine	Weston
Highway 8	Plover	Whiting Ave
Hilltop	Saint Germain	
Hodag	Sherman St	

Combination Subs (T or D or G) – Resp Center 220 (T) or Individual Site # (G)

Alexander Hydro	177	Jersey Hydro	175	Tomahawk Hydro	174
Eagle River Diesel	182	Merrill Hydro	179	Wausau Hydro	178
Grandfather Falls Hy	176	Otter Rapids Hydro	172		
Hat Rapids Hydro	177	Piehl Generator	181		

















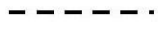



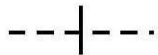
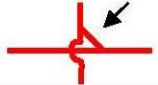



### OCP SYMBOL KEY

Symbol	Description	Symbol	Description
	FUSE		DISCONNECT
	SMU FUSE		DISCONNECT WITH BY-PASS FUSE
	FUSE WITH BY-PASS DISCONNECT		3 PHASE DISCONNECTS
	VACUUM FAULT INTERRUPT		FAULT INDICATOR
	1 PHASE OCR		1 PHASE ECR
	3 PHASE OCR		3 PHASE ECR
	OPEN POINT		DEAD SPAN

### ELECTRIC SYMBOL KEY

Symbol	Description	Symbol	Description	Symbol	Description
	COMPANY POLE		LOOP ENCLOSURE		OVERHEAD TRANSFORMER
	FOREIGN POLE		BURIED LOOP ENCLOSURE		STEPDOWN TRANSFORMER
	JOINT POLE		1 PHASE JUNCTION ENCLOSURE		VOLTAGE REGULATOR
	COMPANY ORNAMENTAL POLE		3 PHASE JUNCTION ENCLOSURE		CAPACITOR
	FOREIGN ORNAMENTAL POLE		1 PHASE SWITCHGEAR		LIGHT
	FOREIGN ORNAMENTAL JOINT POLE		3 PHASE SWITCHGEAR		PRIMARY METERING
	TRANSMISSION POLE		PRIMARY TAP 3-way VG splice		ANODE
	TRANSMISSION TOWER		PULLBOX		TEST BOX
	COMPANY TRANSMISSION GUY STUB		COMPANY PEDESTAL		FUTURE CUSTOMER FACILITY
	BUILDING CONTACT		TEMPORARY PEDESTAL (BROWN)		DEEP GROUND
	TERMINATION POINT- Start/end Pt. Of empty duct		FOREIGN PEDESTAL		NEUTRAL ISOLATOR
	1 PHASE PADMOUNT		SPLICE BOX		UG DUCT
	3 PHASE PADMOUNT		LIGHT RELAY		C-TRUSS
	SWITCHABLE 3 PHASE PADMOUNT		UG SECONDARY TAP		UG FAULT
	1 PHASE STEPDOWN PADMOUNT		MANHOLE		Data Collection Unit (DCU)
	3 PHASE STEPDOWN PADMOUNT		VAULT		Fused Pad
	SWITCHABLE 3 PHASE STEPDOWN PADMOUNT		SUBSTATION		

## WIRE TYPE SYMBOL KEY

Symbol	Description	Symbol	Description
	OH PRIMARY 2.4 VOLTAGE		UG PRIMARY 2.4 VOLTAGE
	OH PRIMARY 7.2 VOLTAGE		UG PRIMARY 7.2 VOLTAGE
	OH PRIMARY 13.8 VOLTAGE		UG PRIMARY 13.8 VOLTAGE
	OH PRIMARY 14.4 VOLTAGE		UG PRIMARY 14.4 VOLTAGE
	OH PRIMARY 33 kV		UG PRIMARY 33 kV
	OH PRIMARY 46 kV		UG PRIMARY 46 kV
	OH PRIMARY 6.9 VOLTAGE		UG PRIMARY 6.9 VOLTAGE
	OH PRIMARY 34.5 VOLTAGE		UG PRIMARY 34.5 VOLTAGE
	OH SECONDARY		UG SECONDARY
	OH SERVICE		UG SERVICE
	SECONDARY OPEN POINT		PRIMARY JUMPER
	ABANDONED PRIMARY		ABANDONED SECONDARY
	ABANDONED SERVICE		

A. Customer Interruptions – General

To comply with Public Service Commission requirements and to provide a means of analyzing customer service interruptions, a complete record of all interruptions (including planned interruptions) is required.

The following instructions describe the proper methods for completing outage information by communicating with a dispatcher. If, however, a particular situation is not accurately described, contact the Field Application Engineer for modifications.

B. Instructions for Completing the Outage Information Form

1. GENERAL

The person dispatched to handle the outage in the field should provide all of the outage information to the dispatcher. The Field Application Engineer will review all outage events that affect more than 50,000 customer minutes.

2. OUTAGE INFORMATION SECTION

Provide the following information to the dispatcher:

- **Restore Time** – Time the repairs were completed.
- **Restore Date** – Date the repairs were completed.
- **Cause Code** – Reason for the outage.
- **Outage Cause Location** – The location that caused the OCP device to be de-energized.
  - This is NOT the predicted outage location the crew was originally provided, in most cases.
  - There could be several Outage Cause Locations, or there could be none.
    - If several exist, only one needs to be listed.  
*Example:* Trees or branches down on several spans of line.
    - If none exist, one does not have to be provided.  
*Example:* A fuse is hanging. Line is patrolled and discovered no other problems exist.
- **Fuse Size** – The size of the blown fuse.
- **Weather Code** – The condition when the outage occurred, NOT when the power is restored.
- **Called When Working** – Answer Yes or No if the employee is called by dispatch while working.
- **Unit of Property Replaced** – Answer Yes or No. If Yes, an email will be sent to the local site follow-up contact.
- **Unit of Property** – Provide the type of property that was replaced.
- **Comm Co. Billable Work** – Answer Yes or No if there was any work completed where communication companies should be billed. If Yes, an email will be sent to the local site follow-up contact.
- **Remarks** – Provide any remarks and/or follow-up instructions.  
*Example:* GIS mapping issues, broken pole or transformer replacement, other reason for follow-up, closure remarks relayed by the lineman, etc.
- **Follow Up Required** – Answer Yes or No. If Yes, an email will be sent to the local site follow-up contact.  
*Example:* Work may still need to be completed at the site, or trees may need to be removed.
- **Number of Phases** – Provide the number of phases that were outaged with the event.

Electric Outage Closure Information Form

Electric Outage Closure Information		Last Revised: 7/21/2011								
<b>Notes</b>										
1) Upon arriving at the scene: A) <b>K15 at the location</b> B) <b>Verify the event location is correct</b> C) <b>Provide correct phasing to Central Dispatch</b> 2) Provide an ERT to central dispatch once it is known. 3) Please provide closure info in the same order as it is listed below. This will help the dispatchers enter the info faster. 4) Follow up required will send an email to a local Coordinator or Engineer for items that need to be addressed.										
Before providing closure information, advise dispatcher of correct phasing. 1, 2, or 3 phase outage.										
Restore Time		Restore Date								
<b>Cause Code</b>										
10	Tree_Growing_Into_Primary	46	DistEquip Fail_Broken Fuse	83	Fuse_Overloaded					
11	Tree_Not_Growing_Into_Primary	47	DistEquip Fail_Insulator	84	Reclosure_Overloaded					
12	Tree_Secondary_Service	48	DistEquip Fail_Other	90	Unknown					
31	Human_Error_Employee	49	Cust Equipment Failure	91	Structure Fire					
32	Human_Error_Other	50	Vehicle Accident	92	Disconnect/Reconnect					
41	DistEquip Fail_Conductor	61	Animals_Bird	97	Transmission					
42	DistEquip Fail_Transformer	62	Animals_Ground	98	Planned Outage					
43	DistEquip Fail_Connector	71	Underground Dig In_Pri	99	No Outage					
44	DistEquip Fail_Cutout	72	Underground Dig In_Sec							
45	DistEquip Fail_Arrestor	73	Underground Dig In_Serv							
<b>Outage Cause Location</b>		<b>Fuse Size</b>								
		2	8	18	35	80	5D	30E	80E	175E
		3	10	20	40	100	15E	40E	100E	200E
		5	12	25	50		20E	50E	125E	300E
		7	15	30	65		25E	65E	150E	
<b>Weather Code</b>			<b>Called When Working</b>							
10	Clear	21	Rain	31	Ice	Yes		No		
11	Cloudy	22	Lightning	32	Snow					
12	Fog	23	Adverse Weather	40	High Ambient Temp					
20	Wind	30	Freezing Rain	41	Low Ambient Temp					
<b>Unit of Property Replaced</b>		<b>Unit of Property</b>								
Yes		No		10	Pole	30	Pole & Span of Wire			
				11	Span of Wire	31	Pole & Streetlight			
				12	Streetlight	32	Pole & Transformer			
				20	Transformer	33	Pole & Transformer with Oil Spill			
				21	Transformer with Oil Spill					
<b>Remarks</b>			<b>Follow Up Required</b>							
			Yes			No				
			<b>Number of Phases</b>							
			1	2	3					

Cause Code Definitions

<b>Cause Code #</b>	<b>Cause Code Name</b>	<b>Cause Code Definition</b>
10	Tree_Growing_Into_Primary	A tree that has limbs growing into the <b>primary</b> voltage conductors causing the outage event.
11	Tree_Not_Growing_Into_Primary	A tree that is a sufficient distance from the primary conductor, with properly trimmed limbs causing the outage event.
12	Tree_Secondary_Service	An outage event that was caused by a tree contacting the secondary or service wire.
31	Human Error_Employee	An outage event that was accidentally caused by an employee during the normal work process.
32	Human Error_Other	An outage event that was caused by the accidental improper actions of a non-employee. This would include utility contractors, general contractors, customers, tree trimmers, etc.
41	Dist Equip Fail_Conductor	Any outage event related to an open conductor caused by a material failure. This could be a fault caused by improper manufacturing or a break caused by extreme stresses.
42	Dist Equip Fail_Transformer	Any outage event caused by the mechanical failure of a transformer. Those damaged by weather-related events are not considered failed for cause code purposes.
43	Dist Equip Fail_Connector	Any outage event caused by the mechanical failure of a connector.
44	Dist Equip Fail_Cutout	Any outage event caused by the mechanical failure of a cutout.
45	Dist Equip Fail_Arrester	Any outage event caused by the mechanical failure of an arrester. An arrester that fails as part of the product design (lightning strike) is not considered a failure for purposes of this cause code.
46	Dist Equip Fail_Broken Fuse	Any outage event caused by the mechanical failure of a fuse cartridge or the fuse canister. A fuse that opens because of the design characteristics for amperage that is caused by a downstream event is not considered a failure for purposes of this cause code.
47	Dist Equip Fail_Insulator	Any outage event related to the mechanical failure of an insulator. This failure can be in the form of a deteriorated or cracked insulator. Damage to insulators by other foreign objects is not considered a failure for purposes of this cause code.
48	Dist Equip Fail_Other	Any outage event related to a piece of distribution equipment not otherwise listed. This could include regulators, capacitors, or switchgears.
49	Customer Equipment Failure	Any outage event related to customer-owned equipment. Equipment such as switches, panels, or customer-owned conductors are covered through this cause code.
50	Vehicle Accident	Any outage event related to a vehicle contact with any piece of distribution equipment.
61	Animal_Bird	Any outage event caused by a bird or other flying animal coming in direct contact with distribution facilities.
62	Animals_Ground	Any outage event where a deceased non-flying animal is found on the ground, during patrol or repair, that can be directly linked as the cause of the outage.
71	Underground Dig In_Pri	Any outage event caused by direct contact with Primary wires during excavation, whether construction equipment or manual tools are used.
72	Underground Dig In_Sec	Any outage event caused by direct contact with Secondary wires during excavation, whether construction equipment or manual tools are used.
73	Underground Dig In_Serv	Any outage event caused by direct contact with Service wires during excavation, whether construction equipment or manual tools are used.

Cause Code #	Cause Code Name	Cause Code Definition
83	Fuse_Overload	Any outage event that occurred because the fuse was overloaded.
84	Recloser_Overload	Any outage event that occurred because the recloser was overloaded.
90	Unknown	Any outage event that, after proper patrol and investigation, has no obvious cause or has no cause listed in the cause code choices.
91	Fire_Structure	Any outage event that is caused by a building fire. This cause code may also be used in the response to an emergency request for disconnection due to a structure-related fire.
92	Disconnect/Reconnect	Any reported outage event that only involves the failure or damage of customer equipment. A periscope or meter base that is damaged and requires a service disconnection to facilitate replacement or inspection of customer equipment prior to re-energizing/reconnecting the service would be covered by this cause code.
97	Transmission	Any outage event that was caused by outages or momentaries on the transmission system either owned by the company or another company (i.e. ATC).
98	Planned Outage	Any outage event that was caused by the manual use of an open point to facilitate normal scheduled maintenance. The requirement to create an open point to make repair as part of a non-scheduled (emergency) outage is not covered through this cause code.
99	No Outage	Any event reported as an outage that, after investigation and/or conversation with the caller, is determined not to involve an interruption in service by the utility. This cause code also applies if a crew arrives on the scene but the power is on.
<p>Example 1:  Windy stormy conditions where a tree that was not previously touching the wire takes the wire down and the wire breaks.  What cause code should be used? <b>Tree_Not_Growing_Into_Primary</b></p>		
<p>Example 2:  Rainy and cold conditions. Ice is coating everything including conductors and trees. Ice weight caused conductor to sag and break.  What cause code should be used? <b>Weather</b></p>		
<p>Example 3:  Windy stormy conditions where a tree takes the wire down. The mainline 100 amp fuse is replaced, but there is no power upstream. Further patrols find an 80E section fuse blown.  What cause code should be used? <b>Tree_Not_Growing_Into_Primary</b></p>		
<p>Example 4:  Investigation after lack of power to a distribution transformer reveals no damage to underground system. The fault is pinpointed to a point between 2 transformers.  What cause code should be used? <b>Dist Equip Fail_Conductor</b></p>		



I. General

In any accident situation, the first priority of Company personnel is to make the scene safe and then to provide assistance to emergency responders.

Company use the Accident Report Field Copy form (stock # 159-2856) to track accidents that involve our employees and/or facilities. This report is not to be used for vehicle accidents with company vehicles.

II. When the Accident Report Field Copy Form Needs to Be Filled Out:

The Accident Report Field Copy Form needs to be filled out for any incidents causing damage to, or suspected of causing damage to Company or customer facilities. Some common incidents include but are not limited to:

- Car-pole accidents
- An open neutral on an electric service
- A dig-in that damages underground electric facilities
- An overhead line contact
- Damage to customer property by Company employees
- Fires that may have been caused by electric facilities

III. Events Requiring Immediate Investigation

Some accidents may require immediate investigation. These types of accidents include:

- A fatality caused by (or suspected to be caused by) contact with energized utility equipment.
- An injury caused by (or suspected to be caused by) contact with energized utility equipment.
- Damage to customer property exceeding \$50,000.

In these situations refer to the "WPSC ACCIDENT INVESTIGATION GUIDELINES" (yellow laminated card) for direction.

IV. Evidence

There may be times when evidence needs to be collected and or documented. Discuss these situations with the Field Application Engineer.

V. Open Neutrals

Open neutrals frequently cause customer equipment damage. When they occur, it is important to document the investigation results. If an open neutral condition is suspected, record voltage measurements and best of burden test results on the Accident Report Field Copy Form. Measurements should be taken before any changes are made and after the work has been completed.

VI. Sample Accident Report Field Copy Form

The form below shows the fields that will typically need to be filled in for electric-related accidents.

NOTE: In the "Owner of Damaged Property" field of the form, be sure to enter the actual owner of the property. Often times, this is left blank or "WPS" is entered in this field in error instead of the actual owner.

3RD PARTY EXAMPLE - ELECTRIC

ACCIDENT REPORT FIELD COPY

BILLING IFRIS ON BACK  
File: AC - Accidents

ORIGINAL TO INSURANCE & CLAIMS  
SEND ALL REPORT COPIES (Billable & Non-Billable) TO:  
Insurance & Claims, 19th Floor, Prudential, Chicago  
Gas Engineering GB-A3 (MGU, MERC & WPSC)  
Customer Billing - A2 (WPSC & UPPCo)  
Process Owner - (MGU/MERC)  
PGL/NSG Hit # \_\_\_\_\_

CO/GAS \_\_\_\_\_ CO/ELECT X OTHER \_\_\_\_\_

DATE OF ACCIDENT 4/01/11 TIME 13:07 SUBSIDIARY, SHOP GBSC

ADDRESS OF ACCIDENT 1600 S. RIDGE RD

CITY/STATE GREEN BAY, WI 54304 Pole # WPS/UPPCO 125-BB57

DAMAGE TO GAS PROPERTY \_\_\_\_\_ NUMBER OF CUSTOMERS AFFECTED 2  
DAMAGE TO ELECTRIC PROPERTY X DAMAGE TO PROPERTY OF OTHERS \_\_\_\_\_  
DAMAGE TO BLDG. FACILITY \_\_\_\_\_ PUBLIC PERSONAL INJURY \_\_\_\_\_

POLICE ON SITE: YES X NO \_\_\_\_\_  
FIRE DEPT ON SITE: YES \_\_\_\_\_ NO X  
PHOTOS TAKEN: YES X NO \_\_\_\_\_  
FILM \_\_\_\_\_ DIGITAL X  
FILE Gave to PAUL HUGHES

LIST ITEMS DAMAGED (include business/production loss) \_\_\_\_\_  
35'/CLS POLE

EQUIP/OTHER EVIDENCE SAVED: YES \_\_\_\_\_ NO X DESCRIBE (IF YES) \_\_\_\_\_

HOW DID IT HAPPEN/REMARKS DRIVER SLID OFF ROAD AND HIT POLE -  
SNAPPING IT OFF AT GROUND

WHO CAUSED DAMAGE: EMPLOYEE # \_\_\_\_\_ CONTRACTOR\*  HOMEOWNER  OTHER X UNKNOWN   
NAME Enter if you get information If Contractor,  Street/Road Work  Sewer/Water Work  
ADDRESS \_\_\_\_\_ Check Type:  Utility Work  Landscaping/Fencing  
CITY/STATE \_\_\_\_\_  Commercial/Industrial  Residential Const  
OPERATOR NAME \_\_\_\_\_ PHONE # \_\_\_\_\_  Wrecking

OWNER OF DAMAGED PROPERTY WPSC ADDRESS 2850 S. ASHLAND  
GREEN BAY, WI 54304

NAME OF INJURED PERSON(S) \_\_\_\_\_ ADDRESS \_\_\_\_\_  
- only enter if someone is injured -

LIST WITNESSES: \_\_\_\_\_ ADDRESS \_\_\_\_\_  
- only enter if someone actually saw accident -

INVESTIGATORS: FIRE DEPT.: \_\_\_\_\_ POLICE DEPT.: GB Police INSURANCE CO.: \_\_\_\_\_  
OTHER: report # 11-76249 ← Please get # if possible (\*)

LOCATE REQUESTED: YES \_\_\_\_\_ NO \_\_\_\_\_ COMPLETE: YES \_\_\_\_\_ NO \_\_\_\_\_ LOCATE VALID: YES \_\_\_\_\_ NO \_\_\_\_\_ ACCURATE: YES \_\_\_\_\_ NO \_\_\_\_\_  
IF NOT, EXPLAIN: \_\_\_\_\_ HOW FAR OFF: \_\_\_\_\_  
LOCATE TICKET #: \_\_\_\_\_ LOCATE DONE BY: EMPLOYEE # \_\_\_\_\_ OR COMPANY NAME \_\_\_\_\_  
COMPANY PERMIT # \_\_\_\_\_ 2ND LOCATE TICKET # \_\_\_\_\_ FACILITY DEPTH: \_\_\_\_\_

Must Circle Something

- ACCIDENT TYPES:
- 02 Overhead Line Contact (Boom, Crane, Dump Truck, Sailboat, etc.)
  - 03 Overhead Line Contact (Tree)
  - 04 Overhead Line Contact (Other)
  - 05 Vehicle Contact with Utility Pole
  - 06 Vehicle Damage to Utility Property (Other Than Pole)
  - 07 Voltage Problems/Open Neutral
  - 08 Outages
  - 09 Fire/Explosions

- 10 Gas Leaks/Co
- 11 Theft or Vandalism
- 12 Damage to Property of Others
- 13 Miscellaneous/Other:  
Explain: \_\_\_\_\_
- 14 Dig In Electric
- 15 Dig In Gas - Service
- 16 Dig In Gas - Main
- 17 Dig In Gas - Transmission Line
- 18 Damaged Coating / Broken Tracer Wire

- ROOT CAUSE: (Required for Dig Ins)
- 01 Locate Not Requested
  - 02 Relying on Someone Else's Locate
  - 03 Excavated Prior to Legal Start
  - 04 Expired Locate / Ticket
  - 05 Excavation Outside Requested Limits
  - 06 Did Not Hand Dig While Excavating
  - 07 Marks Not Maintained / Dug on Obliterated Marks
  - 08 Failure to Support or Protect Facility
  - 09 Damage by Non-Power Equipment / Shovel
  - 10 Facility Not Marked
  - 11 Facility Mis-Marked
  - 12 Other: Explain: \_\_\_\_\_

DID DAMAGE RESULT IN LEAK? YES \_\_\_\_\_ NO \_\_\_\_\_ EFV PRESENT? YES \_\_\_\_\_ NO \_\_\_\_\_  
DURATION OF OUTAGE (MN ONLY): \_\_\_\_\_ MIN. LEAK REPORT # \_\_\_\_\_

COMPLETED/SUBMITTED BY: Super Employee DATE: 4/01/11 PHONE: 920-867-5309

DO NOT PUT ANYTHING IN HERE

BILL: \_\_\_\_\_

Billable Y N

Management Signature \_\_\_\_\_

DATE	EMPLOYEE	RESP	PROC 1	PROD	REG	OT	CO	DT	AMOUNT
04/01/11	Super Employee	010	2397	100	2.0				
	Emp #2 / Emp #3	010	2397	100	1.00				
	Super Employee	010	2106	100	2.0				
	#2 / #3	010	2106	100	1.5				
	Super Employee	010	8122	100		1.0			
	#2 / #3	010	8122	100		.5			
VEHICLE #	EQUIP. TYPE	HOURS	AMOUNT	MATERIAL/CODE NUMBERS		AMOUNT			
9000		5.0		1 - 35/5 (132-0828)					
				2 - 6 pin Cross (134-0151)					
7000		3.0		1 - 100 amp fuse (134-2906)					

(OFFICE USE ONLY)  
 Relights Outstanding \_\_\_\_\_ INVOICE NO.: \_\_\_\_\_ DATE: \_\_\_\_\_ INVOICE TOTAL: \_\_\_\_\_

**GAS LOSS CALCULATION**

Main Pressure: \_\_\_\_\_ Size of Opening (IN): \_\_\_\_\_ Elapsed Time (Min): \_\_\_\_\_

Notes: If gas loss occurred but cannot be quantified, assume gas loss for 15 minutes for the size of opening.  
 Size of opening will have equal dimensions, i.e., 1" = 1" x 1" opening (Opening may need to be estimated)

PROJECT NUMBER: 0005111111 CAPITOL  O&M

WOR # 654321

SKETCH (Required for Dig-ins) Include measurements, diagrams, material used, etc.

Get #'s from Clerks  
 Put here

01/01/13

REF45

AVIAN PROTECTION PLAN

Page 1 of 16

**AVIAN FATALITY / INJURY REPORTING FORM**

Date: \_\_\_\_\_

Person(s) Filling Out Form: \_\_\_\_\_

Phone #: \_\_\_\_\_

Observer's Company: \_\_\_\_\_

Type of Avian Species (e.g., waterfowl, birds of prey, other large non-game bird species):  
\_\_\_\_\_Avian Species Description (e.g., size, coloring, beak, feet, and any distinct markings):  
\_\_\_\_\_  
\_\_\_\_\_***COLLECT PHOTOGRAPH OF SPECIES, IF AVAILABLE.***

Weather Conditions: \_\_\_\_\_

Wind Speed: \_\_\_\_\_

Condition of Avian Species:  Dead  Injured

Circuit Name: \_\_\_\_\_

Structure Name: \_\_\_\_\_

Line and/or Structure Configuration: \_\_\_\_\_

Location Description (feet and direction from closest structure, road, etc.):  
\_\_\_\_\_

GPS Coordinates (if available): \_\_\_\_\_

Other Notes: \_\_\_\_\_

**Where to Send Form:**

Please attach photographs and send to Environmental Services Department via email or fax:

Email: [jdnuthals@integrysgroup.com](mailto:jdnuthals@integrysgroup.com)

Fax number: (920) 433-1176

**Telephone Numbers:**

Environmental Services Department Representative: Jamie Nuthals

Normal Working Hours: (920) 433-1460, (920) 309-0741, or (800) 53-WATCH

Outside Normal Working Hours / Weekends: (920) 309-0741

**EXAMPLES:****Sandhill Crane**

- The Sandhill Crane is a migratory bird that likes to live in open grasslands, meadows, and wetlands.
- Adults are gray in color.
- The cranes have long dark pointed bills, a red forehead and white cheeks.
- They also have a long neck, as well as long dark legs which trail behind the bird when they are in flight.
- Length: 31.5 to 47.2 in (80 to 120 cm)
- Wingspan: 5 to 6 ft (1.2 to 1.3 m)
- Weight: 6.5 to 14 lbs

## Osprey



- The Osprey is a migratory bird and lives near larger bodies of water.
- The Osprey is black or dark brown on top with a white underside.
- The bird's head is white except for a black strip running from the eyes to the back of the head.
- Length: 22 to 25 in (56-64 cm)
- Wingspan: 58 to 72 in (147-183 cm)
- Weight: 3.1 to 4.4 lbs
- These birds will nest on utility poles on a regular basis.
- Their nests can weigh hundreds of pounds.

## Great Blue Heron



- The Great Blue Heron is a migratory bird that needs to live near water and uses large trees to nest in.
- The Great Blue Heron has a long neck and legs.
- The bird's neck is S shaped and has a gray color.
- Its body has a bluish gray color.
- The head is white with black plumes extending from the eyes to the back of the head.
- It has a yellow spear-like bill.
- Length: 38.19 to 53.94 in (97 to 137 cm)
- Wingspan: 66 to 79 in (167 to 201 cm)
- Weight: 4.63 to 5.51 lb

**Bald Eagle**

- The Bald Eagle is commonly found in forested areas near large bodies of water and highways.
- It can be identified by its white head and tail and by its brown body.
- The Bald Eagle has a large hooked bill and large talons.
- The bill, feet, and iris are all yellow in color.
- Length: 28 to 37.8 in (71 to 96 cm)
- Wingspan: 80.3 in (204 cm)
- Weight: 6.6 to 13.9 lb



## Golden Eagle



- Golden Eagles usually live in open areas such as prairies, tundras, open coniferous forest, and barren areas.
- More likely found in Michigan.
- Golden Eagles are a dark brown color with a slight gold sheen on their heads.
- Both their tails and wings have some gray scattered throughout.
- These birds have a very large hooked bill that is dark at the tip and fades to a lighter color as it gets closer to the face.
- Length: 27.6 to 33.1 in (70 to 84 cm)
- Wingspan: 72.8 to 86.6 in (185 to 220 cm)
- Weight: 6.6 to 13.5 lb

## Peregrine Falcon



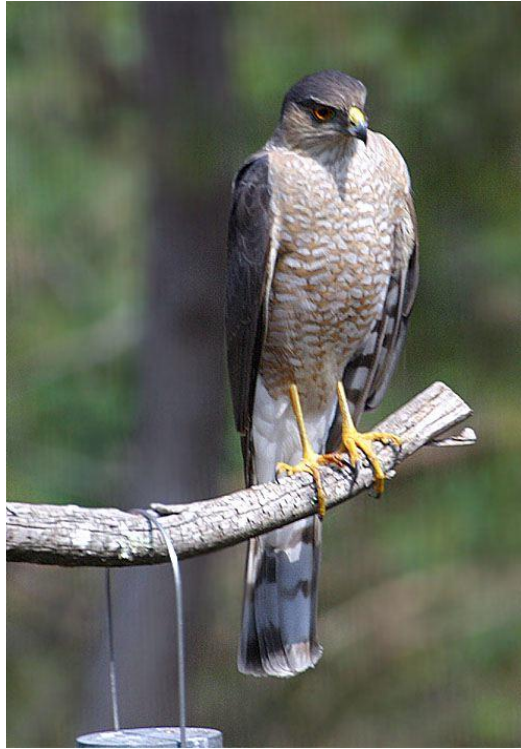
- Nesting structures located on stacks associated with power plants.
- Commonly seen in power plant grounds or city settings.
- Peregrine Falcons are blue gray on top and have a barred underside.
- They have a dark head and thick sideburns.
- The falcons have long wings and a long tail.
- Short dark hooked beak.
- Length: 14.2 to 19.3 in (36 to 49 cm)
- Wingspan: 39.4 to 43.3 in (100 to 110 cm)
- Weight: 1.17 to 3.5 lb

**Red-Tailed Hawk**

- Red-Tailed Hawks prefer open areas and will many times be seen sitting on fences, telephone poles, or trees overlooking a field.
- Common hawk that would be the most likely hawk to find near utility poles.
- These hawks are a rich brown color above and pale on their underside.
- Red-Tailed Hawks also have a streaked belly.
- The hawk's tail is usually pale below and cinnamon-red above.
- Length: 17.7 to 25.6 in (45 to 65 cm)
- Wingspan: 44.9 to 52.4 in (114 to 133 cm)
- Weight: 24.3 to 51.5 oz

**Broad-Wing Hawk**

- The Broad-Wing Hawk is a forest-dwelling hawk.
- This hawk has a stout body, broad wings, and a medium-short tail.
- The hawk's wings are pale with a dark trailing edge.
- The tail is dark with one thick white band in the middle and one thinner band near the base.
- Its face is dark in color, and the hawk has a white throat.
- The hawk also has a reddish chest with red barring along its sides.
- Length: 13.4 to 17.3 in (34 to 44 cm)
- Wingspan: 31.9 to 39.4 in (81 to 100 cm)
- Weight: 9.3–19.8 oz

**Sharp-Shinned Hawk**

- The Sharp-Shinned Hawk lives in a large variety of forests.
- Sharp-Shinned Hawks have a blue-gray color on their backs and wings.
- They also have a reddish barring on their under parts.
- This hawk is much smaller in comparison with its other relatives.
- It has a long tail that is barred and ends in a square tip.
- The wings are short and rounded.
- Length: 9.4 to 13.4 in (24 to 34 cm)
- Wingspan: 16.9 to 22 in (43 to 56 cm)
- Weight: 3.1 to 7.7 oz

### Cooper's Hawk



- Cooper's Hawk lives in a large variety of wooded forests, as well as in cities and towns.
- It has a short dark hooked beak.
- This hawk has broad rounded wings and a very long tail.
- The tail has thick dark bands and is rounded.
- Cooper's Hawk is a steely blue-gray color on top with warm reddish bars on its underside.
- Length: 15 to 18in (37 to 45 cm)
- Wingspan: 25 to 36 in (62 to 90 cm)
- Weight: 7.7 to 24 oz

**Northern Goshawk**

- The Northern Goshawk lives and hunts in dense forests.
- This hawk is very large and has a long tail and broad, rounded wings.
- The hawk's back is blue-gray while its belly is gray.
- The head has a dark cap with a white stripe right above the eye.
- This bird is broadly banded on top.
- Length: 20.9 to 25.2 in (53 to 64 cm)
- Wingspan: 40.6 to 46.1 in (103 to 117 cm)
- Weight: 22.3 to 48.1 oz

**Barred Owl**

- The Barred Owl lives in dense woods and has moved into suburban neighborhoods.
- The Barred Owl has a round head with no ear tufts and has dark brown eyes (eye color is very unique).
- It has a pale face and a yellow beak.
- The under parts of the owl are whitish with dark streaks while the upper parts are mottled gray-brown.
- The owl's legs and feet are covered with feathers up to its talons.
- Length: 16.9 to 19.7 in (43 to 50 cm)
- Wingspan: 39 to 43.3 in (99 to 110 cm)
- Weight: 16.6 to 37 oz



**Great Horned Owl**

- The Great Horned Owl is one of the most widespread and common owls in North America.
- Great Horned Owls have large ear tufts and either a brown or gray face.
- They also have a white patch on their throat.
- The iris of the owl's eye is yellow.
- The legs and feet are covered with feathers up to the talons.
- The top of the owl is mottled brown, while the underside is light with brown barring.
- Length: 18.1 to 24.8 in (46 to 63 cm)
- Wingspan: 39.8 to 57.1 in (101 to 145 cm)
- Weight: 32.1 to 88.2 oz

### Northern Saw-Whet Owl



- The Northern Saw-Whet Owl lives in coniferous forests as well as some mixed or deciduous woods.
- This owl is one of the smallest in North America.
- It has a round white face with cream and brown streaks.
- The Northern Saw-Whet Owl has yellow eyes and a dark beak.
- The owl's back is brown with white spots, while its underside is pale with dark shaded areas.
- Length: 7.1 to 8.3 in (18 to 21 cm)
- Wingspan: 16.5 to 18.9 in (42 to 48 cm)
- Weight: 2.3 to 5.3 oz

#### Additional Information

<http://www.allaboutbirds.org/guide/search.aspx>

[http://birdweb.org/birdweb/browse\\_birds.aspx](http://birdweb.org/birdweb/browse_birds.aspx)

<http://animals.nationalgeographic.com/animals/?source=NavAniHome>

<http://www.allaboutbirds.org/guide/search>

### Pileated Woodpecker



- Found in both deciduous and coniferous forests that contain large, mature trees.
- Large woodpecker with a red crest on the top of its head.
- Has a mostly black body with white stripes running from its head to the neck.
- They can peck holes large enough to break a small tree in half.
- Length, 15.7 to 19.3 in (40 to 49 cm)
- Wingspan, 26 to 29.5 in (66 to 75 cm)
- Weight, 8.8 to 12.3 oz

#### Additional Information

<http://www.allaboutbirds.org/guide/search.aspx>

[http://birdweb.org/birdweb/browse\\_birds.aspx](http://birdweb.org/birdweb/browse_birds.aspx)

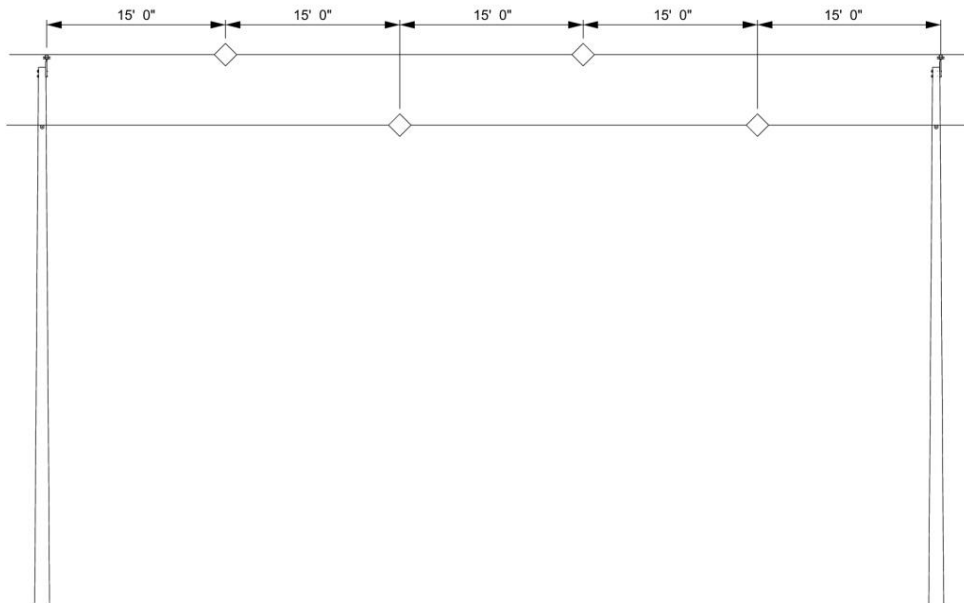
<http://animals.nationalgeographic.com/animals/?source=NavAniHome>

<http://www.allaboutbirds.org/guide/search>

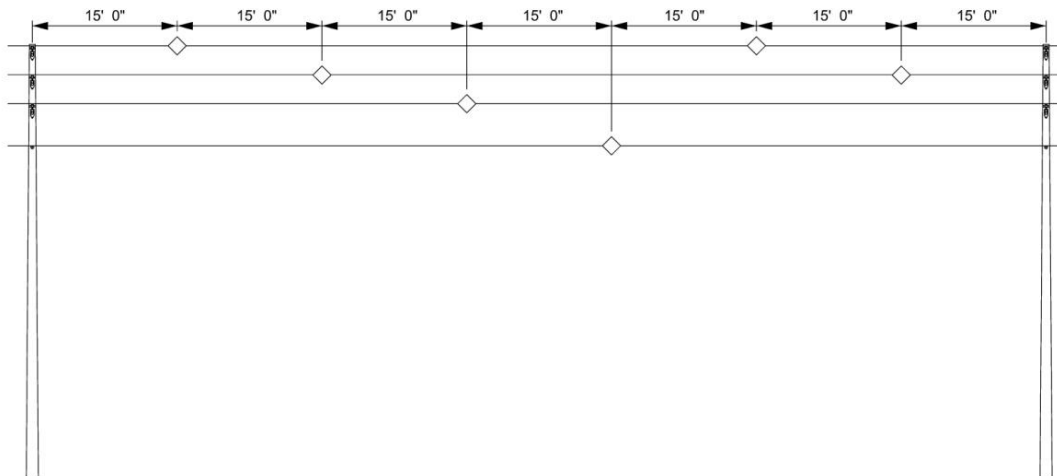
DESCRIPTION	CATALOG #	SIZE (IN)	LENGTH (IN)	COLOR	WIRE SIZE	STOCK CODE #
BIRD FLIGHT DIVERTER, PVC	BFDMS3355	0.350-0.449	9.5	GRAY	1/0 ACSR	134-4040
BIRD FLIGHT DIVERTER, PVC	BFDMS3371	0.600-0.770	13	GRAY	336 ACSR	134-4041
BIRD FLIGHT DIVERTER, PVC	BFDMS3376	0.771-0.858	15	477 ACSR	134-4042	

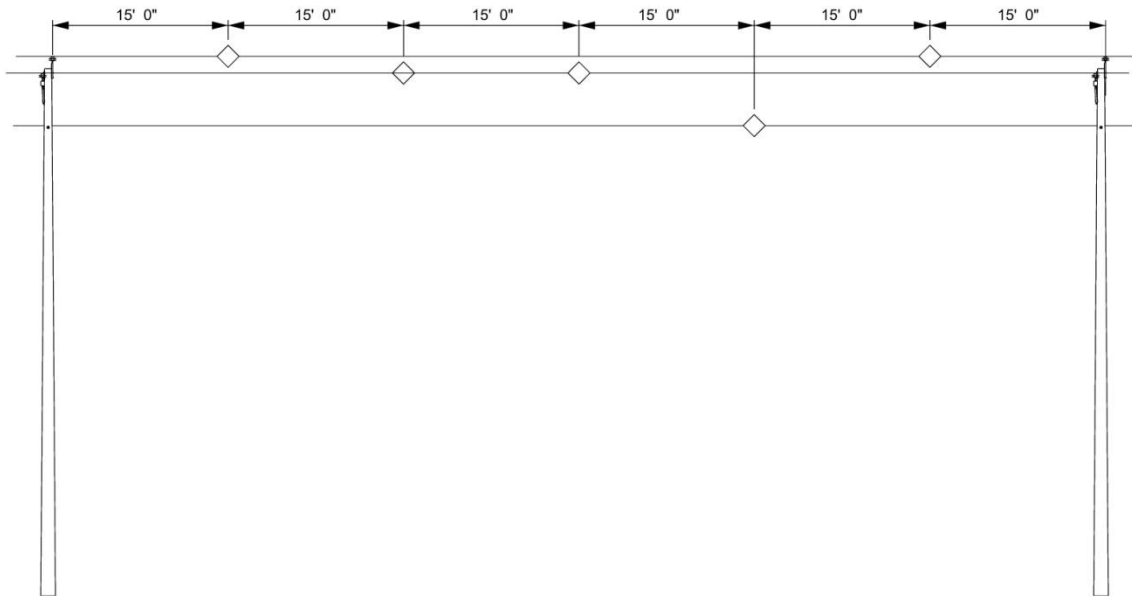


**SINGLE PHASE EXAMPLE**



**THREE PHASE VERTICAL CONSTRUCTION EXAMPLE**



**THREE PHASE HORIZONTAL CONSTRUCTION EXAMPLE****NOTES:**

1. All bird flight diverters are to be installed at 15' staggered intervals between all energized phases and the neutral or shield wire.
2. The Environmental Services Department (ESD) should be contacted for new electric overhead line projects that are 1/4 mile or greater in length, or new or replacement of existing electric overhead line that spans water bodies greater than 100 feet in length. ESD will review avian species informational databases to determine if the installation of bird flight diverters would be necessary.
  - a. ESD Contact is Jamie Nuthals
    - i. Office – (920) 433-1460
    - ii. Cell - (920) 309-0741
    - iii. Email - [jduthals@integrysgroup.com](mailto:jduthals@integrysgroup.com)

## I. General

To view and manipulate the three-dimensional drawings in the Standards Book most effectively, following are descriptions of and instructions for using the 3D drawing toolbar.

To access the toolbar, open the 3D drawing (click on the link provided in the Standard), then single click at the top of the drawing. The toolbar below will appear.

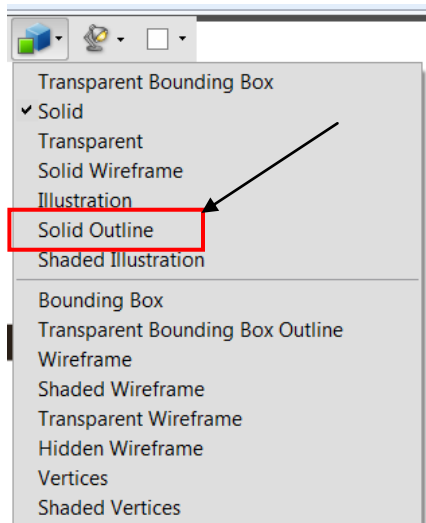
Note: When you first access 3D drawings, some of the icons on the left may be hidden as a drop-down

menu under the Rotate icon (first icon on the left) . To expand the view to see all the icons, click on the drop-down menu on the Rotate icon and choose "Expand 3D Tools."



For basic optimal viewing of a 3D drawing once it's open, always do the following:

- A. Open the toolbar, click on the Model Render Mode icon , and choose Solid Outline from the drop-down menu.









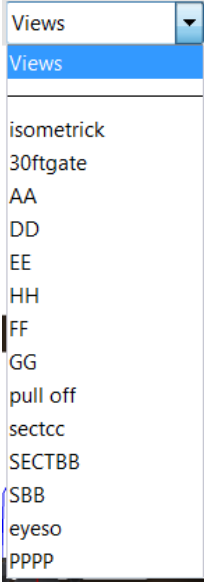






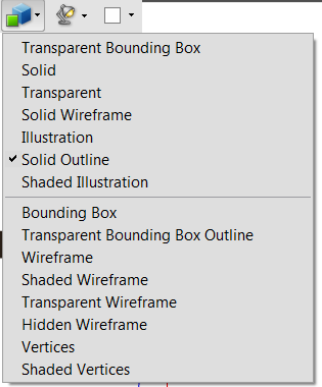

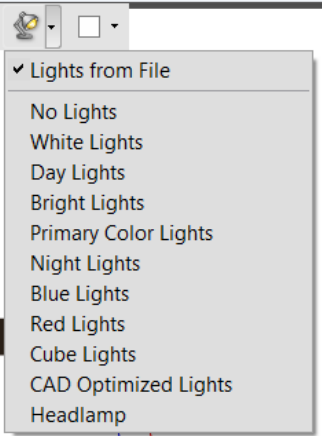

- B. Then, to lighten the drawing, click on the Enable Extra Lighting ("Headlamp") icon . You do not need to click on the drop-down menu; just click the icon.

Remember at any time, to return the 3D drawing to its original position, simply click on the Home button.



II. Following is a breakdown of the toolbar’s icons.

Icon	Label	Drop-down Menu	Description
	Rotate	-	Allows user to turn drawing in any direction 360 degrees.
	Spin	-	Allows user to turn drawing in any direction 360 degrees.
	Pan	-	When clicked, allows user to pull drawing up/down/right/left. (Helpful for zooming in on individual components)
	Zoom	-	When clicked, allows user to zoom in or out, using the mouse wheel or the mouse itself (up for zooming in, down for zooming out).
	Fly	-	Suggest not using.
	Camera Properties		Do not use.
	Default View (Home)		Returns 3D drawing to its original position.
	Views Drop-down Menu		Do not use this menu.
	Toggle Model Tree		Do not use.

Icon	Label	Drop-down Menu	Description
	Play Animation	-	Because we have no animation, this button is non-functional.
	Use Perspective Projection	-	Toggles between faraway and closeup views.
	Model Render Mode drop-down menu		<p>Default is Solid.</p> <p>Changing the setting to <b>Solid Outline</b> is the recommended setting; this will emphasize the lines of the drawing and bring out the 3D relief.</p> <p>(See I A above.)</p>
	Enable Extra Lighting drop-down menu		<p>Clicking on this icon will brighten up the drawing. The default is “Lights from file.” This is the recommended setting.</p> <p>(See I B above.)</p>
	Background Color drop-down menu		Offers a palette of other colors for a background. Default is white.