

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

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PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY )  
 POWER COOPERATIVE, INC. FOR A CERTIFICATE )  
 OF PUBLIC CONVENIENCE AND NECESSITY FOR ) **CASE NO**  
 FOR THE CONSTRUCTION OF A 161 kV ELECTRIC ) **2004-00320**  
 DISTRIBUTION SUBSTATION AND TAP IN )  
 SPENCER COUNTY, KENTUCKY )

APPLICATION

1. East Kentucky Power Cooperative, Inc., hereinafter referred to as the “Applicant”, Post Office Box 707, 4775 Lexington Road, Winchester, Kentucky 40392-0707, hereby files this Application for a Certificate of Public Convenience and Necessity for the construction of a 12/16/20 MVA, 161 – 12.47 kV distribution substation and a 161 kV electric distribution tap in Spencer County, Kentucky hereinafter referred to as “the Project”.

2. This Application is made pursuant to KRS §§278.020, 278.040 and related statutes, 807 KAR 5:120 E and 807 KAR 5:001 Sections 8, 9 and related sections.

3. A copy of Applicant’s restated Articles of Incorporation and all amendments thereto were filed with the Public Service Commission (the “Commission”) in PSC Case No. 90-197, the Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity to Construct Certain Steam Service Facilities in Mason County, Kentucky.

4. A copy of the EKPC Board Resolution approving the Project is attached hereto as Applicant’s **Exhibit I**.

5. The Project consists of a new 12/16/20 MVA, 161 – 12.47 kV distribution substation to be constructed in the Little Mount area of north eastern Spencer County at the end of Miller Road, approximately 4.6 miles along Ky Hwy 44 east of it's intersection with Ky Hwy 55, and a single, radial 161 kV tap from a point the Applicant's Bullitt-Shelby transmission line 68 feet south of Structure No. LR-72, approximately ¼ mile south of Ky. Hwy No. 1169 County to the substation. The substation is being built to solve distribution problems the Applicant's member distribution cooperative, Salt River Electric Cooperative Corporation ("SRECC"), is currently experiencing in the Little Mount area.

6. Attached as Applicant's **Exhibits II and III** are the Prepared Testimony of Mary Jane Warner and Timothy J. Sharp, respectively dealing with the need for the proposed substation and tap.

7. Attached as Applicant's **Exhibit IV** is the Affidavit of Frank J. Oliva which contains an explanation of EKPC's plans for financing the proposed substation and tap.

8. There will be no franchises or permits required from any public authority for the construction of the proposed substation or tap.

9. Typical drawings of the types of structures to be constructed as part of the tap into the Little Mount substation are attached as Applicant's **Exhibit V<sub>1</sub> – V<sub>5</sub>**. The proposed facilities will not compete with any public utilities, corporations or persons.

10. In attempting to determine the property boundaries and property owners on the Project, the Applicant visited the office of the Spencer County Property Valuation Administrator ("PVA") and found that the PVA did not have facilities to copy the maps

located in his office and would not allow any maps out of the office for copying. As an alternative, the Applicant went to the Kentucky Map Sales Office in Frankfort and purchased the appropriate Spencer County PVA Maps. These maps are attached as Applicant's **Exhibit VI<sub>(1)</sub> – VI<sub>(4)</sub>**. It soon became obvious that these maps were incomplete or out of date, so the Applicant sent personnel back to the Spencer County PVA office to hand draw the additional property lines contained on the maps in the PVA office on the maps purchased from the Kentucky Map Sales Office. These revised maps are attached as Applicant's **Exhibit VII<sub>(1)</sub> – VII<sub>(2)</sub>**. These property lines also proved to be incorrect, and the Applicant was directed to the mapping office of the Kentucky Revenue Cabinet. The Cabinet provided the Applicant with electronic versions of property line maps, and it is the Applicant's belief and understanding that these are the most current and correct property boundary maps for the applicable area of Spencer County. These modified PVA maps, in a scale of one inch equals 400 feet, are attached as Applicant's **Exhibit VIII<sub>(1)</sub> – VIII<sub>(3)</sub>**, and also show the location of all proposed structures, facilities, and the proposed easement right-of-way. For the convenience of the Commission, the Applicant has attached to the Original Application as **Exhibit VIII<sub>4</sub>**, a CD-ROM containing PDF files for Exhibits VI through VIII and the GIS files used to generate these exhibits. The typical easement rights to be sought from all affected property owners are set forth in a proposed typical easement document attached as Applicant's **Exhibit IX**.

11. The first year annual cost of operation of the proposed facilities after completion is \$208,799.

12. Attached as Applicant's **Exhibit X** is an Affidavit of Bruce E. Murrey, Jr. certifying that each property owner over whose property the transmission line is proposed to cross has been:

- a) Notified of the proposed construction by certified mail return receipt requested;
- b) Given the Commission docket number of this proceeding and a map showing the proposed location;
- c) Given the address and telephone number of the Commissioner's Executive Director, Elizabeth O'Donnell;
- d) Informed of their right to request a local public hearing and move to intervene; and
- e) Given a description of the proposed project.

Attached as Applicant's **Exhibit XI** is a listing of all property owners the Applicant could identify within its study corridor. Those shown in blue were mailed notices as set forth above and invited to the Open House held on October 14, 2004, picked up the certified mail, and did attend. Those shown in orange were mailed notices and invited to attend the Open House, failed to pick up the certified mail, but did, in fact, attend. Those shown in dark blue were mailed notices and invited to attend the Open House, but failed to pick up the certified mail, and did not attend. Those shown in green were mailed notices, invited to attend the Open House, picked up the certified mail, but did not attend the Open House. Those shown in violet were intentionally not mailed notices and not invited to attend the Open House because, while these properties were

within the study corridor and adjoined properties eventually crossed by the centerline, they were located in densely developed residential subdivisions and the Applicant determined before notices were mailed that these properties would not be crossed by the easement. Those shown in red were unintentionally not mailed notices because they were not identified by the Applicant as owning property within the study corridor due to errors in the maps identified in paragraph numbered 9. However, none of these properties were crossed by the final centerline location.

13. Attached as Applicant's **Exhibits XII<sub>(1)</sub> through XII<sub>(78)</sub>** are copies of all notices provided to property owners pursuant to 807 KAR 5:120, Section 2(3). Attached as Applicant's **Exhibit XIII<sub>1</sub> through XIII<sub>22</sub>** are the notice letters mailed to those property owners whose property will actually be encumbered by the easement.

14. Applicant's **Exhibit X**, Affidavit of Bruce E. Murrey, Jr., contains a verified statement that a notice of intent to construct the Little Mount Tap has appeared in a newspaper of general circulation in Spencer County, Kentucky, which included:

- a) A map of the proposed route; and
- b) A statement of the right to request a local public hearing; and
- c) A statement of the right to move to intervene.

15. Attached as Applicant's **Exhibit XIV<sub>(1)</sub> and XIV<sub>(2)</sub>** are copies of the October 6, 2004, and October 13, 2004, edition of the Spencer Magnet containing the Notice required by 807 KAR 5:120 Section 2(5).

16. Attached as Applicant's **Exhibit XV**, a summary of all discussions at the October 14, 2004, Open House with owners of property over which the Little Mount Tap

might be constructed. These are the only discussions held thus far between the property owners and the Applicant at any public meetings.

17. The Applicant is required, pursuant to 7 CFR § 1794.22 to submit a single Environmental Report for the Little Mount Distribution Substation and Tap Project. The archeological workup for the distribution substation site (which by statute is not required to be a part of this certificate application) has not yet been completed. There are also some actions still to be taken by the United States Fish and Wildlife Service on the Tap line itself. As a result, a final submittal to the Rural Utilities Service of the United States Department of Agriculture has not yet been made. However, attached as Applicant's **Exhibit XVI** are the complete environmental findings as of December 2004, and this will comprise the bulk of the Applicants submittal to the RUS.

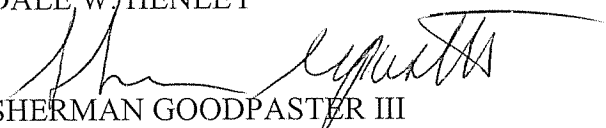
18. Included as part of Applicant's **Exhibit IV**, Affidavit of Frank J. Olivia, is a statement that the Little Mount Project will not involve sufficient capital outlays to materially affect the financial condition of the Applicant.

19. Due to the urgency of constructing the subject transmission facilities, as discussed in the Prepared Testimony of Mary Jane Warner and Tim Sharp, Applicant requests an expedited review of this Application.

WHEREFORE, Applicant respectfully requests the Commission to grant a Certificate of Public Convenience and Necessity for the EKPC Little Mount distribution substation and tap to be constructed in Spencer County, Kentucky.

Respectfully submitted,

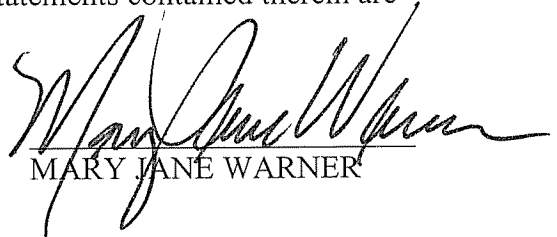
DALE W. HENLEY

  
SHERMAN GOODPASTER III  
ATTORNEYS FOR EAST KENTUCKY  
POWER COOPERATIVE, INC.  
PO BOX 707  
WINCHESTER, KY 40392-0707  
859-744-4812

VERIFICATION

STATE OF KENTUCKY    )  
                                  ) SCT.  
COUNTY OF CLARK    )

The affiant, Mary Jane Warner, states that she is the Manager of Power Delivery Expansion for the Plaintiff, East Kentucky Power Cooperative, Inc., and that this affiant has read the foregoing Petition and that the statements contained therein are true.

  
MARY JANE WARNER

Subscribed and sworn to before me in the aforesaid state and county by Mary Jane Warner this the 14 day of December, 2004.

My notarial commission expires: January 27, 2005

  
NOTARY PUBLIC, KY  
STATE-AT-LARGE.

**FROM THE MINUTE BOOK OF PROCEEDINGS  
OF THE BOARD OF DIRECTORS OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, December 9, 2003, at 9:30 a. m., EST, the following business was transacted:

After review of the applicable information, a motion was made by Donnie Crum, seconded by Dudley Bottom, and, there being no further discussion, passed to approve the following:

**Whereas**, East Kentucky Power Cooperative, Inc., ("EKPC") engineering studies have confirmed the necessity and advisability of the following projects included in the December 8, 2003 Amendment to the EKPC Rural Utilities Service ("RUS") approved Three-Year Work Plan (November 2002-October 2005):

Argentum 11.2/14 MVA, 69-12.5 KV Substation Upgrade	\$154,000
Carter City 11.2/14 MVA, 69-12.5 KV Substation Upgrade	\$154,000
Milton 11.2/14 MVA, 69-12.5 KV Substation Upgrade	\$154,000
South Elkhorn 15/20/25 MVA, 69-12.5 KV Substation Upgrade	\$369,000
Little Mount 12/16/20 MVA, 161-12.5 KV Substation	\$921,000
Little Mount 161 KV Tap	\$1,668,000
Southville 11.2/14 MVA, 69-12.5 KV Substation Rebuild	\$517,000

**Whereas**, Review by the Power Delivery ("PD") Committee and approval of the EKPC Board of Directors ("Board") is required for the construction and financing of these projects pursuant to Board Policies No. 103 and 106;

**Whereas**, The current EKPC Three-Year Work Plan (November 2002-October 2005) dated October 2002, has been submitted to RUS for approval, which requires that any amendment thereto be approved by the Board;

**Whereas**, EKPC management and the PD Committee recommend that the Board amend the current EKPC RUS approved Three Year Work Plan and approve construction of these projects, the acquisition of all real property and easement rights,



by condemnation if necessary, and the obtaining of permits and approvals necessary and desirable for these projects and include the financing of these projects with general funds, subject to reimbursement from construction loan funds should they become available and the Board will act upon said recommendation this date; and

**Whereas**, This recommendation supports the delivery of facilities at a competitive cost, on time, and of good quality; now, therefore, be it

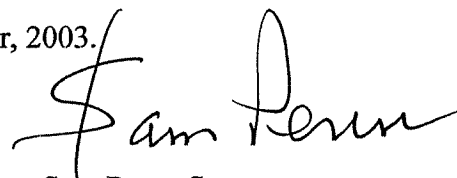
**Resolved**, That EKPC management is authorized to amend the current EKPC RUS approved Three-Year Work Plan to include the above projects summarized in more detail in the attached Executive Summary;

**Resolved**, That approval is hereby given for construction of said projects included in the December 8, 2003 Amendment to the EKPC Three-Year Work Plan (November 2002-October 2005), at an estimated total cost of \$3,937,000 and for the acquisition of all real property and easement rights, by condemnation if necessary, as well as all necessary permits and approvals for these projects; and

**Resolved**, That approval is hereby given to amend the EKPC Annual Budget and Work Plan to include the projects and to finance them with general funds, subject to reimbursement from construction loan funds should they become available.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 9th day of December, 2003.

  
Sam Penn, Secretary

Corporate Seal

**EXHIBIT II**

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

THE APPLICATION OF EAST KENTUCKY )  
POWER COOPERATIVE, INC. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY FOR ) **CASE NO**  
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC ) **2004-00320**  
DISTRIBUTION SUBSTATION AND TAP IN )  
SPENCER COUNTY, KENTUCKY )

**PREPARED TESTIMONY OF MARY JANE WARNER  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

1. Please state your name and address.
  - A. Mary Jane Warner, 27 Lynnway Drive, Winchester, KY 40391.
2. By whom are you employed and in what position?
  - A. I am employed by East Kentucky Power as Manager of Power Delivery Expansion.
3. As background for your testimony, please briefly describe your educational background and work experience?
  - A. I am a graduate of the University of Kentucky with a Bachelor's of Science in Civil Engineering and I am a Licensed Professional Engineer in the Commonwealth of Kentucky. I have 24 years of experience in Power Delivery related to the planning, design and construction of transmission lines and electrical substations.
4. What are your duties and responsibilities as manager of EKPC's Power Delivery Expansion Department?

- A. I supervise and am responsible for all planning, routing, design and construction of transmission additions to the EKPC system.
5. Was the planning, routing and design activity for the Little Mount Tap that is the subject of this Case No. 2004-00320 performed under your direction and supervision?
- A. Yes
6. What is the purpose of your testimony?
- A. The purpose of my testimony is to provide information related to the need and alternatives considered for facilities EKPC has proposed for construction in Spencer County that are the subject of this case.
7. Why is the proposed project needed?
- A. Salt River Electric Cooperative Corporation (SRECC) is experiencing significant load growth in the vicinity of Taylorsville Substation in Spencer County. Power Requirement Study projections indicate load levels that will exceed EKPC's Taylorsville transformer rating for extreme 2008 summer conditions, and result in very high loading of a long feeder from the Taylorsville Sub under 2003/04 extreme winter conditions. SRECC is currently experiencing excess loading and low-voltage in this area, and has had several power quality complaints from its members served by this feeder. Without a solution in place, SRECC Members will not receive adequate and reliable future in the very near future.
8. What alternatives were considered to address these needs?
- A. Based on a "One System" concept, alternatives were developed involving both the SRECC's and EKPC's systems to find the solution that eliminated projected

overloads of existing facilities, increased service reliability, and added sufficient capacity to meet future load growth in the Taylorsville area. There were four alternatives that met this basic criteria and were subsequently evaluated and compared as outlined in more detail in EKPC's Little Mount Distribution Substation justification attached hereto as **Warner Exhibit I** and made a part of my testimony.

Alternative A – Upgrade Distribution System and Construct Taylorsville #2 Substation in 2008

Alternative B – Construct New Little Mount 11.2/14 MVA, 69-12.47 kV Substation served from LGEE 69kV

Alternative C – Construct New Little Mount 12/16/20 MVA, 161-12.47 kV Substation served from EKPC 161kV

Alternative G – Construct New 12.47kV, 795 ACSR Distribution Feeder from Darwin Thomas Substation

9. Why was the proposed project chosen instead of the alternatives?
  - A. Although the proposed alternative is approximately \$114,000 more in twenty-year present worth dollars than Alternative G (the least cost plan), it offers significant additional reliability and better flexibility for serving future load as it develops in this area without additional major improvements to the distribution system. Therefore, it was selected as the best plan.
10. How does EKPC select the best alternative for meeting the needs of its member systems?

A. For needs related to joint planning between EKPC and their Members, EKPC's Member Cooperative in this area (Salt River Electric Cooperative Corporation) evaluated the predicted performance of their distribution system and determined that improvements were needed to continue to provide adequate and reliable service to their members in the Little Mount area. One alternative they considered was the addition of a new delivery point. Because that alternative was viable and considered a potentially economically competitive solution, SRECC contacted EKPC to request that a substation evaluation take place. EKPC's planners reviewed the SRECC analysis and extended it to include the costs and transmission system evaluation necessary to fully develop the new substation alternative. The proposed solution is selected by identifying the best alternative that adequately solves the problem, lasts into the future and is most cost effective.

11. Do you have an opinion as to whether the selected project best addresses the problems SRECC is facing in its service territory?

A. Yes

12. What is that opinion?

A. It is my opinion that the Little Mount Substation Project best addresses these problems.

13. With respect to the routing and design of the proposed Little Mount Tap, explain the process EKPC undertakes before determining a final route and design.

A. When, as is the case with this project, the best solution is a new distribution substation to be served from EKPC's transmission system, an area is identified for selection of a substation site. EKPC and its Member Cooperative work together to

evaluate possible sites and EKPC seeks to purchase a site. When the substation site has been acquired, either by deed or option, and acceptable tap point locations have been identified on the existing transmission system, a straight line is drawn between those points as a beginning point for the routing process. Engineers prepare possible draft routes using topographic maps and aerial maps and then conduct field reconnaissance to confirm features and view as much of the potential project area as possible. The information collected in the field is used to refine the work into draft routes and to develop the study corridor (usually ½ mile in width). This selection is made based on a comparison in the project area of paths that balance cost, effectiveness, environmental impact, and impact to the local community. When the study corridor has been established, property boundary information and ownership data are collected from the local Property Value Administrator's office for every property located within the study corridor. An open house is held in the community with prior newspaper notice and personal invitation letters sent to every owner identified of record within the study corridor. The purpose of the open house is to provide information about the project to local residents and to collect input from them in regard to their concerns, local plans and activities in the project area, and pertinent information that may not have yet been discovered. Information gathered from property owners and others at the open house is compiled and used by the engineers in developing the proposed route (located within the study corridor) and all property owners within the study corridor are notified as to whether or not their tract(s) will be subject to the Applicant's easement.

14. How did EKPC follow this process specifically regarding the Little Mount Tap?

A. After the substation site options were secured, two EKPC teams studied maps and aerial photos in the office and went to the field independently to perform reconnaissance and develop potential paths for the study corridor. The teams then returned to the office and worked together to select the best path around which to center the study corridor. Factors included in this comparison were number and severity of line angles, proximity to residences, proximity to other buildings, and highway crossings. No special features like parks, federal/state lands, wetlands, airstrips, cemeteries, special habitat, etc. were detected in this project area and the proportion of land use was relatively consistent from one alternative to the other. Copies of the Spencer County PVA maps were obtained from the State Map Office in Frankfort, but were determined to be out of date upon inspection. Because equipment to accurately copy the maps is not available at the PVA office and patrons are not permitted to remove the maps for reproduction, the PVA map copies from Frankfort were updated by hand from the official copies on site. Those modified maps and corresponding data were used to compile an invitation list for persons owning property inside the study corridor, excepting those properties located in subdivisions through which EKPC would not route the line. A newspaper notice advertising the open house was also issued in the paper of largest circulation in the area. The open house was held on October 14, 2004 from 4:30 to 7:30 p.m. in the Spencer Middle School Cafeteria, located on Reason Avenue in Taylorsville, Kentucky. At least 40 property owners attended, and 47 properties were represented. The information gathered at the open house was compiled and brought back to the office where designers developed the proposed route by

considering all available data and striving to balance cost, effectiveness, and environmental impact while minimizing impact to the local community as a whole. Further investigation to improve the map accuracy yielded another source for the property boundary information and another modification was made to that information yielding three property owners in the corridor that had not been contacted by personal invitation to attend the open house. Notices have been sent to all property owners who were invited to the open house and the three that were not previously detected informing them that easement rights for the proposed centerline will or will not affect their properties, based on the route and design submitted in this application. The more accurate property boundary information has been incorporated into Applicant's **Exhibit VIII<sub>1</sub> – VIII<sub>4</sub>** to this application.

15. How did EKPC take any specific property owner comments or requests into account before determining the final location?
  - A. A. On the day of the open house it is normal for the line designer to visit the project area and view as much of the proposed route as possible, in preparation for discussions with property owners. During this activity a new house start was detected in the center of the corridor that had occurred since the last field visit, so it was necessary to avoid that area. A tap point had been considered to provide good accessibility and minimize the cost of modification to the existing transmission line. When property boundaries were located, the tap point also appears to be in or very near a property line, which is also desirable. Open house requests were made and incorporated as follows:



EKPC MAP#	Request	Consideration
3 & 9	No guys	Guys were necessary, but were located in a fence row.
12	parallel existing gas line	Could not be met - gas line runs diagonally across the corridor, safety and operational concerns related to co-location with electric and gas pipelines, additional length and angles, alignment problems with avoiding homes on east side of Yoder Tipton Road.
20	locate along southern part of property	proposed route meets this request
63	locate along southern part of property	proposed route meets this request
62	locate in the back of the property along the creek or on the hillside next to the creek	proposed route meets this request
67	locate line in the middle of property to avoid cutting trees toward the creek because that area is used for hunting	proposed route meets this request
70	prefers middle of property	proposed route meets this request
71	minimize tree cutting	proposed route located away from the creek to minimize tree cutting
74 & 75	locate line behind house on parcel 74, toward the creek	proposed route meets this request

15. Is the location and routing of the Little Mount Tap, in your opinion, the best balance of cost, effectiveness, and environmental impact while minimizing impact to the local community as a whole?

A. Yes it is.

16. Does this conclude your testimony?

A. Yes, it does.



**December 5, 2003**

### **LITTLE MOUNT DISTRIBUTION SUBSTATION**

Salt River Electric Cooperative Corporation ("SRECC") is experiencing significant load growth in the vicinity of Taylorsville Substation in Spencer County. The 2002 Power Requirements Study ("PRS") projects Taylorsville Substation to reach 14.1 MVA under extreme 2008 summer conditions. The existing transformer has a maximum summer rating of 13.6 MVA and would experience a thermal overload of 3.5 percent under extreme 2008 summer conditions. Taylorsville Feeder 4 is projected to experience 7,800 kW under 2003/04 extreme winter conditions. The main three-phase portion of this feeder extends approximately 8.4 miles from Taylorsville Substation and is comprised mostly of 1/0 copper. Approximately 68 percent of the total feeder load is electrically located beyond 8.4 miles from the substation. SRECC is currently experiencing excess loading and low-voltage, and has had several power quality complaints from its members that are served by this feeder. A joint study was undertaken to determine the most feasible and cost-effective solution to the system problems.

The primary concerns of this study were to eliminate projected overloads of existing facilities, increase service reliability, and add sufficient capacity to meet future load growth in the Taylorsville area. East Kentucky Power Cooperative ("EKPC") and SRECC performed a joint planning study to determine the most cost effective solution to the system problems in the area. SRECC provided cost estimates for distribution improvements and calculated system losses for each alternative studied. EKPC provided cost estimates for transmission and substation facilities and performed an economic analysis of alternatives in the study. Attached Figure 1 is a map that shows the general area of the transmission system analyzed in this study. Attached Figure 2 is a one-line diagram that shows the transmission system in this area.

Four alternate long-term solutions were studied in detail as follows:

**Alternative A: Upgrade Distribution System and Construct Taylorsville #2 Substation in 2008** – SRECC would upgrade its distribution system by replacing 8.4 miles of three-phase 1/0 conductor with 795 ACSR conductor. SRECC would also convert 6.1 miles of existing single-phase line sections to three-phase 1/0 ACSR. In 2008, EKPC would construct a new 11.2/14 MVA, 69-12.47 kV substation (“Taylorsville #2”) adjacent to the existing Taylorsville Substation for additional substation capacity. In 2013, SRECC would be required to reconductor 1.6 miles with 795 ACSR and convert 10.5 miles to three-phase 1/0 ACSR. EKPC would continue to pay transmission wheeling to LGE Energy (“LGEE”) for transmission service to the Taylorsville Substation load.

**Alternative B: Construct New Little Mount 11.2/14 MVA, 69-12.47 KV Substation Served from LGEE 69 KV** – EKPC would construct a new 11.2/14 MVA, 69-12.47 KV distribution substation (“Little Mount”) adjacent to KY HWY 44 near the community of Little Mount, Kentucky. EKPC would also construct a new 6.4 mile, 69 kV transmission tap line from LGEE’s Bardstown-Finchville 69 kV line. SRECC would convert 2.9 miles to three-phase 1/0 ACSR. EKPC would continue to pay transmission wheeling to LGEE for transmission service to Taylorsville and Little Mount Substations.

**Alternative C: Construct New Little Mount 12/16/20 MVA, 161-12.47 KV Substation from EK 161 KV** – EKPC would construct a new 12/16/20 MVA, 161-12.47 KV distribution substation (“Little Mount”) adjacent to KY HWY 44 near the community of Little Mount, Kentucky. EKPC would also construct a new 6.3 mile, 161 kV transmission tap line from EKPC’s Bullitt County – Shelby County 161 kV line. SRECC would convert 2.9 miles to three-phase 1/0 ACSR.

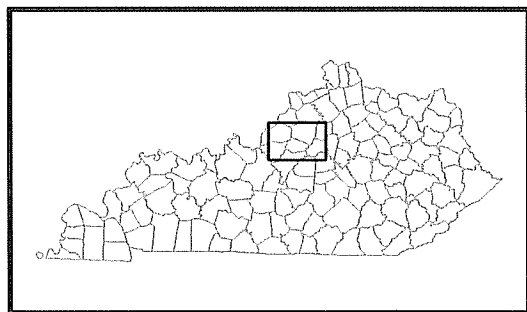
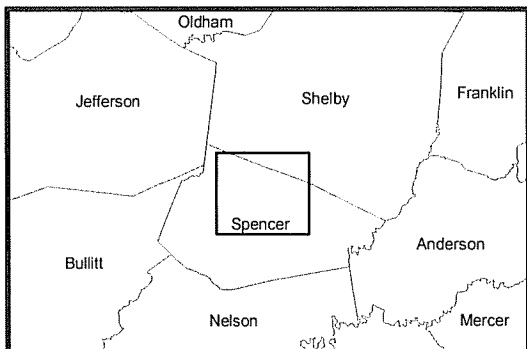
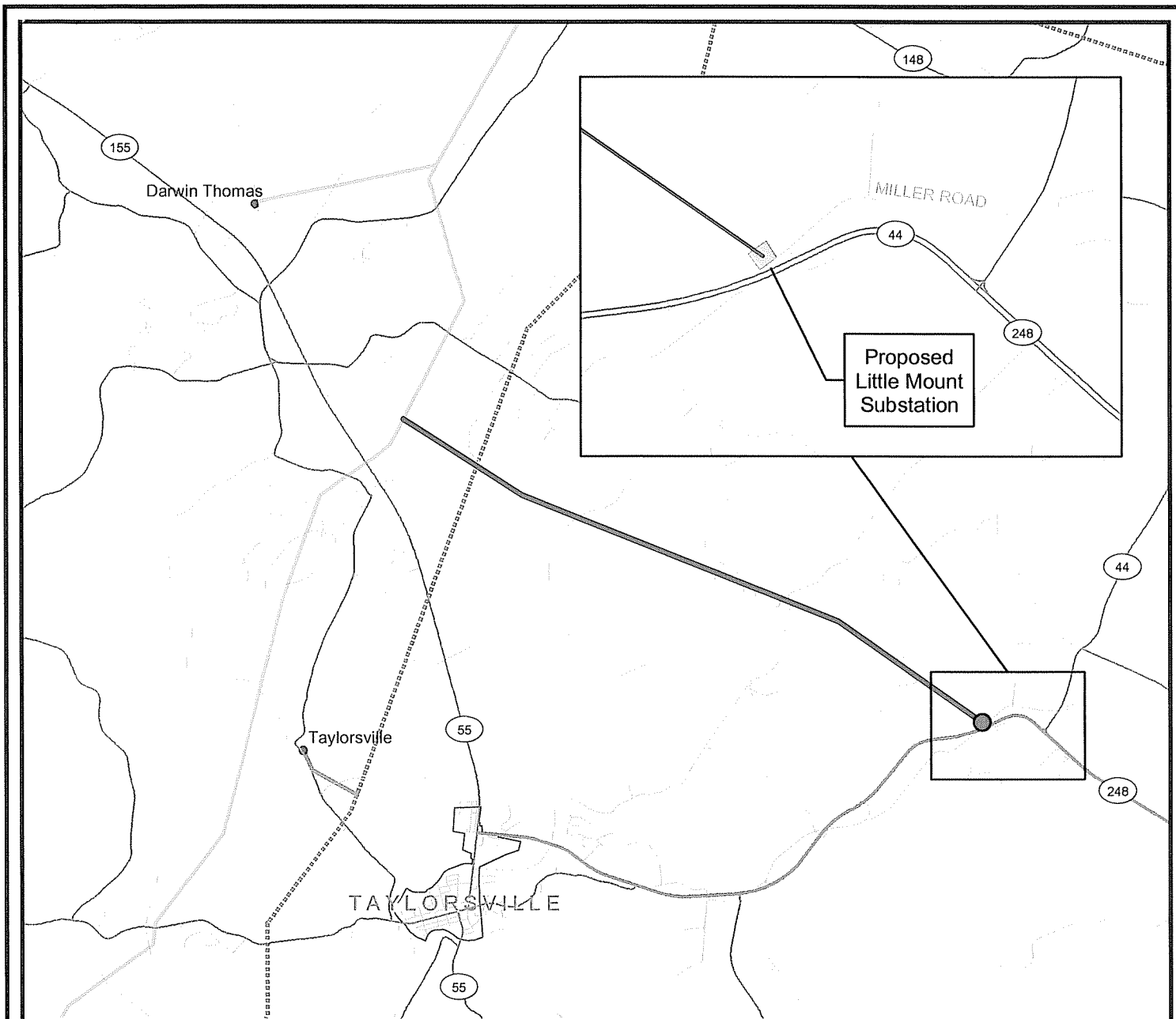
**Alternative G: Construct New 12.47 KV, 795 ACSR Distribution Feeder from Darwin Thomas Substation** - SRECC would offload the existing distribution system by constructing a new 5.8 mile, 336 ACSR feeder from Darwin Thomas Substation to the Little Mount area. SRECC would also convert 1.4 miles to three-phase 1/0 ACSR and

install two voltage regulator banks. EKPC would construct a new Little Mount Substation in year 2011.

In conclusion, the four alternatives solve anticipated problems in the study area for at least ten years and possibly longer. The following points add to the justification for recommending Alternative C (New Little Mount 12/16/20 MVA, 161-12.47 KV Substation and 6.3 mile Tap) as the preferred solution:

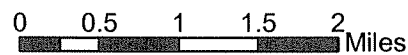
- Even though Alternative C is approximately \$114,000 more in twenty-year present worth dollars than the least cost plan (Alternative G), the additional reliability benefits outweigh the additional costs.
- A new Little Mount Substation would be constructed near the center of load growth in Spencer County giving SRECC better flexibility for serving load as it continues to develop in the area without major improvements to its system.

Therefore, Alternative C (New Little Mount 12/16/20 MVA, 161-12.47 KV Substation and 6.3 mile Tap) is proposed as the best long-term solution for serving the area. The total estimated project cost for Alternative C is \$2,589,000 with a target in service date of December 2004.



**Legend**

- Proposed Substation
- Proposed Transmission
- EKPC Substation
- EKPC 69 kV
- EKPC 138 kV
- EKPC 161 kV
- EKPC 345 kV
- ..... KU 69kV
- ..... KU 138kV
- ..... KU 161kV



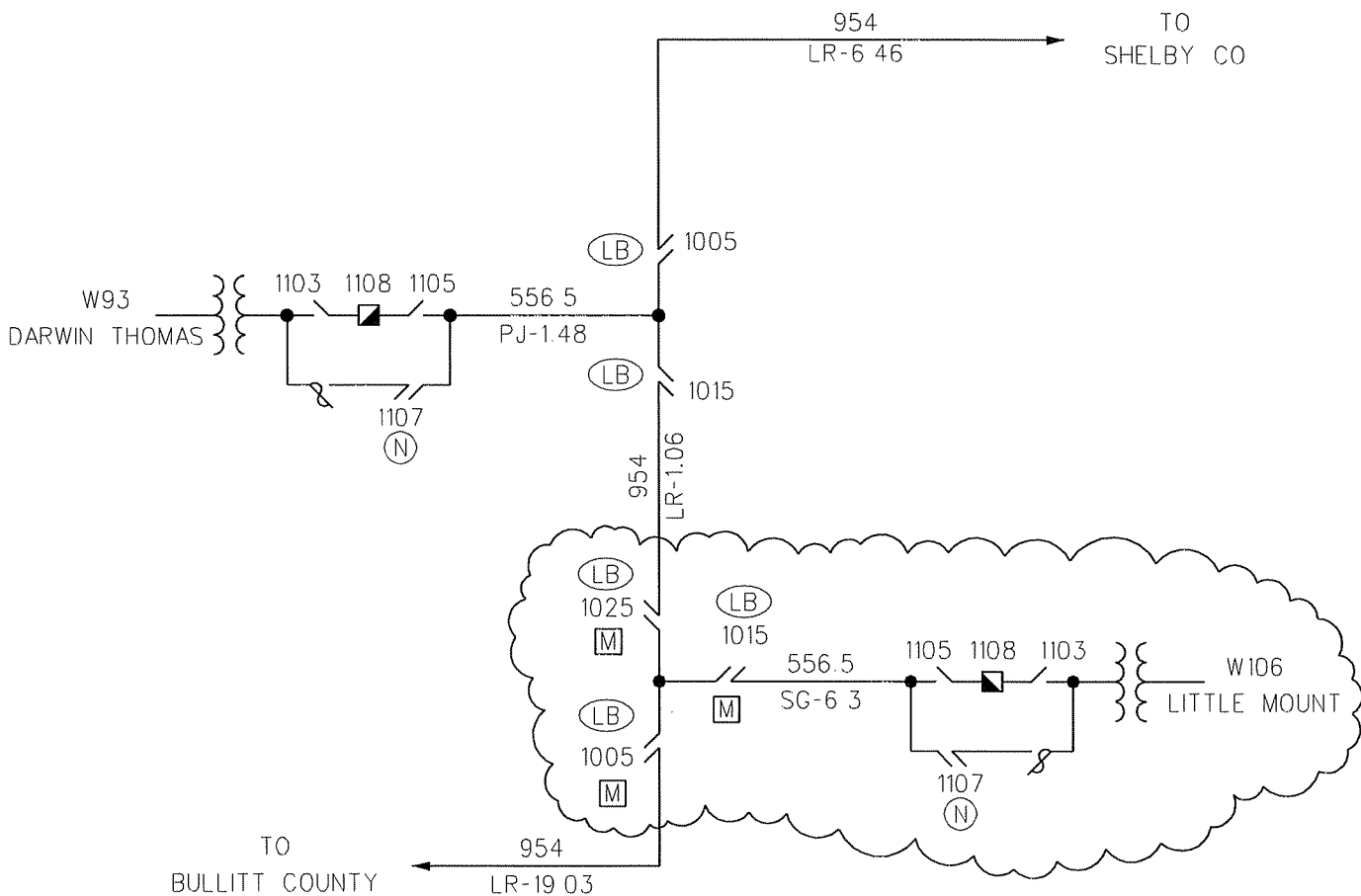
**Figure #1**  
**Proposed Little Mount Substation and Tap Vicinity Map**



East Kentucky Power Cooperative  
 4775 Lexington Road, PO Box 707  
 Winchester, Kentucky 40391  
 Phone (859)744-4812 www.ekpc.com Fax (859)744-6008

NO.	REVISIONS	DATE	CHK

**FIGURE 2**



<b>PRELIMINARY</b>	
REVIEWED _____	
APPROVED _____	
<b>DESIGN REVIEW</b>	
OPERATIONS _____	
MAINTENANCE _____	
CONSTRUCTION _____	

APPROVALS		DATE	EAST KENTUCKY POWER WINCHESTER, KENTUCKY 40392
DRAWN R. TERRILL		12-11-03	
DESIGNED			LITTLE MOUNT DISTRIBUTION SUBSTATION "W106" & TAP ONE LINE DIAGRAM
CHECKED			
APPROVED			
B. C. _____	W. D. _____	SCALE: NONE	A DWG. NO. TOL03-27
AS BUILT _____	= _____	SHEET 1 OF 1	

**EXHIBIT I**

**EAST KENTUCKY POWER COOPERATIVE**  
LITTLE MOUNT SUBSTATION EVALUATION

COST SUMMARY

Alternate Plan	PRESENT VALUE 2003 DOLLARS				
	EKPC	SRECC	Losses (1)	Wheeling (2)	Total
A Upgrade Distribution System and Construct Taylorsville #2 in 2007	\$456,890	\$2,207,985	\$579,245	\$1,891,122	\$5,135,242
B New Little Mount 11.2/14 MVA, 69-12.47 kV Substation Fed from KU 69 kV	\$2,239,382	\$213,052	\$133,256	\$1,891,122	\$4,476,813
C New Little Mount 12/16/20 MVA, 161-12.47 kV Substation Fed from EKPC 161 kV	\$2,912,321	\$213,052	\$133,256	\$678,808	\$3,937,437
G Transfer Load to Darwin Thomas, Construct Little Mount from EK 161 kV in 2011	\$1,576,196	\$961,357	\$232,456	\$1,053,281	\$3,823,290

**Notes:**

1. Distribution Losses are based on EKPC's Avoided Energy and Avoided Capacity Rates.
2. Transmission Wheeling from LGEE is based on \$1.21 per kW-Month.



**EXHIBIT I (continued)**

**Alternative A - Upgrade Distribution System and Construct Taylorsville #2 in 2007**

Description	Cost Estimate		Actual Year Estimate		Annual Cost		Present Worth 2003 \$'s
	Year	\$'s	Year	Quantity	Type	\$'s	
Distribution - Reconductor with 795 ACSR	2003	\$78,100	2003	8.40	DC	\$119,334	\$1,235,273
Distribution - Convert to 3-phase, 1/0 ACSR	2003	\$42,000	2003	6.10	DC	\$46,603	\$482,405
Distribution - Install 300 Amp Voltage Regulator	2003	\$27,600	2003	1.00	DC	\$5,020	\$51,969
New Taylorsville #2 11.2/14 MVA, 69-12.47 kV Substation	2003	\$517,000	2008	1.00	DS	\$63,572	\$399,484
0.2 mile, 69 kV Taylorsville #2 Tap	2003	\$183,400	2008	0.20	ST	\$5,181	\$32,555
Two-way, 69 kV Switch and Tap Structure	2003	\$28,000	2008	1.00	ST	\$3,955	\$24,851
Distribution - Reconductor with 795 ACSR	2003	\$78,100	2013	1.60	DC	\$28,016	\$95,934
Distribution - Convert to 3-phase, 1/0 ACSR	2003	\$42,000	2013	10.50	DC	\$98,874	\$338,565
Distribution - Relocate Voltage Regulator	2003	\$5,000	2013	1.00	DC	\$1,121	\$3,839
Distribution Losses (1)							\$579,245
Transmission Wheeling (Taylorsville #1 & #2) (2)							\$1,891,122
<b>Total PW:</b>							<b>\$5,135,242</b>

STUDY PARAMETERS		FIXED CHARGE RATES	
Present Year	2003	New Transmission (NT):	0.1257
Initial Year	2004	Reconductor (R):	0.0902
Study Period (Years)	20	Distribution Substation (DS):	0.1090
Final Year	2023	Substation Tap (ST)	0.1252
Present Worth Factor	7.3%	Distribution Coop (DC)	0.1819
IDC	0%		

**Notes:**

1. Distribution Losses are based on EKPC's Avoided Energy and Avoided Capacity Rates.
2. Transmission Wheeling from LGEE is based on \$1.21 per kW-Month.

**EXHIBIT I (continued)**

**Alternative B - New Little Mount 11.2/14 MVA, 69-12.47 kV Substation Fed from KU 69 kV**

Description	Cost Estimate		Actual Year Estimate		Annual Cost		Present Worth 2003 \$'s
	Year	\$'s	Year	Quantity	Type	\$'s	
New Little Mount 11.2/14 MVA, 69-12.47 kV Substation	2003	\$517,000	2004	1.00	DS	\$57,664	\$543,166
6.4 Mile, 69 kV Transmission Line	2003	\$214,000	2004	6.40	ST	\$175,464	\$1,652,773
Three-way, 69 kV Switch and Tap Structure	2003	\$36,000	2004	1.00	ST	\$4,612	\$43,443
Distribution - Convert to 3-phase, 1/0 ACSR	2003	\$42,000	2004	2.90	DC	\$22,618	\$213,052
Distribution Losses (1)							\$133,256
Transmission (Taylorsville) (2)							\$678,808
Transmission Wheeling (Little Mount) (2)							\$1,212,314
							<b>Total PW:</b>
							<b>\$4,476,813</b>

**STUDY PARAMETERS**

Present Year	2003
Initial Year	2004
Study Period (Years)	20
Final Year	2023
Present Worth Factor	7.3%
IDC	0%

**FIXED CHARGE RATES**

New Transmission (NT):	0.1257
Reconductor (R):	0.0902
Distribution Substation (DS):	0.1090
Substation Tap (ST)	0.1252
Distribution Coop (DC)	0.1819

**Notes:**

1. Distribution Losses are based on EKPC's Avoided Energy and Avoided Capacity Rates.
2. Transmission Wheeling from LGEE is based on \$1.21 per kW-Month.

**EXHIBIT I (continued)**

**Alternative C - New Little Mount 12/16/20 MVA, 161-12.47 kV Substation Fed from EKPC 161 kV**

Description	Cost Estimate		Actual Year Estimate		Annual Cost		Present Worth 2003 \$'s
	Year	\$'s	Year	Quantity	Type	\$'s	
New Little Mount 12/16/20 MVA, 161-12.47 kV Substation	2003	\$900,000	2004	1.00	DS	\$100,383	\$945,549
6.3 Mile, 161 kV Transmission Line	2003	\$246,000	2004	6.30	ST	\$198,550	\$1,870,231
Three-way, 161 kV MOAB Switch and Tap Structure	2003	\$80,000	2004	1.00	ST	\$10,249	\$96,540
Distribution - Convert to 3-phase, 1/0 ACSR	2003	\$42,000	2004	2.90	DC	\$22,618	\$213,052
Distribution Losses (1)							\$133,256
Transmission Wheeling (Taylorsville) (2)							\$678,808
							<b>Total PW:</b>
							<b>\$3,937,437</b>

**STUDY PARAMETERS**

Present Year	2003
Initial Year	2004
Study Period (Years)	20
Final Year	2023
Present Worth Factor	7.3%
IDC	0%

**FIXED CHARGE RATES**

New Transmission (NT):	0.1257
Reconductor (R):	0.0902
Distribution Substation (DS):	0.1090
Substation Tap (ST)	0.1252
Distribution Coop (DC)	0.1819

**Notes:**

1. Distribution Losses are based on EKPC's Avoided Energy and Avoided Capacity Rates.
2. Transmission Wheeling from LGEE is based on \$1.21 per kW-Month.

**EXHIBIT I (continued)**

**Alternative G - Express Feed From Darwin Thomas in 2004; Construct Little Mount from EK 161 kV in 2011**

Description	Cost Estimate		Actual Year Estimate		Annual Cost		Present Worth 2003 \$'s
	Year	\$'s	Year	Quantity	Type	\$'s	
Distribution	2003	\$75,000	2004	5.80	DC	\$80,780	\$760,899
Distribution	2003	\$45,000	2004	1.40	DC	\$11,699	\$110,199
Distribution	2003	\$27,600	2004	1.00	DC	\$5,125	\$48,278
Distribution	2003	\$24,000	2004	1.00	DC	\$4,457	\$41,981
New Little Mount 11.2/14 MVA, 69-12.47 kV Substation	2003	\$900,000	2011	1.00	DS	\$115,027	\$511,747
6.3 Mile, 161 kV Transmission Line	2003	\$246,000	2011	6.30	ST	\$227,516	\$1,012,200
Three-way, 161 kV MOAB Switch and Tap Structure	2003	\$80,000	2011	1.00	ST	\$11,744	\$52,249
Distribution Losses							\$232,456
Transmission Wheeling (Taylorsville)							\$1,053,281
						<b>Total PW:</b>	<b>\$3,823,290</b>

STUDY PARAMETERS		FIXED CHARGE RATES	
Present Year	2003	New Transmission (NT):	0.1257
Initial Year	2004	Reconductor (R):	0.0902
Study Period (Years)	20	Distribution Substation (DS):	0.1090
Final Year	2023	Substation Tap (ST)	0.1252
Present Worth Factor	7.3%	Distribution Coop (DC)	0.1819
IDC	0%		

**Notes:**

**EXHIBIT III**

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF:**

THE APPLICATION OF EAST KENTUCKY )  
POWER COOPERATIVE, INC. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY FOR ) **CASE NO**  
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC ) **2004-00320**  
DISTRIBUTION SUBSTATION AND TAP IN )  
SPENCER COUNTY, KENTUCKY )

**PREPARED TESTIMONY OF TIMOTHY J. SHARPE  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

1. Please state your name and address.
  - A. Timothy J. Sharp, 1001 Eagle Pass, Bardstown, Nelson County, Kentucky 40004.
2. By whom are you employed and in what position?
  - A. Salt River Electric Cooperative Corporation, Vice-President of Operations.
3. As background for your testimony, please briefly describe your educational background and work experience?
  - A. Bachelor of Science from Eastern Kentucky University; Bachelor of Science Electrical Engineering from University of Kentucky; Master in Business Administration from University of Louisville; Licensed Professional Engineer in the State of Kentucky, PE No. 20741. Work experience includes fourteen years electrical utility experience including seven years with Kentucky Utilities and approximately seven years with Salt River ECC, with functions ranging in all areas of distribution engineering and operations.
4. What are your duties and responsibilities as Vice President of Operations?

A. Direction of the overall operation and function of the Engineering, Operations, System Automation and Purchasing Departments. Establishment of processes and programs required which ensure the continuous improvement and integrity of Salt River Electric's electric distribution system. Responsible for all of the following staff:

- |                          |                      |
|--------------------------|----------------------|
| * Outside Operations     | * System Engineering |
| * Purchasing             | * Dispatch           |
| * Information Technology |                      |

5. Were the distribution aspects of the planning and justification for the Little Mount Distribution Tap Project, which is the subject of this Case No. 2004-00320, performed by you or under your direction and supervision?

A. Yes.

6. What is the purpose of your testimony?

A. The purpose of my testimony is to provide information related to the need and alternatives considered for facilities EKPC has proposed for construction in Spencer County that are the subject of this case.

7. Why is the proposed project needed?

A. The Little Mount area of our system has in recent years experienced extreme load growth due to new subdivisions and customers locating in the area. The influx of new construction in this area seems to be related to a movement of population from Jefferson County to our more rural area. This additional growth has created a severe strain on the existing distribution facilities in the Little Mount area. Problems in this area range from low voltage to what customers have referred to as "brown-out" conditions to outages caused by protective devices being overloaded

due to high amounts of current. The system currently has three sets of voltage regulators to provide adequate voltage support for the area. In addition, the protective devices are as large as is practical for the conductor size of the facilities that are being served. Additionally, approximately three years ago Salt River ECC installed a static VAR compensator to minimize brown-outs the customers were experiencing from motor starts in the area. To say the least, this system is a very weak system and it is stressed to its maximum during normal peak conditions. Last winter, which was a mild winter, the circuit feeding Little Mount experienced currents in excess of 420 amps per phase and voltage drops of approximately 5% per phase. Both of these problems existed even with the voltage regulation and over-current devices in place. Since that time growth has continued in the Little Mount area and Salt River ECC is seriously concerned that if measures are not taken to improve the system in this area that during extreme winter peak conditions we would be over-extended to provide adequate service to our customers. An additional concern is that in the event of an outage under these conditions, cold load pick up would make restoring service to these customers difficult and time consuming, if not impossible.

8. What distribution alternatives were considered to address these needs?
  - A. Salt River ECC considered rebuilding and upgrading the existing line served from the Taylorsville substation to the Little Mount area in its present location to provide adequate service. They also considered installing an additional circuit from the Taylorsville substation to improve service to this area. We looked at rebuilding a circuit from the Bloomfield substation to improve service in this area. Finally, we

looked at constructing a new express feeder from our Darwin Thomas substation to improve the service in this area. The two most feasible solutions of these were to rebuild the existing circuit or install the express circuit from Darwin Thomas substation.

9. Why was the proposed project chosen instead of the alternatives?
  - A. Upgrading the existing circuit to provide service to the area would cost an approximate additional \$1.2 million more than the proposed project. In addition, it would not improve reliability nearly as much as having a new substation located in the Little Mount area, and in 2008 would require EKP to increase the capacity of the Taylorsville substation to maintain service to its facilities. The express feeder from the Darwin Thomas substation was not selected because although it provides an immediate fix for problems in the Little Mount area, it still requires two voltage regulator banks to maintain voltage and would require a new substation in the Little Mount area in 2011. Building this circuit provides limited benefit since it would be constructed through an area that is not growing and most likely will not grow very fast in the future due to constraints of the topography. Additionally, this topography would provide challenges in maintaining or improving reliability due to difficulties in accessing the area where the line would be constructed. Cost-wise, this proposal was only \$114,000 savings over constructing a new substation in the Little Mount area that would provide much better reliability and voltage support for the customers in that area. For these reasons, the proposed project was chosen as the best solution for the problem.
10. In what time frame is this project needed?



- A. This project was requested to be completed by December 2003, and therefore is needed as soon as possible.
11. What will be the potential consequences if this project is not completed as soon as possible?
- A. Today, if the Salt River ECC service area experiences extreme peak conditions this winter, we anticipate problems providing and maintaining power to the customers in this area. We are taking steps to try to minimize any impact that an extreme winter would cause, but are seriously concerned that if we experience an outage in this area that cold load pick up may be very difficult to overcome in restoring power to the existing customers.
12. Do you have an opinion as to whether this project is the best overall solution to SRECCs needs on its system?
- A. Yes
13. What is that opinion?
- A. After evaluating all the alternative solutions, the proposed project will provide the greatest level of reliability and system support for current and future customers relocating in the Little Mount area for the immediate and long term.
14. Does this conclude your testimony?
- A. Yes, it does.

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

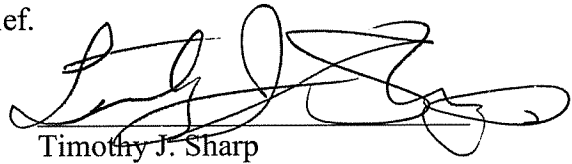
In the Matter of:

THE APPLICATION OF EAST KENTUCKY )  
POWER COOPERATIVE, INC. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY FOR ) **CASE NO**  
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC ) **2004-00320**  
DISTRIBUTION SUBSTATION AND TAP IN )  
SPENCER COUNTY, KENTUCKY )

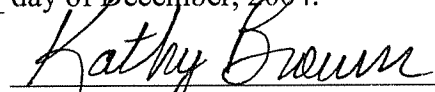
**AFFIDAVIT**

**STATE OF KENTUCKY )**  
**)**  
**COUNTY OF NELSON )**

Timothy J. Sharp, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

  
Timothy J. Sharp

Subscribed and sworn before me on this 13<sup>th</sup> day of December, 2004.

  
Kathy Brown  
Notary Public

My Commission expires:

November 12, 2006

**EXHIBIT IV**

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

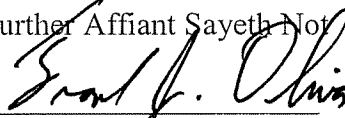
In the Matter of:

THE APPLICATION OF EAST KENTUCKY )  
POWER COOPERATIVE, INC. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY FOR ) **CASE NO**  
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC ) **2004-00320**  
DISTRIBUTION SUBSTATION AND TAP IN )  
SPENCER COUNTY, KENTUCKY )

**AFFIDAVIT OF FRANK J. OLIVA**

Comes the Affiant, Frank J. Oliva, and states after first being duly sworn as follows:

1. That the Affiant is employed by the Applicant in the position of Manager of Finance, Planning and Risk Management, and in that capacity, directs and supervises Applicant's activities related to the Applicant's financial condition including without limitation the financing of and the monitoring of all capital outlays for projects such of the Little Mount Distribution Tap.
2. That the Little Mount Project will initially be funded by the Applicant's available general funds. Subsequently, the Applicant proposes to finance this project with a long-term loan from the Rural Utilities Service.
3. That this project does not involve a sufficient capital outlay to materially affect the existing financial condition of the Applicant.

Further Affiant Sayeth Not  
  
FRANK J. OLIVA

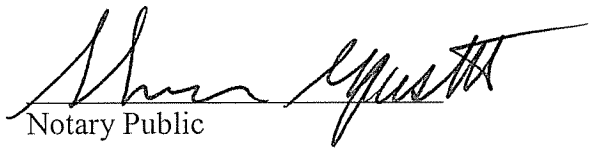
STATE OF KENTUCKY )

)

COUNTY OF CLARK )

Subscribed and sworn before me on this 13<sup>th</sup> day of December, 2004,

My Commission expires: 10.28.08

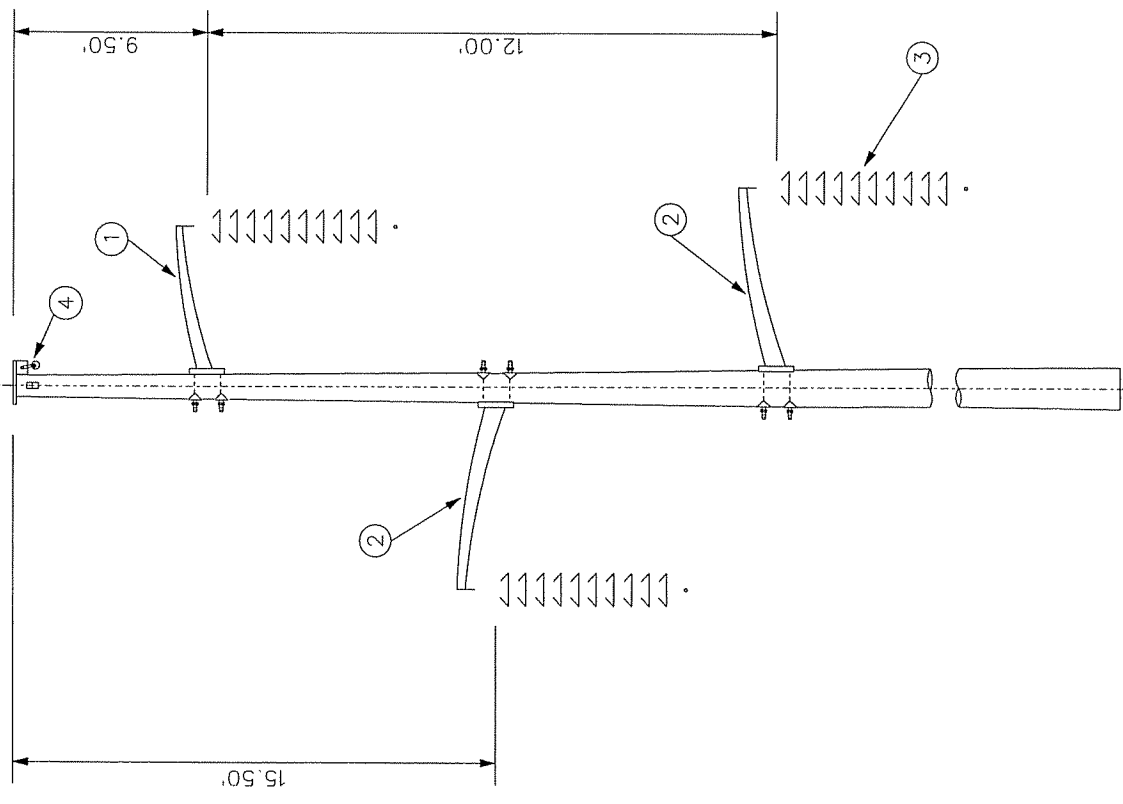
  
Notary Public



LIST OF MATERIALS

TU-1S-161

DWG. REF.	QTY	DESCRIPTION	ITEM	DET.	CODE
1	1	STEEL ARM ASSY HEV DUTY, 8 FT.		TM-15C	
2	2	STEEL ARM ASSY HEV DUTY, 9 FT.		TM-15C	
3	3	INSULATOR ASSY TANGENT		TM-1A-161	
4	1	OPGW ASSEMBLY, TANGENT		TM-S	



# Exhibit V 2

TRANSMISSION LINE STEEL STRUCTURE  
TANGENT STEEL UPSWEEP ARMS

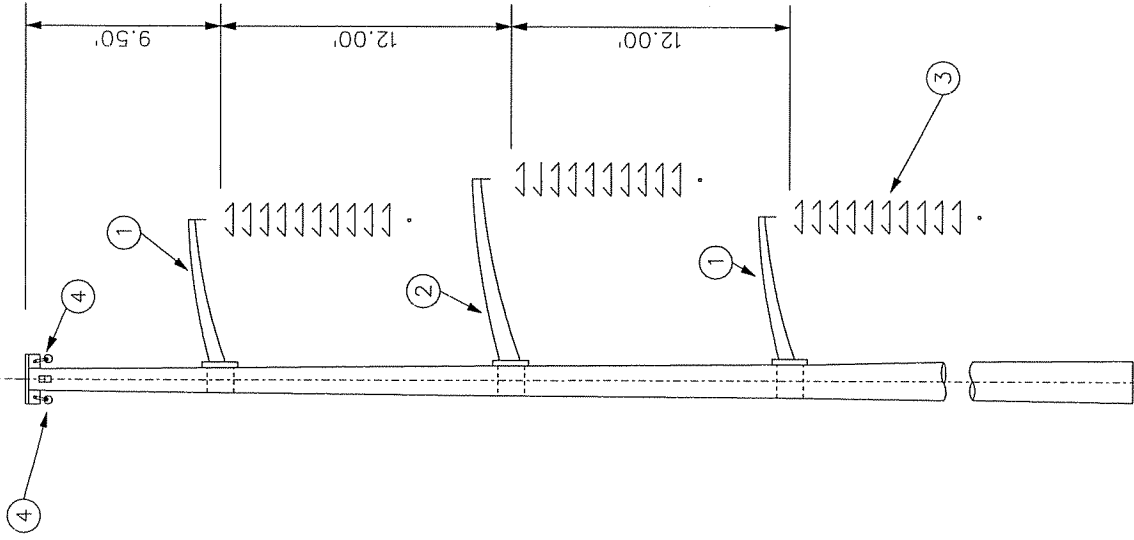
NO.	REVISION	DATE	DWN DATE

TU-1S-161

LIST OF MATERIALS

TUD-1S-161

DWG. REF.	QTY	DESCRIPTION	ITEM	DET.	CODE
1	2	STEEL ARM ASSY. MED DUTY, 8 FT.		TM-115B	
2	1	STEEL ARM ASSY. MED DUTY, 9 FT.		TM-115B	
3	3	INSULATOR ASSY. TANGENT		TM-1A-161	
4	1	OFGW ASSEMBLY, TANGENT		TM-S	



# Exhibit V<sub>3</sub>

TRANSMISSION LINE STEEL STRUCTURE

TANGENT STEEL UPSWEEP ARMS

NO.	REVISION	DATE	DWN	DATE

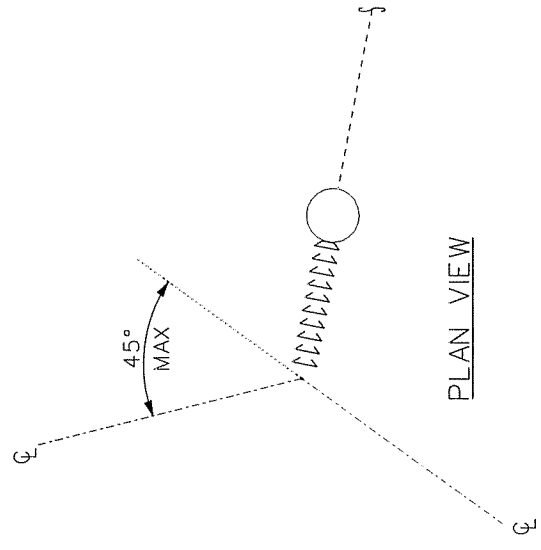
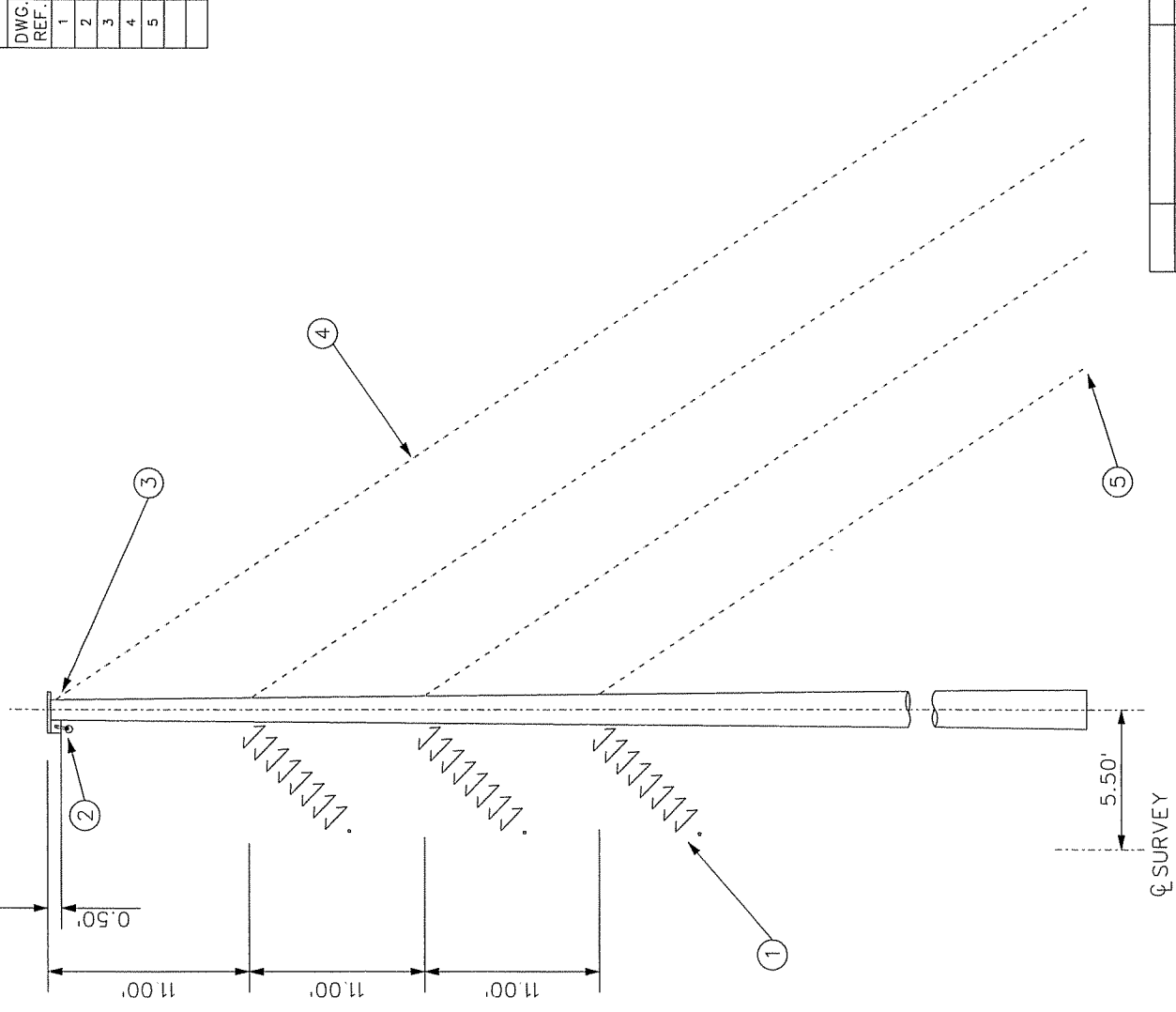
TU-3-161

Φ SURVEY

LIST OF MATERIALS

DWG. QTY REF.	DESCRIPTION	ITEM	DET.	CODE
1	INSULATOR ASSY TANGENT		TM-1C-161	
2	OPGW SUSPENSION ASSEMBLY		TM-SD	
3	GUY ATTACHMENT ASSEMBLY		TG-21A	
4	3/8" 7 STRAND EHS GUY WIRE			
5	SCREW ANCHOR		TA-3H	

DWG. QTY REF.	DESCRIPTION	ITEM	DET.	CODE
1	INSULATOR ASSY TANGENT		TM-1C-161	
2	OPGW SUSPENSION ASSEMBLY		TM-SD	
3	GUY ATTACHMENT ASSEMBLY		TG-21A	
4	3/8" 7 STRAND EHS GUY WIRE			
5	SCREW ANCHOR		TA-3H	



# Exhibit V4

TRANSMISSION LINE STEEL STRUCTURE	
VERTICAL MEDIUM ANGLE	
DWR	DATE
NO.	REVISION
NO.	DATE

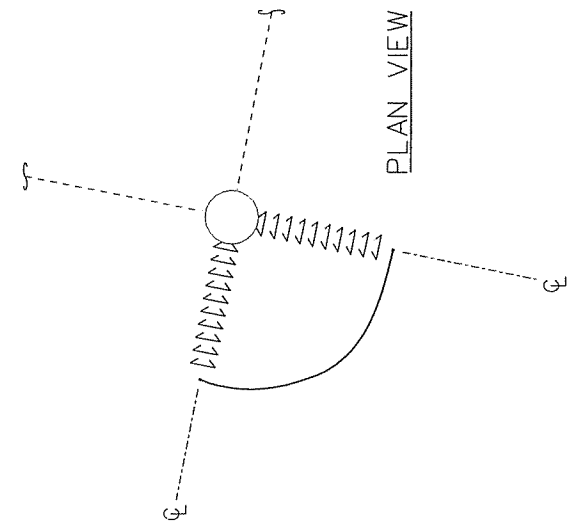
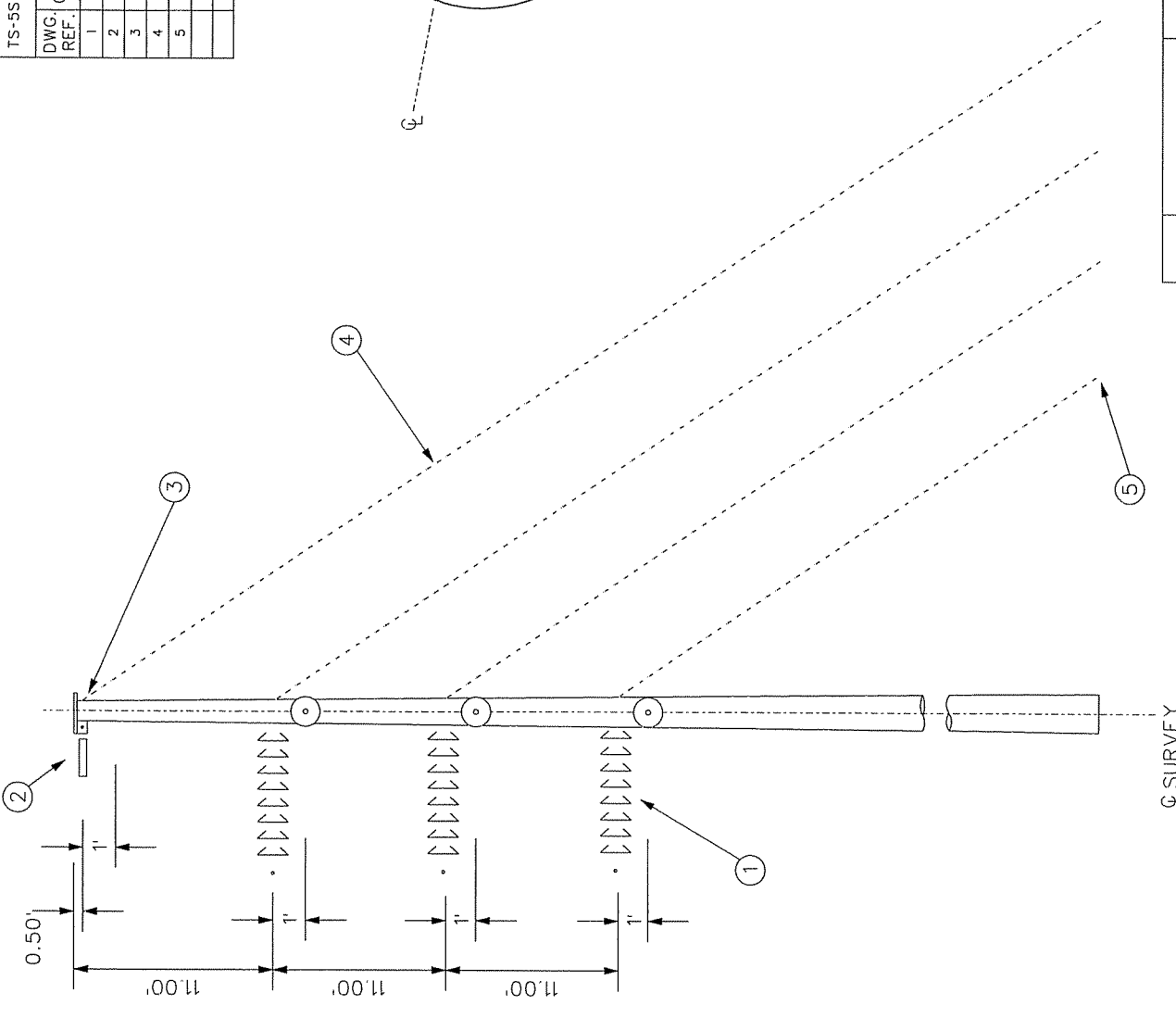
TS-4S-161



LIST OF MATERIALS

TS-5S-161

DWG. REF.	QTY	DESCRIPTION	ITEM	DET.	CODE
1	6	DEADEND INSULATOR ASSEMBLY		TM-IE-161	
2	1	OPGW DEADEND ASSEMBLY		TM-DE1	
3	6	GUY ATTACHMENT ASSEMBLY		TG-21A	
4		3/16" 7 STRAND EHS GUY WIRE			
5	5	SCREW ANCHOR		TA-3H	



# Exhibit V5

TRANSMISSION LINE STEEL STRUCTURE

VERTICAL DOUBLE DEADEND

DWG. NO.	REVISION	DATE

TS-5S-161