Empire Electric Association, Inc.

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www.eea.coop

EEA Wildland Fire Protection Plan for its Certificated Area in the State of Utah

Revision 1
2021 Update

Empire Electric Association, Inc. (EEA) is a member owned electrical distribution cooperative serving over 17,000 services in southwest Colorado and southeastern Utah, namely Montezuma County and portions of Dolores and San Miguel county in the state of Colorado, and the town of Monticello and surrounding areas and Hovenweep National Monument in the state of Utah.

The EEA Board of Directors adopted the following Wildland Fire Protection Plan ("WFPP") at a duly called regular meeting held on March 12, 2021. The purpose of this WFPP is to comply with 54-24-203, Utah Code Annotated 1953 and establish processes and procedures for evaluating, mitigating, and addressing wildland fire risk to EEA's system and its service territory in the state of Utah.

1. Description of areas within EEA's service territory In Utah that are subject to heightened risk of wildland fire:
    a. Areas co-op identifies as high risk:
        i. Areas within EEA service area which the State of Utah has identified as having high risk and/or high threat as obtained through the Utah Division of Natural Resources – Wildlife Risk Assessment Portal (WRAP) found at https://wildfirerisk.utah.gov/. See Maps 1-5 attached hereto as Exhibit "A".
2. Description of inspection procedures, standards, and time frames to inspect and operate infrastructure:
    a. EEA will perform distribution system inspection and maintenance based on best management practices for the electric utility industry, currently:
        i. Substation Inspections will be performed in accordance with EEA Maintenance Master Plan – #5 Substation Inspections, attached hereto as Exhibit "B". This plan may be updated from time to time as needed by EEA.
        ii. Circuit Breaker inspections will be performed in accordance with EEA Maintenance Master Plan – #6 Circuit Breaker Maintenance, attached hereto as Exhibit "C". This plan may be updated from time to time as needed by EEA.
        iii. Voltage regulator maintenance will be performed in accordance with EEA Maintenance Master Plan – #7 Voltage Regulator Maintenance, attached hereto as Exhibit "D". This plan may be updated from time to time as needed by EEA.
        iv. Distribution system line patrol in accordance with EEA Maintenance Master Plan – #2 Line Patrol, attached hereto as Exhibit "E". This plan may be updated from time to time as needed by EEA.
        v. Distribution system pole inspection in accordance with EEA Maintenance Master Plan – #4 Pole Testing, attached hereto as Exhibit "F". This plan may be updated from time to time as needed by EEA.

    b. EEA will follow the National Electric Safety Code and the Empire Electric Standard Operating Procedures regarding operation of infrastructure in a safe manner.

3. Description of procedures and standards used to perform vegetation management:
    a. EEA has adopted and will follow EEA Maintenance Master Plan – #3 Vegetation Management, attached hereto as Exhibit "G". The policy may be updated from time to time as needed by EEA.

4. Description of proposed modifications or upgrades to the facilities and prevention programs which will be implemented to reduce the risk of electric facilities initiating wildland fire:
    a. Install Schweitzer Engineering Laboratories "AST" Arc Sensing Technology recloser controls for substation reclosers on circuits into areas of heightened fire risk by 6/1/2023. These controls are made to detect high-impedance faults, the kinds found when trees are touching the lines, or the lines are laying on earth, gravel, sand, and so forth. Specifically, these will be installed at substation reclosers for:
        i. Circuits MU-1,2 & 3 in Monticello Substation
        ii. Circuit DC-3 in Dove Creek Substation
    b. Beginning no later than two calendar weeks after a High Fire Danger warning declaration by the Moab Interagency Fire Center (https://gacc.nifc.gov/gbcc/dispatch/ut-mfc/index.php) in the "Low Elevation" or "High Elevation- South" areas and ending at least 2 calendar weeks after the Fire Danger Warning returns to Moderate or lower, switch to use of "summer settings" for line protection devices in areas of heightened Fire Threat Index, to include non-reclose for line protection devices into areas of high fire danger. Non-reclose means that upon sensing a fault, the device will de-energize the line and not reclose, thus reducing the number of times the line could be energized with a fault condition (tree limb or touching ground for example). This will be done for devices:
        i. MU1-B1, MU1-E1 & MU1-H1
        ii. MU2-D1 C-Phase
        iii. MU3-B1, MU3-C1
        iv. DC3-C1, DC3-BA1
5. Description of procedures for de-energizing power lines and disabling reclosers to mitigate potential wildland fires taking into consideration:
    a. Ability to reasonably access the proposed power lines to be de-energized
        i. For Monticello Rural circuit MU1, personnel can access line reclosers MU1-B1, MU1-E1, & MU1-H1 from paved roads, and the entire MU1 circuit from the substation.
        ii. For Monticello Rural circuit MU2, personnel can access line reclosers MU2-D1 from paved roads, and the entire MU2 circuit from the substation.
        iii. For Monticello Rural circuit MU3, personnel can access line reclosers MU3-B1 & MU3-C1 from paved roads, and the entire MU3 circuit from the substation.
        iv. For Dove Creek circuit DC3, personnel can access line reclosers DC3-B1& DC3-BA1 from paved roads, and the entire DC3 circuit from the substation.
        v. For the Hovenweep National Monument area in circuit BD3, personnel can access recloser BD3-4 near a paved road, and the entire circuit BD3 circuit from the substation or remote via SCADA.
    b. Balance the risk of wildland fire with need for continued supply of electricity to community
        i. We recognize that providing electricity is an essentials service. No single factor drives a Public Safety Power Shutoff (PSPS), as each situation is unique. If directed by an on-scene incident manager, we will de-energize line sections as required to meet the needs on a case-by-case basis.

c. Any potential impact of public safety, first responders, and health and communication infrastructure
    i. Except in the case of immediate emergency, actions which EEA takes that may impact public safety, first responders, and health and communication infrastructure will be preceded by communications with local officials whenever possible through our Member Services Department.
    ii. Once the decision to deenergize facilities has been made, EEA Member Services will coordinate with Operations to execute EEA's Member Outage Notification Procedure, attached hereto as Exhibit "H".
d. Taking into account the forgoing considerations, EEA will implement the procedures described in Section 4.b above to de-energize power lines and disable reclosing.

6. Description of the procedures for use to restore electrical system in the case of wildland fire:
    a. If de-energization of a line is required by an on-scene incident manager, the line will not be reenergized until approval is given by the incident manager.
    b. Qualified EEA personnel will visually inspect all deenergized powerlines and report conditions and recommendations to EEA System Operations in accordance with EEA SOP #10 & #19, attached hereto as Exhibit "I" & "J".
        i. Should the powerline need repairs Operations will commence to return powerline to serviceable condition as soon as practicable.
    c. Empire System Operations to coordinate with applicable local agencies and personnel on-site to make sure all personnel and equipment are in the clear for safe re-energization.
7. Description of potential consultation, if applicable, with state or local wildland fire protection plans.
    a. Input will be solicited from governmental and other associated entities for regular updates to the WFPP. This may include:
        i. Bureau of Land Management
        ii. City/Town
        iii. County Emergency Operations
        iv. Fire Departments
        v. National Park Service
        vi. USDA/National Forest
        vii. Other Agencies as determined
        viii. Public Input
    b. EEA solicited input from the following entities for this WFPP. (Responding entities indicated with an asterisk *)
        i. Bureau of Land Management
            1. Clark Maughan -Fire Management Officer
            2. Charles Lanoue- Fire Management
        ii. Fire Departments
            1. Eastland Volunteer Fire Department
                a. Todd Calvert-Fire Chief*
            2. Monticello Fire Department
                a. John Neilson - Fire Chief

iii. National Park Service – Four Corners Fire Group
    1. Keith Krause-Fire Management Officer
iv. San Juan County, Utah
    1. Tammy Gallegos-Emergency Manager, San Juan County*
    2. Natalie Freestone-Administrative Emergency Management Staff, San Juan County UT
    3. David Gallegos-County Fire Chief, San Juan County UT
    4. Linda Larson-EMS Director, San Juan County UT
v. Town of Monticello, UT
    1. Evan Bolt, Monticello City Manager
vi. US Forest Service
    1. Patrick Seekins-Dolores Ranger District Fire Management Officer
vii. Utah Division of Natural Resources
    1. Rudy Sandoval-Fire Management Officer, UT Division of Forestry, Fire & State Lands, SE Area*
    2. Jason Johnson-SE Area Manager, UT Division of Forestry, Fire & State Land*

viii. No public input was received. The EEA WFPP was also presented in the October 27, 2020 Cat Fire Meeting (hosted by Utah Division of Forestry, Fire & State Lands) to those stakeholders present. Comments were solicited; however nothing further was received.

8. Other
    a. EEA SOP – Appendix A is attached hereto as Exhibit "K" to provide definitions.

Empire Electric Association, Inc. Wildland Fire Protection Plan: Utah Service Area Maps

June 22, 2020

Table of Contents

Empire Electric Association Utah Service Area: Land Surface Ownership

Legend

- Substations
- Transmission

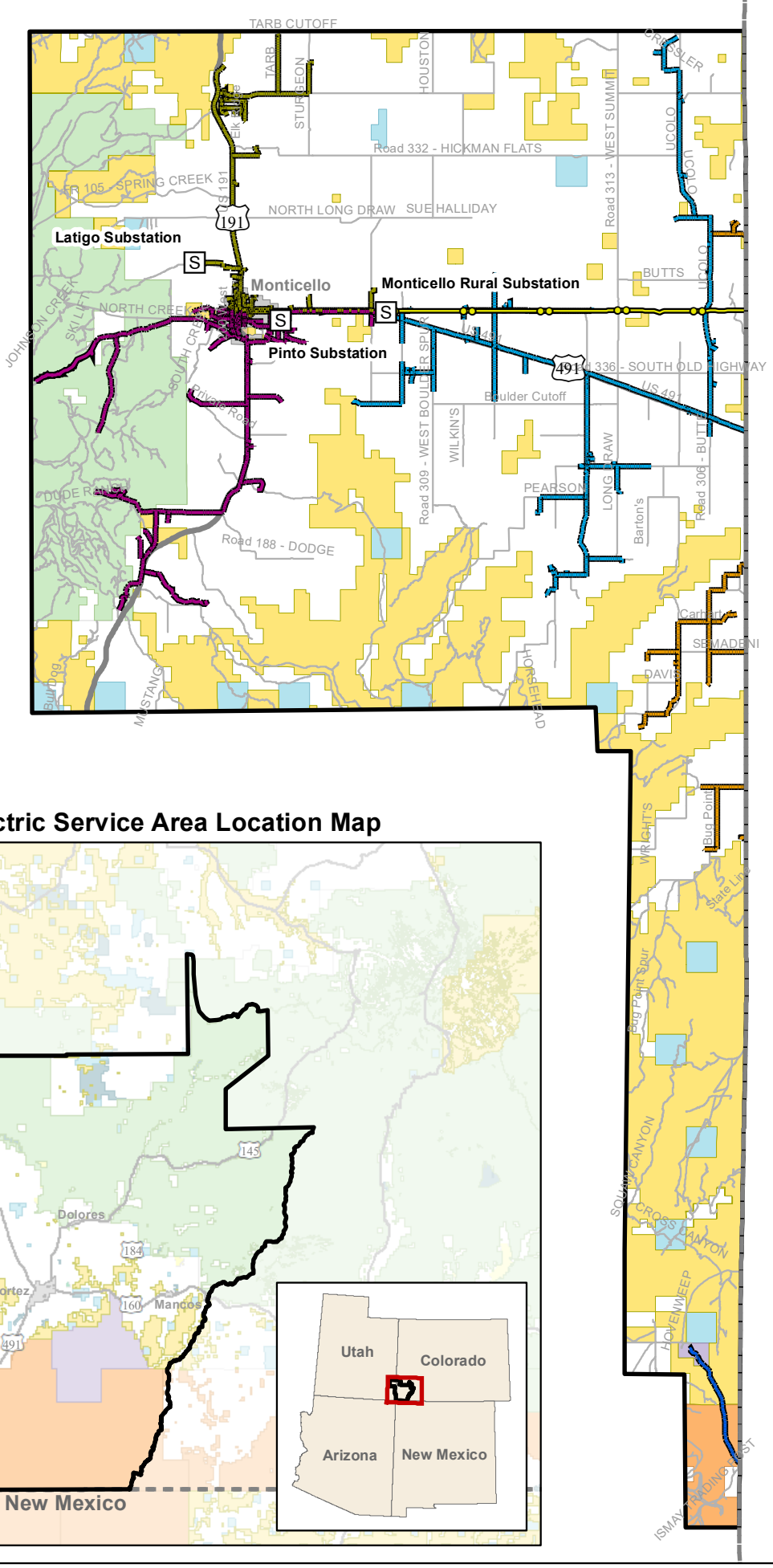
Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Roads
- Highways
- Empire Electric Service Area
- Municipal Boundaries
- State Boundaries
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- US Forest Service (USFS)
- US Fish and Wildlife (USFW)
- Bureau of Reclamation (BOR)
- Bureau of Indian Affairs (BIA)
- Other Federal
- State
- Local
- Private or Unknown

Date: 6/22/2020

0 1 2 4 Miles

N



Empire Electric Service Area Location Map

Empire Electric Association Wildland Fire Protection Plan: Historic Fire Perimeters

Legend

- Reclosers
- Critical Infrastructure
- Substations
- Transmission

Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Roads
- Highways
- Historic Fire Perimeters
- Empire Electric Service Area
- Municipal Boundaries
- State Boundaries

Date: 6/2/2020

0 1 2 4 Miles

N

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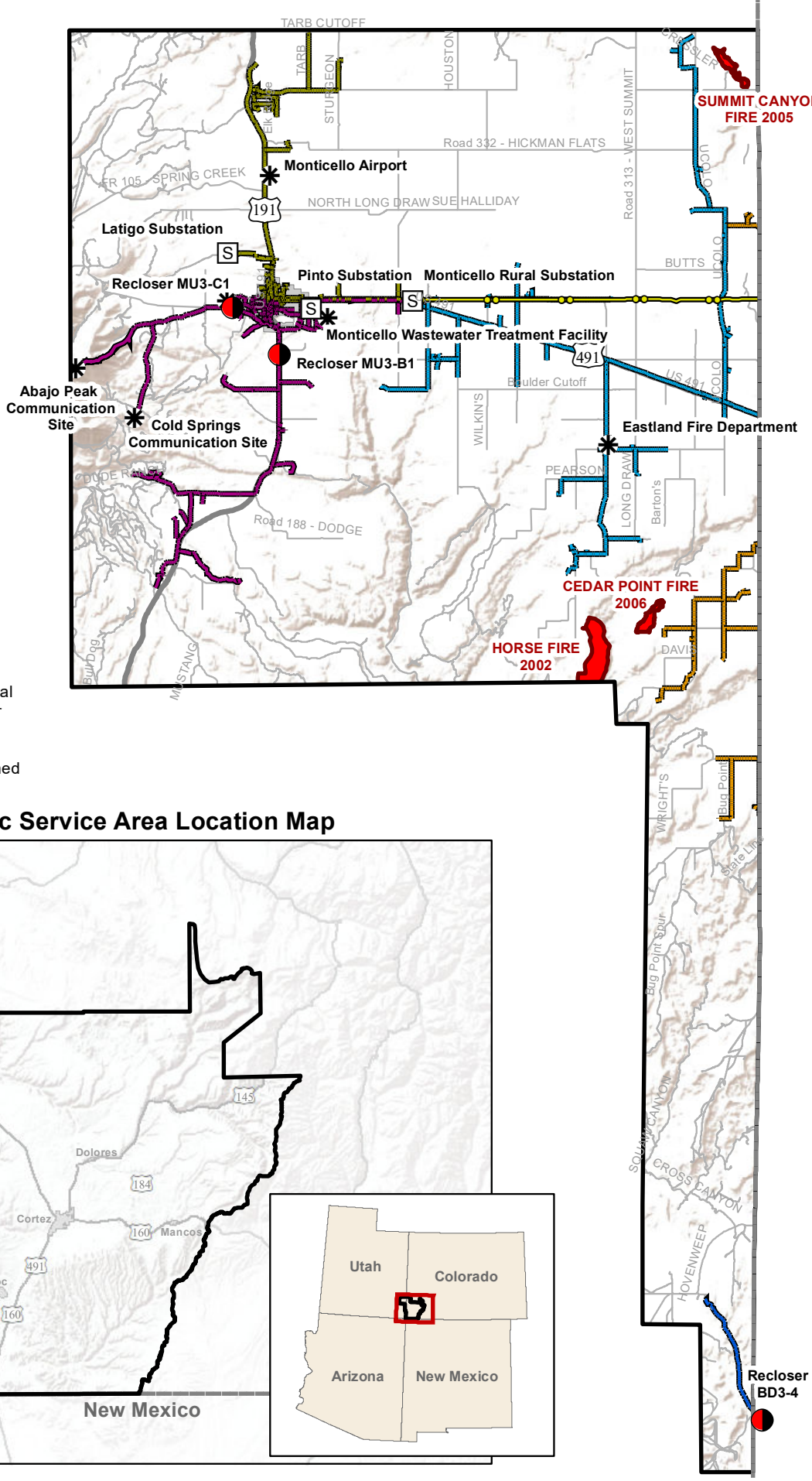


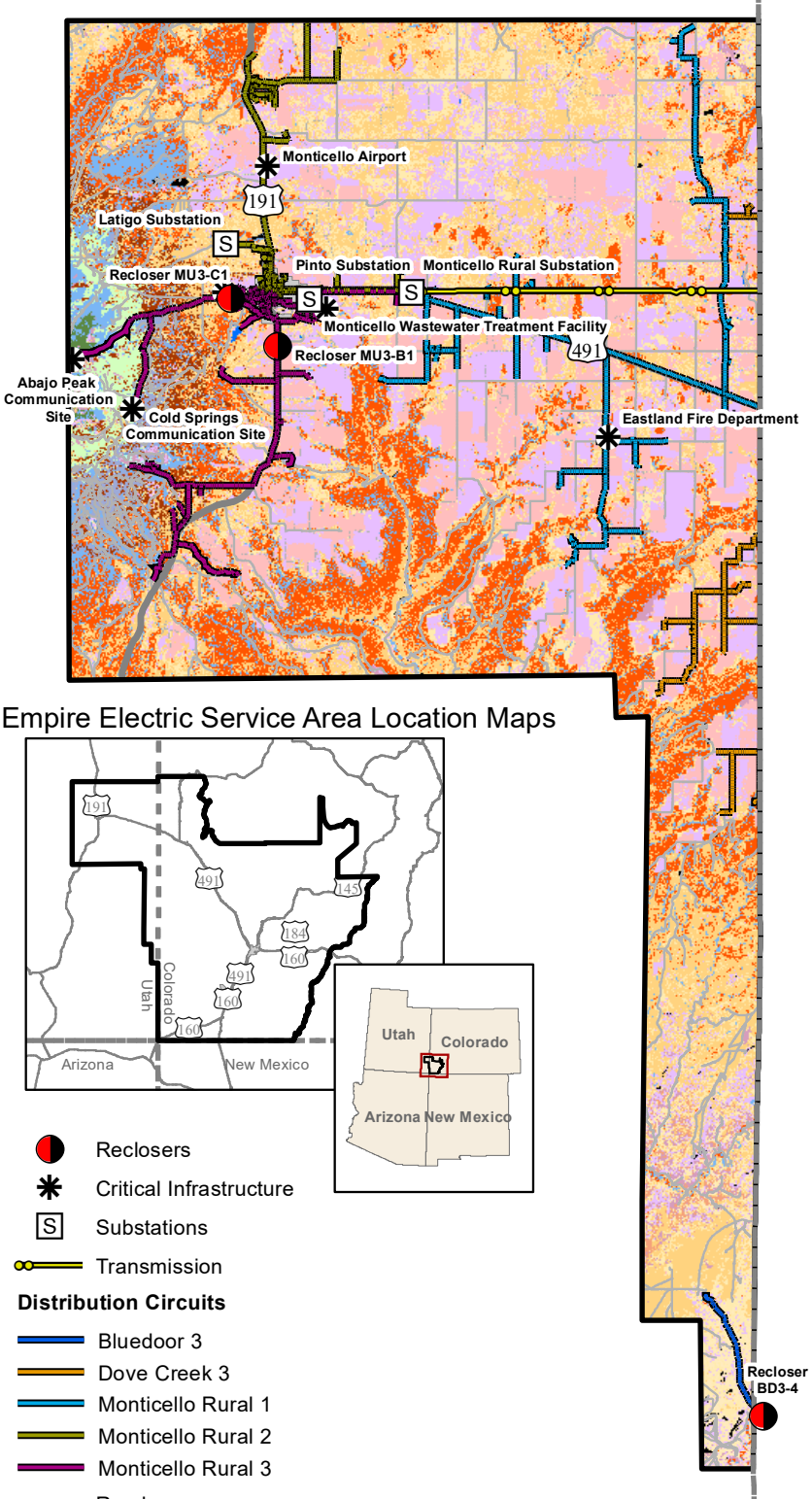
Empire Electric Service Area Location Map

Empire Electric Association Wildland Fire Protection Plan: Fuels

Legend

2005 FBPS Fuels Model Set

- NB01 - 91 - Urban/Developed
- NB02 - 92 - Snow/Ice
- NB03 - 93 - Agriculture
- NB08 - 98 - Water
- NB09 - 99 - Barren
- GR01 - 101 - Short, sparse, dry climate grass
- GR02 - 102 - Low load, dry climate grass
- GR03 - 103 - Low load, very coarse, humid climate grass
- GR04 - 104 - Moderate load, dry climate grass
- GR05 - 105 - Low load, humid climate grass
- GR06 - 106 - Moderate load, humid climate grass
- GR07 - 107 - High load, dry climate grass
- GR08 - 108 - High load, very coarse, humid climate grass
- GR09 - 109 - Very high load, humid climate grass
- GS01 - 121 - Low load, dry climate grass-shrub
- GS02 - 122 - Moderate load, dry climate grass-shrub
- GS03 - 123 - Moderate load, humid climate grass-shrub
- GS04 - 124 - High load, humid climate grass-shrub
- SH01 - 141 - Low load, dry climate shrub
- SH02 - 142 - Moderate load, dry climate shrub
- SH03 - 143 - Moderate load, humid climate shrub
- SH04 - 144 - Low load, humid climate timber-shrub
- SH05 - 145 - High load, humid climate grass-shrub
- SH06 - 146 - Low load, humid climate shrub
- SH07 - 147 - Very high load, dry climate shrub
- SH08 - 148 - High load, humid climate shrub
- SH09 - 149 - Very high load, humid climate shrub
- TU01 - 161 - Light load, dry climate timber-grass-shrub
- TU02 - 162 - Moderate load, humid climate timber-shrub
- TU03 - 163 - Moderate load, humid climate timber-grass-shrub
- TU04 - 164 - Dwarf conifer with understory
- TU05 - 165 - Very high load, dry climate timber-shrub
- TL01 - 181 - Low load, compact conifer litter
- TL02 - 182 - Low load, broadleaf litter
- TL03 - 183 - Moderate load, conifer litter
- TL04 - 184 - Small downed logs
- TL05 - 185 - High load, conifer litter
- TL06 - 186 - Moderate load, broadleaf litter
- TL07 - 187 - Large downed logs
- TL08 - 188 - Long-needle litter
- TL09 - 189 - Very high load, broadleaf litter
- SB01 - 201 - Low load, activity fuel
- SB02 - 202 - Moderate load, activity fuel or low load, blowdown
- SB03 - 203 - High load, activity fuel or moderate load, blowdown
- SB04 - 204 - High load, blowdown



Empire Electric Service Area Location Maps

- Reclosers
- Critical Infrastructure
- Substations
- Transmission

Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Roads
- Highways
- Empire Electric Service Area
- Municipal Boundaries
- State Boundaries

Date: 6/2/2020

Miles
0 1 2 4

N

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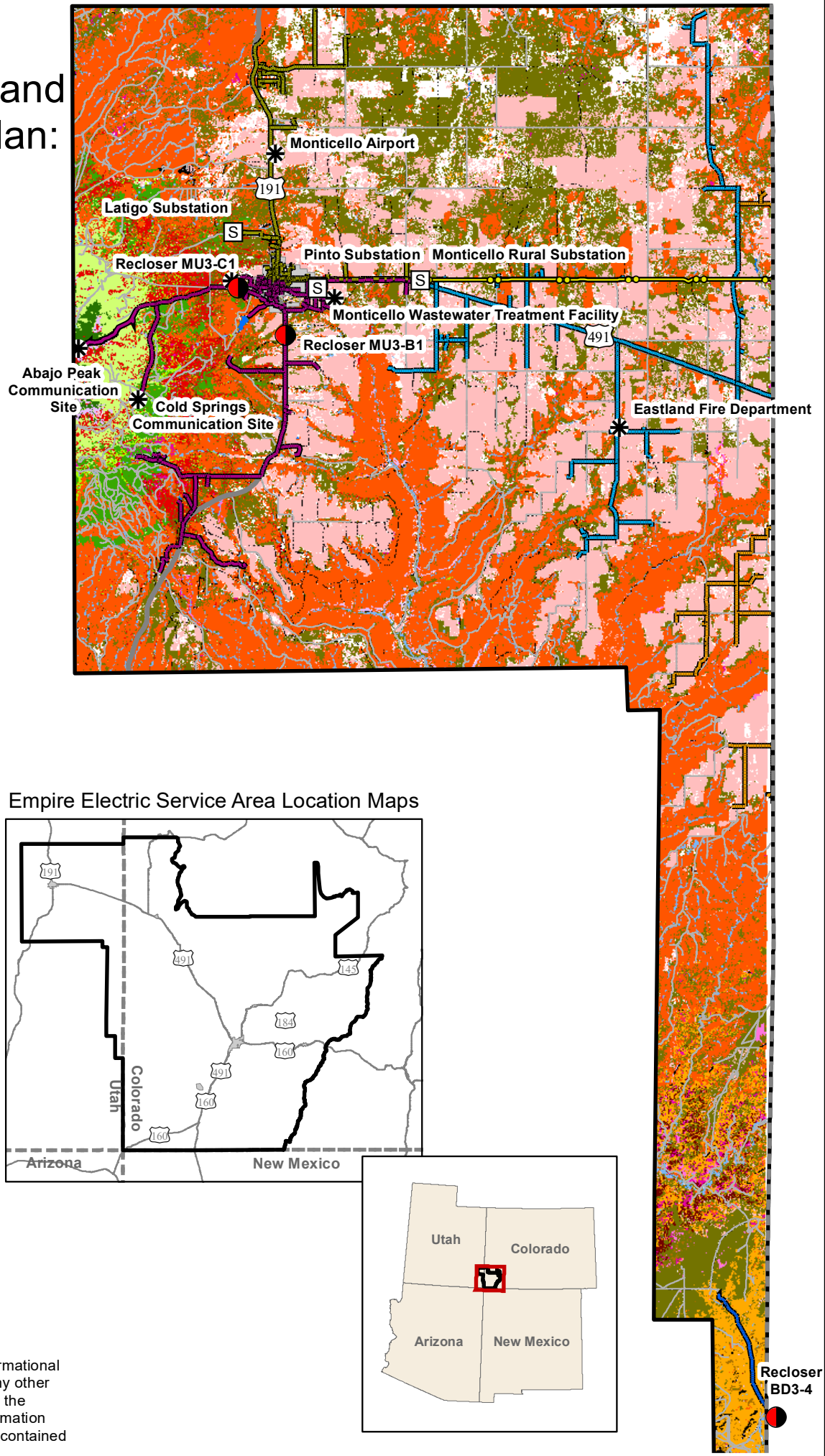
Empire Electric Association Wildland Fire Protection Plan: Vegetation Type



Legend

- Reclosers
- Critical Infrastructure
- Substations
- Transmission

Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Roads
- Highways
- Empire Electric Service Area
- Municipal Boundaries
- State Boundaries

Vegetation Type

- Agriculture
- Barren
- Water
- Developed
- Sparse Vegetation
- Grassland
- Exotic Herb
- Riparian
- Hardwood
- Mixed Fir Forest
- Pine Forest
- Subalpine Forest
- Pinyon-Juniper
- Mountain Mahogany
- Desert Scrub/Steppe
- Shrubland
- Gamble Oak
- Sage Shrub/Steppe
- Chaparral

Empire Electric Service Area Location Maps

Date: 6/2/2020

0 1 2 4 Miles

N

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Empire Electric Association Wildland Fire Protection Plan: Utah Service Area Fire Risk

Legend

- Substations
- Transmission

Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Empire Electric Service Area

Fire Risk Index

- >= -1.1
- -1.101 to -8.82
- -8.821 to -15.2
- -15.201 to -29.87
- -29.871 to -65.1
- -65.101 to -149.41
- -149.411 to -315.72
- -315.721 to -670.33
- < -670.33

Date: 6/2/2020

N

Miles

0 1 2 4

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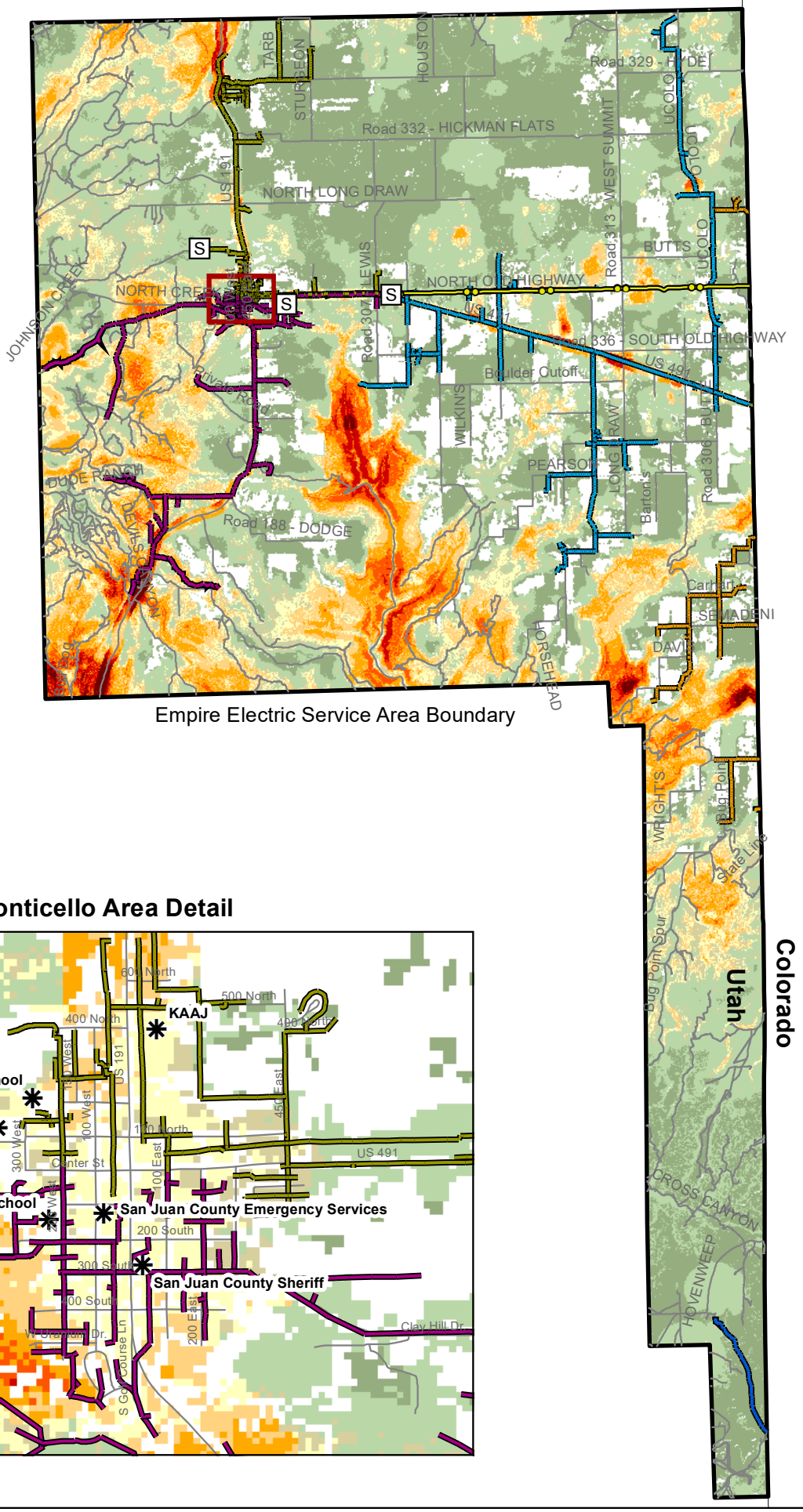
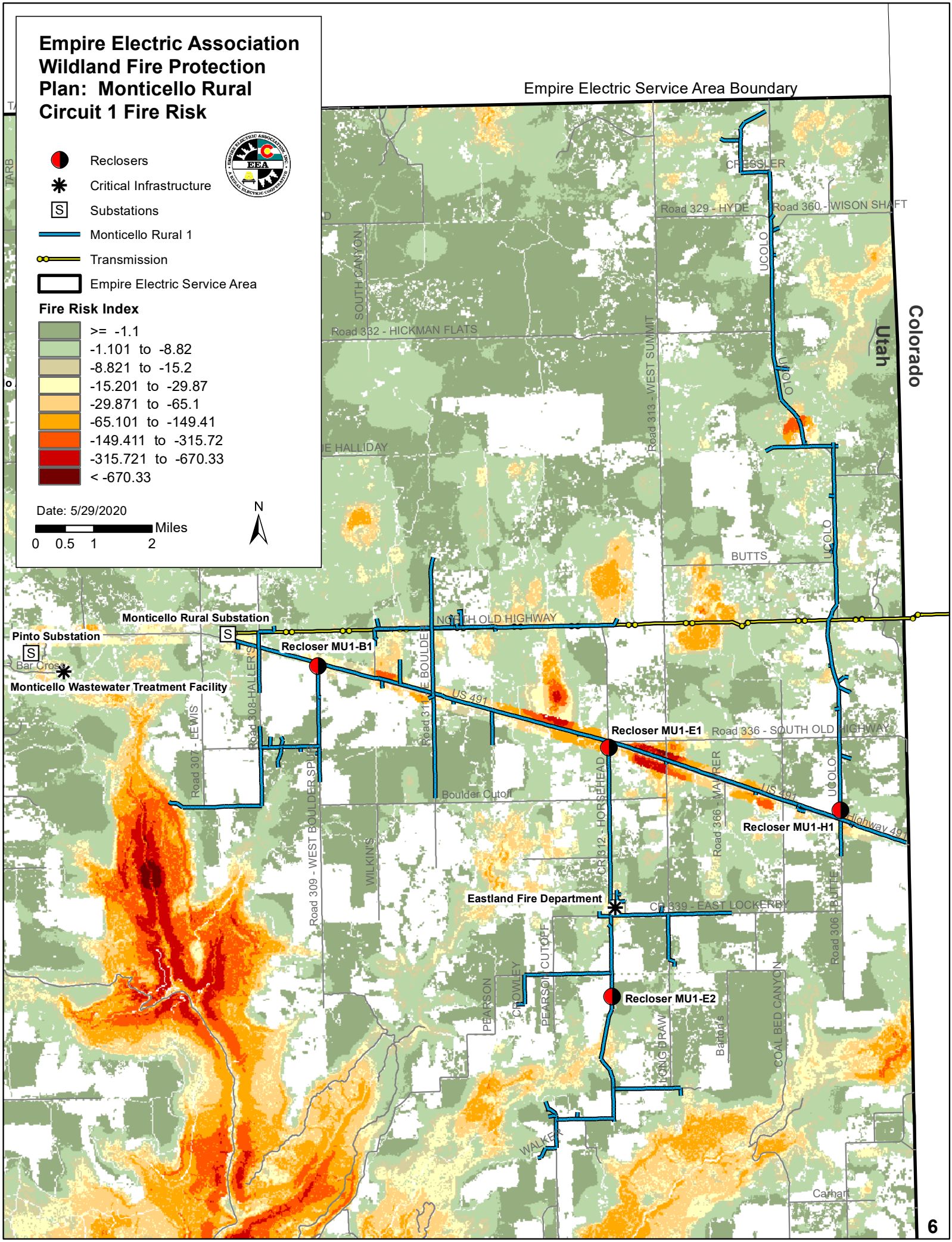
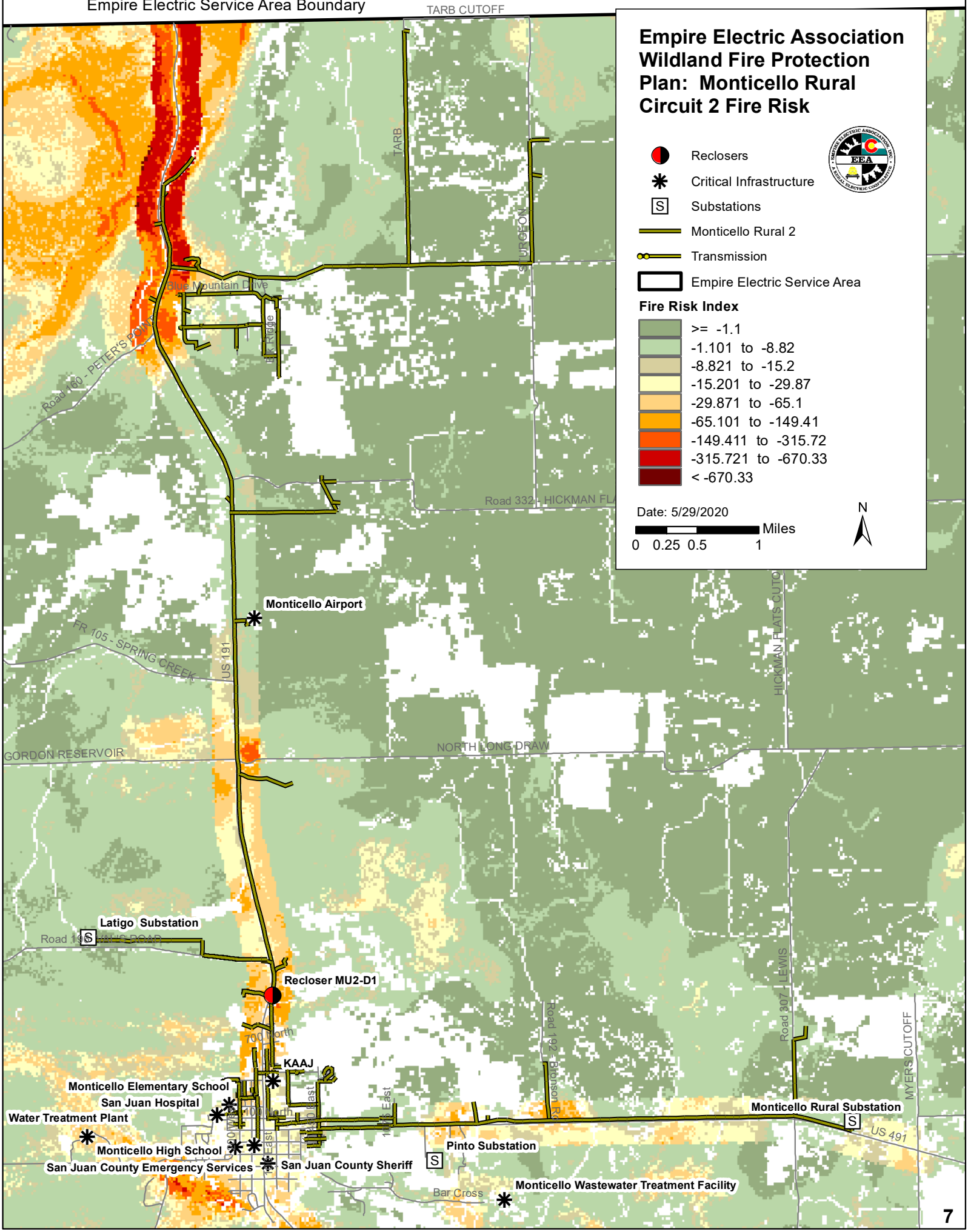
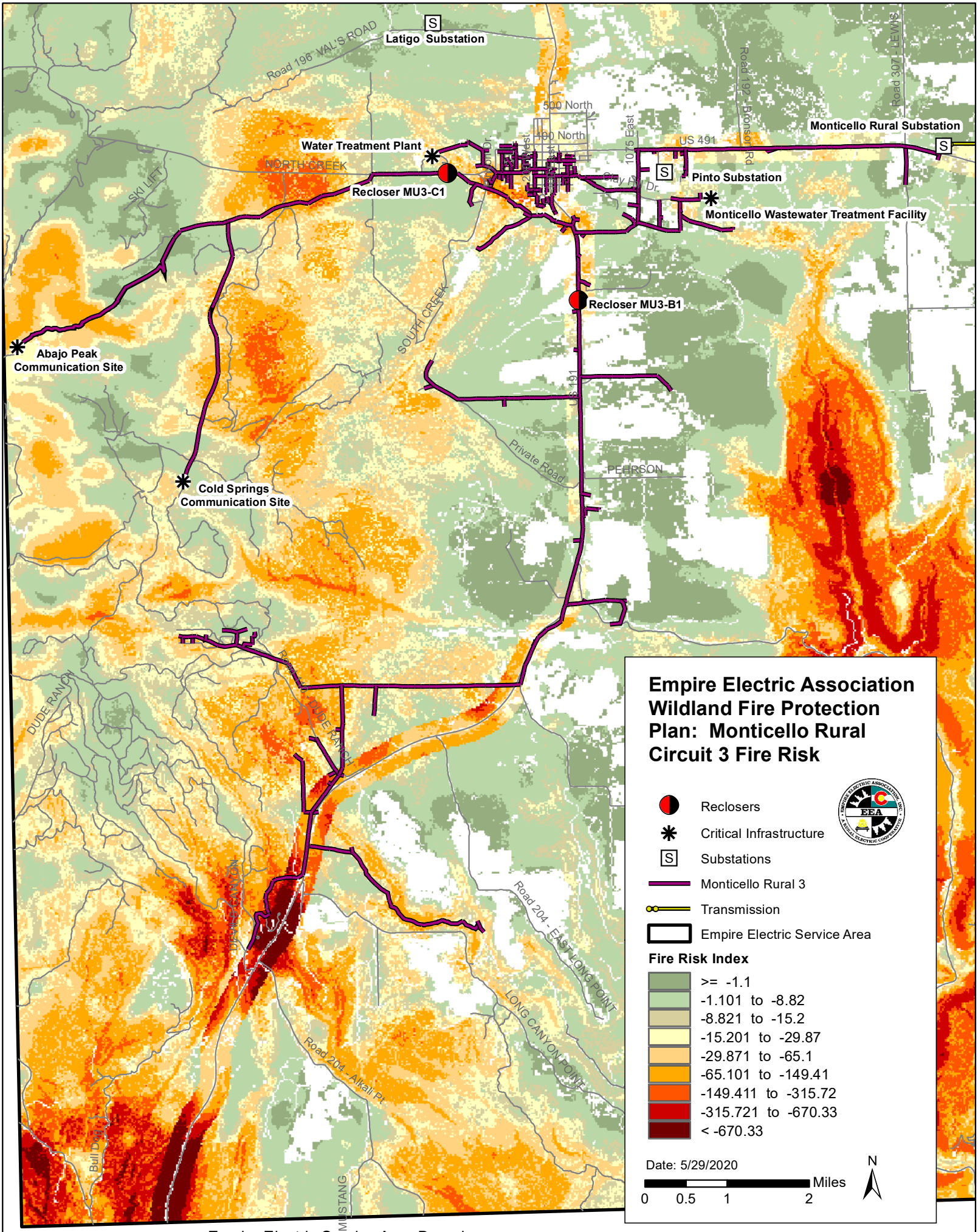


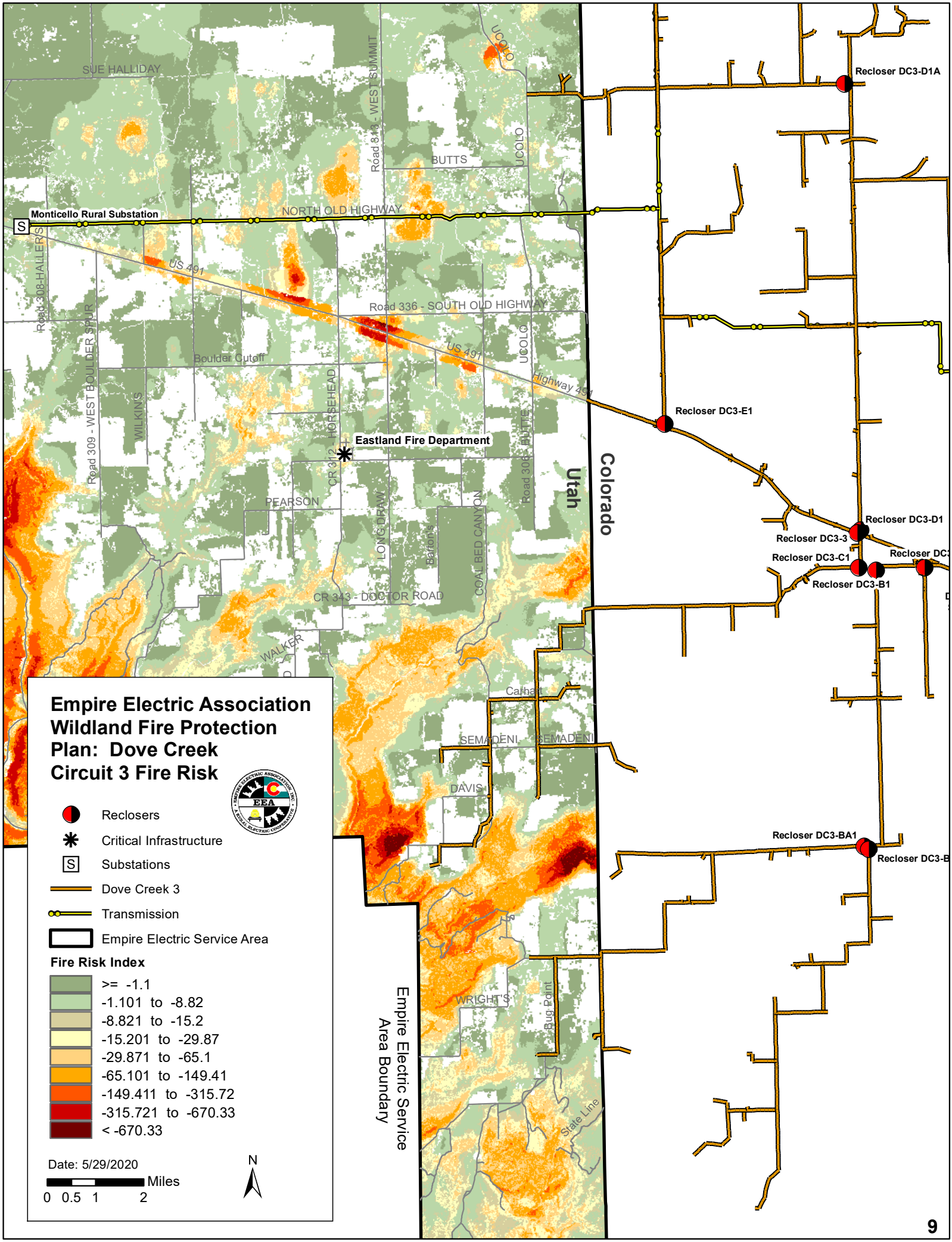
Monticello Area Detail

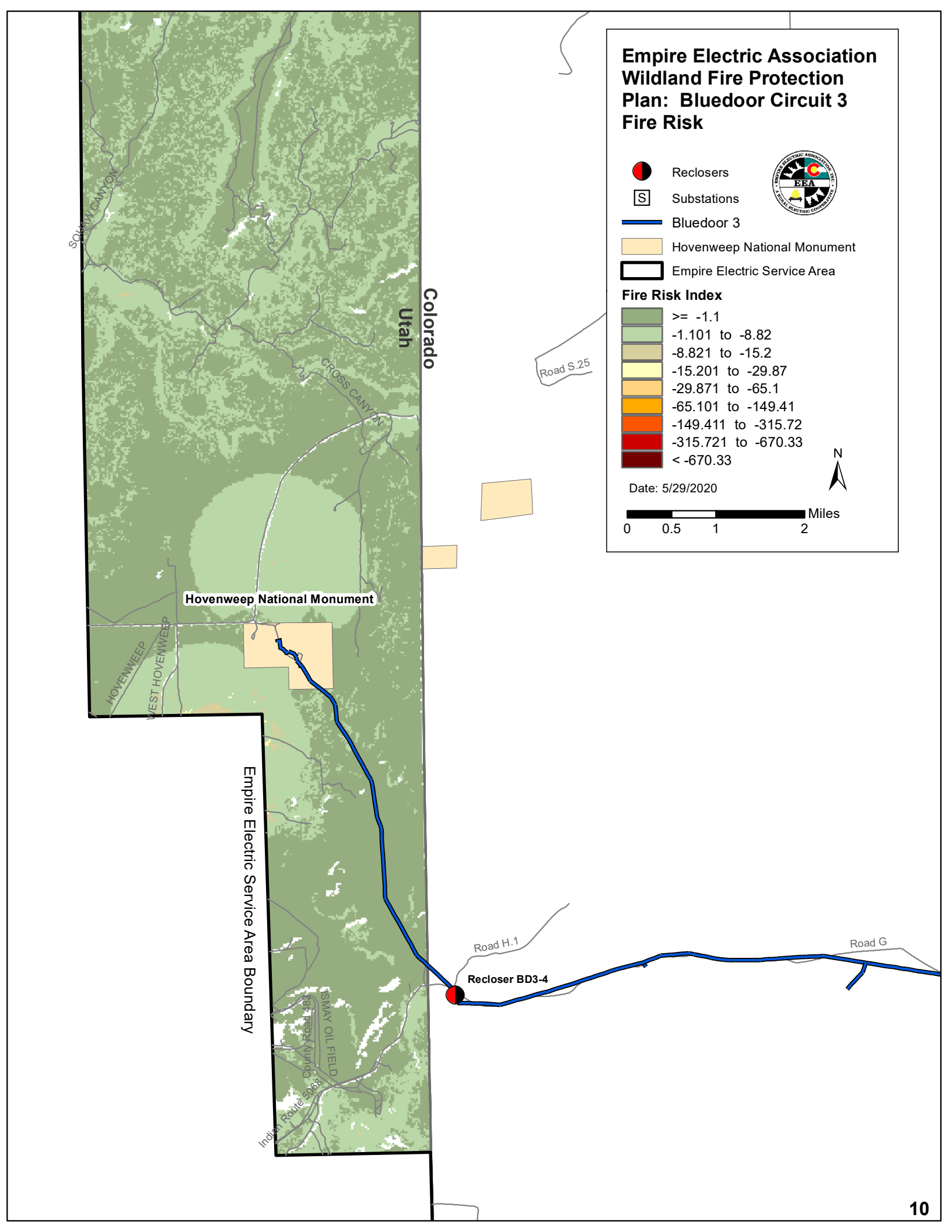

Empire Electric Association
Wildland Fire Protection
Plan: Monticello Rural
Circuit 1 Fire Risk
Reclosers
Critical Infrastructure
Substations
Monticello Rural 1
Transmission
Empire Electric Service Area
Fire Risk Index
>= -1.1
-1.101 to -8.82
-8.821 to -15.2
-15.201 to -29.87
-29.871 to -65.1
-65.101 to -149.41
-149.411 to -315.72
-315.721 to -670.33
< -670.33
Date: 5/29/2020
Miles
0 0.5 1 2
N
Empire Electric Service Area Boundary
Utah
Colorado
Monticello Rural Substation
Pinto Substation
Monticello Wastewater Treatment Facility
Recloser MU1-B1
Recloser MU1-E1
Recloser MU1-H1
Recloser MU1-E2
Eastland Fire Department
Road 329 - HYDE
Road 360 - WISON SHAFT
Road 332 - HICKMAN FLATS
Road 313 - WEST SUMMIT
BUTTS
NORTH OLD HIGHWAY
Road 336 - SOUTH OLD HIGHWAY
US 491
Boulder Cutoff
CR 339 - EAST LOCKERBY
Carhart
6


Empire Electric Service Area Boundary
TARB CUTOFF
TARB
SURGEON
Blue Mountain Drive
Elk Ridge
Road 110 - PETER'S POW
Road 332 - HICKMAN FLA
HICKMAN FLATS CUTO
Monticello Airport
FR 105 - SPRING CREEK
US 191
GORDON RESERVOIR
NORTH LONG DRAW
Latigo Substation
Road 192 - LEWIS ROAD
Recloser MU2-D1
700 North
KAAJ
Monticello Elementary School
San Juan Hospital
Water Treatment Plant
Monticello High School
San Juan County Emergency Services
San Juan County Sheriff
400 West
400 East
100 East
Road 192 - Bronson R
Road 307 - LEWIS
MYERS CUTOFF
Monticello Rural Substation
US 491
Pinto Substation
Bar Cross
Monticello Wastewater Treatment Facility
Empire Electric Association Wildland Fire Protection Plan: Monticello Rural Circuit 2 Fire Risk
Reclosers
Critical Infrastructure
Substations
Monticello Rural 2
Transmission
Empire Electric Service Area
Fire Risk Index
>= -1.1
-1.101 to -8.82
-8.821 to -15.2
-15.201 to -29.87
-29.871 to -65.1
-65.101 to -149.41
-149.411 to -315.72
-315.721 to -670.33
< -670.33
Date: 5/29/2020
Miles
0 0.25 0.5 1
N



Empire Electric Service Area Boundary


Monticello Rural Substation
NORTH OLD HIGHWAY
US 491
Road 336 - SOUTH OLD HIGHWAY
Boulder Cutoff
Highway 491
Eastland Fire Department
Recloser DC3-E1
Recloser DC3-D1A
Recloser DC3-D1
Recloser DC3-3
Recloser DC3-C1
Recloser DC3-B1
Recloser DC3-BA1
Colorado
Utah
SUE HALLIDAY
BUTTS
UCOLO
Road 346 - WEST SUMMIT
Road 308-HALLERS
Road 309 - WEST BOULDER SPUR
WILKINS
HORSEHEAD
CR 312
PEARSON
LONG DRAW
Bartons
COAL BED CANYON
Road 308 - BUTTE
CR 343 - DOCTOR ROAD
WALKER
Carhart
SEMADENI
DAVIS
WRIGHT'S
Bug Point
State Line
Empire Electric Service Area Boundary
Empire Electric Association
Wildland Fire Protection Plan: Dove Creek Circuit 3 Fire Risk
Reclosers
Critical Infrastructure
Substations
Dove Creek 3
Transmission
Empire Electric Service Area
Fire Risk Index
>= -1.1
-1.101 to -8.82
-8.821 to -15.2
-15.201 to -29.87
-29.871 to -65.1
-65.101 to -149.41
-149.411 to -315.72
-315.721 to -670.33
< -670.33
Date: 5/29/2020
Miles
0 0.5 1 2
N


Empire Electric Association
Wildland Fire Protection
Plan: Bluedoor Circuit 3
Fire Risk
Reclosers
Substations
Bluedoor 3
Hovenweep National Monument
Empire Electric Service Area
Fire Risk Index
>= -1.1
-1.101 to -8.82
-8.821 to -15.2
-15.201 to -29.87
-29.871 to -65.1
-65.101 to -149.41
-149.411 to -315.72
-315.721 to -670.33
< -670.33
Date: 5/29/2020
N
Miles
0
0.5
1
2
Colorado
Utah
SQUAW CANYON
CROSS CANYON
Road S.25
Hovenweep National Monument
HOVENWEEP
WEST HOVENWEEP
Empire Electric Service Area Boundary
Road H.1
Recloser BD3-4
Road G
ISMAY OIL FIELD
Indian Route 5063
County Road 43

Empire Electric Association Wildland Fire Protection Plan: Utah Service Area Fire Threat

Legend

- Substations
- Transmission

Distribution Circuits

- Bluedoor 3
- Dove Creek 3
- Monticello Rural 1
- Monticello Rural 2
- Monticello Rural 3
- Empire Electric Service Area

Fire Threat Index

<=	0.000377
0.000378	- 0.002113
0.002114	- 0.003370
0.003371	- 0.005979
0.005980	- 0.011547
0.011548	- 0.026047
0.026048	- 0.050057
0.050058	- 0.097886
0.097887	- 1.000000

Date: 6/2/2020

Miles

0 1 2 4

N

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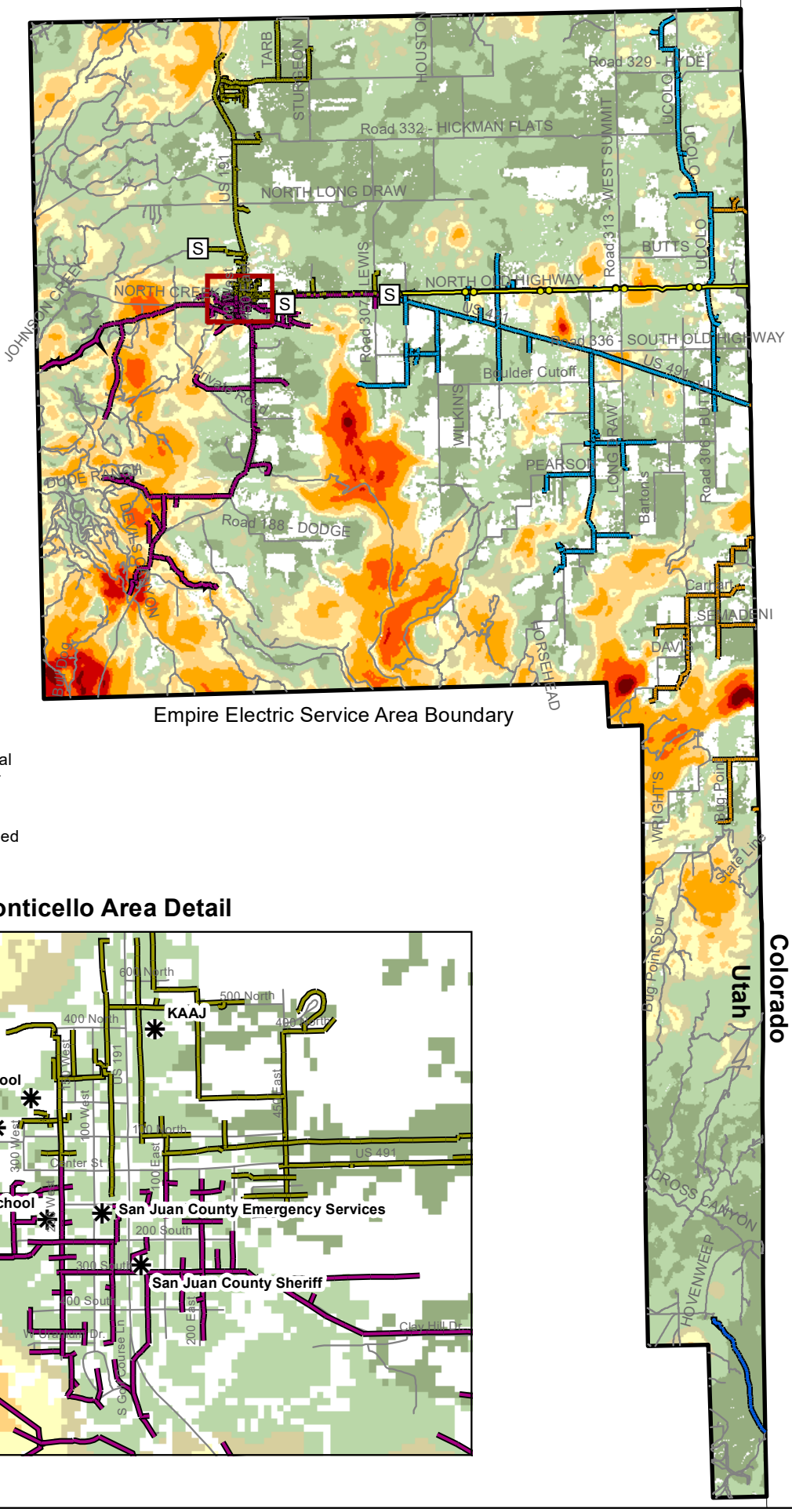
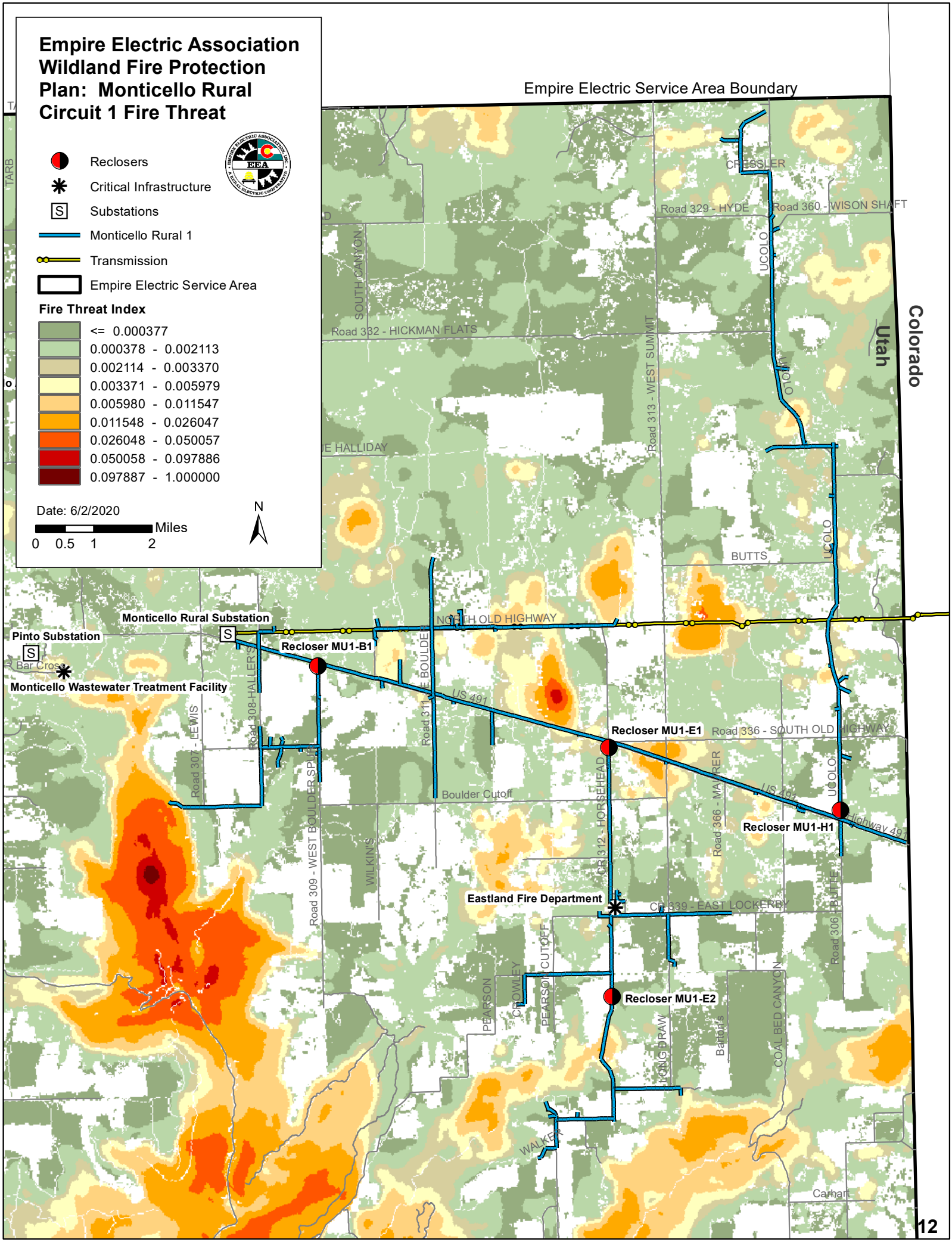
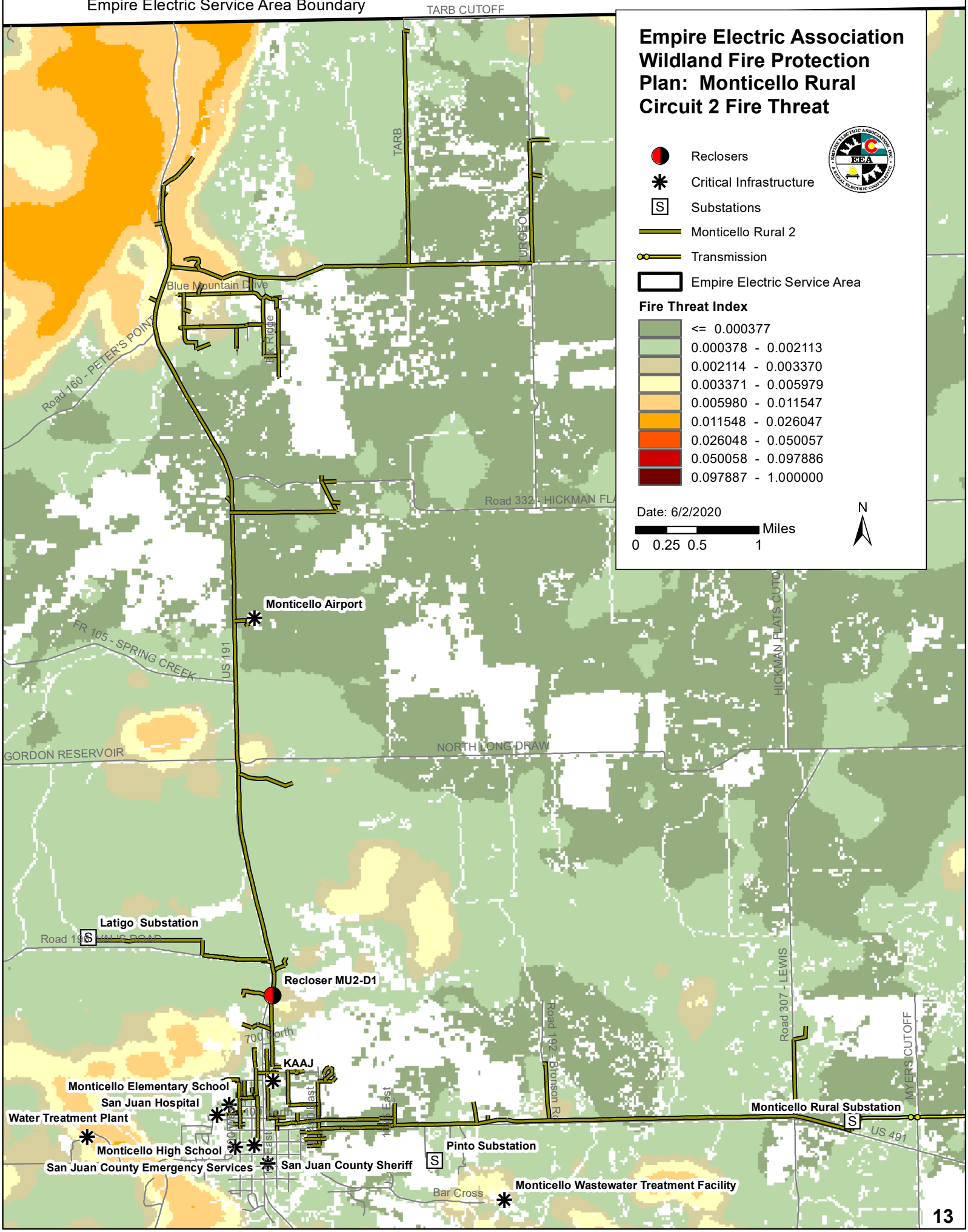


Monticello Area Detail


Empire Electric Association
Wildland Fire Protection
Plan: Monticello Rural
Circuit 1 Fire Threat
Reclosers
Critical Infrastructure
Substations
Monticello Rural 1
Transmission
Empire Electric Service Area
Fire Threat Index
<= 0.000377
0.000378 - 0.002113
0.002114 - 0.003370
0.003371 - 0.005979
0.005980 - 0.011547
0.011548 - 0.026047
0.026048 - 0.050057
0.050058 - 0.097886
0.097887 - 1.000000
Date: 6/2/2020
Miles
0 0.5 1 2
N
Empire Electric Service Area Boundary
Utah
Colorado
Monticello Rural Substation
Pinto Substation
Bar Cross
Monticello Wastewater Treatment Facility
Recloser MU1-B1
Recloser MU1-E1
Recloser MU1-H1
Recloser MU1-E2
Eastland Fire Department
Road 329 - HYDE
Road 360 - WISON SHAFT
Road 332 - HICKMAN FLATS
Road 313 - WEST SUMMIT
BUTTS
NORTH OLD HIGHWAY
Road 336 - SOUTH OLD HIGHWAY
US 491
Boulder Cutoff
Road 307 - LEWIS
Road 308-HALLER'S
Road 309 - WEST BOULDER SPUR
Road 311 - EAST BOULDER
CR 312 - HORSEHEAD
Road 366 - MARRER
CR 339 - EAST LOCKERBY
Road 306 - BUTTE
WILKIN'S
PEARSON
CROWLEY
PEARSON CUTOFF
LONG DRAW
COAL BED CANYON
WALKER
Carhart
UCOLO
SOUTH CANYON


Empire Electric Service Area Boundary
TARB CUTOFF
TARB
SURGEON
Blue Mountain Drive
Road 160 - PETER'S POINT
Ridge
Road 332 - HICKMAN FLA
Monticello Airport
FR 105 - SPRING CREEK
US 191
HICKMAN FLATS CUTO
GORDON RESERVOIR
NORTH LONG DRAW
Latigo Substation
Road 193 - LEWIS ROAD
Recloser MU2-D1
700 North
KAAJ
Monticello Elementary School
San Juan Hospital
Water Treatment Plant
Monticello High School
San Juan County Emergency Services
San Juan County Sheriff
Pinto Substation
Bar Cross
Monticello Wastewater Treatment Facility
Road 192 - Bronson Re
Road 307 - LEWIS
MYERS CUTOFF
Monticello Rural Substation
US 491
Empire Electric Association Wildland Fire Protection Plan: Monticello Rural Circuit 2 Fire Threat
Reclosers
Critical Infrastructure
Substations
Monticello Rural 2
Transmission
Empire Electric Service Area
Fire Threat Index
<= 0.000377
0.000378 - 0.002113
0.002114 - 0.003370
0.003371 - 0.005979
0.005980 - 0.011547
0.011548 - 0.026047
0.026048 - 0.050057
0.050058 - 0.097886
0.097887 - 1.000000
Date: 6/2/2020
Miles
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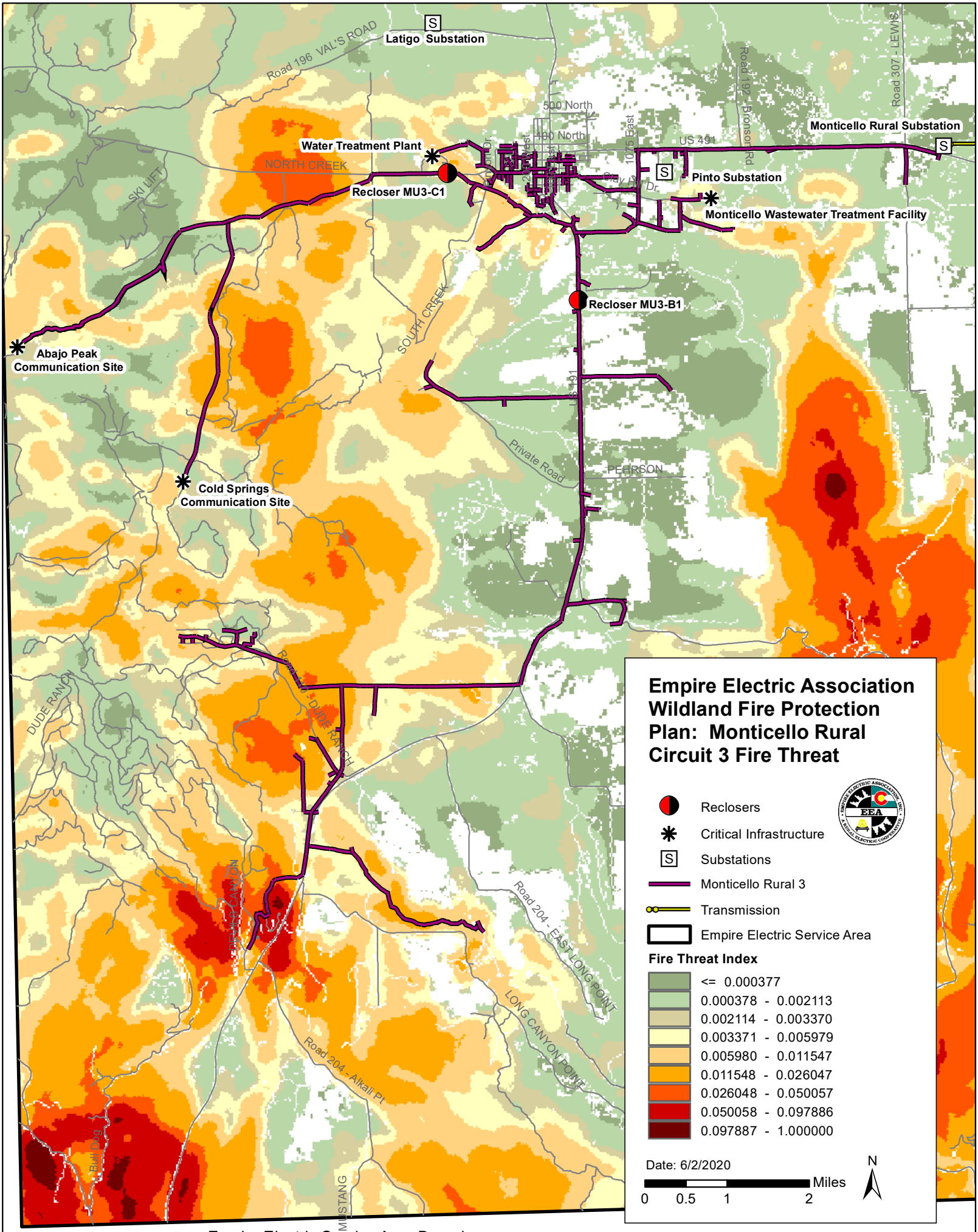
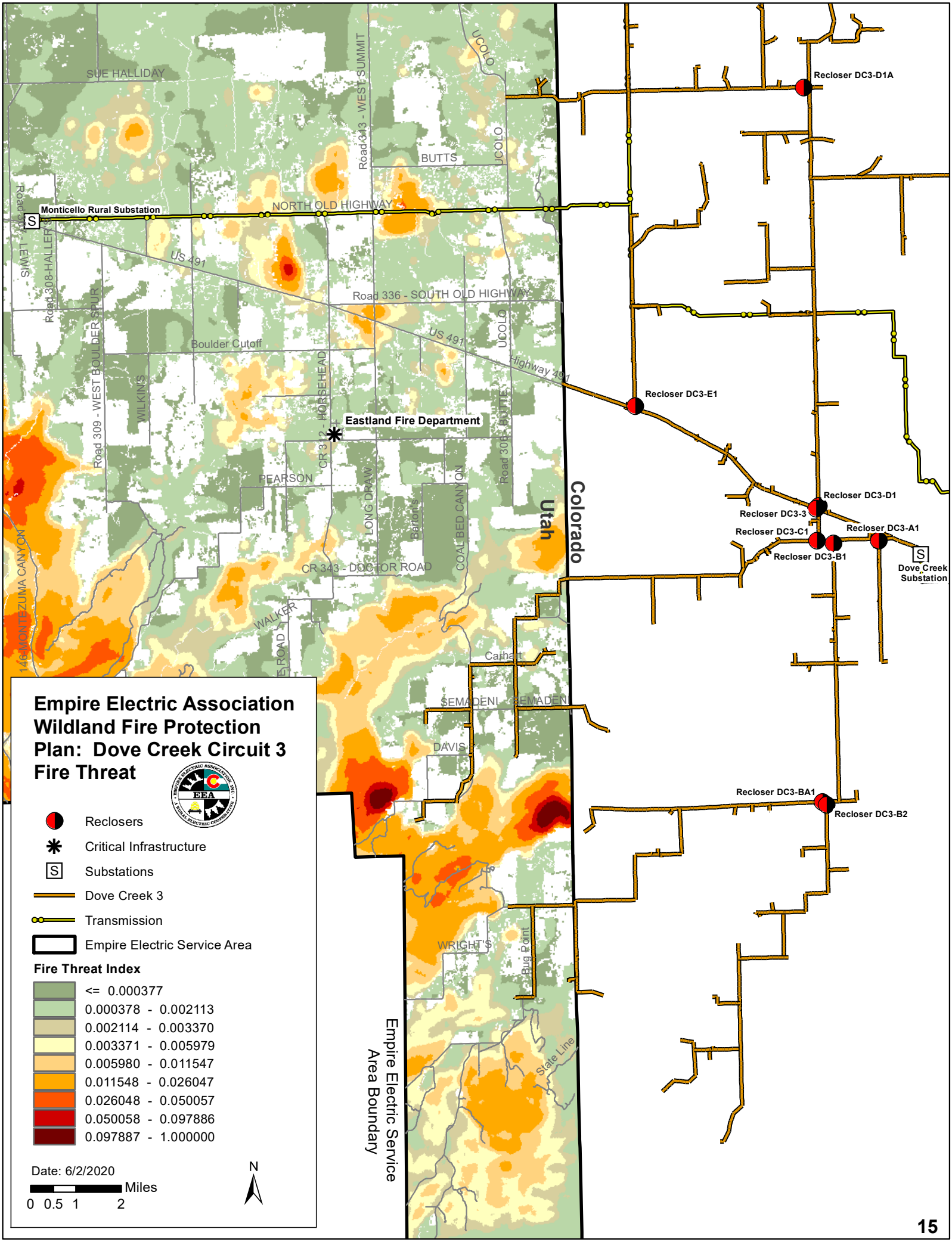
N



Empire Electric Service Area Boundary


Empire Electric Association
Wildland Fire Protection
Plan: Dove Creek Circuit 3
Fire Threat
Reclosers
Critical Infrastructure
Substations
Dove Creek 3
Transmission
Empire Electric Service Area
Fire Threat Index
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0.000378 - 0.002113
0.002114 - 0.003370
0.003371 - 0.005979
0.005980 - 0.011547
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0.026048 - 0.050057
0.050058 - 0.097886
0.097887 - 1.000000
Date: 6/2/2020
Miles
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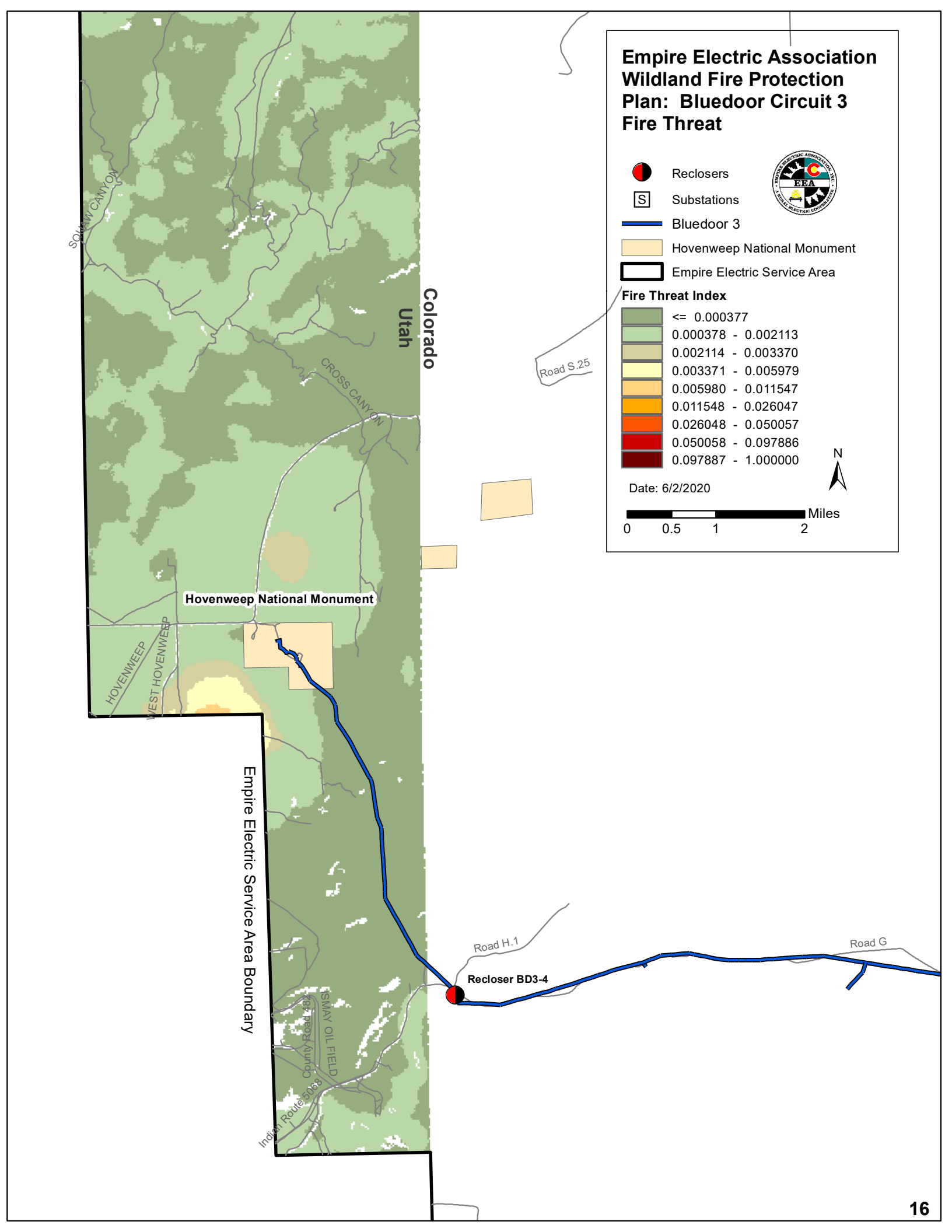
N
Monticello Rural Substation
Eastland Fire Department
Recloser DC3-D1A
Recloser DC3-E1
Recloser DC3-D1
Recloser DC3-3
Recloser DC3-C1
Recloser DC3-A1
Recloser DC3-B1
Dove Creek Substation
Recloser DC3-BA1
Recloser DC3-B2
Utah
Colorado
Empire Electric Service Area Boundary
SUE HALLIDAY
BUTTS
NORTH OLD HIGHWAY
US 491
Road 336 - SOUTH OLD HIGHWAY
Boulder Cutoff
Highway 491
PEARSON
CR 343 - DOCTOR ROAD
Carhart
SEMADENI
DAVIS
WRIGHT'S
Bug Point
State Line
Road 343 - WEST SUMMIT
UCOLO
Road 308-HALLER
Road 309 - WEST BOULDER SPUR
WILKINS
CR 312 - HORSEHEAD
LONG DRAW
Barons
COAL BED CANYON
Road 306 - BUTTE
WALKER
E ROAD
146MONTEZUMA CANYON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Wildland Fire Protection
Plan: Bluedoor Circuit 3
Fire Threat
Reclosers
Substations
Bluedoor 3
Hovenweep National Monument
Empire Electric Service Area
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0.000378 - 0.002113
0.002114 - 0.003370
0.003371 - 0.005979
0.005980 - 0.011547
0.011548 - 0.026047
0.026048 - 0.050057
0.050058 - 0.097886
0.097887 - 1.000000
Date: 6/2/2020
Miles
0
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Colorado
Utah
SQUAW CANYON
CROSS CANYON
Road S.25
Hovenweep National Monument
HOVENWEEP
WEST HOVENWEEP
Empire Electric Service Area Boundary
Road H.1
Recloser BD3-4
Road G
ISMAY OIL FIELD
Indian Route 5053

EEA Maintenance Master Plan - Substation Inspections

SUMMARY

Empire requires monthly substation inspections on all of EEA's substations. These inspections are performed to assist EEA to recognize conditions which might cause equipment damage, service interruptions or hazards to employees or the general public.

OBJECTIVE

Typical inspections include but are not limited to the following:

1. Check conditions and operations of devices needed for voltage control and reliable operation.
2. Record load currents and other data required for engineering and operations.
3. Records are kept for effective maintenance and performance of the substation equipment.
   A) Oil filled circuit breakers: Ready monthly, inspect internally at 3 years or 70 operations, whichever comes first.
   B) Voltage Regulators: Check monthly, oil dielectric test every 5 years, and inspection of contacts at 250,000 operations or every 5 years, whichever comes first.
   C) Transformer: Check monthly, oil test taken annually, oil screen, and dissolved gas analysis performed annually.
   D) Air break switches: Visual inspection monthly, infrared inspect annually and manually test when possible.
   E) Appearance and general condition of fences and yards.

Records will be maintained using the sample forms attached either in handwritten or digital format. Quarterly downloads from individual voltage regulators are to be stored on EEA secured Operations servers. Results of the overall program are to be reported to the Line Superintendent of Maintenance for data entry into maintenance database.

EEA Maintenance Master Plan - Circuit Breaker Maintenance

SUMMARY

Empire Electric Association conducts quarterly inspections and records counter operations of all line circuit breakers and sectionalizers. Substation circuit breakers will be inspected, and counter readings will be taken during monthly substation inspections.

OBJECTIVE

To operate a safe and reliable electric system all circuit breakers will be taken out of service periodically for purposes of maintenance. See maintenance required criteria below. At the time of maintenance, oil will be filtered and dielectrically tested to meet 22kV. Interrupting contacts will be visually inspected, if possible, and breaker will be tested to verify proper operation. Each of these items will be completed prior to putting the breaker back into service.

BREAKER MAINTENANCE CRITERIA

Line Circuit Breakers

Line mounted oil circuit breakers will be maintained every 5 years or 80 operations, whichever comes first. It is recommended that batteries for electronic line circuit breakers be replaced every 7 years, if applicable. Excessive breaker operation readings may indicate the necessity for possible line patrol to check for problems on the system or possible maintenance to be performed.

Substation Circuit Breakers

Circuit breakers operating in EEA substations will be maintained every 3 years or 70 operations, whichever comes first. Excessive breaker operation readings may indicate the necessity for possible line patrol to check for problems on the system or possible maintenance to be performed.

Results of this program are to be reported to and managed by the Line Superintendent of Maintenance.

EEA Maintenance Master Plan - Voltage Regulator Maintenance

SUMMARY

Empire Electric Association will perform preventative maintenance on all line voltage regulators and attempt to comply with recommended RUS voltage levels and limits defined in Bulletin 1724D-113 (see attached). The guidelines listed below are recommended for continuity of service and acceptable voltage levels system wide.

OBJECTIVE

All voltage regulators will be taken out of service for preventative maintenance based on the following criteria:

A) 250,000 operations since unit was last maintained
B) Duration of five (5) years since unit was last maintained

Once the voltage regulator has been taken out of service the insulating oil will be dielectrically tested and results documented using the appropriate forms. Oil found to be at a dielectric level of 22kV or less will be require that the oil be filtered or replaced. Moveable and stationary contacts will be inspected for excessive wear and replaced if needed. Before the unit is put back “in service” it will be tested for proper operation. All inspection and maintenance performed shall be documented on Regulator Maintenance forms and submitted to the Line Superintendent of Maintenance for filing and data entry into maintenance database.

Substation Regulators

EEA line personnel will perform visual inspection and record operations counter reading during monthly substation inspections. Line Superintendent of Maintenance will notify maintenance crew foreman of voltage regulators that need to be pulled from service to be maintained.

Line Regulators

EEA System Technicians will perform visual inspections and pull readings from all system line regulators on a quarterly basis. Once inspections have been conducted and readings have been pulled from regulator controls the system technician will transfer the data files to EEA servers. The System Technician will inform the Line Superintendent of Maintenance once completed for analysis.

The Line Superintendent of Maintenance will review data from control panel read files to determine if maintenance is required based on information below. Excessive regulator operations require analysis to see if the problem is downstream or a substation-transmission line problem.

The Line Superintendent of Maintenance is responsible for managing all maintenance related to voltage regulators.

EEA Maintenance Master Plan - Line Patrol

SUMMARY

Empire Electric Association, in its endeavor to provide safe, reliable, and dependable electric service, has adopted a systematic program of line patrol to maintain an acceptable continuity of service to all its members. EEA's stated objective is to patrol the entire electrical system once every 5 years.

OBJECTIVE

Empire System Operations holds a listing of all system circuits that will be tracked annually to maintain a 5-year cycle. Lines that have been patrolled will be marked, initialed, and dated on reports filed in EEA system operations.

Line patrol will be performed:

1. During and/or after power outages by field personnel working the outages
2. Circuit breaker readings are recorded quarterly. When a circuit breaker has had more than 20 operations during the given quarter, the line section will be patrolled
3. EEA owned transmission lines will be patrolled as soon as practicable after notification of operation on a circuit breaker
4. Routine line patrol will be performed on a monthly basis by System Operations and Maintenance groups

Records of line patrol will be kept on file in system operations. All documentation will be in accordance with the sample line inspections and maintenance log sheet attached. All records will be retained for a minimum of 10 years.

EEA Maintenance Master Plan - Pole Testing

SUMMARY

Empire Electric Association is of the opinion that an effective maintenance and inspection program for power poles will prolong service life of the poles along with providing reliable, dependable service to members and will meet and exceed minimum safety requirements for employees and the general public.

In accordance with USDA/RUS bulletin 1730B-121 Pole Inspection and Maintenance, and EEA certificated area occupying Decay Severity Zone 1 (least severe) will conduct a pole testing program to cover the entire system at least once every 12-15 years.

OBJECTIVE

EEA's Pole testing objectives includes but is not limited to the following:

1. Above ground visual inspection, including but not limited to inspection of pole hardware, cross-arms, pole ground, etc.
2. Above ground sonic test.
3. Ground level sonic test.
4. Below ground line sonic test.
5. Core sample taken on all bad or low readings if a pole is found to be defective. Poles are then replaced or reinforced depending on location and/or severity of pole damage.
6. Any excessive digging around the pole will require ground line treatment.
7. Maps and records will be kept on file. Reports will be maintained in either handwritten or digital format provided by contract pole inspector/testing company.

Results of this program are to be reported to the Line Superintendent of Maintenance.

EEA Maintenance Master Plan - Vegetation Management

SUMMARY

A continued right-of-way (ROW) maintenance program is essential to assure service reliability. Contact of exposed overhead wires with trees is unacceptable because of the potential service interruptions, complaints, and the safety of the general public.

Empire has adopted a cyclical approach to vegetation management and will inspect overhead lines for intrusive vegetation at a minimum of every 5 years. Vegetation will be removed or trimmed in such a way to reasonably assume any vegetation addressed will not contact or interfere with the electrical system during the following inspection cycle to mitigate the risk of vegetation contacting or interfering with the electrical system.

The National Electric Safety Code, the International Society of Arboriculture's *Best Management Practices – Utility Pruning of Trees* handbook, and the EEA Right of Way Guide will be used as guides for determining when and how vegetation should be trimmed or removed.

Empire employs a contract crew(s) on an annual basis for the purpose of clearing trees and brush from EEA powerlines.

OBJECTIVE

I. Vegetation management is conducted under the following objectives:

A) Maps are used to schedule vegetation management on the system.
B) Ensure that the entire system is to be trimmed on a five year trim cycle. An annual review is to be conducted between the vegetation management contractor and the Line Superintendent of Maintenance to review the annual results to ensure the system is being trimmed on a five-year cycle.
C) Records will be kept on file of the location's trees are trimmed and removed. The Sample (ACKNOWLEDGEMENT OF TREE REMOVAL OR TREE TRIMMING) form attached will be used to record the data.

II. Methods of control include but are not limited to:

A) Mechanical
B) Hand
C) Chemical

III. Results of the program are to be reported to the Operations Manager on a monthly basis.

Empire Electric Association, Inc.
Member Outage Notification Procedure

Purpose: To outline the communication actions to be taken to inform members regarding electricity outages on EEA's grid.

I. Procedure for Unplanned Outages

A. When an unplanned outage occurs during Head Quarters (HQ) business hours:

1. System Operations (Sys Ops) calls Consumer Services Coordinator (CSC) to provide details when safe to do so
    a) *Provide location, cause if known, estimated time to power restoration, and any known critical services (hospital, law enforcement detention facility, domestic water supply, Critical Care meters, etc.)*
    b) *CSC provides information to Member Engagement Manager (MEM) via email or phone call*
    c) *MEM posts information to eea.coop web site ALERT banner on home page and social media accounts and makes a phone call to critical services*
2. When power restored, Sys Ops calls CSC to update
3. CSC passes update to MEM
4. MEM updates web site ALERT banner on home page and social media accounts and makes a phone call to critical services
5. MEM determines if outage warrants press release and if so creates and distributes press release
    a) *Criteria for press release includes number of meters impacted, sensitive services, or opportunities for public safety awareness*

B. When an unplanned outage occurs outside of HQ business hours:

1. Sys Ops calls MEM to provide details when safe to do so
    a) *Provide location, cause if known, estimated time to power restoration, and any known critical services*
    b) *MEM posts information to eea.coop web site ALERT banner on home page and social media accounts and makes a phone call to critical services*
    c) *MEM notifies EEA's contract call center, Cooperative Response Center, Inc. (CRC), via email of outage*
2. When power restored, Sys Ops calls MEM to update
3. MEM updates CRC and changes web site ALERT banner on home page and social media account messaging as appropriate and makes a phone call to critical services

4. MEM determines if outage warrants press release and if so creates and distributes press release

a) Criteria for press release includes number of meters impacted, sensitive services, or opportunities for public safety awareness

II. Procedure for Planned Outages

A. When an outage must happen with less than 24 hours' notice during normal HQ business hours:

1. Sys Ops calls MEM and provides outage information to include start time, duration estimate, purpose, location, and known critical services
2. MEM emails Member Services email list and CRC with details
3. MEM posts information to eea.coop web site ALERT banner on home page and social media accounts and makes a phone call to critical services
4. If time is available, MEM records phone message and uses phone system to inform impacted Members of coming outage
5. Sys Ops keeps MEM informed of any changes and when outage begins and ends

a) MEM updates Member Services, CRC, and social media accounts if outage information changes, when the outage begins, and when the outage is completed and makes a phone call to critical services

B. When an outage must happen with less than 24 hours' notice outside of normal HQ business hours:

1. Sys Ops calls MEM and provides outage information to include start time, duration estimate, purpose, location, and known critical services

a) MEM emails CRC with details

b) MEM posts information to eea.coop web site ALERT banner on home page and social media accounts and makes a phone call to critical services

2. Sys Ops keeps MEM informed of any changes and when outage begins and ends

a) MEM updates CRC, critical services, and social media accounts if outage information changes, when the outage begins, and when the outage is completed

C. When an outage must happen with more than 24 hours' notice:

1. Sys Ops calls MEM and provides outage information to include start time, duration estimate, purpose, location, and known critical services

a) MEM emails Member Services email list and CRC with details

b) MEM creates press release if appropriate to provide advance notice to Members

(1) Criteria for press release includes number of meters impacted and sensitive services

c) MEM coordinates with appropriate civil authorities and impacted critical services

d) MEM prepares information to be posted web site ALERT banner on home page and social media accounts

e) MEM records phone message and uses phone system to inform impacted Members of coming outage at appropriate time

2. Sys Ops keeps MEM informed of any changes in the schedule or scope of the planned outage

3. Sys Ops provides final updates 72 hours prior to the planned outage

a) MEM initiates phone calls 24 hours prior to planned outage to include reminder to critical services

(1) MEM reviews call completed list to ensure Critical Care meter calls were answered and attempts to make contact for unanswered notification calls

b) MEM updates web site ALERT banner on home page and social media accounts with planned outage information

4. Sys Ops keeps MEM informed of any changes and when outage begins and ends

a) MEM updates Member Services, CRC, critical services, and social media accounts if outage information changes, when the outage begins, and when the outage is completed

Standard Operating Procedures #10 - REPORTS TO THE SYSTEM OPERATOR

INTRODUCTION

The System Operations' office is responsible for the overall operation of the Empire Electric electrical system. This includes monitoring transmission, substation, generation, and distribution operations to assure system reliability, continuity of service, safety to personnel and the public, and the proper dissemination of information concerning events affecting Empire Electric's operation.

Empire Electric personnel are responsible for reporting any occurrence that has or might have an affect on the company's operating capability. These reports must be prompt to assure that the System Operator has time to initiate proper corrective action, and so that the other departments within Empire Electric or neighboring utilities are properly notified.

CIRCUIT INTERRUPTIONS

1. Interruptions on all lines will be reported as soon as possible.
2. Circuit interruption details should include:
    A. Time or estimated time trouble occurred.
    B. Line name, station, or stations where line relayed.
    C. Relay targets, fault recorder operations, and stations interrupted.
    D. Weather conditions.
    E. Cause of interruption, if known.

STATION AND STATION EQUIPMENT INTERRUPTIONS

1. Report all relay operations or station interruptions.
2. Station and station equipment interruption details should include:
    A. Time or estimated time trouble occurred.
    B. Station or stations involved.

C. Relay targets and fault recorder operations.

D. Weather conditions.

E. Cause of interruption, if known.

LINE OR EQUIPMENT STATUS CHANGE

Report all equipment and line changes affecting the lines and substations under Empire Electric System Operator's jurisdiction. See S.O.P #15, System Change Notice.

REPORTING HAZARDS TO LINES OR EQUIPMENT

1. All employees shall promptly report all information involving such items as fires, explosions, accidents of any nature, property damage, operating errors, abnormal conditions, or any case that is likely to cause any concerns about public safety.

2. In the event a hazard to any line, equipment, or installation is known or expected, or if information regarding such a hazard is received from some outside source, all available facts shall be reported promptly to the System Operator.

   NOTE: In all cases, if details as stated above are not readily available, make a preliminary report to the System Operator giving information available at the time, and make other reports as information becomes available.

Standard Operating Procedures #19 – EMERGENCY SYSTEM OPERATIONS

INTRODUCTION

Due to situations beyond the System Operations' control (i.e. unscheduled outages, weather, system loading, equipment failure, or load shedding to prevent overloaded conditions), System Operations may not be able to operate under the normal operating procedures, as stated in this manual or other documents. System Operations need the flexibility to operate outside the normal procedures as stated in the following guidelines:

PROCEDURES

A. System Operator or Supervisor has the authority to deviate from the Standard Operating Procedures due to an emergency situation that may happen to the system.

B. Any deviation due to an emergency situation shall be logged in the System Operations' Log.

C. Notify the immediate Supervisor of any deviation due to an emergency situation.

PROCEDURES FOR UNSCHEDULED OUTAGE RESTORATION

A. Identify outage area.

B. Dispatch appropriate personnel.

C. Contact appropriate authorities for any information regarding the outage: vehicle accidents, fires, floods, or other events that may have caused the outage, Law Enforcement, CO2 Project, Ute Farm & Ranch, Tri-State G & T Association, Inc., Dolores Water Conservancy, or other agencies.

D. Before re-energizing any lines or equipment, all personnel involved in the outage restoration shall be notified prior to energizing equipment. If for any reason all involved personnel do not agree to re-energizing lines or equipment for any reason, known or unknown, the line or equipment will be patrolled or checked out further, before being energized.

E. Guidelines for re-energizing lines or equipment other than substations:

1. Line or equipment should be re-energized with CB or circuit breaker equipment, if possible.
2. Put equipment to non-reclose position if cold-load pickup is available.
3. Check all men and equipment are in the clear, also grounds removed, if applicable, and ready to energize line.
4. Energize line or equipment.
5. If line does not stay energized, patrol line to next sectionalizing point, open it and try to energize line again up to that point. Continue patrolling line and sectionalizing line as needed.

F. If a Substation outage occurs, please follow the EEA Substation Outage Check List to complete inspection and follow appropriate procedures.

EEA SUBSTATION OUTAGE CHECK LIST

- Determine if entire Substation is off.
  Complete a Substation inspection.
  1. Check Power Transformer. (See SOP #12)
  2. Check Circuit Switcher closed and/or High Side Fuses or Circuit Breakers.
  3. Check Relay Targets.
  4. Check Voltage Regulators/LTC.
  5. Check Voltage @ Regulators.
  6. Check all insulators and equipment bushings.
  7. Check PT and CT for visual damage.
  8. Check Lightning Arrestors for visual damage.
  9. Check High and Low Voltage Bus for anything unusual.
  10. Check all circuit breakers are closed.
  11. Check for animals on or near equipment, also on the ground.
  12. Check all equipment for oil and/or gas levels.
  13. Check all other equipment in the Substation.
  14. Advise System Operator on status of Substation.

G. Please note that any Substation transformer that has a Sudden Pressure or Differential Relay Alarm, shall not be energized without further investigation.

Standard Operating Procedures APPENDIX A - DEFINITIONS

Authorized personnel	Qualified personnel who have been authorized to perform the action requested.
Clearance	A statement with documentation, issued by the System Operator, declaring that the equipment to be worked on has been de-energized and isolated from all hazardous sources of energy.
Clearance holder	An Empire Electric representative that has been authorized to hold a Clearance.
Clearance Order for Source of Power (SOP)	A statement with documentation, issued by the System Operator, to the Dispatcher or operating authority of a neighboring utility, power plant, or Member System declaring that the equipment under control of the Empire Electric System Operator, has been switched as required for a Clearance. A SOP order is issued with the understanding that the receiving party is responsible to provide points of protection on equipment not under the control of the Empire Electric System Operators before issuing a Clearance to authorized personnel. The term Interconnected System (ICS) shall be considered synonymous for switching with Western Dispatchers.
Emergency	Unforeseen event or condition requiring prompt action.
Equipment	Any machine, device, or apparatus, either electrical or nonelectrical.
General Switching	Switching above 600 volts that does not require a Clearance or Hot Line Order.
Hot Line Order	A statement with documentation from a System Operator that specific work may be done on or near a line or other equipment without requiring that it be disconnected from all sources of electrical energy. The equipment is to be considered energized or "hot" at all times.
Hot Line Order for Source of Power (SOP)	A statement with documentation, issued by the System Operator, to the Dispatcher or operating authority of a neighboring utility, power plant, or Member System declaring that the equipment under control of the Empire Electric System

	Operator, has been switched as required for a Hot Line Order. A SOP order is issued with the understanding that the receiving party is responsible to provide points of protection on equipment not under the control of the Empire Electric System Operators before issuing a Hot Line Order to authorized personnel. The term Interconnected System (ICS) shall be considered synonymous for switching with Western Dispatchers.
Interpretations	Interpretations for the following words shall be applied throughout the System Operations Procedures: May - Permissive choice Must - Mandatory Shall - Mandatory Should - Advisory Will - Mandatory
Job site	The location in which work is being performed. In the case of transmission line work, there may be two or more job sites.
Job supervisor	The person responsible for the work being performed and the personnel at a job site.
OCRs	For purposes of standardization all distribution circuit reclosers, whether oil, vacuum or SF6, will be referred to as an OCR.
Personal grounds	Grounds installed on the line or equipment by the workmen.
Safe clearance procedure	The method which shall be followed in requesting, issuing and releasing a clearance.
SCADA	Supervisory Control and Data Acquisition
Source of Power (SOP)	A description of a procedure of a situation when not all Sources of electrical energy have been isolated or controlled, when switching out a line or a piece of equipment. This is used when issuing a Clearance on an electric line or a piece of equipment, and not all sources of electrical energy have been isolated from the line. Also can be used with Hot Line Order when two breakers feeding the

	same circuit, and you can control only one breaker.
Special conditions	A temporary condition pertaining to lines and/or equipment and is not associated with other protective procedures. This term indicates the requirements for special operating instructions and information on the current condition of the equipment. The special condition is for equipment protection only and will only be placed by the direction of the System Operator.
Supervisory controlled station	Any station, either manned or unmanned, which is normally operated from a remote location.
Switchman	A person who has been authorized to perform switching and tagging operations.
System Operator	The person charged with the operation of the Empire Electric System. That person is authorized to issue clearances, hot line orders, or special conditions, direct switching, and other operations required to place and remove protection for clearances, hot line orders, and special conditions. Also directs actions necessary to return the system to normal following a relay operation or system disturbance. The System Operator is also responsible for the operation of the interconnected system and control of generation.
Workman	Any person authorized to inspect, service, repair, install, remove, or otherwise be in contact with equipment. Those authorized may include substation technicians, communications technicians, linemen, mechanics, and operators.
Work Permit	Documentation that allows supervised work to be performed by non-Empire Electric personnel on or near Empire Electric owned transmission lines or facilities.