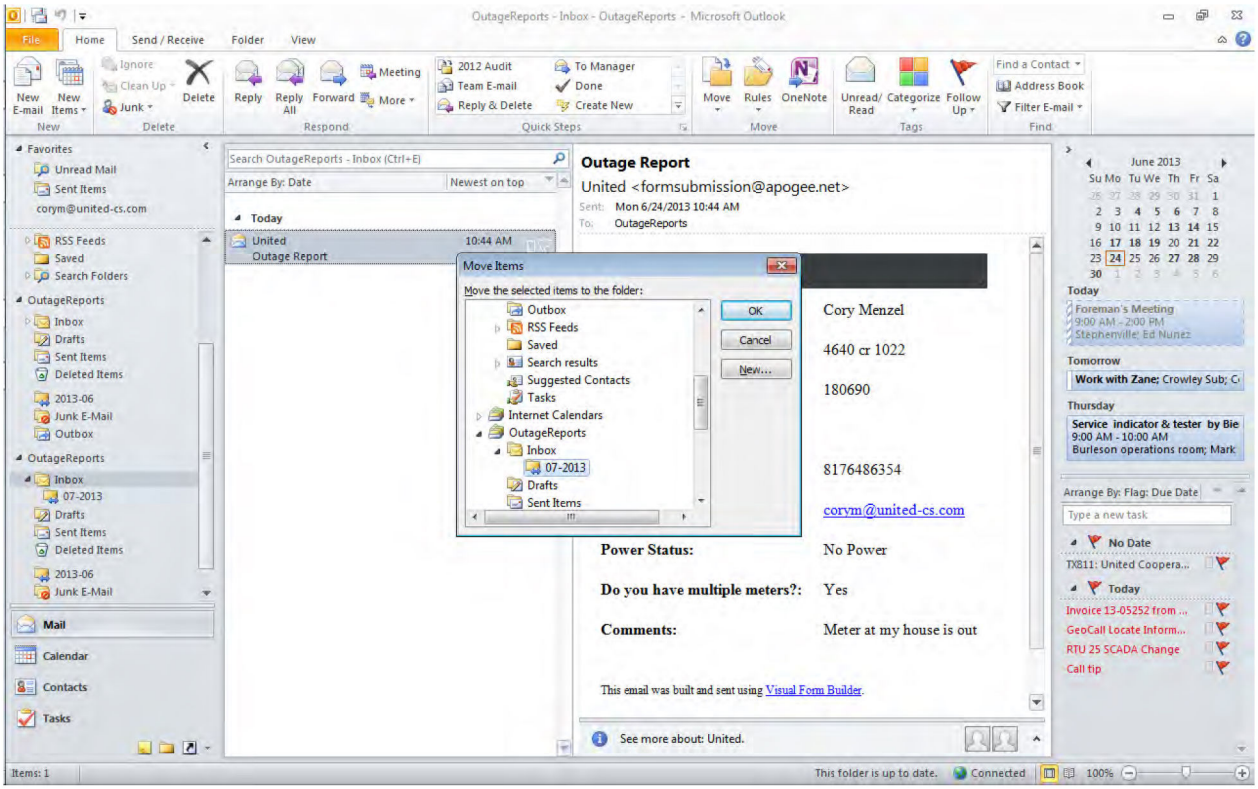
The idea is to take the information provided within the form and process that data into Calls Manager. There will be times when sufficient data is not provided and the member will need to be called in order to successfully identify the account that is without power. Upon processing the outage, move the e-mail to a folder named by the current month and year.

There will also be e-mails that come in with issue(s) other than outages. Within the form, the member is given the option to select Part Power or Disconnected Non-Pay in the Power Status section. Similar to the no-power emails, move the e-mail to a folder named by the current month and year once processed.

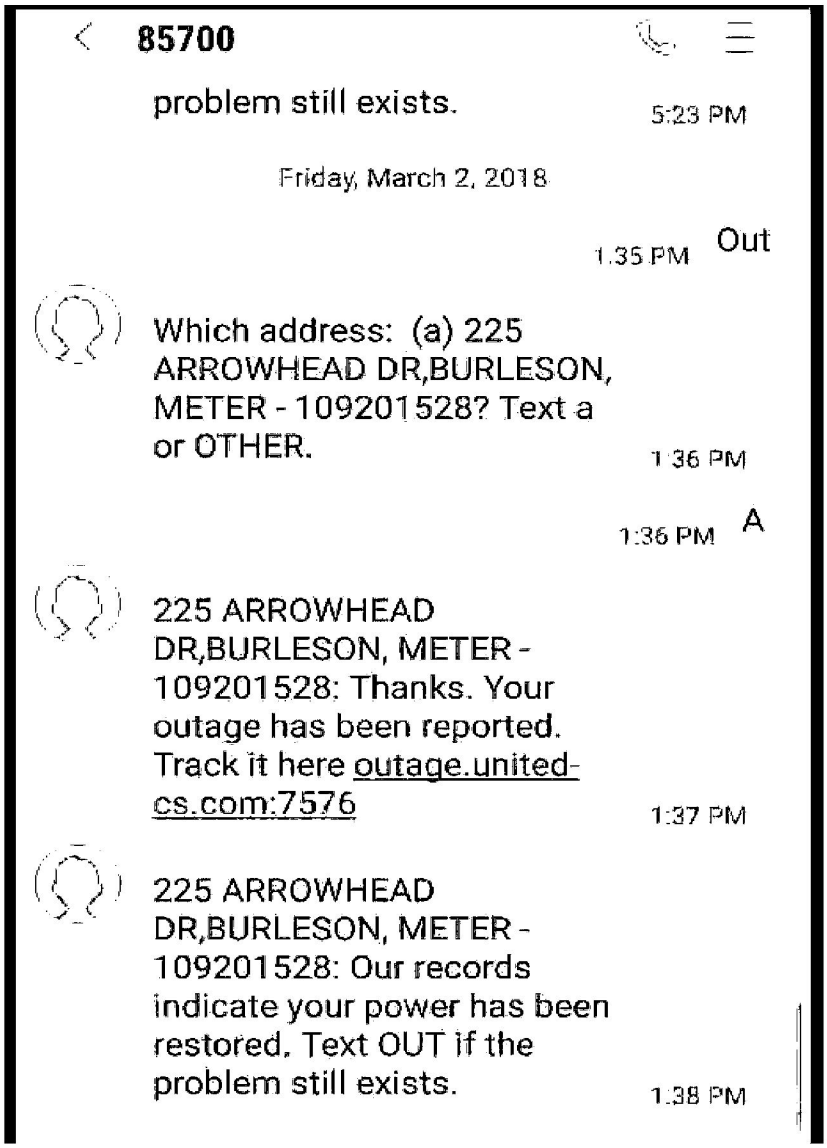
It will be assumed that if an e-mail is in the inbox, read or not, the information has not been processed and will be the responsibility of the operator/MSR to ensure that no e-mails remain in the inbox.

You can move the email by both dragging and dropping or by right clicking the email and selecting move followed by the appropriate folder.



Texting Outage

United now has the Outage by Text feature. This allows members with 5 accounts or less, to key in their outage by meter/address. Members first have to have their cell phone number in iXp in the cell field and opt-in to the process. This is done by texting united to 85700. The member will receive a “welcome” text and can from then on only needs to text “out” to 85700 for the outage.
The outage is processed from the TextPower server to the Milsoft IVR and then into Calls Manager with “received by text” in the comments.
Once the outage has been restored, the member automatically receives the restored text.



Part III: Appendix

Items Included in Appendix

This appendix should be used to include whatever items are necessary to assist with the understanding of processes and procedures dealing with the outage management guidelines, process. As of now, the outage tickets that are possible in the process are included as well as a quick copy page for the UCS Outage Information Form.

Calls Manager Call Ticket

United Cooperative Services tim

Call Ticket

Trouble Began:	11/06/2003 09:49:36	**Checklist:**	1
Account Name:	PERIARD, JOHN	Account:	57609001
Contact Name:	PERIARD, JOHN	Meter:	15038995
Phone Number:	8172329252	Section:	3128494300005
Service Address:	5008 RUNNING BROOK JOSHUA	SubStation	
Address:	5008 RUNNING BROOK JOSHUA	Feeder	
	5008 RUNNING BROOK DR	Transformer:	
	JOSHUA TX 760585760	Phase:	
Taken By:	tim at 11/06/2003 09:49:38		
		X:	2042016.72335025
		Y:	282838.794416244
Account Status:	Active		
Call Back:	No		
Total Calls:	1		
Last Call at:	11/06/2003 09:49:36		
First Call at:	11/06/2003 09:49:36		

Comments:

CIS Comments:

Outage Name:	2003-11-06-0021
Outage Location:	PD3128494377001
Outage Status:	Predicted Open
Outage Cause:	PD3128494377001 Needs Verification
Expected Restoration:	

Printed 11/06/2003 at 09:49:38 Page 1

PORCHE Trouble Ticket

Trouble Ticket

United Cooperative Services

Porche2000 Outage Report

Outage System Information

CALL RECEIVED:	12/4/2003 5:07:44 PM
TELEPHONE:	(972) 248-0502
RECORD#:	9467
MESSAGE LEFT:	1
# OF METERS:	1
PROBLEM CODE:	2

Customer Information

PRIORITY	False	
ACNT TYPE:		
ACCOUNT #:	178547001	
NAME:	ELDEMIRE, PHILIP C	
SVC_ADD:	BLUE MARLIN DR	
ADDR1:	5950 SHERRY LN, STE 600	
ADDR2:	UBS FINANICAL SERVICES	
ADDR3:	DALLAS	TX

Location and Engineering Information

LOCATION:	3036409476001
MAPNAME:	
FEEDER:	2
PHASE:	A
METER NUM:	69501750
SUB_NAME:	GRANBURY

Power Restoration

TIME/DATE ON: Undetermined

WEATHER: _____ #CONS: _____

CAUSE: _____ EFFECT: _____

EFFECT GRID NUMBER: _____

CREW: _____ DISP: _____

NOTES: _____

System Operations Nightly Checklist

(Checklist should be completed on nightshift, between the hours of 11pm and 2am)

Step 1. Check SCADA

___ Reset any trip targets showing in alarm view. Acknowledge all alarms.
___ Click on the HEADENDS point at the top left of the SCADA main screen, make sure headends shows normal on each point.
___ Verify that all circuits are on normal trips on the DA alt trip and Winter Summary (Cir Winter) screens.
___ Verify SCADA COMM lines and Substation RTUS are reporting properly by visiting the SUB COMMS summary screen. If there are any problems, contact SCADA Contacts as listed on the problems contact list. (sub comm line failure=notify Brazos).
___ Verify DA COMM lines and Device RTUS are reporting properly by visiting the DA COMMS summary screen. If there are any problems, contact DA Contacts as listed on the problems contact list. (DA comm line failure=notify Bryan Phipps).
___ Verify all SCADA reported substation voltages are within reason by viewing the three small, color-coded dots at lower left corner of each substation square on UCSSYS screen. If any are in the extreme (yellow/orange/red) hover mouse pointer over those dots to see the exact voltages; anything less than 124 volts or more than 127 volts is extreme, and you will need to call Brazos to report the hi/low voltage. If you see any colored in Purple, call Brazos immediately.
___ Verify all reclosers are in normal status via UCS AST, Sub HL & DA HL (hotline tag) Summary Screens, and the Sub & DA 1S (1shot) Summary Screens, unless there is a crew or contractor currently working with HLT or 1shot in place.
___ Verify LOMS block points are not enabled (unless prescribed) via both the SUB LOMS and DA LOMS summary screens.

Step 2. Check OMS and BLS.

___ Make sure the server shows Server Online and Predictions enabled in green.
___ Click on 'preferences', then 'outage preferences', verify ETOR box is checked, and the default is set to 2.
___ Open BLS, log in and click on the configuration tab. Make sure there is a red orb next to high call volume, unless it is supposed to be on. If it is currently on the orb will be green, select the checkbox to the left of the orb and press deactivate.

Step 3. Check Outage Viewers.

___ Enter a test outage on UCS account 7782 into Calls Manager.
___ Verify the outage shows on both Outage Viewer Dashboards: Open the external outage viewer dashboard by going to "UCS.net". Open the internal outage viewer by going to "The Circuit", which is the UCS intranet page.

Step 4.Check System Operation's phones.

___ Place a test call to the Dispatch Direct phone line, 817-641-5232.
___ Place a test call to the Dispatch Cordless phone line, 817-447-3670.

Step 5. Enter a test email outage.

___ Go to "UCS.net", then click on Report Outages tab. Scroll down to view Report Outages Online form, fill in the required sections on form and click submit. Check the OutageReportsInbox in Outlook to confirm email was successful, then delete it. If you encounter any problems, email IS&T.

Step 6. Verify all electronic doors show closed and card only via AccessIt.

___ Select Hardware, then Readers. Scroll through each page to see all doors. If any show other than "closed" and "card only", email IS&T and Maintenance the door name and status. If a group is scheduled to be in the Community Room at the time, that door should show "unlocked"; verify this before sending email notification.
___ If any exterior doors show open/unlocked without proper cause, contact Safety and the on-call lineman for that area.

Step 7. Check RF injects.

___ Go to Command Center, under the "Setup" tab in the top left-hand side navigate to "External Integration". Click on "Outage Management Integration – Web Service Based (Detailed)" and check the "Enable Outage Management Integration". Click "Save". This will be done at 7pm Monday-Friday, on Friday it will be turned on at 7pm and run through the weekend. It is to be turned off by Nightshift at 6am Monday-Friday. Refer to the RF Meter Outage Protocol for more information.

Step 8. Check doors, server room temp, and complete checklist.

___ Check comm room door, and check lobby lights to make sure they are off. Check server room temperature, acceptable temp is below 74^{0}. **If room gets above 74^{0}, setup portable AC and aim hose out the door**; email Maintenance, Shawn Eiler, Brad Mead, and System Operations. Call Mike Huston if temperature does not cool off.
___ Initial the nightly checklist sign-off spreadsheet located in the Afterhours checklist folder inside System Operations on BURFILE.

Planning Department IS&T Disaster Recovery Plan

United Cooperative Services has developed this action plan to be in effect in the event of a catastrophic occurrence at one or all of United Cooperative Services IS&T facilities. The plan is intended to cover the major aspects of phone and computer operations in the event of tornado, fire, major ice storms, or other factors which could incapacitate one or more office locations.

Action plan for Planning in the event of a disaster

UCS has many technologies that it depends on to carry on daily business activities. There is a complex computer network and phone system that is interconnected to all 8 UCS offices. There is also a complex outage management system that needs to be up and running should a disaster ever occur. Along with Brazos Electric Cooperative, UCS is responsible for a SCADA system that keeps track of all the cooperatives electrical substations. While the computer & telephone network is complex, it can be subdivided without any major effects on the whole system. During a time of crisis, there are certain areas that are of more importance than other areas. These areas are vital and need special attention during a crisis situation. The areas are as follows:

1. Outage Management System in Burleson
2. Power720 in Burleson
3. Radio system in Burleson
4. SCADA system in Burleson
5. Dispatch in Burleson
6. Contact with Membership System wide

Emergency contact information.

Internal:

Cameron Smallwood-CEO/General Manager	Cell 817-648-6515
Marty Haught-Asst General Mgr/COO	Cell 817-487-7009
Robert Bernhoft- Sr. VP of IS&S	Cell 254-396-2718
Cory Menzel-VP of IS&T	Cell 817-648-6354
John Huffman - IS&T Network and Security Administrator	Cell 682-228-8141
Brad Mead- IS&T Administrator	Cell 817-648-5906
Kevin Schulle- IS&T Administrator	Cell 254-431-7899
Yuri Lavadour IS&T Administrator	Cell 817-456-4382

External:

A list of phone numbers as well as after hour contacts is maintained at all times in the event of a failure in any of our technology systems. This document will be kept in all computer rooms and is attached for reference.

If Burleson becomes incapacitated due to a catastrophic event the following would take place.

1. Outage Management- Refer to Guidelines for UCS Outage Management which is kept in dispatch.

2. Power 720 operations would take place out of Daffron Disaster Recovery Center.

3. Radio System- Refer to Guidelines for UCS Outage Management which is kept in dispatch.

4. SCADA system- Refer to Guidelines for UCS Outage Management which is kept in dispatch.

5. Dispatch- Refer to Guidelines for UCS Outage Management which is kept in dispatch.

6. Contact with membership- - Contact will be kept with members through the process of forwarding calls to the appropriate offices. The guideline for forwarding calls is kept in the Backup and Security Document for the IS&T Department.

In the event that Granbury, Stephenville, Cleburne or all 3 are incapacitated by a catastrophic event, Burleson will be the relief facility for these offices. All phone lines at these three offices will be routed to the Burleson office. Office personnel from these to offices would be assigned to Burleson.

In the event that Meridian is incapacitated by a catastrophic event, Stephenville will be the relief facility for this office. The local line in the Meridian office will be forwarded to the Stephenville office. Office personnel at this office will be assigned to Stephenville or where need arises. All office functions of this office can be handled from Stephenville.

In the event that P.K. is incapacitated by a catastrophic event, Stephenville will be the relief facility for this office. The local line in the PK office will be forwarded to the Stephenville office. Office personnel at this office will be assigned to Stephenville or where need arises. All office functions of this office can be handled from Stephenville.

Updated: 2-22-2023

UNITED COOPERATIVE SERVICES

EMERGENCY RESPONSE PLAN/EMERGENCY OPERATIONS PLAN

Version 1.2023

Pages 704 through 731 redacted due to confidentiality

Quest Rapid Recovery Procedures & Guidelines

The following documentation will allow you to perform the basic task of deploying backup agents, adding systems to core backup servers, setting backup schedules, recovering data, recovering full systems and the information needed to contact support if needed. In case of a situation where the IS&T staff is not available please contact Quest Technical Support at 1-800-306-9329 and provide them one of two or our license numbers: 136-191-072 or 138-864-770.

UCS is currently using six backup core servers for all endpoints (workstations and servers). A 30TB total Software Capacity License is used for all six backup servers. All backups are stored in a repository on each backup core sever. The names of each backup core server are as follows:

Burleson – BURBACKUP https://burbackup:8011/apprecovery/admin/
Cleburne – CLBBACKUP https://clbbackup:8011/apprecovery/admin/
Granbury – GBYBACKUP https://clbbackup:8011/apprecovery/admin/
Meridian – MERSVR https://mersvr:8011/apprecovery/admin/
PK Lake – PKLSVR https://pklsvr:8011/apprecovery/admin/
Stephenville – SVLBACKUP https://svlbackup:8011/apprecovery/admin/

All endpoints have a backup agent installed and are on a scheduled backup and snapshot schedule based on the role they play in the organization. Some examples of this are:

Domain Controllers, File Servers, and SQL Servers – Hourly backup - Sun-Sat
Other servers - 4 and 8 hour backups - Mon – Fri
Normal end user workstations – 4 hour backup - Mon-Fri

Automatic Installation of the Quest Rapid Recovery Backup Agent:

1. Make sure the endpoint is connected to the internal network and is reachable. A cabled Ethernet connection is preferable when installing the agent and performing the first backup.
2. Log into the Rapid Recovery Console (URL above) where the endpoint normally resides
3. Click Protect
4. A Protect Machine Wizard will initiate to start the agent install. Choose Typical and click Next.
5. Type the host name of the endpoint, change the port to 8011, and enter the administrator credentials using UCS\administrator and the correct password.
6. Click Next on the Install Agent screen and then click Finish. The agent will deploy to the endpoint and will automatically be added to the console if deployment is successful.

Manual Installation of the Quest Rapid Recovery Backup Agent:

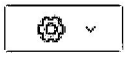
1. Go to the \\UCS\Support\Quest Rapid Recovery Agents folder
2. Choose either the 32 or 64 bit agent to install depending on the endpoint architecture.
3. Choose English and click OK. When the agent installer starts, click Next, accept the license agreement terms and click Next again.
4. Install and perquisites that are needed and click Next.
5. Change the Agent port number to 8011 and click Install. Once installation completed, make sure the "Yes, I want to restart my computer now" box is checked and click Finish. After the endpoint reboots, log into the Rapid Recovery Console (URL above) where the endpoint normally resides
6. Click Protect
7. A Protect Machine Wizard will initiate to start the agent install. Choose Typical and click Next.
8. Type the host name of the endpoint, change the port to 8011, and enter the administrator credentials using UCS\administrator and the correct password.
9. Click Finish to add machine to the console.

Set Backup Schedules and Perform First Backup

1. Log in to the appropriate Rapid Recovery Console using one of the URLs on page 2.
2. Locate the endpoint in the console and click on it.
3. In Volumes, check the top checkbox to select all volumes.
4. Click Set a Schedule
5. When the Protection Schedule windows pops up, click Advanced mode
6. Click the Templates dropdown and select the template that best fits the endpoint. Click OK after selection. Then click Apply.
7. Click Force Snapshot to manually start the first backup.

After first backup full backup is complete, incremental backups will occur based on the schedule template that iss chosen. Rapid Recovery will determine when a new full backup is needed and will perform that automatically.

Recovering Data for an Endpoint

1. Log in to the appropriate Rapid Recovery Console using one of the URLs on page 2.
2. Locate the endpoint and click on it.
3. Click Recovery Points and locate the Creation Date of the recovery point that you wish to use.
4. Click the  drop down on that recovery point and choose Mount.
5. Check the volume that you wish to mount. Uncheck any volumes that you do not wish to recover data from. Click Next.
6. Check the "Create a Windows share for this mount" checkbox and click Finish.

7. Once the mount process is complete, go to Windows File Explorer, type in \\{BACKUPSERVERNAME} (ie. \\BURBACKUP)
8. There will be a share name for the mount that is visible to click on. Double click the share and drill down to the location where the data resides that you wish to recovery. Use normal copy and paste options to copy data to the destination.
9. Once the data recovery process is complete, you must dismount that recovery point. One the Recovery Points console for the endpoint, click More and then click Mounts.
10. Select the Mount Point and then click Dismount. Answer Yes to confirm.

Restoring and Endpoint (Bare Metal Restore)

1. Prepare a bootable USB device using the RRBoot.iso file and the Rufus application. Go to \\ucs\support1\Quest\Rapid Recovery and copy the RRBoot.iso and the Rufus-x.xx.exe file to your workstation.
2. Insert a blank USB device into a port on your workstation, launch Rufus, and create a bootable device by pointing Rufus to the RRBoot.iso file.
3. After bootable USB device creation is complete, move the USB device to the endpoint machine that you wish to restore, insert it, and boot the endpoint with it. Make sure the endpoint has good network connection.
4. Once the Quest screen appears, click the Q icon (top left icon). This will start the Universal Recovery Console. Choose English and click OK.
5. Log in to the appropriate Rapid Recovery Console using one of the URLs on page 2.
6. Locate the endpoint you wish to restore in the console and click on it.
7. Click Recovery Points and locate the Creation Date of the recovery point that you wish to use.
8. Click the  drop down on that recovery point and choose Restore.
9. When the Restore Machine Wizard starts, choose the "Recover to any target machine using a Boot CD" option and then check the "I already have a Boot CD running on the target machine" box.
10. Look back at the target endpoint machine to get the IP Address and Authentication Key. Enter the IP Address and the Authentication Key in the Restore Machine Wizard on the console and click Next.
11. Set Volume mapping to Automatic, make sure all check boxes are checked for all the volumes on the source backup and the target endpoint machine and click Next.
12. The restoration process will begin and can take a few hours to complete based on the backup size and network speed. Once the restoration is complete, the target endpoint machine can be restarted and it should come back up just as it was based on the Creation Date that was selected on the restore point.

If you have additional questions, require assistance with backups or restorations, please contact a member of IS&T:

Eric Cagle eric@united-cs.com
Office: 254.918.6109
Cell: 254.396.2705

Brad Mead brad@united-cs.com
Office: 817.782.8356
Cell: 817.648.5906

John Huffman johnh@united-cs.com
Office: 817.556.4015
Cell: 682.228.8141

Yuri Lavadour yuri@united-cs.com
Office: 817-556-4018
Cell: 817-456-4382

POWER720 Backup, Recovery, and Disaster Recovery Procedures

Prepared by: Robert Bernhoft, VP IS&T ~~Manager~~

Last Update: 11-14-2018

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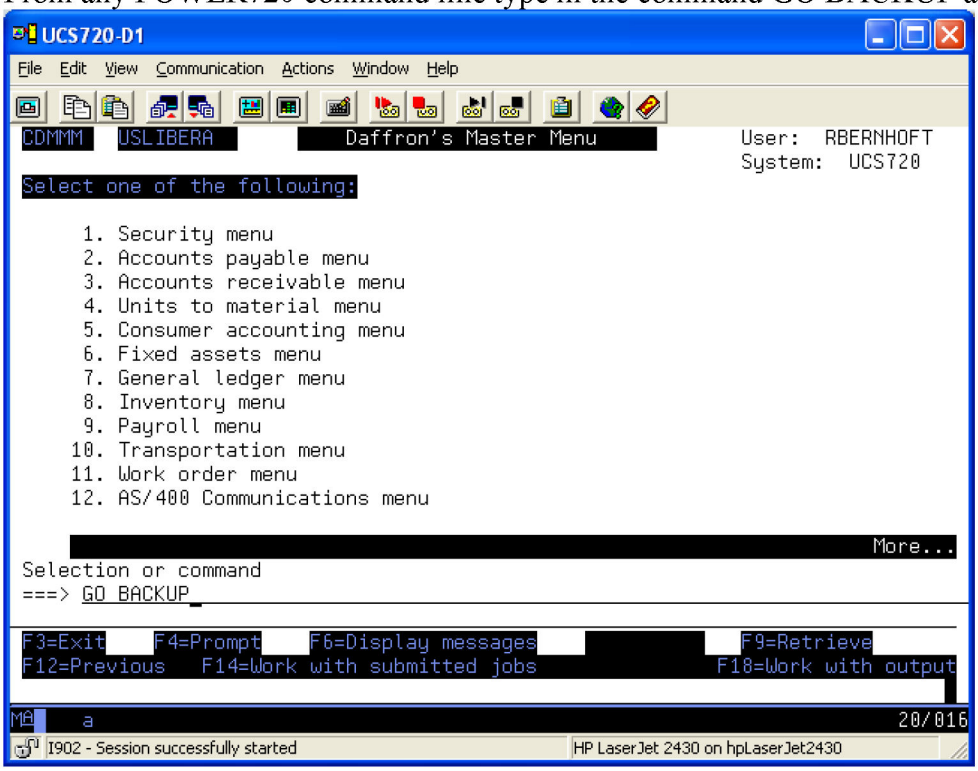
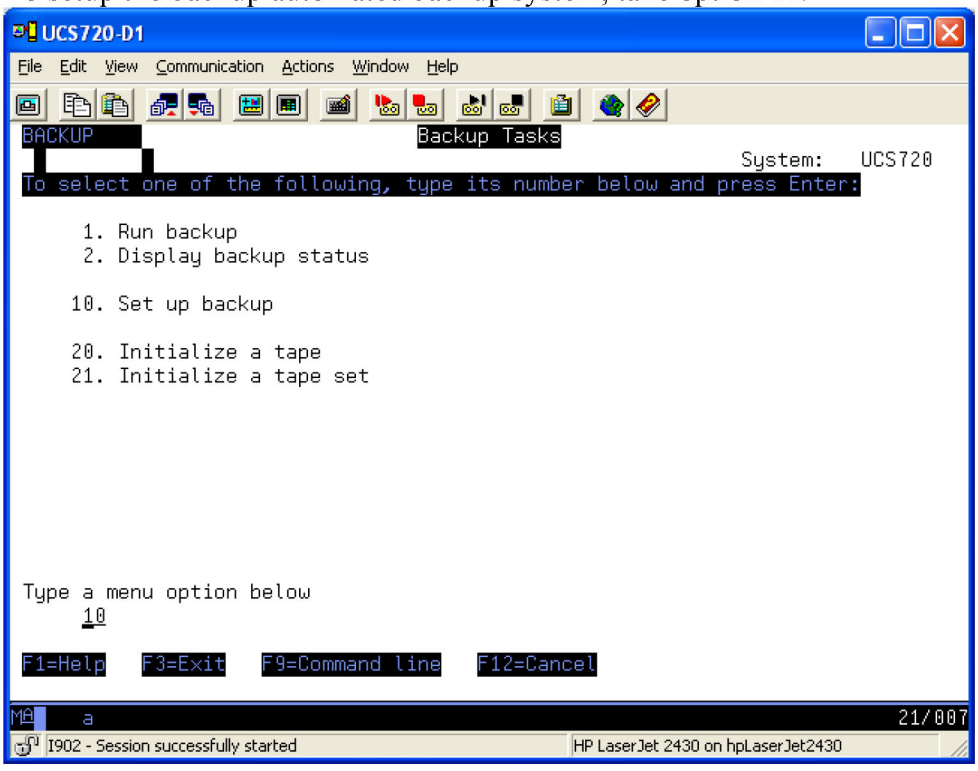
Daily Backup Setup

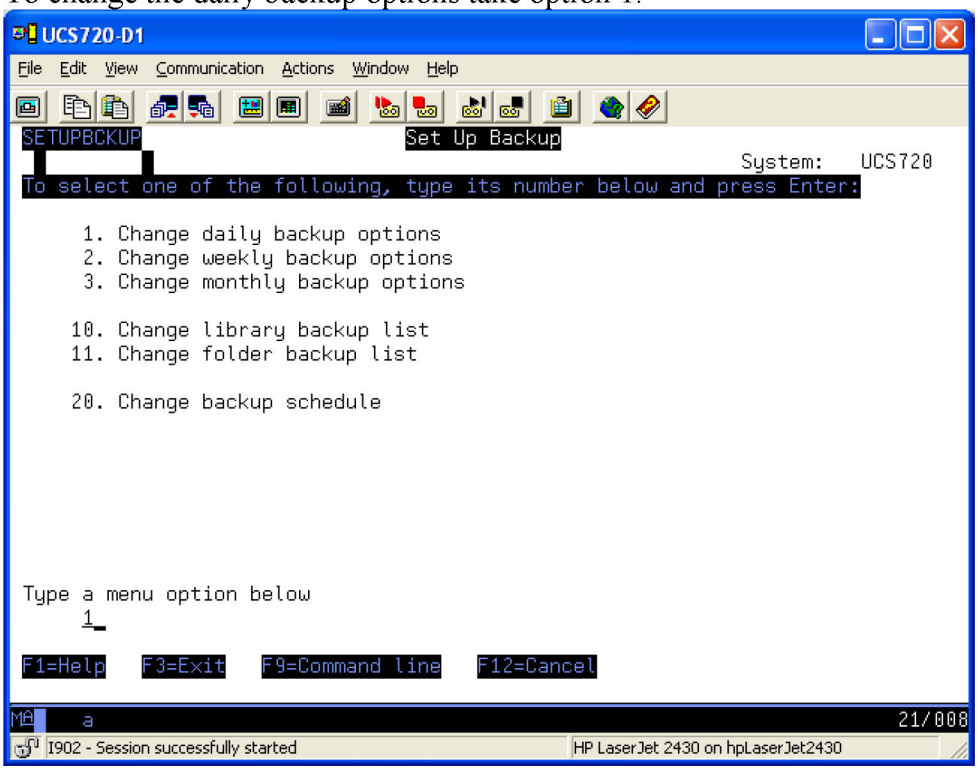
From any POWER720 command line type in the command GO BACKUP and hit enter.



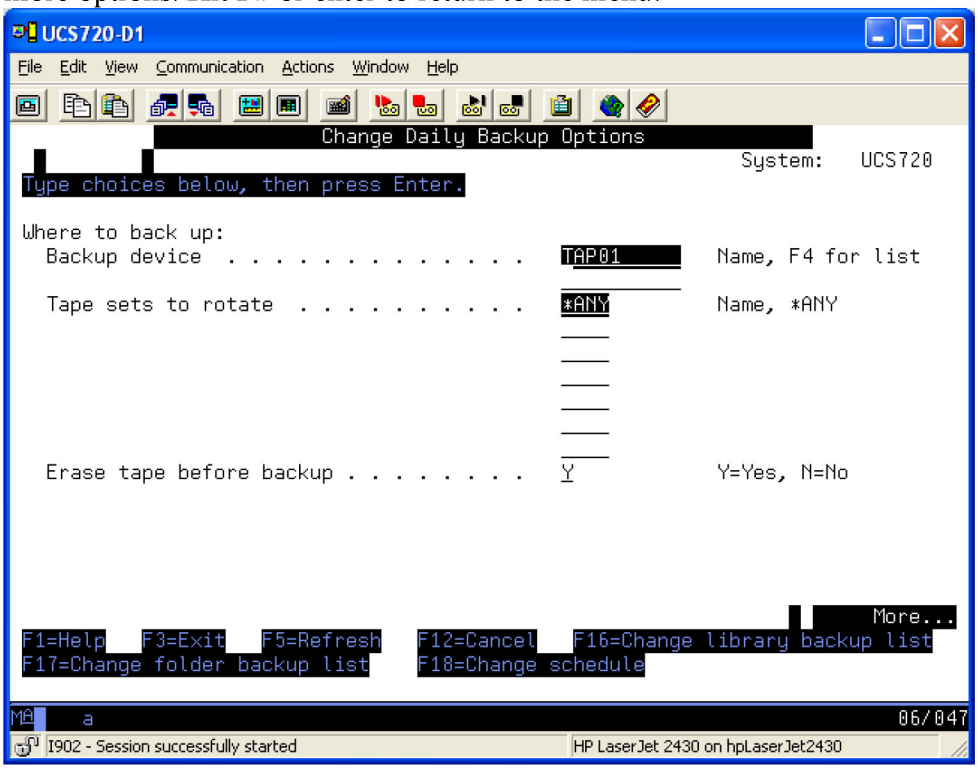
To setup the backup automated backup system, take option 10.

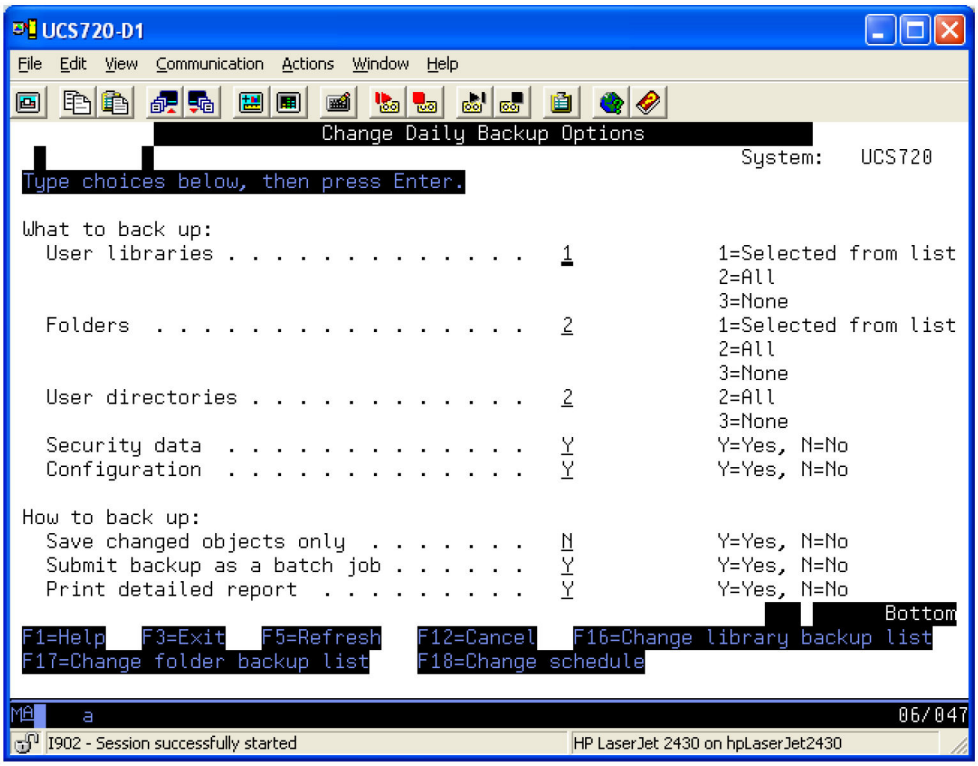


To change the daily backup options take option 1.

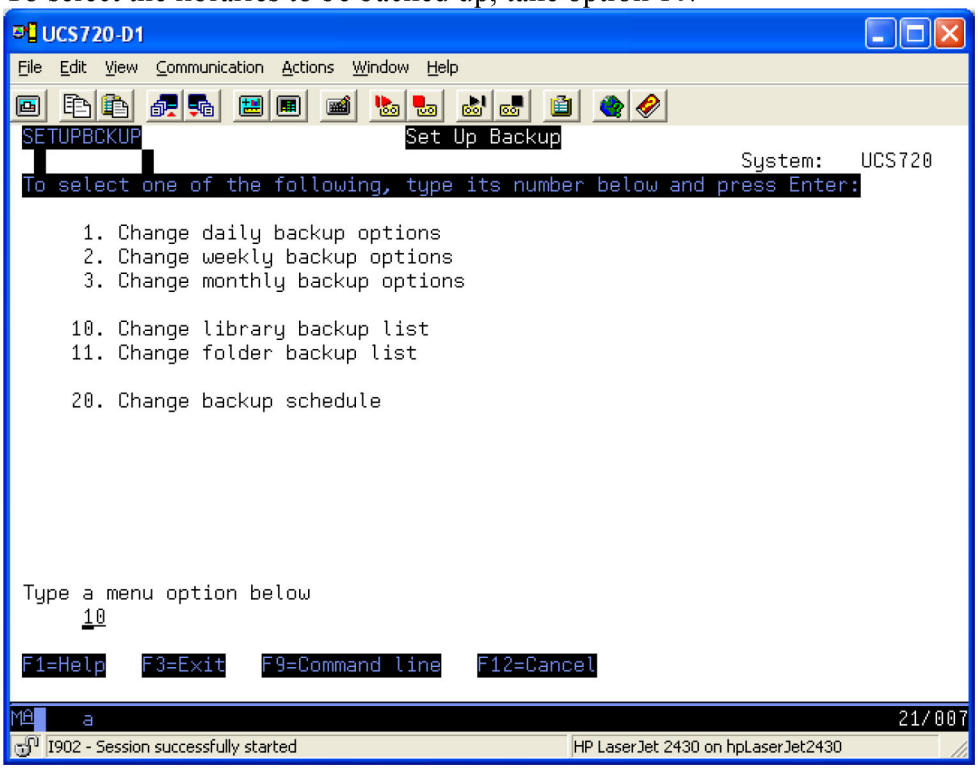


The backup options should be as shown on the following screens. Use Page Down to see more options. Hit F# or enter to return to the menu.

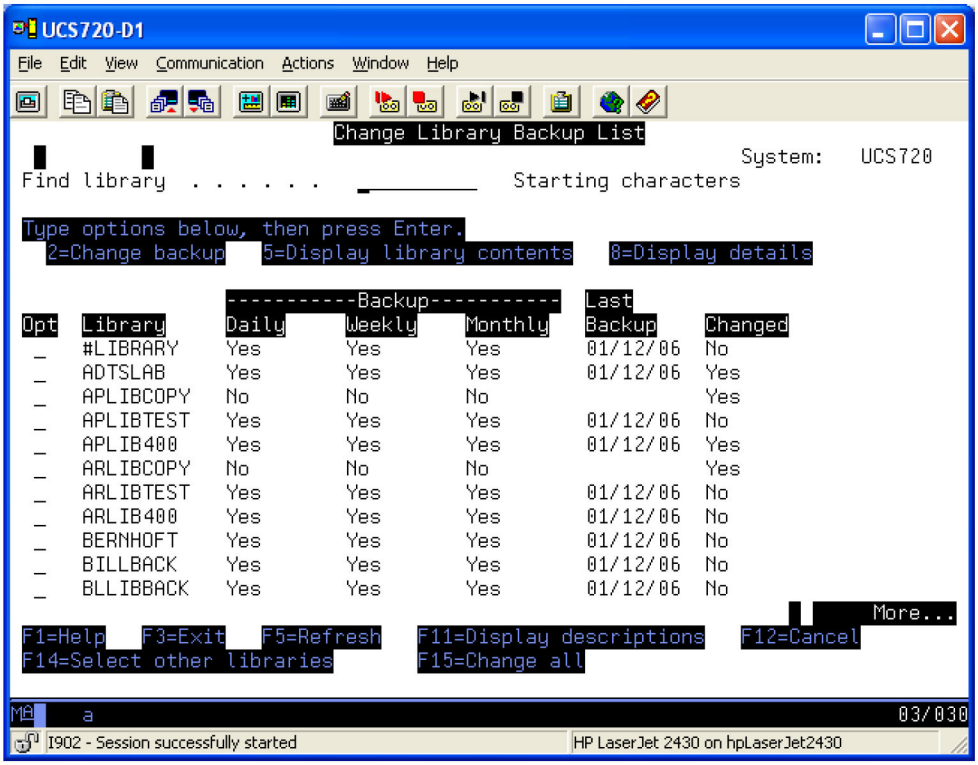




To select the libraries to be backed up, take option 10.



ALL LIBRARIES ENDING WITH 400, ERA, OR UCS MUST BE SET FOR DAILY BACKUP.



These libraries currently include:

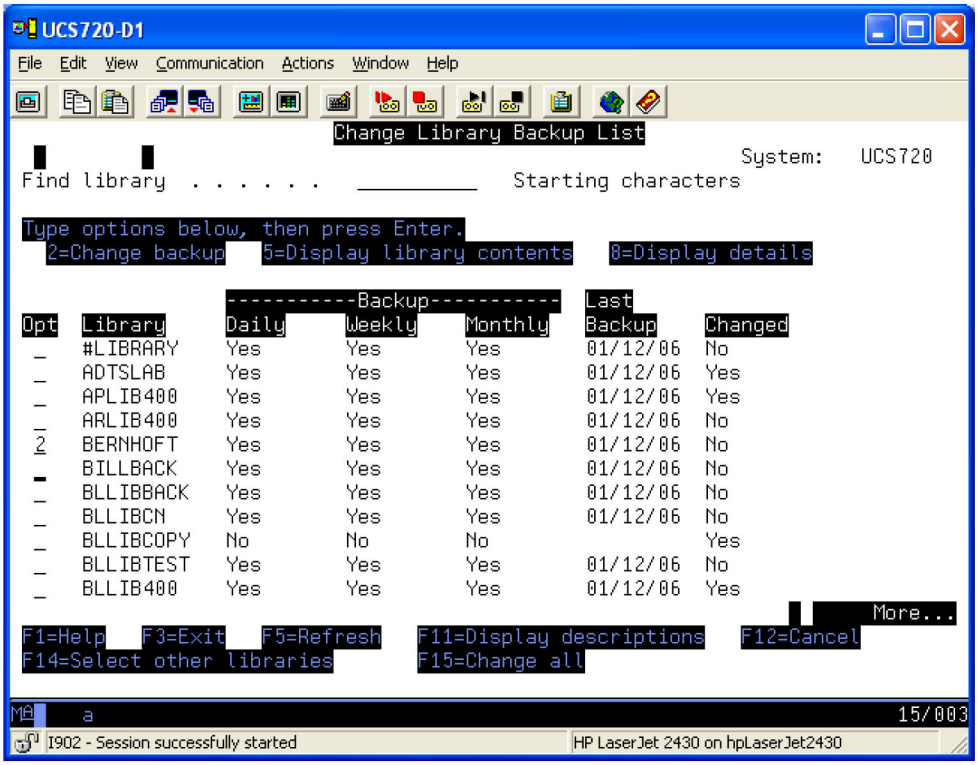
APLIB400	ARLIB400	BLLIB400	BPLIBUCS
CCLIB400	CDLIB400	CULIBERA	FALIB400
GLLIB400	HRLIB400	ITLIB400	IVLIB400
MSLIBUCS	OTLIB400	POLIB400	PRLIB400
RVLIB400	TRLIB400	TULIBUCS	UMLIB400
USLIBERA	WOLIB400	XXLIB400	CUDTAERA

Additional Libraries that need to be backed up daily are:

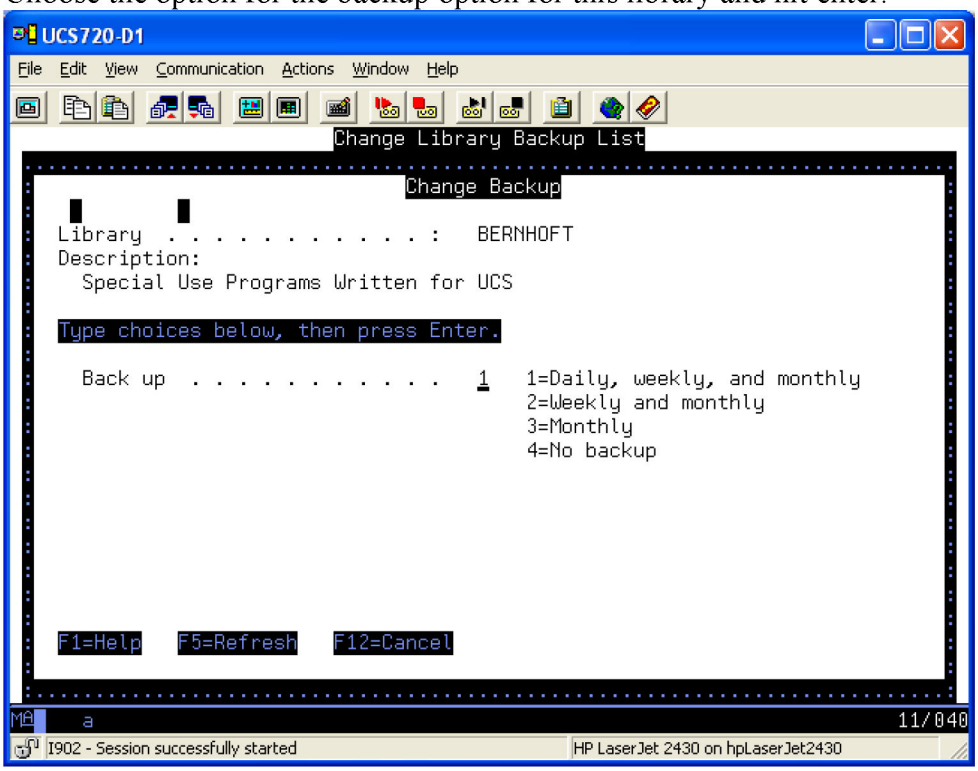
#LIBRARY

ESSBASE	PCDATA	QDSNX	
QGPL	QMPGDATA	QPFRDATA	QRCL
QSYS2	QUSRDIRDB	QUSRINFSKR	QUSRSYS
RVILIB	SCSERVER	SYSIBM	

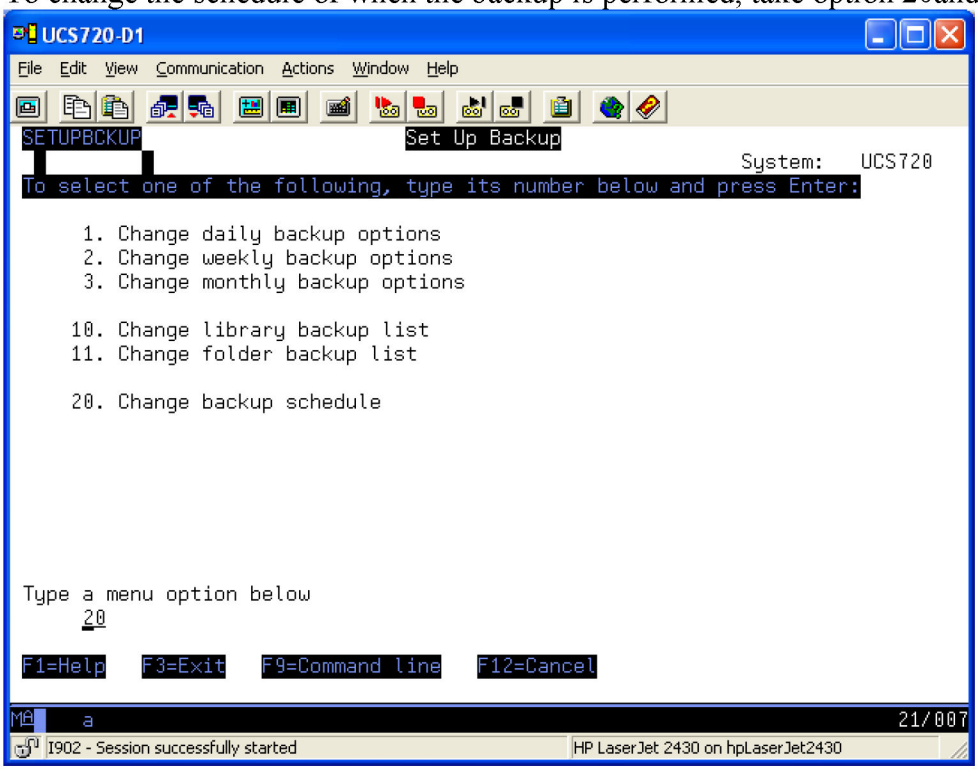
To change the backup option place a 2 beside the library name that you wish to change and hit enter.



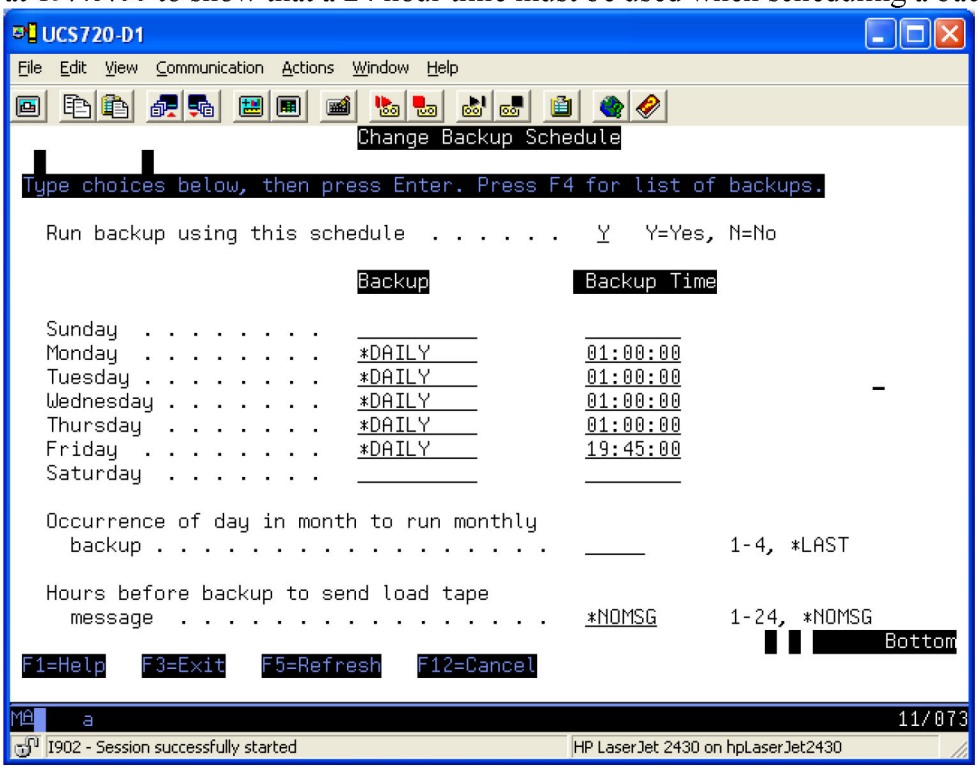
Choose the option for the backup option for this library and hit enter.



To change the schedule of when the backup is performed, take option 20and hit enter.



You can change the type of backup and the time of day the backup is run. Currently the backup is scheduled to run and 1:00 AM. Friday's backup schedule is shown here to run at 19:45:00 to show that a 24 hour time must be used when scheduling a backup.



Daily Backup Procedures

At the beginning of the day, the backup tape from the night before will be removed from the POWER720 and placed in the fire safe located in the computer room in Burleson.

The current days tape will be taken from the vault and placed into the POWER720.

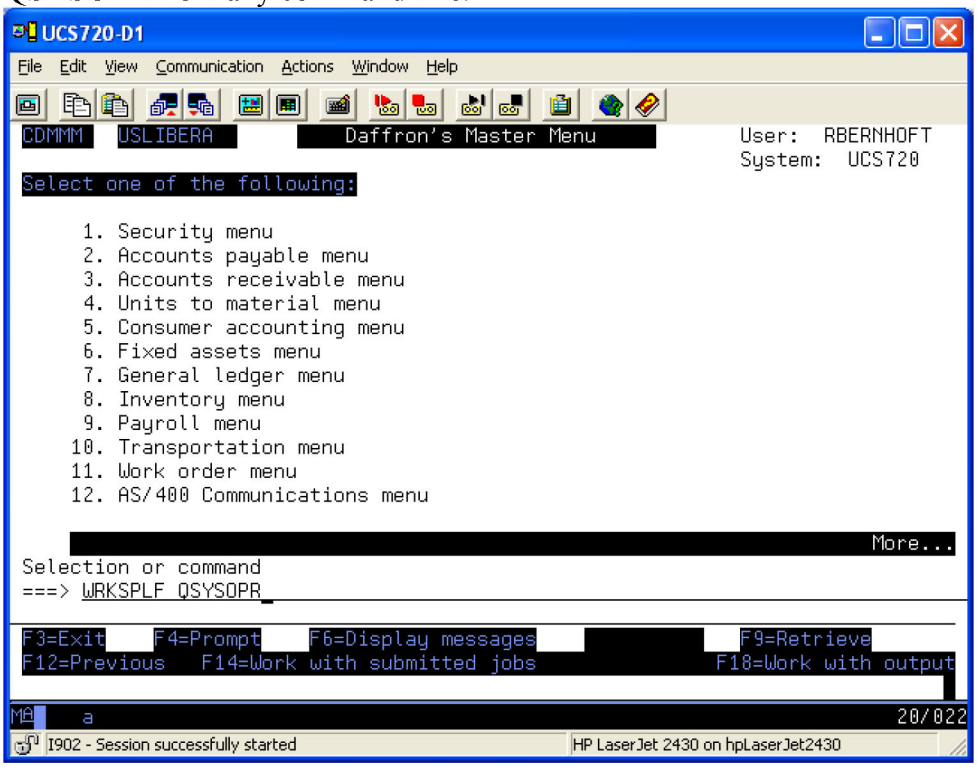
This process will done every work day by one of the following people:

Robert Bernhoft - IS&T Manager

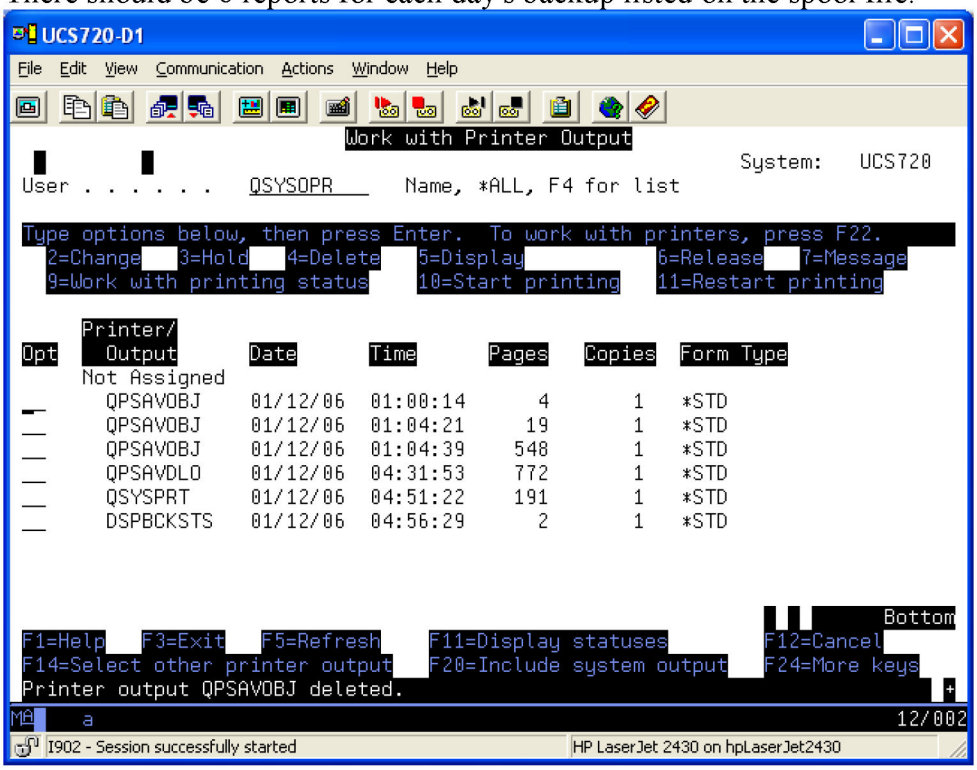
On Monday mornings, the tape from the proceeding Thursday will be sent to Stephenville to be placed into the vault for off site storage.

Daily Backup Verification Procedures

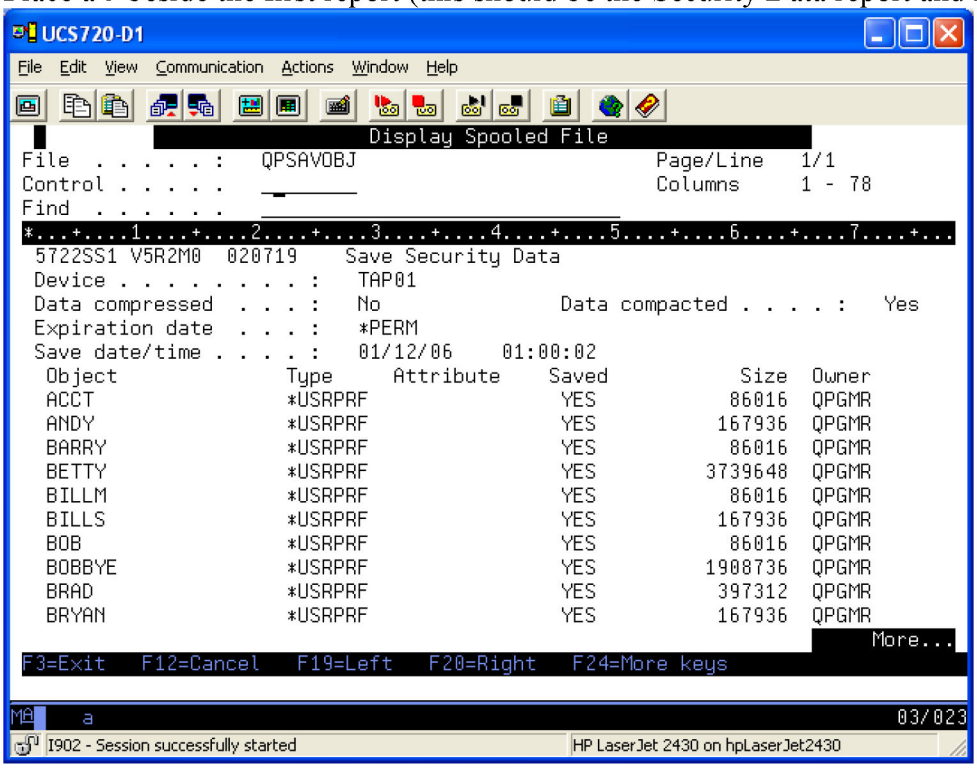
On a daily basis, the IS&T Manager will view the report of the daily backup to look for files or other information that was not saved. To view the report, type in WRKSPLF QSYSOPR from any command line.



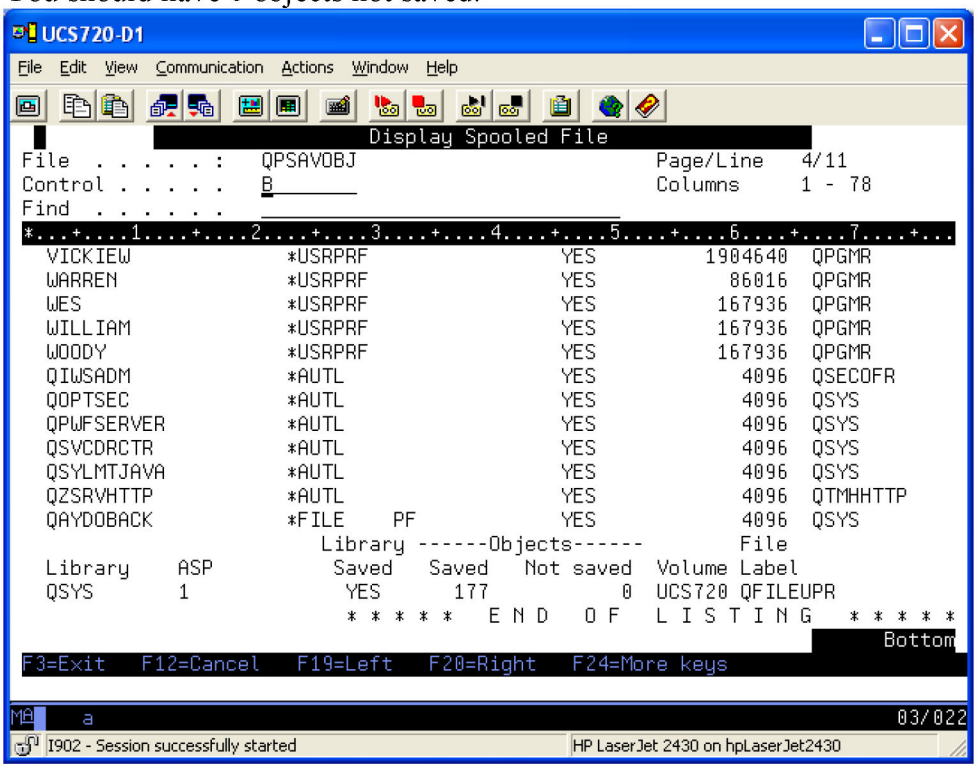
There should be 6 reports for each day's backup listed on the spool file.



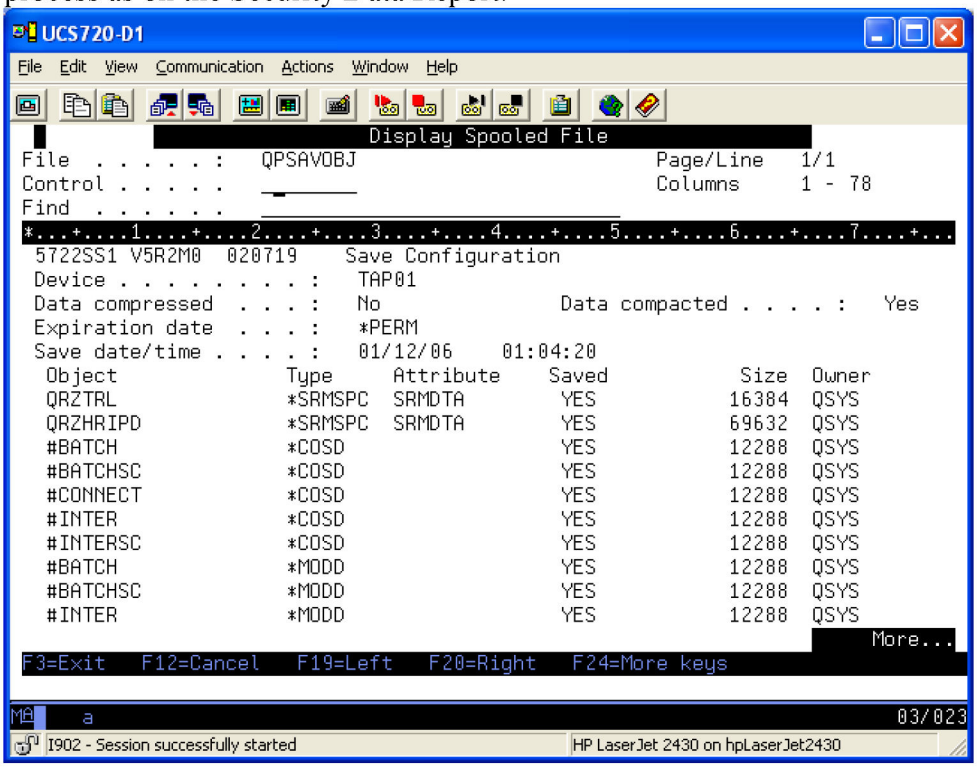
Place a 5 beside the first report (this should be the Security Data report and hit enter.



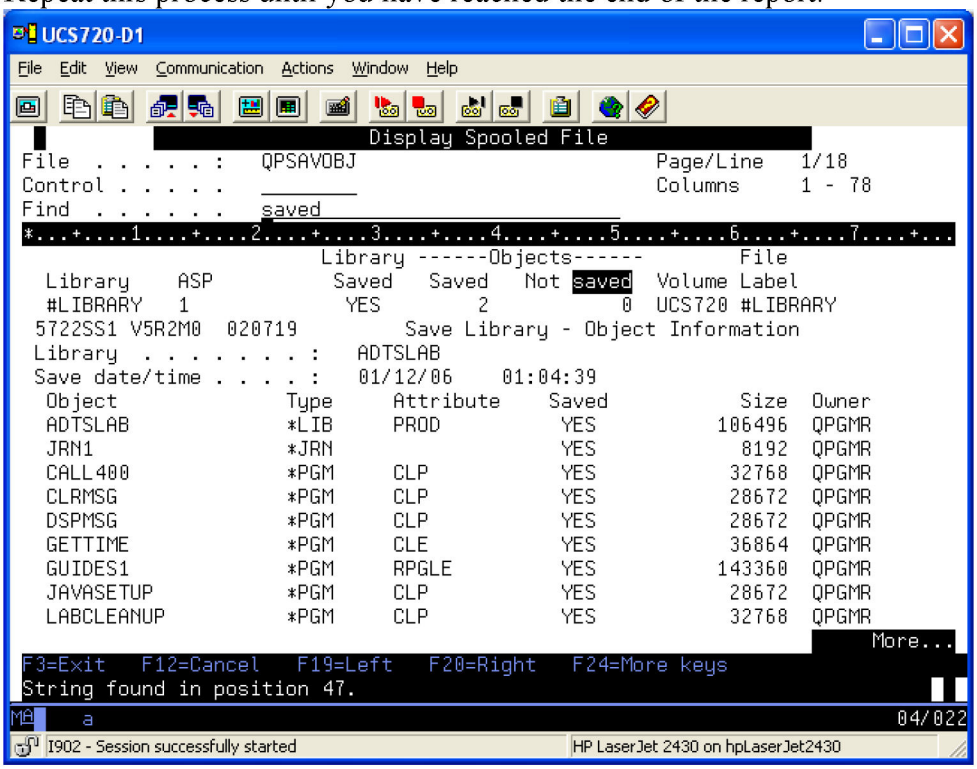
On the control line place a B and hit enter. This will take you to the bottom of the report. You should have 0 objects not saved.



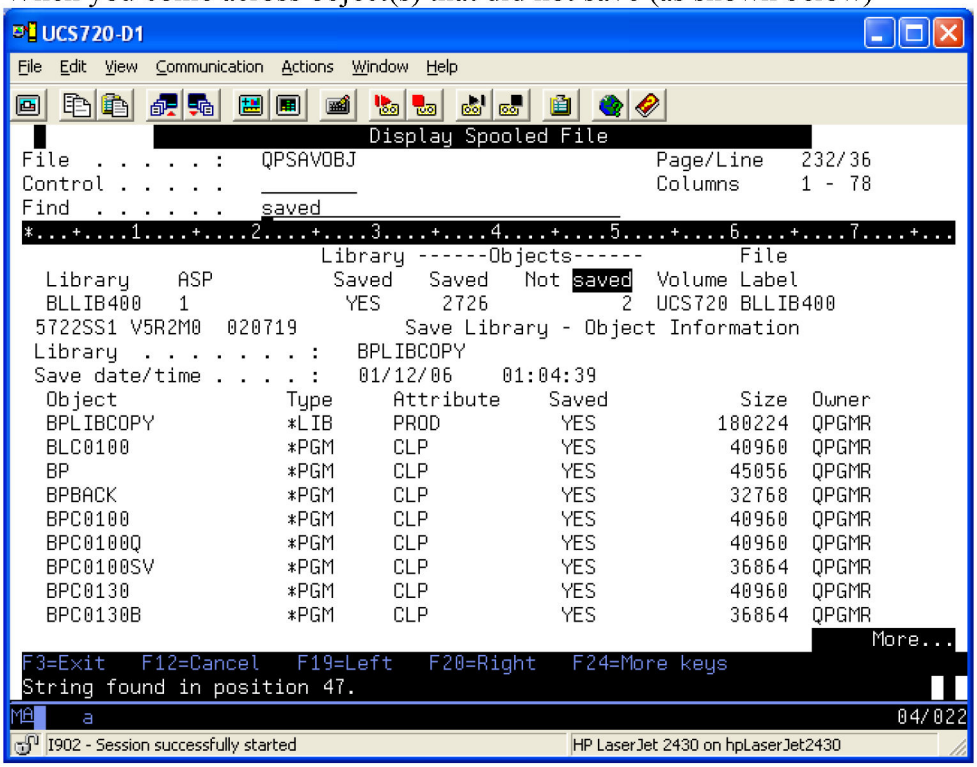
The second report will be the Save Configuration Report. Follow the same verification process as on the Security Data Report.



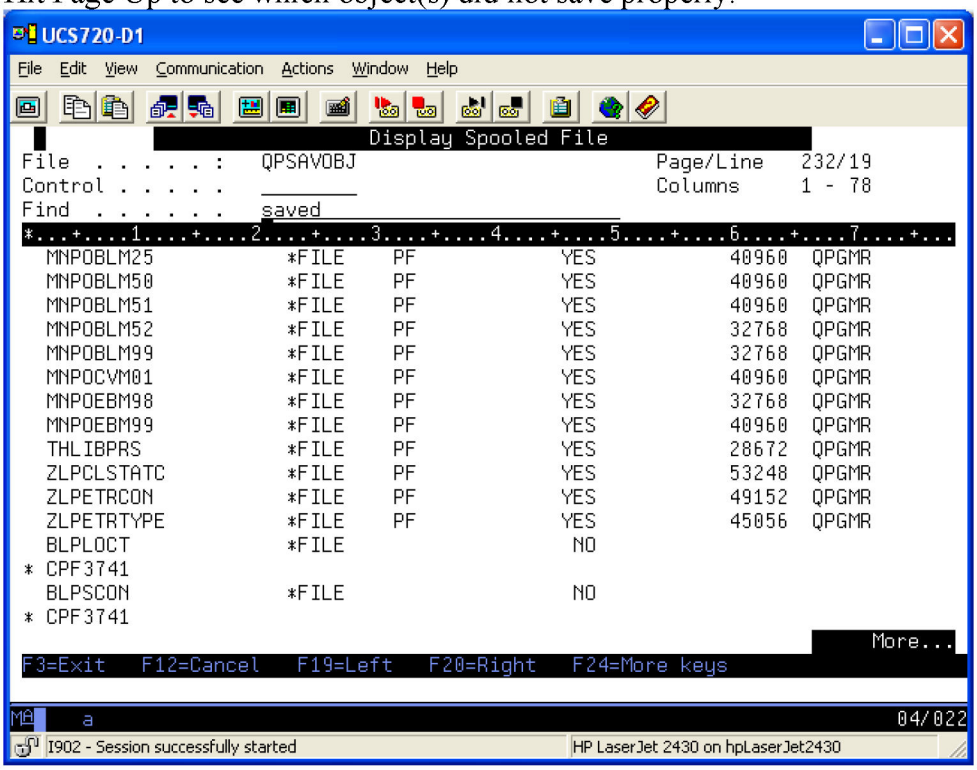
The third report will be the Save Library Report. To search for an object not saved by the daily save, type in the word saved (in lower case) on the Find line and hit F16 (shift F4). Repeat this process until you have reached the end of the report.



When you come across object(s) that did not save (as shown below)



Hit Page Up to see which object(s) did not save properly.



In the example shown above the files BLPLOCT and BLPSCON did not get saved properly. You will need to do a CPYF command to copy the file to the BILLBACK library so we have a backup of that file. If you copy any files to the BILLBACK library you will need to do a SAVLIB of the BILLBACK library to TAP01 as soon as possible.

The forth report is a report of all of the folders that were backed up on the Power720. This includes scanned documents that have not been burned to the optical drive yet.

The fifth report is a summary of the save.

The sixth report is a Backup History report showing when a backup was run and what type of backup was done.

Monthly Backup Procedures

We run the same process for the month end backup as he daily backup. The only difference is that the tape from the monthly backup will be placed and kept in the fire safe until the next months backup is complete.

SAVSYS Procedures

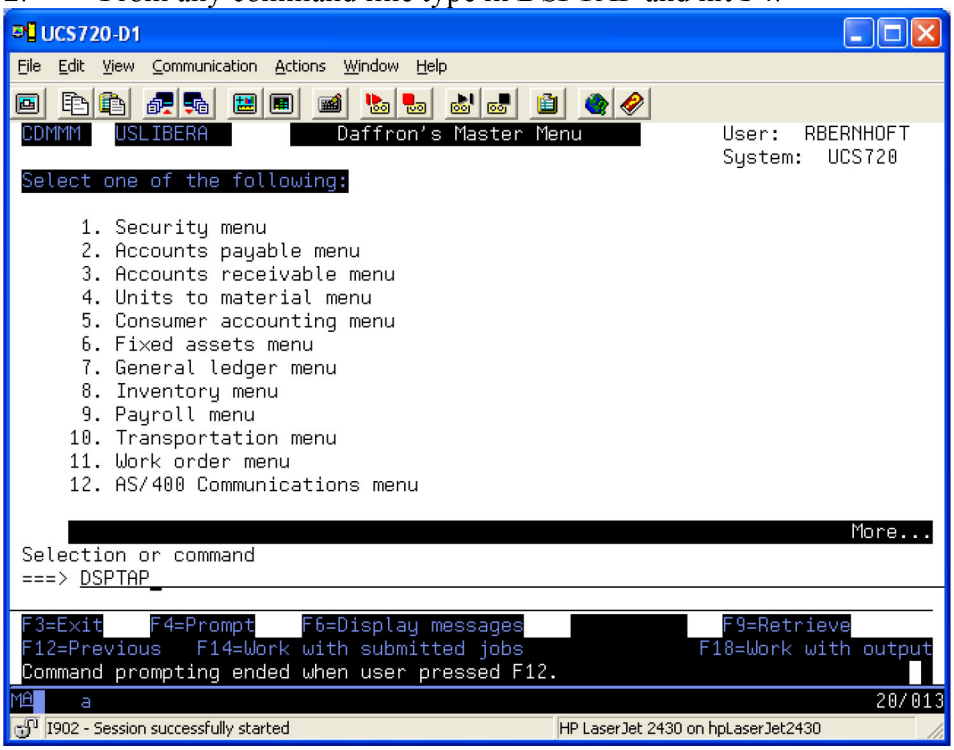
A SAVSYS tape will be created anytime there are any changes to the operating system. This includes loading PTFs from IBM. A SAVSYS is a save of the operating system and settings ONLY.

Daily Recovery Procedures

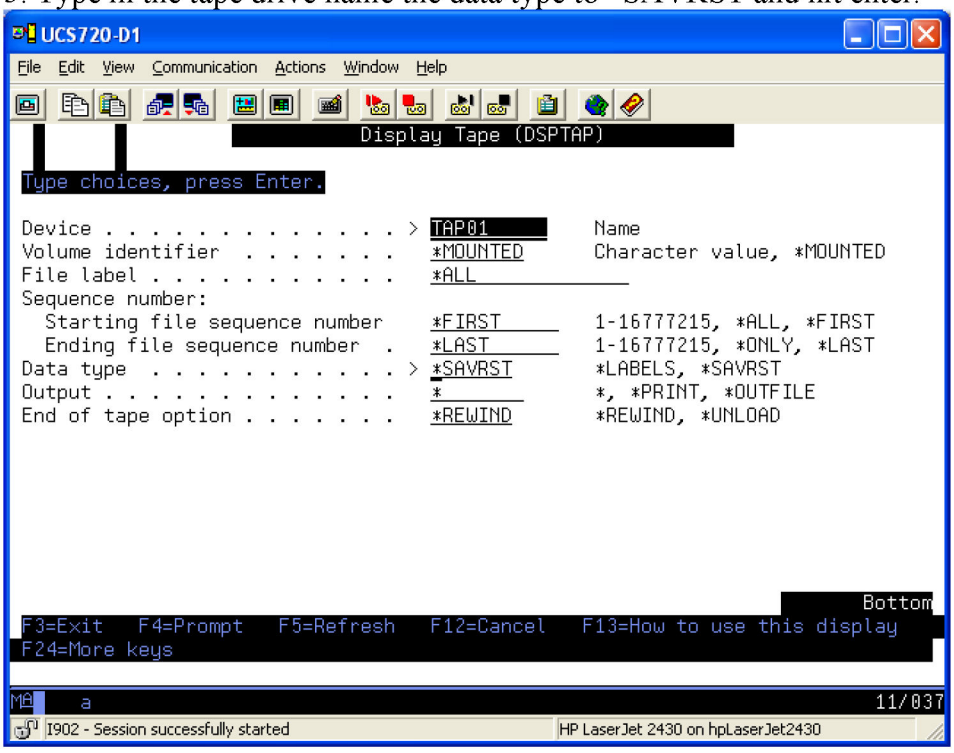
To restore a library from tape, follow the steps below.

1. Place tape in the tape drive.

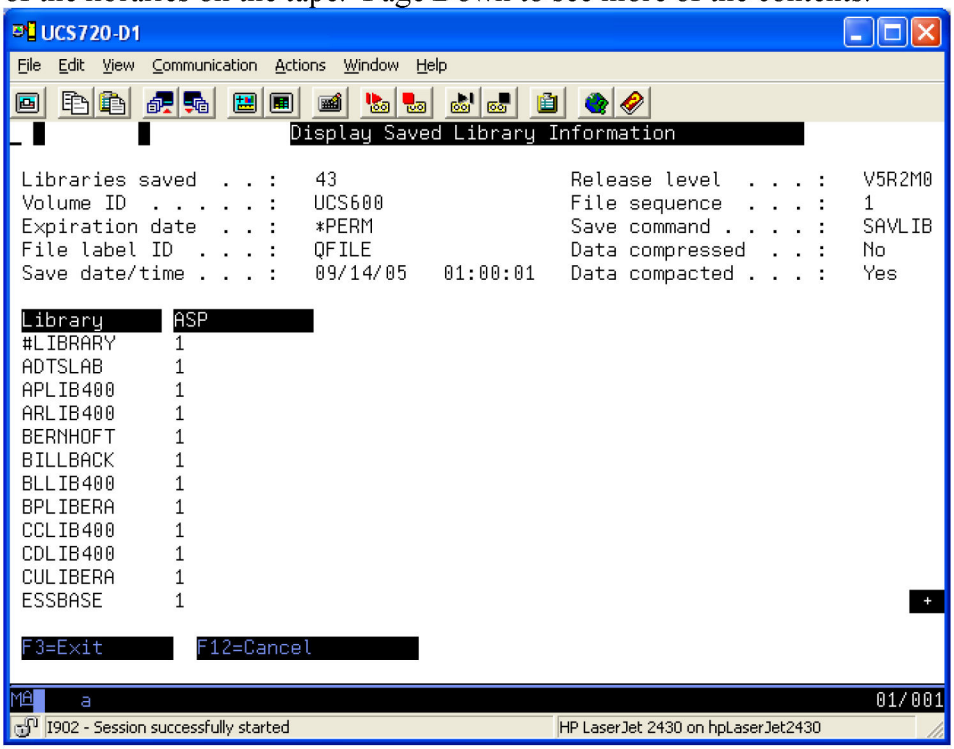
2. From any command line type in DSPTAP and hit F4.



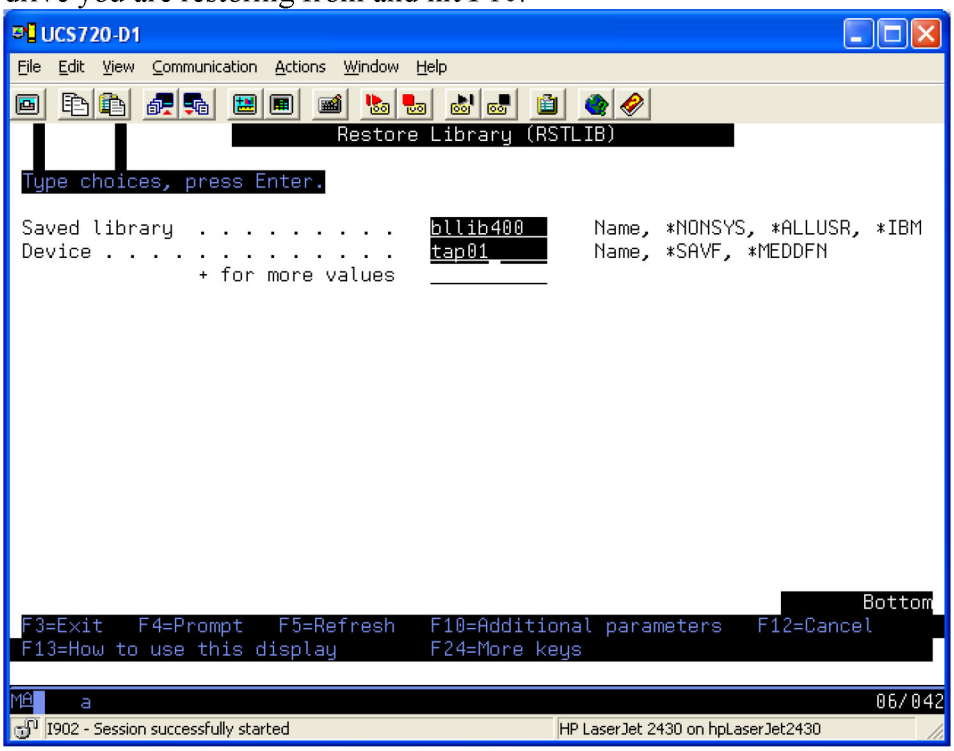
3. Type in the tape drive name the data type to *SAVRST and hit enter.



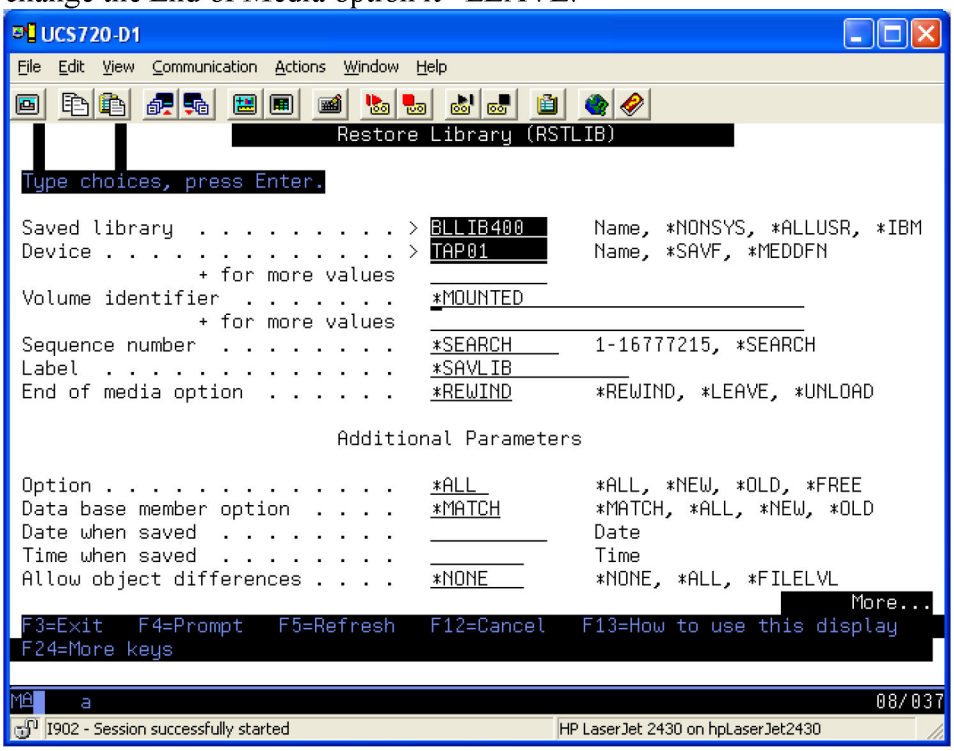
A screen should come up showing the date and time the tape was created along with a list of the libraries on the tape. Page Down to see more of the contents.



After verifying that the tape is the one you want to restore from, type in the RSTLIB command and hit F4. Fill in the name of the library that you want to restore, what tape drive you are restoring from and hit F10.

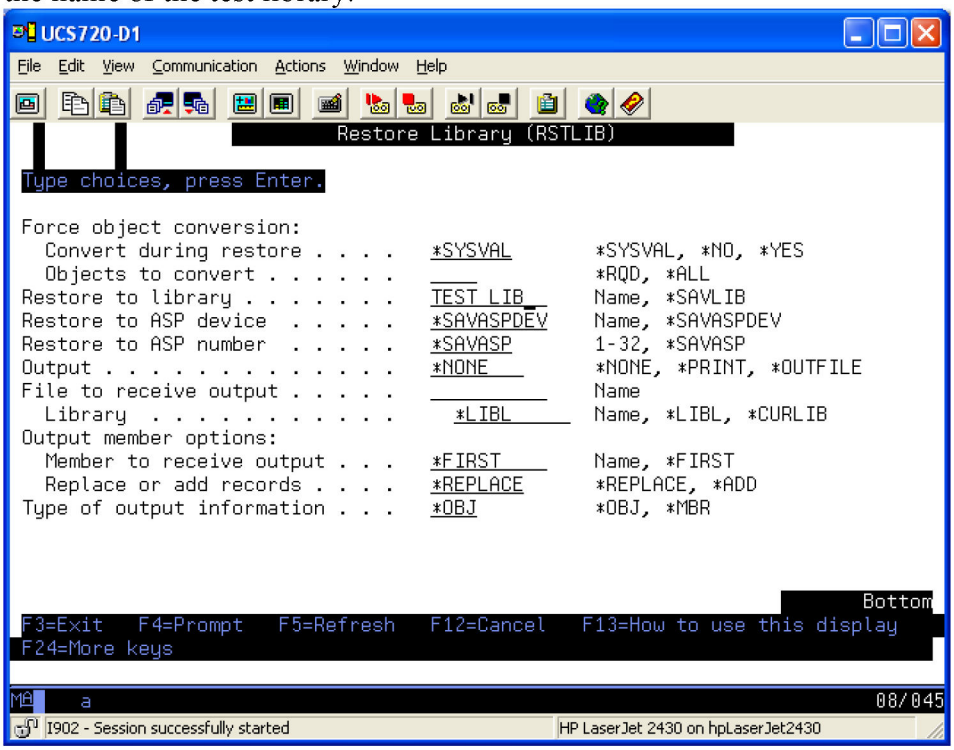


Once you have hit F10, change the Data Base Member Option to *ALL and the Allow Object Differences to **ALL and hit page down. If you are restoring multiple libraries change the End of Media option it *LEAVE.



If you are restoring back to a LIVE library, EVERYONE WILL NEED TO BE OUT OF THAT SYSTEM (i.e. PRLIB400). It is preferred to restore only when everyone is off of the POWER720.

If you are restoring the library to a test library, change the Restore to Library option to the name of the test library.



System Recovery Procedures

Follow the instructions in the IBM Manual – Backup and Recovery (Available online at www.ibm.com or through the IBM Software Library CD)

Daffron Disaster Recovery Services

Daffron provides Disaster Recovery Service to united Cooperative Services to assist in preparing for and responding to an Outage Emergency. As part of Disaster Recovery Services, Daffron provides access to a Host Configuration for use in responding to an Outage Emergency at a Covered Address.

Definitions

Host Configuration means the equipment so designated by Daffron for hosting purposes in the Addendum. What Daffron provides may not be identical to the Configuration, however, it will be compatible with, and will offer capacity and functionality equivalent or greater than that of the Configuration.

Outage Emergency means any unplanned interruption of your critical business and information processing at a Covered Address resulting from causes beyond your control that significantly impairs your ability to operate your business for more than a 48 hour period.

Recovery Site means a facility that Daffron will provide for a Recovery Exercise and may provide, on an optional basis, for use during a Recovery, as described in this Statement of Work.

Covered Address means a location where information processing is performed by or for you, and is identified in the Addendum. This address may represent your facility in a single building or a physical campus.

Daffron Responsibilities

Initial Setup

Set up two User Profiles. The first to be used by the Payroll Department, the second Profile is to be used by all other system users.

Recovery

When client notifies Daffron of an Outage Emergency by calling the toll free number Daffron provides (hereinafter referred to "Declaration"), Daffron will provide:

1. Host Configuration with client data available within 24 hours of data receipt;
2. Provide Host Configuration for a maximum of six (6) consecutive weeks after Declaration; and
3. Shared priority access to the Host Configuration over any customer, except one who has Declared before Client; and
4. Access to the Host Configuration through a high speed internet connection.
5. Provide tape back-up of data during recovery period, plus provide data back to client at the end of the recovery period on tape or via FTP.

Recovery Exercise Time
Upon Client's request, Daffron will provide access to the Host Configuration (optional at Daffron Recovery Site for a fee) to allow Client to exercise the recovery plan, procedures and operation ("Recovery Exercise"). Daffron will provide such access ("Exercise Time") on a semi-annual basis. Client agrees that Daffron may reschedule or interrupt Exercise Time to serve another customer who has declared an Outage Emergency.

Client Responsibilities

Client agrees to:

1. Be responsible for scheduling Recovery Exercises with Daffron staff;
2. Notify Daffron when declaring an Outage Emergency by calling the toll free number Daffron provides;
3. Be responsible for determining, on a continuing basis, whether the Host Configurations specified in the agreement in effect between Client and Daffron are sufficient to meet the requirements for continuing business and information processing activities in response to an Outage Emergency at each Covered Address;
4. Be responsible for providing during a Recovery Exercise or Client Actual Recovery any equipment, software, workspace, and/or telecommunications services needed that is not included in the Host Configurations specified in the agreement in effect between Client and Daffron;
5. Supply all personnel and appropriately licensed software necessary for a Recovery Exercise or actual recovery, unless otherwise specified in this Addendum;
6. Maintain Client system software and operating system(s) that Client intends to use for a Recovery Exercise or Actual Recovery, at a release level for which the manufacturer then currently provides support. Ability to make use of the Host Configuration Daffron provides may be dependent on client's fulfillment of this responsibility;
7. Furnish supplies, materials, and storage media necessary for a Recovery Exercise or actual recovery;
8. Follow the verbal instructions Daffron provides Client for (a) scheduling and preparation for Recovery Exercises; (b) Exercise or your recovery; and (c) use, if provided, of the Recovery Site;

In the case of a "live" disaster recovery, the most current backup tape will either be FedEx'ed or personally carried to Daffron's Host Site by the MIS Director.

Daily SAVF Creation, FTPing from POWER720 and Backup

As an alternative to the daily backup to tape, the daily creation of backup SAVF (save files) are created on the system through an automated backup process that is triggered at 1:00 AM Daily. These SAVF files are similar to ZIP files on the PC. Once the files are created on the POWER720, the files are then automatically downloaded to the Console PC in the Burleson computer room and backed up to an external hard drive that is switched out on weekdays with the current one being placed in the fire box located in the computer room.

To restore from these SAVF files, the files are FTPed back to the POWER720 and the same process for restoring is used as described for the tapes except the device will be *SAVF and the filename and library for the SAVF will have to be specified.

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY NO. 3100

SUBJECT: ON-CALL/WORKING HOURS AND OVERTIME

I. OBJECTIVE

To establish guidelines for regularly scheduled on-call working personnel.

II. POLICY

On-Call Guidelines

An on-call roster shall be utilized at each office for United Cooperative Services. It will be mandatory that personnel assigned to on-call service will work unless excused by the supervisor. "On call" refers to time outside the employee's usual work schedule during which the employee is under the obligation to promptly respond to communications from the Cooperative and must be available to report to work within thirty (30) minutes, but during which the employee is otherwise not restricted and is free to effectively use the time for the employee's own purposes.

Operations Department On-Call:

For the Operations Department, two (2) employees from each office of the Operations Department will be assigned to be on-call for Friday evening, Saturday, and Sunday. Except as otherwise provided herein, non-exempt employees assigned to be on-call shall be paid for two (2) hours at their straight time hourly rate of pay on Friday and three (3 hours) at their straight time hourly rate of pay on Saturday and Sunday, but if an on-call employee is called out to perform work during that on-call time, the time worked should be reported to the Cooperative and the employee will be paid consistent with FLSA requirements. Only on-call hours actually worked shall be counted in computing the hours entitled to FLSA required overtime pay. The employees assigned to be on-call will remain on-call until the start of the regular scheduled shift on Monday.

On-call status Monday through Thursday will normally be assigned to one (1) qualified Operations Department employee from each office. If the on-call employee (lineman) is called to perform work, the system operator will immediately assign another employee to assist the on-call employee (lineman), if the on-call lineman determines that he needs that assistance. The additional employee will be taken from the on-call roster. In the event the Cooperative assigns a level three (3) apprentice to be on-call, a Line Foreman will also be on-call with the apprentice for a period not to exceed six (6) months and the Line Foreman will receive a minimum pay of (2) hours straight time for each day on call during weekday evenings and three (3) hours straight time pay for each day on call during weekends. If the Foreman actually performs work during that on-call time, the Foreman should report the time worked

to the Cooperative and will be paid consistent with FLSA requirements. At the conclusion of the six (6) month period a Line Foreman will make the determination as to the eligibility of the apprentice to remain on-call without supervision of a foreman.

For this policy, "Double-Time Rate" refers to a non-exempt employee being paid 2X their straight time hourly rate of pay. Generally, the reason for the Double-Time Rate is that management considers the circumstances exceptional i.e., when our members and the Cooperative have a special and exceptional need for employees to pull together and be working outside the normal work schedule. (See Exhibit A – Double-Time Rate Pay Event Guidelines).

In some instances, an event or occurrence may result in multiple employees being called out to work after, and in addition to, normal business operating hours Monday through Friday or on Saturday or Sunday ("After Hours Event"). If an After-Hours Event occurs, the Cooperative will determine whether non-exempt employees called out to work will be paid a Double-Time Rate of pay for the work performed outside of normal business operating hours. (See Exhibit A) In all cases, employees will be paid in compliance with FLSA requirements.

A non-exempt employee who is 'on call' on a holiday as listed in Policy 3660 will be paid for two (2) hours at a Double-Time Rate of pay (for example, if the holiday is on a Friday evening, he would receive four hours of on-call pay, not the usual two hours). If that 'on call' employee is called out to perform work on that holiday, s/he shall be paid at a Double-Time Rate for all hours worked on that holiday. If that 'on call' employee (Lineman) calls another employee (Lineman) who works on the holiday, the Lineman who was called and works will receive pay at the Double-Time Rate.

1. **If the Cooperative observes a holiday on a date other than the actual calendar day of the holiday, it is the work performed (or the on-call time) on the Cooperative's observed holiday, not the actual calendar day of the holiday, that is paid at the Double-Time Rate of pay.**
2. **For actual hours worked on holidays, the Double-Time Rate begins at 12:01 a.m. and terminates at midnight of the same day. The Double-Time Rate does not apply to any continuous worked hours immediately preceding or following a holiday.**

Exception: If the employee works (or is on call) on the holiday because he/she requested that day for his/her own personal convenience, the employee does not receive the Double-Time Rate.

If the Cooperative sends an employee to perform mutual aid emergency storm work (either in or out of state), the employee will be paid the Double-Time Rate of pay, beginning from the time of departure from the office from which the crew departs and ending when the employee returns to the headquarters.

The Cooperative will provide transportation or pay mileage to employees for unscheduled work performed while they are on call and will pay for their travel time

between residence and arrival at the actual jobsite during times they perform work while on call. A company vehicle will ordinarily be provided to the Operations employee on-call.

In the event an employee is unable to assume the regular scheduled on-call duty period, the employee shall notify his supervisor in a reasonable amount of time before the beginning of the on-call duty. The supervisor will try to accommodate the employee if the supervisor can reasonably do so.

Other Cooperative Departments:

It may be necessary for other Cooperative departments to establish on-call working requirements to meet the needs of the Cooperative membership (e.g., after-hours reconnect of disconnected meters for non-payment). Employees that are scheduled for on-call duty for these needs shall conform to the same rules as the Operations department for reporting and recording time worked. For example, non-exempt employees assigned to serve in an on-call capacity shall be paid for two (2) hours at their straight time hourly rate of pay on Friday and three (3 hours) on Saturday and Sunday. Only on-call hours actually worked shall be counted in computing the hours entitled to FLSA required overtime pay. If an on-call employee is called out to perform work during their on-call status time, they shall report the time worked to the Cooperative and in all cases will be paid consistent with FLSA requirements.

The Cooperative will provide transportation or pay mileage to non-exempt employees for unscheduled work performed while they are on call and and will pay for their travel time between residence and arrival at the actual jobsite during times they perform work while on call. A company vehicle may be provided to the employee on-call if deemed necessary by their supervisor. Such use of on-call working requirements for other Cooperative departments shall be pre-approved by the CEO, COO or designee.

Rest Periods:

Overtime shall be worked as required. In such cases employees may be required to work more than ten (10) hours in any one day. Except in emergencies, no employee shall be required to work in excess of sixteen (16) hours in any twenty-four (24) hour period. (See Exhibit B – Rest Period Examples)

Regardless of whether there is an emergency, no employee shall work more than thirty-six (36) consecutive hours without up to eight (8) and no less than five (5) consecutive hours off.

Any employee who works in excess of sixteen (16) hours in any twenty-four (24) hour period, without at least five (5) consecutive hours off, shall subsequently be given a no less than five (5) consecutive hour (and if possible, eight hour) rest period on completion of such emergency work period and shall be paid straight time for any

time within such rest period which coincides with his regularly scheduled work hours. An employee shall not be permitted to work during the rest period except under unusual circumstances and with permission of their supervisor, and in such cases those hours worked by a non-exempt employee shall be reported by the employee and paid in a manner complying with the FLSA. Upon completion of the rest period, if, because of workload requirements, the employee is not needed to complete their regularly scheduled hours of work, the employee may be required to take off the remainder of the regularly scheduled shift for that day without pay, or the employee may, in lieu of taking such time off without pay, use accrued by unused vacation hours.

Recording of On-Call Time for Payroll:

It is the sole responsibility of each non-exempt employee to track and compute all hours worked, and overtime hours worked, and time spent on call. In the event that an employee is uncertain of total hours worked, it is their responsibility to promptly bring the situation to the attention of their supervisor ensuring they are compensated for all hours worked and receive overtime as provided by this policy or the FLSA.

Only on-call hours actually worked shall be used in computing FLSA required overtime pay. On-call time shall be accounted for and reported separately from time spent performing work. When line personnel are called out after normal working hours, the overtime will be accounted for and recorded in accordance with the following guidelines:

- **First Assigned Call: The first assigned call that is received by an on call non-exempt employee after normal working hours shall be assigned a minimum overtime charge – two (2) hours on Friday and three (3 hours) for each Saturday and each Sunday; unless the employees' overtime exceeds the minimum, at which time the actual overtime worked shall be recorded and paid. For example, if an employee was on-call on a Saturday, for the initial call out s/he will be paid a minimum of three (3) hours of overtime at the time and a half pay rate; however, in the event that the employee works more than three (3) hours then the actual overtime worked will be recorded and paid.**
- **Additional Call(s): In the event that an on-call employee has returned home from the initial call out and then is called out on another call, a minimum of two (2) hours at time and a half rate will be paid for the second call (weekdays and weekends). If the actual time worked exceeds two (2) hours, then actual time worked is recorded and paid at time and a half.**
- **Start and End Times: During an employee's on call time, overtime pay for hours actually worked shall begin to accrue at the time the employee receives the call from dispatch (or their supervisor) requesting their service. The start time shall be rounded back to the previous fifteen (15) minute interval. Overtime pay due under this policy shall end (1) after the last job is completed and the employee has returned home; or (2) the employee begins working a normally assigned shift. The end time shall be rounded forward to the next fifteen (15) minute interval.**

- **Example 1 – Start and End Times: Dispatch calls an employee at 1:05 am and the employee performs their duties and has returned home at 3:37 am. The start time is rounded back to 1:00 am and the end time is rounded forward to 3:45, equivalent to 2.75 hours.**
- **Example 2 – Accounting for Separate Calls and Minimum Hours for Week Day On-Call: An on-call employee has been called out after hours on a normal working day and the first call is received at 6:06 pm (rounded back to 6:00 pm) and the employee has returned home at 7:32 pm (rounded forward to 7:45 pm), equivalent to 1.75 hours; and a subsequent call is received at 8:49 pm (rounded back to 8:45 pm) and the employee has returned home at 10:05 pm (rounded forward to 10:15 pm), equivalent to 1.5 hours. Since the initial call was under the two-hour minimum for a normal working day, two (2) hours of overtime will be recorded for the first call. Furthermore, the second call was also under the two (2) hour minimum for subsequent call outs; therefore, two (2) hours of overtime will be recorded for the second call as well, for a total of four (4) hours of overtime for the entire evening.**
- **Example 3 – On-Call Time Running Into A Normal Work Day: In another example, an employee receives a call from dispatch at 5:34 am on a normal 8 am work day, and completes their work on the call at 10:00 am. The on-call start time is rounded back to 5:30 am and ends at 8:00 am, equivalent to 2.5 hours of overtime. Accounting for normal work hours would begin at 8:00 am.**

III. FLSA

This policy shall not be construed in a manner which would result in a non-exempt employee receiving less overtime pay than that required by the FLSA; in other words, non-exempt employees will be paid, for each workweek, overtime for hours worked over 40 in that workweek. To the maximum extent allowed by law, overtime paid under this policy shall be credited against any overtime due to an employee under the FLSA.

IV. RESPONSIBILITY

The General Manager shall be responsible for the implementation and administration of this policy.

Adopted: 2-26-2007
Revised: 02-28-2022
Last Review: 12-06-2021

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

Exhibit A – Double-Time Rate Pay Event Guidelines

Notes:
These guidelines do not encompass all variables, circumstances, and emergencies which may result in payment of Double-Time Rate or other actions required by the Cooperative or its employees. In general, Double-Time, Rate of Pay Events are not anticipated to occur more than 12-15 times each year.

The following table of conditions, when considered collectively (not individually), could result in an event being considered a Double-Time Rate of Pay Event by the Cooperative.

Conditions	Event
Outage Type	Major Storms/Weather or other events causing catastrophic damage
Number of Crews	There are more site outage calls than crews available at any given district office
How many outages?	Greater than 10 outages in any given district office area
Estimated outage event restoration time	Greater than 4 hours

Non-exempt employees from cooperative departments other than operations who are requested to work to support the restoration efforts in the case of a Double Time Rate Pay Event will also qualify for Double-Time Rate of Pay for those hours worked during the event.

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

EXHIBIT B – REST PERIOD EXAMPLES

Work – 8:00 am - 4:30 pm (30-minute lunch break)	8 hours worked.
2 hours off	
Work – 6:30 pm – 9:30 pm	3 hours worked.
3 hours off	
Work – 12:30 am – 3:30 am	3 hours worked.
2 ½ hours off	
Work – 6:00 am – 8:00 am	2 hours worked.
Rest period – 8:00 am – 1:00 pm	5 hours.
Summary	16 hours worked – 8 to 5 hour rest period. Paid 13 hours straight time; 8 hours overtime.

Work – 8:00 am - 4:30 pm (30-minute lunch break)	8 hours worked.
2 hours off	
Work – 6:30 pm – 9:30 pm	3 hours worked.
3 hours off	
Work – 12:30 am – 3:30 am	3 hours worked.
3 hours off	
Work – 6:30 am – 8:00 am	1 ½ hours worked.
Summary	15 ½ hours worked – no rest period because employee did not work 16 hours in the 24-hour period. Paid 8 hours straight time; 7.5 hours overtime.

Work – 8:00 am – 4:30 pm (30-minute lunch break)	8 hours worked.
6 ½ hours off	
Work – 11 pm – 8:00 am	9 hours worked.
Summary	17 hours worked – no rest period because employee was off 6 ½ hours during the night. However, the employee would have 16 hours at 3:30 pm that afternoon and would cease work. Paid 8 hours straight time; 9 hours overtime.

Adopted: 2-26-2007
Revised: 02-28-2022
Last Review: 12-06-2021

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY NO. 3400

SUBJECT: DISCIPLINARY ACTION

I. OBJECTIVE

It is the Cooperative's policy to direct all disciplinary efforts toward developing and maintaining a productive staff. Employees are expected to conduct themselves in a professional manner and perform their work efficiently and productively. Supervisors are to maintain a dialogue with their employees that communicate (1) company expectations and (2) instances of when expectations are not being met.

II. POLICY

A. Supervisors are expected to communicate requirements for performance and conduct to their employees (Policy 3405 Proactive Performance Coaching). When unsatisfactory performance or inappropriate conduct occurs, the supervisor should, when practicable, inform the employee of such in a timely, private, constructive and specific manner, giving information about expected behavior and consequences which may occur if the expectation is not met. The supervisor must afford the employee the timely opportunity to present his/her concerns within any discussion of deficient performance or behavior.

Any employee wishing to appeal their disciplinary action should request a meeting with the next level of supervisor. All employees are able to communicate upward, through the organizational chart, to the CEO/General Manager. However, the proper chain of command must be followed.

B. The following disciplinary steps are given as a guide for utilization when management considers appropriate and believes that it is possible that an employee's behavior at issue may be rehabilitated through progressive discipline. In such instances the progressive disciplinary steps may help supervisors deal with disciplinary problems when unsatisfactory performance or inappropriate conduct continues or reoccurs. When management considers the utilization of progressive disciplinary steps not to be appropriate (e.g. in the event of misconduct considered severe by management, or in the event of a violation of a rule that jeopardizes the safety of personnel), suspension without pay or termination may be the first or only step in the process, regardless of past practice.

1. Simple mention/Oral warning:

A coaching session is recommended for those occasions when the employee should be given the benefit of the doubt for inappropriate behavior. Employees should receive a "simple

mention" or "oral warning" of the expected behavior without the mention of consequences should the undesired behavior continue. Supervisor shall document the specifics of the simple mention/oral warning and Human Resources will place in personnel file.

2. Oral warning with documentation:

A specific conversation(s) held with the employee in which the performance deficiency or inappropriate conduct is detailed, specific expectations are outlined for correcting it, and a reasonable time period for correcting it is established. In some cases, a "reasonable time period" means that the employee begin or cease certain behaviors immediately. In addition, appropriate resources and/or support are identified, and consequences are described in the event that the deficiency or misconduct is not corrected. A "plan of action" specifically identifies consequences and no pay increase, no promotion eligibility, loss of job responsibilities, written reprimands, demotion, suspension, termination, etc. are not impacted at this step of the disciplinary action. The supervisor should document this conversation, and send a copy, signed by both parties, to the employee's personnel file.

3. Written warning/Plan of action and documentation:

A "written warning" consists of a memo to the employee from the supervisor, which contains the types of details listed above in the oral warning and, additionally, refers to previous warnings or corrections given to the employee, along with consequences if improvement or correction does not take place.

The "plan of action" is a specified period of time ("probation period") established by the supervisor in which the employee must correct or sufficiently improve the deficiency or face further disciplinary action, up to and including termination. A memo detailing the probation period and terms will be written by the supervisor to the employee with a copy to the employee's personnel file. A "plan of action" specifically identifies consequences such as no pay increase, no promotion eligibility, loss of job responsibilities, written reprimands, demotion, suspension, termination etc.

The written warning and plan of action must be reviewed with Human Resources prior to presentation to the employee. This

will help insure the appropriateness and fairness of the action, consistent application, and a constructive approach.

After presentation to the employee, a copy of this written warning and a plan of action are sent to Human Resources and the CEO/General Manager. A copy of a plan of action will be provided to the employee.

4. **Suspension without pay and documentation:**

   One or more days away from the workplace without pay in order to discipline the employee for a serious infraction. Such a violation of Cooperative rules cannot reoccur after the employee's return to work, or immediate termination will result. A memo to the employee detailing the events leading up to the suspension is prepared by the supervisor and placed in the employee's personnel file. A plan of action consistent with Step 3 will also apply.

5. **Termination of employment and documentation:**

   Immediate cessation of the employee-employer relationship may occur with or without notice or severance pay. Documentation about the termination must be prepared by the supervisor and placed in the employee's personnel file.

C. **Human Resources should be consulted early in situations where a supervisor believes disciplinary action is warranted. This will help insure the appropriateness and fairness of the action, consistent application, and a constructive approach. Human Resources is also available to employees to help them understand and comply with disciplinary actions.**

D. **Before implementing any of the above procedures from probation through termination, the supervisor must discuss contemplated action with the next upper level supervisor and Human Resources. If termination is recommended, the CEO/General Manager, Department Vice President, Supervisor and Human Resources must approve it in advance.**

   Any employee being terminated may appeal their termination to the CEO/General Manager. If the employee elects to appeal their termination, the employee will be placed on administrative leave without pay while a final decision is being made.

E. **Disciplinary memos and documentation will be retained in the employee's personnel file for a minimum of one year from the date of the offense and**

access to such will follow Policy 3410- Employee Access to Personnel File. Any memo written by the employee in reference to the action will also be retained for one year, unless the employee requests that it be removed sooner. The documentation will then be retained in a separate, closed file, and may be used in conjunction with future disciplinary actions, depending on the circumstances.

F. Certain employee privileges, such as educational assistance and applying for another internal position, are not available to employees on probation or suspension.

G. Absenteeism and Tardiness

1. Regular attendance is expected of every employee. Continued absenteeism from work without notifying the supervisor within 15 minutes of commencement of work may advance to more progressive disciplinary steps. If a satisfactory reason for the absence is not given to the employer, the employee will receive a simple oral warning. For the second offense, the employee will receive an oral warning with documentation. For a third offense, within twelve (12) calendar months, the employee will be given a written warning/plan of action and documentation. For the fourth offense, there will be suspension without pay documentation. Fifth offense will be termination of employment. If the employee has not violated the terms within this section for a period of twelve (12) months, any succeeding violation will be considered as a first offense. The 12 month period evaluation period can be waived when a pattern of absences is occurring.

2. For the purpose of this policy, two (2) tardiness violations are equal to one (1) absence.

ONLY EXCUSED TARDINESS: Severe weather conditions, automobile accident and pre-arranged excused tardiness (approved).

EXCUSED ABSENCES: Jury duty and bereavement as described in Policy No. 3690 and No. 3650, military leave as described Policy 3310, workers compensation injuries, absence resulting from verified proof of illness (employee), subpoenaed as a witness in any recognized legal proceeding, approved leave of absence, and/or any applicable contractual provisions.

If all total personal illness/absences excluding excused absences and unexcused absences exceed 15% in any six (6) month period (15% of working days), the employee shall be subject to termination.

H. Cardinal Rules

The Cooperative ensures that proper safety training and safe work practices are a priority in United's safety training culture. The Cooperative relies upon regulations and standards from OSHA, APPA, ANSI, NESC and other sources for training. These sources may "recommend" safety procedures or allow for a suitable "selection" of safety practices after a preliminary assessment and evaluation of hazards at a job site. Utilities are advised in the foreword of the APPA *Safety Manual* to adhere to the most restrictive regulation governing a situation when separate regulations may cause a question as to the appropriate procedure.

So that appropriate personnel are trained, equipped, organized, coordinated and prepared for most situations before arriving at a jobsite, United has preselected specific procedures as minimum safety standards. While not inclusive of all safety procedures or situations, the preselected, restrictive practices adopted in this policy section will be enforced with zero tolerance and collectively be referred to as Cardinal Rules. In the event a violation of a Cardinal Rule occurs and jeopardizes the safety of personnel, suspension without pay or termination may be the first or only step in the process, regardless of past performance.

- **Cardinal Rules for Line Crews and Specified Personnel:**

  The Cardinal Rules for Line Crews are attached as *Appendix A – Cardinal Rules (1-10) and References for Specific Performance Standards*.

  Additionally, the following employee departmental groups are expected to complete and comply with the Orientation level of PPE training: System Engineering, Technical Services, Engineering Services, and Warehouse personnel.

- **Cardinal Rules for Mechanics:**
  1. **Never perform work on a vehicle/equipment without rendering immobile.**
  2. **Always wear proper PPE when performing work:**
     a. **Safety glasses/shields**
     b. **Proper hand protection**
     c. **Hard hats**
     d. **Steel toed foot wear**
  3. **When exiting shop area, honk horn or have personnel available to insure safe departure.**
  4. **Always use proper method in locating high-pressure fluid leaks.**
  5. **Always use manufacturers suggested recommendations involving torque and maintenance specifications.**
  6. **Never allow vehicles/equipment to be used that could sacrifice the operator's safety as well as your own. Keep this as a top**

priority when performing work on vehicles/equipment.

7. Always assess the safety hazards before work begins.
8. Follow all of the safety rules stated in the TEC Loss Control Program safety manual, Section 504, concerning Vehicle Maintenance.

I. Employee is also subject to Policy No. 3401, General Obligations and Responsibilities of Employees.

III. RESPONSIBILITY

The General Manager shall be responsible for the implementation and administration of this policy.

Adopted: 4-26-2004
Revised: 2-24-2020
Last Review: 12-06-2021

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY 3400 - APPENDIX A - CARDINAL RULES (1 - 10) AND REFERENCES FOR SPECIFIC PERFORMANCE STANDARDS

Upon completion of all courses pertaining to training levels, employees are expected to be able to perform such duties and follow United training practices. United, per the training courses, may require a higher standard of safety practice(s) than what third-party references indicate which includes a minimum approach distance established by United to be 3 feet based on reaching distance combined with work tool distance. These reference sources and references are not all-inclusive.

United Training - Completion Level	*APPA 15th Edition*	*OSHA*
(1) Personal Protective Equipment ("PPE"): All employees shall equip themselves with the appropriate PPE necessary to safely perform their jobs.		
Orientation	*401 Personal Protective Equipment (PPE)*	*Standard 29 CFR 1910.132*
(2) PPE - Hard Hats: An approved hard hat shall be worn by all employees on job sites, work zones, and designated hard hat zones.		
Orientation	*403 Head Protection*	*Standard 29 CFR 1910.135*
(3) PPE - Clothing and Other Protection: Each employee shall wear clothing suitable for the work being performed; appropriate arc-rated clothing, footwear, work gloves, face and eye protection shall be worn.		
Orientation	*402 Eye and Face Protection; 405 Wearing Apparel; 406 Clothing*	*Standard 29 CFR 1910.133 and 1910.136*
(4) PPE - Face Shield: A face shield shall be in the down position before entering the "minimum approach distance" of any energized or potentially energized multi-phase primary conductor or equipment unless the upstream recloser is placed in the Hot Line Tag setting. A face shield shall be in the down position while checking voltage on any energized or potentially energized 480 V secondary.		
Orientation	*no additional reference cited*	*Standard 29 CFR 1910.269 App E III B.*
(5) PPE - Rubber Gloves: Employees shall wear properly rated rubber gloves ground to ground, lock to lock, cradle to cradle where any energized source is present within the greater distance of either (a) the minimum approach distance or (b) work area (with work area having a separate meaning from work zone). Rubber gloves do not need to be worn when using an approved extendo stick from the ground when the worker is at least 20 feet away. Rubber gloves should be cared for properly.		
Orientation	*407 Use and Care of Rubber Gloves; 509.9 Rubber Glove Use*	*Standard 29 CFR 1910.137*
(6) Truck Grounds: When working on or near energized primary conductor, vehicles and equipment that could become energized shall be grounded. If a situation is deemed unsafe to install grounds, the vehicles and equipment shall be appropriately barricaded or the conductor shall be de-energized for work. Any barricade must be pre-approved by the district foreman and the safety department.		
Groundman	*507.13 Grounding-General*	*no additional reference cited*

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY 3400 - APPENDIX A - CARDINAL RULES (1 - 10) AND REFERENCES FOR SPECIFIC PERFORMANCE STANDARDS – continued

United Training - Completion Level	*APPA 15th Edition*	*OSHA*
(7) Fall Protection: (a) Fall Restraint: A fall restraint system shall be used by employees working from an aerial device. (b) Fall Arrest System: A fall arrest system shall be used by employees working from poles, towers or similar structures when more than 4 feet off the ground, and shall be applied prior to climbing the structure.		
Groundman	*203 Fall Protection; 507.3 Climbing and Working on Poles*	*Standard 29 CFR 1926.954 (b)*
(8) PPE - Sleeves: Appropriately rated rubber sleeves shall be worn when working within the minimum approach distance of exposed energized or potentially energized overhead conductors, URD cables and equipment.		
Apprentice I	*407 Use and Care of Rubber Gloves; 509.9 Rubber Glove Use*	*Standard 29 CFR 1910.269(1)(2)*
(9) Cover Up: Cover up shall be installed when an employee or equipment is within reaching or falling distance of exposed energized conductors or equipment except that part of the conductor or equipment on which the employee is to work.		
Apprentice I	*407 Use and Care of Rubber Gloves; 507.2 Flexible Protective Equipment*	*Standard 29 CFR 1910.137 and 1910.269*
(10) Personal Grounds: All conductors, services, URD cables and equipment that have been energized or could become energized from any source (e.g. back-up generators) shall be considered as energized until the conductor, cable and equipment has been isolated, tested and properly grounded. For services, the meter is to be pulled, or in the case when the meter will not de-energize the service, the main service shall be locked open to de-energize. Precautions shall be taken to protect against backfeeds. (a) Overhead Primary: Personal grounds (equal potential grounds or bracket grounds, as appropriate) must be installed when working de-energized conductors that could become energized – unless the conductor is worked as energized. (b) Underground Primary: Personal grounds must be installed when working de-energized conductors that could become energized – unless the conductor is worked as energized.		
Apprentice I	*507.13 Grounding-General; 507.14 Equal Potential Grounding; 509.7 Grounding*	*no additional reference cited*

Adopted: 4-26-2004
Revised: 2-24-2020
Last Review: 12-06-2021

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY NO. 4150

SUBJECT: Planning, Design and Operation Standards

I. OBJECTIVE

To establish and maintain standards for the planning, design and operation of the Cooperative's distribution system.

II. POLICY

The Cooperative shall create and maintain standards for the planning, design and operation of the distribution system. The goal of these standards shall be to meet all regulatory requirements and standards, and to ensure consistency and understanding of planning, design, and operation of the distribution system among the Cooperative's personnel. These standards shall be reviewed and updated periodically as reasonably necessary and shall be included with each Construction Work Plan and Long Range Plan. The Sr. Vice President of Planning and Procurement shall ensure that such standards are adhered to in the planning, design and operation of the distribution system by working with the Cooperative's personnel as necessary.

III. RESPONSIBILITY

The General Manager shall be responsible for the implementation of this policy.

Adopted: 2-26-2007
Revised: 2-24-2020
Last Review: 12-06-2021

UNITED ELECTRIC COOPERATIVE SERVICES, INC.

POLICY NO. 4160

SUBJECT: ENVIRONMENTAL POLICY

I. OBJECTIVE

To establish a policy to adopt standards and practices that minimize adverse impacts to the environment according to applicable laws and regulations and to the extent reasonably possible.

II. POLICY

It shall be the policy of the Cooperative to minimize adverse impacts to the environment caused by construction and operation of its facilities, including disposal of materials, consistent with good management and sound practices. The Cooperative shall adopt the following practices as standard procedures for operation, maintenance and construction.

A. Cooperative personnel shall:

1. Use covered riser wire (commonly referred to as "bird wire") for all transformer and special equipment risers where applicable. Use covered riser wire for jumpers on lightning arrester and fuse cutout installations where applicable.
2. Use bushing cover-up material on all transformers and special equipment where applicable.
3. Cease all construction activity in the immediate area should cultural materials or archaeological artifacts be encountered during the construction process. The State Historic Preservation Officer should be contacted immediately by the designated personnel if this situation occurs.
4. Follow applicable rules and regulations to prevent soil erosion along the right-of-way of construction projects.
5. Use care in removal of trees and brush along the right-of-way of construction projects. Particular attention should be given to nesting birds especially where prime habitats for endangered species occur in the Cooperative's service territory. If this situation is encountered, activity should cease immediately, and designated personnel should notify the proper authority.
6. Incidents of raptor (birds of prey) mortality due to electrocution should be monitored and tracked. Immediately report incidents to the Sr. Vice President of Planning and Procurement when deceased raptors are found if the probable cause of death is electrocution.
7. Follow all applicable regulatory and Cooperative procedures relating to handling of oil-filled devices to minimize possibility of spills and to properly clean up spills when they occur.
8. Follow manufacturer's guidelines and applicable laws and regulations for disposing of materials, including electronic equipment and batteries.

9. **Review the Cooperative's current environmental report prior to new construction design and implementation so that appropriate considerations and accommodations are made.**

B. In addition, it shall be the policy of the Cooperative to implement new construction procedures as may be deemed necessary to reduce or eliminate adverse impact to the environment at the request of authorized agencies.

The Cooperative will comply with requests from these agencies for changes to construction procedures if such requests are approved and authorized by the Rural Development Utilities Program (RDUP) and are not in conflict with applicable codes.

C. It is the policy of the Cooperative to make every effort to be aware of and abide by all Texas Commission on Environmental Quality (TCEQ) and Environmental Protection Agency (EPA) rules and regulations where applicable.

III. RESPONSIBILITY

It shall be the responsibility of the General Manager for the implementation of this policy.

Adopted: 9-25-2000
Revised 5-18-2020
Last Review: 12-06-2021

UCS Planning Standards

The following items constitute the UCS Engineering and Planning Standards. These standards serve as a declaration of Cooperative's commitment to excellence in the quality of the power it supplies to the membership. They function as general planning standards for new construction not included in a specific work plan project.

1. General Construction Standards

UCS uses the RUS ***Specifications and Drawing for 14.4 / 24.9 kV Line Construction*** (Bulletin 1728-F-803) for overhead line and RUS ***Specifications and Drawings for Underground Electric Distribution*** (Bulletin 50-6 D-806) for underground line. All new line construction, whether overhead or underground, is insulated for (eventual) 25 KV operation. National Electric Safety Code Grade C - Heavy Loading Zone/Zone 1 standards are maintained. Sagging of conductor will be performed by methods as established in United's Conductor Stringing and Sag Guide, produced in coordination with CP Consulting Engineers (now Power Engineers).

2. Annual Power Requirement Reviews

Most of the Cooperative's power is furnished through Brazos Electric Power Cooperative, Inc. A portion of which is able to be purchased from outside sources. The capacity of each substation transformer relative to the expected loading is reviewed and evaluated in an annual meeting by United and Brazos. This planning session, held by February each year, ensures coordination of substation transformer capacity upgrades, voltage conversions, additional distribution bays and reclosers, and new substations with any necessary transmission lines. This annual planning meeting always looks ten years into the future in order to anticipate the needs for system improvements that could impact Brazos facilities.

3. Acceptable Voltage Range

The minimum allowable primary voltage on the system is 118 volts on a 120 volt base per RUS Bulletin 1724D-113. However, as a reflection of the Cooperative goal of providing high quality electrical service, 120 volts is the Cooperative standard. As voltage below 120.0 volts is projected through modeling and study, projects will be completed on a priority basis as detailed in the Cooperative's current Construction Work Plan.

Per the same standard, the maximum allowable primary voltage on the system is 126.0 volts. UCS tries to standardize on a 126V (on 120V base) set point on substation regulators or LTCs, but there are some special cases where the set point must be raised or lowered. See the current revision of the UCS VOLTAGE SETTING spreadsheet for actual set points and explanations. The current revision can be requested from Brazos Electric operations personnel.

For secondary service voltage, UCS has adopted the ANSI C84.1 standard, a copy of which is kept on the network. This standard was also accepted by RUS and is included in Bulletin 1724D-113.

4. Conductor Sizing and Loading

While some areas of the Cooperative's service area are voltage limited, other areas with high load densities are capacity limited. For this reason it is of great importance that standards be established relating to the maximum loading of conductors. In conjunction with these standards are maximum phase trip values for protection devices that have these various conductors in their zones of responsibility. The terms Capacity Ratio (CR) and Critical Amps (CA) are used to quantify these standards.

For a particular protection device:

CR = Phase Trip Amps / Peak Load Amps on any phase *

[* The use of the amps on the most heavily loaded phase gives significant motivation to balance the load as closely as possible.]

For a particular conductor, the Critical Amp Value is the amount of current beyond which it should not be loaded (see remarks about cold load pickup and back-feed capability below). Depending on the season, the Critical Amp Value will be different. A chart below illustrates the Maximum Ampacity of ACSR and AAC wires used by United. Further, the Critical Amp Value for each season (summer and winter) is also shown.

Ampacity and Critical Amp Values for Cooperative[1]				
Wire Type	Summer Max. Ampacity (105 deg C)[2]	Summer Critical Amp Value[3]	Winter Max. Ampacity (105 deg C)[4]	Winter Critical Amp Value[5]
4 ACSR (Swanate)	156	78	263	94
2 ACSR (Sparrow)	209	104	350	125
1/0 ACSR (Raven)	282	141	475	170
2/0 ACSR (Quail)	327	163	550	196
3/0 ACSR (Pigeon)	379	189	638	228
4/0 ACSR (Penguin)	439	219	739	264
477 ACSR (Hawk)	740	370	1256	449
795 AAC (Arbutus)	1066	533	1711	611

1 Calculation results presented in this table were performed with the assistance of the Cooperative's wire supplier with the suggested maximum conductor operating temperature of 105 deg C. The calculations were performed as prescribed in IEEE Standard 738.

2 Summer ampacity calculations as prescribed by IEEE Standard 738 included the following conditions: July 10 day, 41 degrees C ambient temperature, 2 feet/second wind and 4 P.M. sun.

3 Summer Critical Amp Value = Summer Ampacity / Summer CLPU; Summer CLPU has been determined by experience to be 2.0.

4 Winter ampacity calculations as prescribed by IEEE Standard 738 included the following conditions: January 15 day, -12 degrees C ambient temperature, 6 feet/second wind and no sun.

5 Winter Critical Amp Value = Winter Ampacity / Winter CLPU; Winter CLPU has been determined by experience to be 2.8.

The above chart represents standards of **maximum** phase trip settings of reclosers (Summer/Winter Ampacity) where growth on a circuit should be clamped before an upgrade project should be completed. The worst case scenario (winter or summer) should be used to determine priority of projects. Settings can be lower than the maximum as listed in the table above as long as the appropriate CR value is maintained.

Some reclosers have been programmed with dynamic settings that can be enabled through SCADA. Where this has been enabled on the SCADA system, the lower setting should be the normal profile (summer). An alternate profile can be assigned with winter settings. The normal profile is active when the temperature is at or above 25F. The alternate profile will be active when the temperature is below 25F. These changes will be controlled through SCADA via a command sequence maintained by Planning.

Designing a distribution system with this minimum standard has proved to afford the following benefits that are considered crucial to the operation of the UCS system:

1. Cold Load Pickup problems are largely eliminated. Through experience and without resorting to extraordinary and risky procedures, the Cooperative has determined that with this standard, energizing a recloser under cold load conditions is almost always successful (i.e. the recloser "holds"), thus reducing outage times for members.

2. Back-feed Capability is greatly enhanced. Situations frequently arise when circuits (or in some cases entire substations) need to be fed from alternate sources. With the standard, circuits have sufficient reserve capacity to supply power to its own territory and in addition all or part of another circuit. Voltage drop is almost always the limiting factor in these back-feed situations. As a byproduct of the standard, conductors are installed which allow considerable back-feed capability from the voltage drop standpoint. Obviously at peak times, this capability is less than at off-peak times. However, it has been found that with this standard, back-feed capacity is adequate for many emergency situations.

For non-standard conductors , the following table gives: (1) the maximum ampacity, (2) the critical amp value, (3) the largest allowable three-phase OCR phase trip setting and/or (4) largest allowable single-phase OCR rating to be used immediately upstream from the conductor type, and (5) in the case of 6 Gauge Steel the maximum fuse size to insure that the thermal limits of the conductor are not exceeded. In the cases listed below, the worst case CLPU of winter has been designated with an ampacity that is from manufacturer data rather than IEEE Std. 738 due to the fact that none of these conductors are standard conductors.

(1)	(2)	(3)	(4)	(5)
	Critical	Maximum Upstream	Maximum Upstream	Maximum

Overhead Conductor	Max. Ampacity EA	Amp Value (Winter)	3Ph Phase Trip EA	1Ph OCR Rating	Upstream Fuse Link
2HDC	240	86	240	70 *	
4HDC	175	63	175	70 *	
6HDC	125	45	125	70 *	
1/0 CWC	310	112	310	70 *	
6A CWC	140	50	140	70 *	
8A, 8D CWC	100	36	100	50	
3/12 CWC	90	32	NA	35	
6GS	25	11	NA	NA	15-T

Underground conductor values for Cooperative standard underground conductors are listed below. Many aspects of underground design affect temperature performance of cable. The following table includes the results of applying the winter CLPU to the Maximum Ampacity of the cable again from manufacturer data. Different designs may affect these values (such as duct design), therefore every potential option will not be studied. Rather, these values will represent the general limits and independent issues will be studied and determined as necessary. It is important to note that there is no difference between the summer and winter ampacities or critical amp values for underground conductors because the ambient temperature does not change significantly underground with the seasons. For circuits with extensive underground mainline, dynamic settings may not be able to be programmed into upstream devices.

Underground Conductor	(1) Max. Ampacity EA	(2) Critical Amp Value (Winter)	(3) Maximum Upstream 3Ph Phase Trip EA	(4) Maximum Upstream 1Ph OCR Rating
1000 MCM URD	522	186	522	70 *
4/0 URD	232	83	232	70 *
1/0 URD	156	56	156	70 *

* Note: 70 amp reclosers are the largest capacity single-phase hydraulic reclosers used by UCS.

Exceptions to the Preceding Standard:

There are two exceptions to the aforementioned capacity ratio standards for overhead conductor of 2.8 and 2.0 for summer and winter, respectively.

The first exception is for circuits that entirely or predominantly exist to supply power to industrial load. Because industrial load often runs at or near peak capacity, there is less concern about cold load pickup. For these situations, the industrial capacity ratio is 1.5 based on practical experience.

The second exception is for the alternate feed of an Automatic Source Transfer (AST) scheme. The standards for the AST are described in more detail in section 5. For the primary feed for an AST, the normal capacity ratio follows the rules stated previously in this section. However, when the AST has switched and is being fed by the alternate feed, devices on that circuit are allowed to be loaded up to a capacity ratio of 1.5.

Conductor Size and Type Selection

United has standardized on the following overhead conductor sizes for new construction: #4 ACSR,1/0 ACSR, 4/0 ACSR, 477 ACSR, and 795 AAC. For new underground conductor, the standard sizes are 1/0 ACSR, 4/0 ACSR, and 1000MCM ACSR. For operational ease of use, 1000MCM ACSR underground conductor is preferred to be EPR jacketed cable, while the smaller underground conductors are preferred to be XLPE jacketed cable. Exceptions may be made to each of these preferences based on pricing and availability.

The loading tables above that include a capacity ratio to calculate permissible conductor size naturally produce a very conservative (larger) conductor choice for new construction. For this reason, selection of conductor size based on economic factors like losses (such as described in RUS Bulletin 60-9 *Economical Design of Primary Lines for Rural Distribution Systems,* developed in 1960) is not necessary since the conductors are loaded only to a fraction of their thermal capacity, even at peak load.

Secondary Conductor

United's standard secondary conductors and their properties are given in the following tables:

Underground - Aluminum XLPE

Duplex

Code Word	Size	Ampacity
Claflin	6	60

Triplex

Code Word	Size	Ampacity
Brenau	1/0	135
Sweetbriar	4/0	205
Wesleyan	350	280
Rider	500	350

Quadruplex

Code Word	Size	Ampacity
Norte Dame	1/0	135
Wake Forest	4/0	205
Slippery Rock	350	280
Wofford	500	350

Overhead - Aluminum Phase/ACSR Neutra

Triplex

Code Word	Size	Ampacity
Periwinkle	4	115
Neritina	1/0	205
Zuzara	4/0	315

Quadruplex

Code Word	Size	Ampacity
Hackney	4	100
Costena	1/0	180
Appaloosa	4/0	275

5. Neutral and Pole Grounding Conductor Sizes for Overhead Lines

United will use the neutral sizing scheme in the following table when constructing three-phase overhead line.

Primary	Neutral
1/0 ACSR	1/0 ACSR
1/0 ACSR (Double Circuit)	1/0 ACSR
4/0 ACSR	1/0 ACSR
4/0 ACSR (Double Circuit)	4/0 ACSR
477 ACSR	4/0 ACSR
477 ACSR (Double Circuit)	477 ACSR
795 AAC	477 ACSR

Per NESC Rule 93C3, system grounding conductors shall have a current carrying capacity of at least one fifth of the neutral that it is connected to. At United, #6 copper pole grounding conductor shall be used with neutral sizes 4/0 and smaller. The larger #2 copper pole grounding conductor shall be used with neutral sizes larger than 4/0 or where an upgrade to a neutral size larger than 4/0 may occur in the near future.

6. Automatic Source Transfer Schemes

An Automatic Source Transfer (AST) scheme is a way of greatly increasing reliability to a critical load. A critical load can be a single account or several accounts all grouped together such as a medical center or industrial park where continuity of power is crucial. An AST consists of two circuits meeting at a critical load with devices on each side with peer to peer communications. If the primary feed is lost, the AST quickly switches to the secondary feed. The switch typically occurs within 4 cycles, and the critical load served does not notice a blink.

When planning for an AST, both circuits and substations must be able to serve the load at peak since the transfer can occur at any time without notice. However, because the transfer will be hot, there is no need to worry about cold load pickup capability of the secondary feed. Therefore, while serving the critical load in the AST's alternate configuration, the devices on the alternate feed are allowed to be loaded up to a capacity ratio of 1.5 instead of the typical 2.8 or 2.0.

In addition to the relaxed capacity ratio standards in AST schemes, further consideration must be given to delivered voltage when the critical load is being served by the alternate feed. Because the alternate feeder is not meant to serve the critical load full time, the previously mentioned standard of providing 120V is lowered to 118V. This voltage is still considered acceptable by the RUS standard, and it will only be allowed temporarily. The reliability is greatly increased over the alternative, which is an outage.

Any substation transformers or step transformers providing service to the critical load from the alternate feed will also be allowed to exceed the normal planning standards of loading because of the AST's temporary nature. Therefore, when planning for an AST installation, substation and step transformers on the alternate feed will be allowed to overload to 110% of nameplate in the summer and 150% in the winter while serving the critical load. These values represent the 4-hour overload capacity given by transformer manufacturers which will not result in loss of transformer life. All relay, recloser and breaker settings must be reviewed to ensure that the temporary overload does not trip any protective devices due to current overload.

As more AST schemes are installed, the possibility of two or more sets of ASTs interfering with each other, creating undesirable feeder configurations, when left in automatic mode arises. Where this type of situation exists, all ASTs that could be affected should be set to Manual Initiate. Manual Initiate requires human intervention to switch from the alternate feed back to the normal feed when primary power is restored.

7. Elimination of Substandard Material and Practices

In the past certain conductors were installed at UCS that are now deemed to be substandard. It is the goal of UCS to phase out the use of hard-drawn copper, copper weld, and steel conductors. These conductors have been proven to be the source of problems due to theft and/or ice storm damage. Over time these conductor types will be eliminated by replacement with Aluminum Cable Steel Reinforced (ACSR).

Additionally, there are certain practices that are deemed to be substandard and will be eliminated:

1. Unconsolidated Vee-Phase or Three-Phase Installations. Combining geographically remote phase conductors together to form a vee-phase or three-phase line (or to feed a transformer bank) is considered to be an unsafe operational practice.

2. Cascaded Regulator Installations. Having more than one layer of regulation between the substation and the various extremities of the circuit creates equipment and operational problems. However, if cascading regulators is the most economical solution, it will be allowed on a limited basis with the appropriate settings to prevent sympathetic stepping.

3. Capacitor-as-Voltage-Booster Installations. Using capacitors solely for the purpose of mitigating voltage drop problems is considered to be an imprudent approach to solving the problem. Other system improvement options (e.g. conductor upgrade, alternate routing of circuit, voltage conversion, regulator relocations) will be considered instead of the use of capacitors in areas of low voltage. While capacitors may be temporarily used to mitigate voltage problems, other long-term solutions will be sought in these areas.

4. Non-Regulated Booster Installations. Using special non-regulated booster transformers to raise the voltage in a particular area may cause high voltage in that area in off-peak times. Other more conventional methods of improving voltage will be utilized.

5. Open point switches on three-phase. Open point switches where refeeding is possible, individual switches should be replaced by three-phase gang operated switches.

8. Loading of Substation Transformers, Step Transformers, and Regulators

- **Brazos Substation Transformers**

Especially in areas of rapid growth, the timely anticipation of substation loading problems is a crucial area of planning. When a substation transformer begins to be loaded at a level of 85% of its top rated capacity, specific plans need to be in place to relieve this capacity problem in one way or another. For example if a 20 MVA transformer is loaded at 17MVA, it is time to implement plans for either a load transfer to another existing substation, the construction of a new substation in the area to relieve the load, or a capacity increase at the existing location. A capacity increase could be either in the form of a higher capacity single transformer or the installation of an additional transformer at the site (such as Lillian B, Joshua B, Tenaska B, etc.).

In a case where a substation transformer serves primarily industrial load, a less proactive approach in transformer upgrade may be warranted. In industrial situations, loads are generally more static and changes in loads are generally well planned and communicated. Further, there is typically sufficient time for upgrades to occur without the worry of overload of transformers at the station level. In these cases, loading to nameplate rating may be allowed, but must be reviewed at least twice a year (at each peak) to ensure no overloading is taking place.

Some substation transformers may be strongly winter-peaking. Because the ambient conditions favor the continued loading of a transformer under these conditions, planning personnel may decide to waive the 85% loading capacity rule. However, there is danger in deferring plans to deal with the situation coming from the more unpredictable and extreme nature of winter-time

weather, therefore, upgrades should be considered when loading exceeds 85%. In general, though, plans to upgrade due to winter load are held until the transformer loading meets its nameplate capacity.

In the case where a transformer may be loaded beyond its nameplate kVA rating, RUS Bulletin 161-22 details the conditions where a transformer can be overloaded without any loss of transformer life, and for emergency conditions with < 1% loss of life. Below are the 2-hour and 4-hour overload capacities for transformers without any loss of life.

2 Hour Overload Allowable
Winter Peak: 1.75 of Nameplate KVA
Summer Peak: 1.25 of Nameplate KVA

4 Hour Overload Allowable
Winter Peak: 1.50 of Nameplate KVA
Summer Peak: 1.1 of Nameplate KVA

In the extreme case where a transformer must be loaded beyond the above guideline, it may be loaded following the table below while sustaining < 1% loss of transformer life. This situation should be avoided where at all possible.

Length of Peak Hours	Summer Peak	Winter Peak
0.5	2.0	2.0
1	1.9	2.0
2	1.6	2.0
4	1.4	1.7

The complete article including tables is found on the network: *\\burfile\cooperativeplanning\Planning Department Management\Planning\Guidelines\Transformer Loading - REA 161-22 Ch. 7.pdf.*

- **Brazos Step Transformers**

Brazos step transformers follow the same capacity and overloading rules as substation transformers. That is, either an upgrade or system reconfiguration should be accomplished if the loading reaches 85% of nameplate in the summer or 100% in the winter.

- **UCS Step Transformers**

It has been observed that in cold load pickup situations the load in winter increases by a factor of about 2.8 whereas the load in summer increases by about 2.0. Most cold load pickup situations settle down to "normal" loads within two hours. Therefore UCS step transformers should not be regularly loaded more than 65%. When this maximum value is maintained under normal feed configurations and under steady state peak conditions, the transformer will closely follow the RUS guidelines (2.8 x 0.65 = 1.75 in winter, 2.0 x 0.65 =1.25 in summer). Peak loading of UCS step transformers over 65% shall be reviewed individually and in no case allowed to exceed 85% without the initiation of a system improvement project.

The 65% maximum loading value for step transformers given above will also afford reserve capacity in situations where the back-feeding of an adjacent circuit is done.

Overloading of step transformers follows the guideline in the previous section.

- **UCS Regulators**

At the outset it should be noted that ***new*** McGraw-Edison regulators are dual rated for 55 ° ***and*** 65 ° Celsius temperature rise. This means that the nominal rating of the regulator is for 55° rise but that it will continue operating without damage up to 65 ° degrees rise. The following sentences from Cooper Power System bulletin S225-10-30 documents this fact:

> The 65 ° C rise insulation system and the sealed-tank construction allow for a bonus capacity 12% above the 55 ° C normal rating without loss of normal insulation life. The bonus capacity is stated on the nameplate (such as 167 / 187 kVA for a nominal 167 kVA regulator).

In cases where it is documented that such new McGraw-Edison regulators are present or that they will be installed, this bonus capacity rating can be taken into account (see below).

The normal boost/buck range of regulators is plus or minus 10%, that is, the 16 raise steps will boost the voltage by 12 volts (on the 120 volt scale) and the 16 lower steps will buck the voltage by 12 volts.

However, the capacity of regulators can be increased by "blocking" the amount of boost or buck:

	Normal				
Boost/Buck	**10.00%**	**8.75%**	**7.50%**	**6.25%**	**5.00%**
Max B/B Steps	16	14	12	10	8
Capacity	100%	110%	120%	135%	160%
For ***new*** McGraw-Edison regulators:					
Capacity	112%	123.2%	134.4%	151.2%	179.2%

In some cases where voltage boost or buck does not have to be the full ten percent to provide adequate voltage but where capacity is an issue, blocking regulators may be a prudent approach to avoid having to replace the regulator. If this is done, however, full documentation on the engineering model and on system maps must be maintained. Additionally, labeling should be placed on or within each of the control panels indicating this configuration.

As an absolute standard, regulators will not be loaded beyond their capacity, even during cold load conditions or backfeed scenarios. For example, a new 100 amp McGraw-Edison regulator that has been blocked to plus or minus 5% should not be subjected to any more than 179 amps. For this regulator that potentially can see 179 amps under cold-load conditions, its normal configuration loading should not exceed about 65 amps (179 / 2.8 = 65) or in general 65% of its nominal rating.

9. Double Contingency Transmission Feed for Substations

UCS will work with Brazos Electric Power Cooperative to try to provide loop feed or inline feed capability for as many of its distribution substations as is practicable. Such configurations afford a second source contingency when problems with the normal transmission feed occur.

10. Fifty MVA Substation Transformers

One side effect of large substation transformers and/or voltage conversion to 25 kV is the increase in available fault current, which in turn can cause voltage dips on the substation secondary bus during faults. These dips can cause issues for some industrial loads with sensitive relay equipment. United should work with Brazos to identify locations where excessive voltage dips are possible with a goal of alleviating the issue through line reactors or other methods.

11. Sectionalizing Standards

The goal of sectionalizing is to minimize the number of affected customers and the duration of power outages during abnormal conditions while at the same time maintaining safety standards for UCS employees and the general public. Considerations allowing adequate sectionalizing are:

- the coordination of device operation, i.e. the assurance that a downstream device will clear a fault before the upstream device goes to lockout;
- an adequate device capacity (see the discussion of recloser loading below);
- the device interrupting value greater than maximum possible fault amps;
- the coordination of device capacity to conductor size to prevent conductor meltdown under abnormal load or fault situations (see "Critical Amp Value" discussion above).

- Maximum Phase Trip Settings versus Substation Transformer Capacity and Voltage - Brazos circuit switcher settings standards for coordination of substation circuit settings:

Rating	Voltage	Trip Setting
30/40/50 MVA	26.4 kV	1560 amps
12/16/20 MVA	13.2 kV	1280 amps
	26.4 kV	640 amps
7.5/9.375 MVA	13.2 kV	720 amps
	26.4 kV	420 amps
5.0/6.25 MVA	13.2 kV	480 amps
	26.4 kV	400 amps

Note: Circuit settings should be at least 5% less than the numbers listed in the above chart.

12. Phase Balancing, Voltage Drop Study Mode

Maintaining a high level of load balance between the phases is an important need in the efficient operation of the distribution system.

The measure of phase imbalance (P) is determined as follows:

$$P = \frac{MAX(|Avg - A|, |Avg - B|, |Avg - C|)}{Avg}$$

where Avg is the average of A, B, and C.

The neutral current (N) is determined as follows:

$$N = [(A - 0.500\,B - 0.500\,C)^2 + (0.866\,B - 0.866\,C)^2]^{1/2}$$

When these numbers get large, the imbalance situation becomes critical. Therefore, when these numbers are multiplied together, they yield a dimensionless number that will serve as a measure of the severity "S" of the imbalance situation.

$$S = P \times N$$

Circuits should be worked in order of the size of S (biggest value of S first, etc.). As experience is gained over time and as all factors involved in phase balancing are considered, a cutoff value of S will be determined by which circuits with values of S below this number will be considered sufficiently balanced. Maintaining a value of S less than 6.0 on all circuits is set as a goal (not necessarily as a standard, at this time).

There are two basic modes of doing loading and voltage drop studies using WindMil software. These are Balanced Voltage Drop and Unbalanced Voltage Drop. Balanced Voltage Drop, which the Cooperative has long used, assumes perfect phase balancing of load on the three electrical phases. Because such balance is not attainable, the results of load and voltage drop studies will be slightly skewed. These results will show that the circuit is in slightly better condition than it really is. A three-phase line supplying power to a large subdivision may have one phase that is more heavily loaded than the other two. However, the Balanced Voltage Drop analysis will show the amp loading on this line as the average of the three phases. For this reason, the ***stringent*** application of conductor loading standards mentioned in a previous section will be adhered to in order to compensate for this analytical deficiency.

One of the Cooperative's goals is to utilize unbalanced engineering analysis instead so that a more accurate model of system operation is obtained. Additionally, the RUS GFR has requested unbalanced analysis in developing the CWP. For these reasons, Planning Engineers will use unbalanced analysis where feasible and practical. It is understood that sometimes software solutions are unobtainable using unbalanced analysis.

13. Power Quality: Surge Protection, Flicker, R-F Interference, Harmonic Distortion

As a standard, UCS places 4 to 6 lightning arresters per mile of overhead line. Additionally, every underground dead-end is installed with an elbow arrester, and riser poles are equipped with arrestors specifically designed for that purpose.

The standards for flicker (due to motor start) follow the guidelines set forth by Archie W. Cain in his presentation at the 1974 REA National Field Conference in St. Louis, Missouri, June 24 – 28, 1974:

- Flicker limits for installations serving "few" consumers – IEEE #141, 1961:

7.50% for 1 time to 12 times per day;
6.70% for 12 times per day to 3 times per hour;
5.00% for 3 times per hour to 30 times per hour;
4.20% for 30 times per hour to 2 times per minute;
3.40% for 2 times per minute to 10 times per minute;
2.50% for 10 times per minute to 30 times per minute;
2.00% for 30 times per minute to 1 time per second;
1.25% for 1 time per second to 5 times per second;
0.75% for 5 times per second to 10 times per second.

- Flicker limits for installations serving "many" consumers – IEEE #141, 1961:

3.25% for 1 time per day to 1 times per hour;
2.50% for 1 time per hour to 1 time per minute;
1.70% for 1 time per minute to 14 times per minute;
1.10% for 14 times per minute to 1 time per second;
0.80% for 1 time per second to 4 times per second;
0.40% for 4 times per second to 10 times per second.

The 3.25% flicker limit shown above is the normative application of these guidelines. Most motor start applications occur within the range of one time per day to one time per hour. The Cooperative should follow the guidelines listed in the Tariff in dealing with member connections.

The use of solid crimpits at connection points and the consistent application of RUS recommended materials and specifications have greatly minimized the problem of radio-frequency interference. When problems are encountered, *ad hoc* investigation is accomplished to find and correct the source of the interference.

The Cooperative has adopted the IEEE 519-1992 standard as its official guideline for power line harmonic distortion.

14. Voltage Conversion

The advantages in converting areas of Cooperative line from 7.2/12.47 KV to 14.4/24.94 KV are twofold: 1) a doubling of capacity of existing line, and 2) the reduction of voltage drop by a factor of four.

Voltage conversion is a very labor-intensive proposition. All the poles in the area to be converted must be inspected to ascertain whether they are insulated for 14.4/24.94 KV operation. The distribution transformers that are not already dual-voltage transformers must be replaced. All other pieces of equipment including reclosers, arresters, regulators, and capacitors must be inspected and in most cases changed out or taken off-line in preparation for the actual voltage conversion.

While voltage conversion on its face seems to be a ready solution to many operational problems, the full impact of such projects must always be taken into account. In particular the conversion of a circuit or a part of a circuit often has a significant impact on back-feed capabilities. These effects must be weighed against the costs on a case-by-case basis. As in all areas of Cooperative planning, the economics has a crucial role in determining whether voltage conversion is the best solution.

Voltage conversion of any part of the Cooperative system to 35 KV is not considered a viable option. The following factors contribute to this determination:

- the cost of training to operate line at the higher voltage level;
- the cost of maintaining inventory for three different voltage levels instead of two;
- the increased cost of special equipment for 35 KV application;
- the lack of RUS 35 KV specifications and delays for *ad hoc* approvals;

15. Project Priority Ratings

As substandard conditions are uncovered in the process of planning and projects are proposed to correct them, it is vitally important that there be a means to prioritize these projects. The following discussion will describe the best way that planning personnel have yet devised to accomplish this task. This method will involve the following variables:

- VD (for Voltage Drop) reflects the difference between 126.0 volts on the primary system (on the 120 volt base) and the worst case voltage on the circuit or any part of the area under consideration. For example if a circuit has an area where the voltage drops to 119.5 volts, VD = 6.5 However, in cases where voltage is not particularly a problem, the value of VD will default to 6.0. For example if a circuit has as its minimum voltage 124.1, the value of VD will be defaulted to 6.0. This default routine is done so that a non-problematic voltage drop will not skew the overall results.

- CR (for Capacity Ratio) reflects the capacity of the circuit recloser at the substation or any down-line recloser that defines a problem area. By definition Capacity Ratio is the quotient of the Phase Trip Setting divided by the Worst Case Amps. For example, if a recloser has a Phase Trip of 280 amps and 112 amps flow through it during peak conditions, the CR = 2.50. The nominal system Capacity Ratio is 2.80. As in the discussion concerning Voltage Drop above, the value of CR will always be defaulted to no more than 2.80 so as not to skew the overall results.

- M (for Members Affected) takes into account the number of our members who experience or could experience the problem. For example, if the voltage falls below the standard for Voltage Drop at the end of the circuit and 35 members are in this low voltage area, then M = 35. On the other hand, if an entire circuit has an inadequate Capacity Ratio and there are 512 members on that circuit, M = 512.

- GR (for annual Growth Rate) takes into account the rate of load growth in the problem area and how quickly the problem might get worse in the future. For example, if a circuit is experiencing 4.34% annual load growth, GR = 4.34. Obviously the higher values of GR should be given extra priority.

- MWH (for Megawatt-Hours) takes into consideration the total monthly energy consumption in the problem area during the month of the peak. In comparison to M above, this value seeks to take into account not only the number of members affected but also the nature and size of the loads in the area.

- REL (for Reliability) takes into account the SAIDI, CAIDI and SAIFI of the circuit on which the project is to be applied.

The actual computation of the Priority Rating (PR) is done in four parts. The percentage noted after each formula below reflects the weight that each part is designed to carry in the overall rating. (see Priority Rating.xls)

$R1 = 15.544 \times [VD / CR - 2.14]$ 60%

$R2 = 0.41 \times [M^{0.4} + \text{Log}_3 M]$ 10%

$R3 = 1.5 \times [GR - 2.0]$ 10%

$R4 = 0.001538 \times MWH$ 10%

$R_5 = [(MIN([@CAIDI],2.5) / 2)^2 + (MIN([@SAIDI],2) / 1.5)^2 + (MIN([@SAIFI],2) / 1.5)^2] * 2$ 10%

$PR = R1 + R2 + R3 + R4 + R5$ 60% + 10% + 10% + 10% + 10% = 100%

16. Distribution Line Inspections and Tree Trimming

UCS inspects different portions of its distribution assets based on experience and industry standards.

1. Wood Pole and Cross arm Inspections (10 year cycle)

   Prior to all field inspection activity in a particular area, the Cooperative will mail letters to the members in that area. These letters will inform the members of the future presence of pole inspectors on their property and the needs and benefits of this activity. The letters will also include information allowing members to be able to recognize the Cooperative's contractor(s).

   The wood pole and cross arm inspection includes, but is not limited to the following:

   - Each pole will be visited. If the pole is under 10 years of age, it shall be visually inspected and a sound test shall be completed. If the pole is over 10 years of age, the pole shall be visually inspected and a bore test shall be completed at ground level. A treat plug shall be inserted where the pole was bore tested.
   - All reject poles shall be reported and staking sheets created by the Contractor(s). All reject poles shall be changed within 30 business days of the reject pole being identified.
   - All priority poles (defined to be all poles and related equipment that are suspected of imminent failure or those poles that pose a possible imminent risk to public safety or distribution line integrity) will be reported for immediate attention. All priority poles shall be changed within 3 business days of the priority pole being identified.
   - GPS coordinates for all poles and meter locations will be obtained. The information collected shall be used to update the GIS system.

2. Underground Primary Line Inspections (5 year cycle)

   This inspection includes, but is not limited to the following:

   - There will be a check of the integrity of all underground vaults, junction boxes, and transformers. Each shall be locked or securely closed. Such installations shall be no more than 10 degrees out of plumb and completely in contact with firmly established earth underneath. The presence of all appropriate warning and information markings will be verified per UCS UG Signage Specifications.
   - Inspectors will open all vaults, junction boxes, and transformers to verify that all connections (including connections to the ground rod) are secure and that all conductors are properly positioned/protected. Elbow arresters and terminals will be visually inspected for evidence of flashover or overheating. Finally, the inspectors will verify the correct electrical phase identification of all primary conductors in these enclosures, where possible.
   - Additionally the inspectors will visually inspect dip pole structures including: presence of fused cutouts or blade switches, lightning arresters, ground wire and ground rod, neutral connections, terminal connections (potheads) and brackets, information markings, conduit down the pole, and brackets holding the conduit to the pole. If any installations are found that do not meet specifications for material or workmanship, these will be noted and reported.

- Any observed exposed underground conduit (or direct-bury conductor), or conduit with insufficient burial depth will be reported for immediate attention. Such exposure may be caused by erosion, man-made grade modification or substandard initial burial. Whatever the cause, timely correction must be made.

  GPS coordinates for all dip poles, equipment installations, and meter locations will be obtained. The information collected shall be used to update the GIS system.
- All UG inspection reject locations shall be reported and staking sheets or service orders created by the UG inspector or other UCS personnel as necessary. <u>All UG inspection reject locations shall be rectified within 30 business days of the UG reject location being identified.</u>

3. Right-of-Way Inspection and Tree-Trimming (5-7 year cycle)
   - Right-of-way and tree trimming is accomplished on a five to seven-year cycle, such cycle being somewhat dependent upon outage experience.
   - United may choose to allow some substation trimming to occur outside of the cycle, but in such case will perform a visual review to determine the timeline of cut for that specific situation. Spot trimming may be applicable in such situations.
   - Trees or tree branches will be inspected and trimmed, such vegetation being within the boundaries of the Cooperative's Right-of-Way and posing the possibility of immediate or future contact with the energized conductors. All large plant debris will be chipped and disposed of in accordance with the landowners preferences and good environmental practices.

4. Joint Use Audit and Line Patrol Inspection (3 year cycle)
   - Complete system Joint Use Audit
   - Identify attaching parties and number of attachments on each pole
   - Report, and list type of safety concerns for any code violations found during the full system audit
   - Collect GPS location of poles where GPS does not exist in current data (all applicable data will be used to update the Cooperative GIS)
   - Provide database and reporting as required

5. Special Equipment
   - All electronically controlled reclosers, fixed and electronically controlled capacitors, electronically controlled switches, and electronically controlled regulators shall be inspected annually per the appropriate Technical Services guidelines. Devices that report their status and condition through SCADA shall be allowed to have an extended cycle beyond one year. Annual for caps and regs. 3 years for reclosers. No regular inspection of Versatechs.
   - Inspection data shall be recorded in the Partner

All contractors used for these activities must be properly bonded and insured and under contract with United's standard indemnification and insurance requirements. As agents or representatives of the Cooperative, they are to conduct themselves in all ways to insure continuity of service and good public relations with the membership.

18. Arc Flash Studies

Planning evaluates the arc-flash ratings of the entire system annually, and provides recommendations to operations on operating procedures and PPE. The most recent arc flash study is located \\burfile\CooperativePlanning\Planning Department Management\Planning\Arc-Flash.

19. New Subdivision Phase Balancing

When a new subdivision is proposed, there are several factors to consider. The other sections in this document consider wire capacity, voltage drop, and phase balancing. However, up to this point, there has not been a standard defined deciding when to use single-phase and when to use multi-phase to serve the subdivision. A single-phase line may have enough capacity to serve the load with adequate voltage and without violating any capacity ratios, but there will come a point where the loading on that phase becomes much more than the other two comparatively.

In general, a subdivision with more than 40 lots should require multiple phases, but Planning Engineers may study and provide any exceptions to this rule.

Latest Revision: February 2019

Change Log

2013-2-26: Clarified the wording of the acceptable voltage range section. Removed ambiguity from primary vs. secondary service voltage. ML

2013-12-2: Added loading standards for AST schemes. ML

2014-2-28: Major modifications after formal review.

2014-11-20: Added standard secondary conductor information. ML

2015-01-22: Annual review with some major changes.

2015-04-10: Added the Neutral and Pole Grounding Conductor Sizes for Overhead Lines section – ML

UNITED COOPERATIVE SERVICES

EMERGENCY RESPONSE PLAN/EMERGENCY OPERATIONS PLAN

Version 1.2023

Pages 771 through 787 redacted due to confidentiality

2. Phase Balancing

For the sake of more uniform voltage between phases for our three-phase customers and balance on the substation transformer, it is important to keep the circuit loading of the three electrical phases as close to one another as is practicable. Therefore the purpose of this standard is to first measure the imbalance, determine the appropriate reconfiguration of the circuit, and send these recommendations to operations for implementation. This standard is intended to avoid, on the one hand, needless work trying to balance load too closely and to avoid, on the other hand, grossly imbalanced substations and circuits. This process is completed with each semi-annual peak study.

1. Data Gathering

Two sources of information will be used to measure imbalance: SCADA peak circuit data and/or the Voltage Drop Analysis data from Milsoft (only in areas where phasing is sufficiently reliable). Both the winter peak and summer peak situations will be considered.

2. Analysis of Data

Whatever the source of the data, the next step is to rate the seriousness of the imbalance. This measure will involve two numerical factors: the amount of worst-case percent imbalance and the amount of calculated neutral amps resulting from the imbalance.

- Determine the worst-case percent amp imbalance, P.

  This value is simply the greatest percent deviation from the average of the amps of the three phases. For example if I_A=108, I_B = 112, I_C = 80, the worst-case percent imbalance is 20% or 0.20. In this case the average amps is 100.
  P = 100 - 80 / 100 = 0.20.

  In general terms:

$$P = \frac{MAX(|I_M - I_A|, |I_M - I_B|, |I_M - I_C|)}{I_M}$$

  where I_M is the mean of I_A, I_B, and I_C.

- Determine the neutral amps, I_N.

  Assuming perfect 120 ^{o} of displacement between the three amps phasors, the neutral amps I_N will be:

$$I_N = \sqrt{(I_A - I_B \cos 240° - I_C \cos 120°)^2 + (I_C \sin 120° - I_B \sin 240°)^2}$$

The bigger these two numbers are, the worse the imbalance problem is. When they are multiplied together, they yield a number that will serve as a measure of the severity, S, of the imbalance situation. In the example above, S = 0.20 x 30 = 6.00. This calculation will yield values of S for all the cooperative's circuits that can be sorted by the value of S (in descending order). Circuits should be worked in order of the size of S (biggest value of S first, etc.). As experience is gained over time and as all factors involved in phase balancing are considered, a cutoff value of S will be

determined by which circuits with values of S below this number will be considered sufficiently balanced.

If the neutral amps for any substation exceed 90 amps, the Planning will consider this situation as critical and recommendations will immediately be made to the Operations Department for correction.

3. Seasonal Correlation Check

The next step is to make sure that the observed imbalances are common to both the Summer and Winter peaking situations. If there is not at least a moderate amount of seasonal correlation, it will be a waste of effort to make any changes. For this reason, at least a year's worth of analysis will be gathered before any recommendations are sent to the Operations Department.

4. Recommendations to Operations

Once sufficient analysis has been accomplished to insure correlation, Planning will issue a semiannual report that will make recommendation to Operations as to the specific circuit changes. If necessary, Operations will forward recommendations to Engineering for more involved changes. Additionally, as much as is practicable, these reports will be made early enough to improve the phase balancing situation before each seasonal peak.

5. Reporting of Phasing Changes

Operations personnel will report all phasing changes to the appropriate Engineering Services personnel using the Map Changes and Corrections Form found on the intranet. Reporting will also be done in the form of updating the Project Assignments spreadsheet to reflect the completed assignment.

At the same time as this reactive procedure is being done, the proactive procedure of assigning significant new loads to the proper phase(s) will be followed. System Engineering personnel will make inquiries with the Planning about these assignments.

3. Record of Trip-Close Events and Major Outages with the Investigation of Causes

The purpose of this standard is to record and investigate all electrical fault disturbances that cause recloser operations either as trips that lead to lockout or not. This information will be used in combination with data from the Outage Management System (OMS) to determine trends and areas that may require additional maintenance and system improvements.

The SCADA historical server will record the recloser, date, time of trip, time of power restoration (in the case of an outage), and whether normal trip settings or alternate trip settings were in force. Faults with a known cause (trip-close or lockout) will also be recorded in the Fault Data database located on the network for fault location purposes. For all hydraulic reclosers, trip counter readings can be used in specific situations, as well as outage information from the Command Center software, to assist in outage investigations.

For cases where the cause is unknown, Planning may assist with the appropriate investigation if requested by Operations. Whenever the cause of a trip or outage is determined through this investigation, the OMS will be updated by Operations.

A fault database has been created to log all faults leading to a recloser trip-close or lockout with a known cause location. Data is collected and entered by Dispatchers, and Planning Engineers review all data to determine fault location calculations and the continued use of fault location technology.

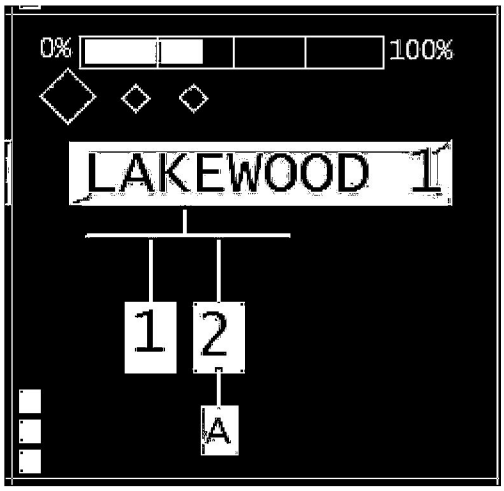
In the case of the suspected malfunction of a recloser, all available resources will be called upon to investigate and resolve the problem. These include:

- The Operations personnel is to identify the recloser in question and the time and circumstances of the event.
- Planning is to check the pick-up and coordination aspects of the circuit sectionalizing,
- Brazos Technicians are to run curve checks on the substation reclosers,

4. Bus Voltage Monitoring and Correction

Normally our substations are regulated to 126 volts (on the 120 volt scale). Some substations might require other regulation settings and those shall be documented on the appropriate planning spreadsheet.

When a set of regulators or a transformer LTC is set at 126, there is a one volt deadband on either side of the set point (from 125 to 127) where the control does not initiate a corrective action. If the load-side voltage departs from this range, the control theoretically should call for a voltage step, either as a boost or a buck. However, due to calibration tolerances, an extra volt either direction is usually allowed. This produces a range of "normal" operational voltage that we can expect from the regulation device of 124 volts to 128 volts.



The three phase voltages are indicated by color (code mentioned below) by the three lower boxes on the lower left corner of the substation graphic on the main UCS SCADA page (graphic shown above). Placing the cursor over any one of these will show the voltage of each phase independently.

SCADA has color codes to indicate quantities that are either normal or out-of-range to one degree or another. The UCS SCADA system uses the following code to designate these states:

- Green = Normal,
- Yellow = Pre-Emergency,
- Red = Emergency,
- Magenta = Critical Emergency or Reasonability Limit.

Due to

1. the need to have as much consistency as possible;
2. the desire to more closely monitor voltage; and
3. the effectiveness of color as a quick indicator of abnormality,

the following standard settings are set forth:

	Pre-Emergency	Emergency	Critical Emergency

	(yellow)	(Red)	(Magenta)
Normal Setting	<124 or >128	<120 or >130	<118 or >132

As the SCADA system is presently configured, a sustained audible alarm only is sounded when the voltage crosses the "Emergency" values.

Voltage will be monitored under the following conditions:

- The Dispatcher shall occasionally look at the main UCS SCADA page for any pre-emergency conditions.
- If a voltage value is in "Pre-Emergency" (yellow bar graph and numeral) at any time these displays are viewed, this condition will be noted and the voltage will be rechecked occasionally. As a general rule, if the condition has not consistently cleared within three hours of the time when it was first observed, Brazos should be contacted about the condition. If this situation arises outside of business hours, Brazos should be called on the next business day, assuming the condition has not cleared by that time. However, judgment should be displayed by the Dispatcher depending on the magnitude of the voltage problem. Obviously, a substation that has voltages of 123.8, 124.2, 124.4 and one that has 120.3, 120.1, 129.8 are quite different. Even though both of these are nominally "Pre-Emergency," the former is of minor consequence while the latter is an emergency. In the case of voltages of 123.8, 124.2, 124.4 which lasts for more than three hours, the next business day is a good time for the call to Brazos. In the case of 120.3, 120.1, 129.8 which lasts more than ten minutes, an immediate call to Brazos is required day or night. If the end of a shift occurs before the three hours mentioned above have elapsed, the Dispatcher about to end his shift will inform the new Dispatcher that the voltage should be monitored at the particular substation.
- After the completion of the automatic voltage reduction routine, the Dispatcher will especially check the voltage displays. There is always the possibility that a malfunction in this automatic process could keep the voltage lower than its normal range. If this condition is noted, the Dispatcher will view the appropriate voltage reduction displays to see what may have occurred. The Engineering Services Manager should be informed of this malfunction with two hours following return of voltage to normal.
- Upon the reception of a customer complaint about either high or low voltage, a first step to be taken by the Dispatcher is to check the bus voltage for the substation in question. Again the Dispatcher will have to display judgment to know whether the situation warrants a call to Brazos.

Extraordinary operational situations may demand departures from this general standard. These departures should be reviewed by the (Planning Engineering Manager) V.P. of Planning and Procurement on a timely basis.

5. Power Factor Monitoring

Power Factor is a quantity that requires monitoring. Since the substation MW and MVAR on SCADA have been converted to measure the source side values, a method will be devised to monitor the load side power factor for both the substation and its circuits.

ERCOT requires the following minimum percentages for lagging power factors:
97% on the load side of the transformer, and
95% on the source side of the transformer.

Appropriate system changes must be made to meet ERCOT standards. Due to the unpredictable nature of power factor fluctuations, United will attempt to maintain power factor as close to unity as is practical without creating a leading power factor (leading power factor has a detrimental effect on PLC transmission). This extra requirement will provide a "pad" to increase long-term compliance and to prevent potential penalties under most circumstances. For this requirement, the standard will be maintained not only on the substation as a whole, but on each circuit individually. The exception to this rule will be for lightly loaded circuits (approximately less than 500 KW at peak). Under most circumstances, the minimum size for new capacitors will be 200 KVAR per phase (600 KVAR distribution racks).

Special consideration will be given to off-peak conditions to insure that circuits do not have leading power factors for the reason stated above as well as to reduce losses. Temperature or VAR (current) controlled banks will be used to prevent this problem.

Brazos provides United with a detailed Power Factor report for each substation after the summer peak each year. This report will be used to create assignments to correct power factor according to the above standards by the next summer season. In addition, in conjunction with the 4 year CWP, a graphical analysis of the power factor over a year's time for each circuit will be performed, which will allow leading power factor to be addressed in the off-peak seasons. As previously stated, consistently leading power factor leads to problems with PLC signal transmission, so this acts as an early warning system.

6. Recloser Settings Standards

There are two categories of three-phase reclosers or breakers: substation and downline. Substation devices are supplied and maintained by Brazos Electric Cooperative, but United provides programming information and has SCADA control over the devices. Substation devices are either reclosers (VWVE or NOVA) or breakers (Siemens or SEL). Substation reclosers have either Cooper Form 5 or SEL 351R controls and substation breakers have SEL 351S controls. One protection device is installed at the beginning of each feeder.

Downline devices are supplied and maintained by United. All of United's downline devices are reclosers, and are one of the following types: VWVE, NOVA, NOVA-TS, SPEAR, and Versatech II. The VWVE, NOVA, and NOVA-TS are three-phase devices, the latter of which is able to operate each phase independently. The SPEAR and Versatech II are single phase devices. More detail on where and in what conditions each device is used is contained in United's *Planning Standards* document, as that information is not within the scope of this document. This document will cover the standards for protection settings of the various reclosing protection devices.

Brazos Substation Devices

All substation devices are programmed the same regardless of the device type. The only exception to this is that breakers require more time between recloses after the first in order to charge the reclosing mechanism.

Substation devices have four trip settings: normal, and three alternates. All four settings have a Hot Line Tag setting that sets the device to non-reclosing and the trip curve to either the Cooper 101 curve, or a definite time (United typically uses 0.05s, or 3 cycles, for this time).

In 2010, United began to utilize the cooling effect of winter weather to increase the ratings of the conductors when temperatures were below freezing. More details on these settings are contained in the *Planning Standards* document. Prior to this change, the Alternate 1 trip values were simply double the Normal trip values. After the change, the Alternate 1 trip values are set to the winter ampacity of the conductor that the device is protecting. In substations, Alternates 2 and 3 are not used, but are programmed with two fast and two slow curves, and have trip values identical to Normal and Alt 1, respectively.

Substation Device Settings Summary		
Normal and Alternate 1 Settings		
Operations to Lockout	4	
Fast Operations	0	
Phase Fast Curve	NA	
Phase Slow Curve	133	
Ground Fast Curve	NA	
Ground Slow Curve	140	
First Reclose Time	1 s	
Second Reclose Time	2 s	(10s for Breakers)
Third Reclose Time	15 s	
Alternate 2 and 3 Settings		
Operations to Lockout	4	
Fast Operations	2	
Phase Fast Curve	105	
Phase Slow Curve	133	
Ground Fast Curve	112	
Ground Slow Curve	140	
First Reclose Time	0.3 s	
Second Reclose Time	2 s	(10s for Breakers)
Third Reclose Time	5 s	(10s for Breakers)

United Downline Devices

United's downline devices can be split into two categories: three-phase devices and single-phase devices. The settings standards are the same within the categories and different between them. Three-phase downline reclosers follow the same general rules at substation reclosers, except the curves are a bit faster. Also, the Alternate 2 and 3 settings are used in the downline devices and are activated during storms (Alternate 2 is the normal storm mode and Alternate 3 is the winter storm mode). The hot line tag curve for United's three-phase downline devices is either the 101 curve or 0.05s.

Note: In some cases, the standard curves set in this document do not coordinate with the upline device. In those cases, different curves may be used at the direction of Planning only.

Downline 3-phase Device Settings Summary		
Normal and Alternate 1 Settings		
Operations to Lockout	4	
Fast Operations	0	
Phase Fast Curve	NA	
Phase Slow Curve	117	
Ground Fast Curve	NA	
Ground Slow Curve	135	
First Reclose Time	1 s	
Second Reclose Time	2 s	(10s for Breakers)
Third Reclose Time	15 s	
Alternate 2 and 3 Settings		
Operations to Lockout	4	
Fast Operations	1	
Phase Fast Curve	106	
Phase Slow Curve	117	
Ground Fast Curve	103	
Ground Slow Curve	135	
First Reclose Time	0.3 s	
Second Reclose Time	2 s	(10s for Breakers)
Third Reclose Time	5 s	(10s for Breakers)

United's single-phase devices are the SPEAR and Versatech II. SPEAR reclosers are connected to SCADA, and do not have batteries for backup power. The SPEAR reclosers have two settings groups, Normal and Alt 1. The Alt 1 settings are put in place when the temperature drops below freezing. In keeping with the three-phase devices, the SPEARs will have one fast and three slow operations to lockout. Hot line tag is available in these devices and is set to 0.05s.

The Versatech II recloser is the final single-phase recloser that United uses. It is a self-contained unit, which means that its control hardware is contained within the high voltage unit and there is no control at the base of the pole. Settings are the same as the SPEAR, except it only has one trip setting, so winter settings are not possible with the Versatech II. *Important Note:* When programming Versatech IIs with trip setting less than 50A, a first reclosing time of 1s must be used.

Single Phase Device Settings Summary		
Normal and Alternate 1 Settings		
Operations to Lockout	4	
Fast Operations	1	
Fast Curve	101	(A Equivalent)
Slow Curve	117	(B Equivalent)
First Reclose Time	0.3 s	
Second Reclose Time	2 s	
Third Reclose Time	5 s	

Important Safety Note: The Versatech's case is energized at line potential. Care is to be taken with this device. Two placards (one at base, one 4' below the recloser) are to be installed on poles with Versatech units that state that the device is energized.

7. Regulator Settings Standards

Set voltage = 126 volts.

Deadband = 1 volt (i.e. 1 volt on either side of set point voltage)

Time Delay = 60 seconds.

Time Delay for Downstream Regulator in Series Application = upstream regulator delay plus a minimum of 15 seconds.

Line Configuration = Wye.

Reverse Sensing Mode may be 0 (Locked Forward) or 1 (Reverse Sensing). Reverse sensing will be used where there is a possibility of power flowing backwards through the regulator through backfeeding.

Voltage Limiter = 2 = High and Low.

High Voltage Limit = 128 volts.

Low Voltage Limit = 120 volts.

Line Drop Compensation may be used in special situations where deemed necessary, but as a default, LDC should be off.

In some cases, regulators may be blocked (step limited) in the control settings to achieve higher ratings in the automatic operation mode. Signage is not placed on the control, but the blocked state is marked in the Partner Map Viewer. Since these are not mechanical blocks, it is important for field personnel to pay close attention to these limits when stepping the regulator in the manual operation mode.

8. Voltage Reduction Control

The UCS SCADA system has an automated function for Voltage Reduction Control (VRC). The purpose of this function is to automatically reduce the UCS coincident peak and thus reduce costs. The control of this function involves the following parameters:

- Trigger: Through a partnership with other Brazos coops, United uses Pattern Recognition Technology, Ltd. (PRT) to forecast Brazos and ERCOT peaks. When PRT forecasts a peak event, the VRC is enabled through SCADA. At this time, only Planning has the authority to schedule VRC.
- Shutter Intervals: The VRC algorithm has shutters available (periods when voltage reduction is or is not allowed to occur). Experience has shown that Brazos peaks typically occur within the 4:30PM to 6:15PM window, and the ERCOT peaks typically occur within the 3:30PM to 5:15 PM window (only on weekdays). Whenever Brazos and/or ERCOT could potentially peak, the voltage reduction mechanism should be operational with the proper time shutters set.
- Voltage Reduction by Substation: During each summer peak study, Planning will determine the lowest substation voltage allowable during summer peak times that each substation can operate at to still maintain a minimum of 118V delivered to all meters.
- Emergency Voltage Reduction Override: When ERCOT calls for EEA Level 2, it often calls for Conservation Voltage Reduction, which may fall outside of the allowable shutter times for operation of VRC in the automatic mode. Therefore, a manual override is provided in the SCADA program that forces VRC to operate for this purpose.

A record of the time period and date of each voltage reduction event will be kept by the Planning Engineers and stored on the network.

9. Down-line Voltage, Fault, and Load Monitoring

Various down-line devices may be used to furnish additional data than what is available in SCADA:

- DA Devices: The recloser controls allow considerable information to be available via SCADA for fault profiling and fault location. The SCADA database will store the load amps per phase of the UCS three-phase (or triple-single) reclosers. In general DA equipment such as reclosers, regulators, and capacitors (but not switches) will have some load profiling capabilities.

- TS2 Meters: During each seasonal peak, Planning Engineers send an on-demand request for packet data from each TS2 meter. This data packet returns the demand (KW) and voltage at the time the request is sent. The demand data is used to allocate load in the engineering analysis software (Milsoft) for planning purposes. The voltage data is used to verify the results of the Milsoft voltage drop analysis (to avoid having to make field visits), both through graphical representation of low voltage areas as well as spot checks at end of line locations. Details for these processes are found in the Seasonal Study and Load Allocation Guidelines.

- Power Quality Recorders can be put out for specific investigations by direction of Planning only.

- Regulator Controls: For regulator installations where relatively new units have been installed, there is full source side and load side voltage and load values available for download. Additionally, a continuously overwriting record of about 30 hours of history for these values is available for examination.
- Capacitor controls also contain valuable voltage information, as well as capacitor switching data.

United purchases many three-phase transformers with taps on the primary side to boost or buck voltage up to 5% either direction. These taps may be utilized in order to ensure that the delivered voltage is within standards (ANSI C84.1).

10. Special Equipment Database

All special equipment inspection information is stored in a module in the Partner map viewer.

Current recloser settings are stored on the network in \\burfile\CooperativePlanning\Planning Department Management\Planning\Logs,Worksheets,Files\UCS OCR.xlsx.

11. Switching Operations

As the UCS system becomes more heavily loaded and more complex, there will be frequent occasions for load transfers and back-feeding via SCADA-controlled switches or reclosers. The purpose of this standard is three-fold:

1. To maintain rigid safety standards;
2. To minimize any disturbances to the members in the areas affected by a transfer or back-feed;
3. To ensure that standardized procedures are used in a switching process to maximize safety and reliability during restoration efforts.

All such load transfer/switching operations should be initiated by the lineman in charge of restoration and/or load shifting efforts, or a supervisor from Operations, Planning, or Engineering. There are two approved ways that this will be done:

1. Where written procedures are available, a supervisor will authorize that switching is performed in accordance with a written procedure;
2. Where written procedures are not available, switching is performed in accordance with the lineman or supervisor's specific directions.

If a qualified lineman or supervisor is not available, or if a written procedure has not been prepared by a supervisor, all switching will be **done manually, not by SCADA**. The exception to this is where Automatic Source-Transfer recloser schemes have been implemented, where switching is automated through logic within the recloser controls (details below).

The following safety rules specifically apply to remote switching operations:

1. Before all hot transfers occur between substations, a clearance from Brazos must be obtained.

2. A screen shot should be taken of the SCADA screen with the load on the circuit prior to transfer. That load should be recorded in a load shift form. Following the transfer, a second screen shot should be taken of the load and the resulting load shifted should be recorded in the load shift form.

2. All Controls for Reclosers and Switches will have labels showing their RTU number. The corresponding SCADA point displays will have labels showing the grid location and RTU numbers as in the field.

3. The identification of all devices will be confirmed verbally. Additionally, as much geographic and circuit description as is practical should be verbalized to increase mutual understanding of what is occurring or about to occur.

4. All closing of reclosers in cases where faulting has occurred or could occur will be preceded by putting the circuit (or circuits) in normal profile, one shot to lockout. *Versatechs have an automatic one shot re-energize state upon closing after a lockout.*

5. All actions that re-energize any part of the system via remote switching will be preceded by a verbal conformation that everyone is aware of the action and that everyone is in the clear.

6. All OSHA and JT&S guidelines and procedures for the tagging of poles and equipment and their corresponding points on SCADA must be followed. The OMS Guideline contains details about tagging procedures in SCADA.

7. Even if visual opens are confirmed or SCADA confirmations of opens have been received, all lines and poles worked by Operations personnel should be considered to be energized and all applicable safety precautions should be employed. Human errors, communication errors, database errors, and other unforeseen circumstances make this precaution absolutely necessary.

8. Planning Engineers should review the load transfer capability of open switch points (reclosers and automated switches) on an annual basis and make results available to supervisors that may authorize switching. The report will indicate switch locations where backfeed capabilities are limited during peak times.

Gang Switches

To facilitate switching operations, gang operated switches should be installed on 3PH circuits of 1/0 ACSR conductor and larger instead of single phase switches

AST Switching Schemes

Because the switching in an AST scheme happens automatically, the above procedure cannot take place in these situations. In general, AST schemes are set to transfer load between the primary and secondary feeds automatically to fit the current operating conditions without dispatch or line crew interference. However, there may be AST schemes that are installed such that an undesirable feeder configuration could result if left in this fully automatic switching mode. In these instances, the transfer from primary to secondary will still occur automatically, but the return to normal feed will be programmed so that it must be initiated manually through SCADA or the control's front panel.

12. Selection of Circuits with Under-Frequency Relays

A record of all circuits with Under-Frequency Relays (UFRs) is found in UCS Underfrequency.xlsx located on the network in the Planning directory. From time to time, Brazos requests the addition of more circuits with UFRs and will provide a list of the current UFR configuration for United's system. The following guidelines should be observed when adding UFR to additional circuits:

1. Load curtailment should not be applied to circuits with UFR.

2. Circuits assigned to UFR 1 (59.3 Hz) should not serve MED, INF, or SAF accounts.
   a. This is because UFR 1 is the first line of defense against system underfrequency, and critical loads should be insulated from this round of UFR.
3. Circuits assigned to UFR 2 and 3 (58.9 and 58.5 Hz) should serve the aforementioned MED, INF, and SAF accounts (so as not to be included in Load Curtailment).
   a. This is because UFR 2 and 3 have never been activated in the history of ERCOT. Placing critical loads on these second two rounds of UFR prevents them from being included in load shed procedures, and will quickly be restored (within 20 to 30 minutes) if there is ever a large enough emergency to require UFR 2 and 3 to respond.
4. UFR circuits should be geographically spread across the system.
5. UFR circuits in the same substation should ideally be on different UFR levels.
6. Total UFR load should not significantly exceed the required amount.

It is sometimes difficult to satisfy all of these factors at the same time, therefore the list of additional circuits submitted to Brazos should be a reasonable compromise of these factors.

13. Truck Grounding Conductors

The grounding conductor for trucks shall be at least #2 AWG or larger, based on available fault currents on a multi-grounded system and ground trip settings as determined by Planning Engineers.

14. Emergency Installations of Underground Conductors

Per NESC Rule 311(C), supply cables of 600V or less may be laid directly on grade in emergency installations only if they are guarded or otherwise located so that they do not unduly obstruct pedestrian or vehicular traffic and are appropriately marked. Permanent service should be established and emergency installation removed as soon as practicable.

The NESC rule does not define the term 'appropriately marked', so this section will clarify that meaning. Appropriately marked shall hereby refer to conductor having red marking tape or red marking flags tied at intervals of no less than 30 feet. In addition, at least two orange safety cones should be placed appropriately where pedestrian and/or vehicle traffic may be present. Where vehicle traffic is likely, such as at a road or driveway, a cable protector capable of absorbing vehicle load (yellow speed bump) must be used.

ARC-FLASH

Last Revision: January 2017

Document Changelog

12/19/2013 – Added the truck grounding conductor requirement – ML

3/7/2014 – Major revisions from annual review

1/22/2015 – Major revisions from annual review

- Added opening compliance statement
- Overhauled Recloser Settings Section
- Reverse Sensing Reguators
- Three-phase padmount voltage taps

3/31/2016 – Added load shift form requirements to load shift procedure.

- Changed 2 fast, 2 slow to 1 fast, 3 slow operations for downline devices.

Large Oil Spill Contractors

Apex TITAN, Inc.
2121 Midway Road, Suite 100
Carrollton, TX 75006
O) 469-365-1100 M) 214-282-6838 (Bart Gaskill)
https://apexcos.com/contact-us/

TAS Environmental Services, L.P.
3929 E California Parkway
Fort Worth TX 76119
Emergency Response: 1-888-654-0111
Phone: (817) 535-7222
http://www.taslp.com

Rodgers Construction
12454 Rendon Road
Burleson, Texas 76028
(817) 561-6052

Updated 1-24-2023 Jared W.

United Cooperative Services

Your Touchstone Energy® Cooperative

9505A Quick Start Guide

My Phone # is: 8816-414-86202 or 8816-414-86203 **Phone Pin # is: 1111**

When you first power on the phone it will ask a PIN. Enter 1111 and press OK. This is a feature to protect the phone in case of theft or loss. Without the code the user will not be able to dial access the phones interface.

BEFORE USE

1. You will want to manually register your phone when you get to the location where you will be using the phone. When you power the phone on (outdoors), hit the up arrow key, then the '8' key. It is not required to do this, but will ensure an optimum signal by 'registering' with the closest satellite. You can do this each time you reach a new location.
2. Make sure that the antenna is pushed all the way in. It may get jogged loose at times.
3. Make sure that the batteries are stored so that nothing touches the contacts. This could cause the battery to lose its charge. Also, keep the magnetic antenna (if included) stored away from the batteries.

PLACING CALLS FROM YOUR PHONE

To dial a number press and hold down the 0+ button until a + displays on the screen. Then add a 1 then area code and number. Press OK and the phone will attempt to connect the call. Make sure to rotate the antenna upwards to either left or right, and fully extended. When talking on the phone, the antenna should be vertical to the ground. Make sure antenna has a clear view of the sky.

***Keep in mind that if you rotate the satellite antenna down, your call will be dropped.**

Predefined Numbers in Address Book

We have added entries into the address book of each phone. To access the numbers of Barry, Cameron, Quentin, Murray or any of the Foremen, simply press the Up Arrow (located at the bottom right) then the number 1. Leave the name field blank and press OK. It will give you a list of these numbers. Highlight the number by pressing the down arrow in the center and press OK to dial.

911 EMERGENCY CALLS

To access the 911 service, simply turn on the handset, rotate the antenna, enter PIN number (if applicable) and register the phone. Press "9 1 1" and "OK". Do NOT hold the '0+' key to get the '+' prefix. Although the FCC only requires access to the emergency call center by dialing 911, Iridium has also enabled 112 to work within the service territory as a courtesy to Iridium subscribers. This is currently a free service.

RECEIVING CALLS

Phone will ring and/or vibrate. The phone displays 'Call', followed by 'Answer?' on the next line. Rotate antenna upwards and fully extend and hit 'ok' or any digit key (1-9, * or #) if the keypad is already open. To end the call, press 'ok', close the keypad cover, OR press 'c'.

If you are still experiencing problems with the handset, please call us 7 days a week, 365 days a year:

- **United States** **+1-888-448-8815**
- **International** **+1 512-918-9502**

United Cooperative Services

Your Touchstone Energy® Cooperative

Call the Satellite Phones

UCS Satellite Phone #'s are: 8816-414-86202 (Cleburne Assigned Phone)
8816-414-86203 (Stephenville Assigned Phone)

PLACING CALLS TO THE SATELLITE PHONE

1. In order to dial the Iridium satellite phones you will need to dial the 2-stage dialing access number. You will incur regular long distance charger to Arizona. The 2-stage access number is 480-768-2500. You will be prompted to enter a 12-digit satellite phone number at which time the call will be placed to the appropriate Iridium satellite phone.

   *Make this call from your cell phone and there will not be any local long distance charges. However, each call made to the satellite phones will be billed at a rate of $1.60 per minute to the satellite phone bill.

2. You also have the option to send a message via short messaging service (SMS). This allows someone with access to the internet to send you a message one of two ways:

   a. Visit the Iridium website at messaging.iridium.com. The pop up screen will give you the opportunity to input your Iridium phone number (no spaces or dashes), and the short message. Enter the 'reply to' email address and click 'send'.
      The advantage to using the Iridium website is that it will automatically calculate the number of characters.
   b. Open a new email, and send to the subscriber's pager number (Ex: 881641486202@msg.iridium.com). **The subject is not included in the message body of the page, so do not enter a subject.** Type in a short text message (under 160 characters), and hit 'send'.

   *Sending a SMS to the phone is a service provided with our calling plan. Therefore, it may be the most economical way to get a quick message to the crews utilizing the phones to have them call you back at their earliest conveniences and at a lower per minute rate as well.

   UPDATED 01/06/2016

Disaster Tent Preparations

If the need arises, it is a good idea to call ahead to mobilize the tent company so they can be prepared. The longer we wait, the longer it will take to get the tent and all particulars in route.

Potential Vendors:

Peerless events & tents
3301 E. Randol Mill Rd.
Arlington, TX, 76011
http://www.peerlessdfw.com
Main and Emergency # (972) 602-3303
GM Phone # (817) 937-9778

- Tent crew can set up hard flooring upon request.

Kelly and Company 1st Responders
885 W Steel St.
Seymour, MO 65746
http://kellymobilecity.com/
Toll Free (877) 746-2642
24 Hour Response # (417) 343-2280

- Tent crew ***does not*** set up flooring, but will subcontract flooring upon request.
- Company also supplies "Sleep Trailers" for 36 men. Complete with water, sewer, heat & air, very quick set-up. They have a 2,600-man capacity for this set-up.

TentLogix, Inc.
1121 DiGiorgio Road
Fort Pierce, FL 34982
http://tentlogix.com/
Office: (772) 215-7835
Cell # (772) 781-4804

Mobile Help 4 U
273 E. 410th Road
Fair Play, Missouri 65649
http://www.mobilehelp4u.com/
Office: (417) 654-2774
Emergency (417) 654-2774

- Tent crew ***does not*** set up flooring, but will subcontract flooring upon request.

Up dated 01/24/2023 Jared Wennermark

Fuel/Leasing Options Updated 1/13/2023

Fleet Renting/Leasing Options

Buckets/Diggers/Equipment
Altec – Mike Covington – Cell 214-912-6484 Office 816-364-2244
Global Rental - Chris Garner – 817-470-7551
Sesco – Gary Whitehead – 817-771-5598
TRL Rents - Ley Clay – 330-479-8459

Equipment Only
Wagner Smith – 817-447-8085 OR 800-666-6567

TRL Rents, LLC
Greg Fraumann
888-867-6540 - Toll Free
610-529-2525 - Mobile
610-819-0039 - Fax
http://www.TRLRents.com

Fueling alternatives in case of widespread catastrophic event

Cleburne

S&S Scott Oil Co LLC	254-874-5569	
Harris Bob Oil Co.	817-641-9749	

Stephenville

PF&E Oil -	325-646-1584	Home 325-642-0152
		Cell 325-642-1345
Stephens Oil Co.	254-965-4710	
Love Oil Co #	254-965-3518	

Meridian

S&S Scott Oil Co LLC 254-874-5569

Chevron Oil Products Distributor
Hwy. 281 S Hamilton 254-386-8144
After Hours (Dane Merely) 254-386-5265

PK

PK General Store	940-659-4611	
	Mel Woodruff Senior	Home 940-659-2345
		Cell 940-452-5745
	Mel Woodruff Junior	Home 940-659-8484

Honstein Oil
370 North Sylvania Ave.
Fort Worth, TX 76137
817-831-0601 office
Shannon Stanley 817-829-4378 mobile

*They have portable tanks that can be placed on site

S&S Scott Oil
106 Avenue A
P.O. Box 86
Blum, TX 76627
254-874-5569

*They have portable tanks that can be placed on site

Connel Oil Corp.
100 SE 6th Avenue
Suite 280, Bank of America Building
Mineral Wells, TX 76067
940-325-7777

*Can only supply tanker truck loads of fuel

Emergency Planning: Mechanics-Towing Assistance 1/13/2023

Stephenville Area:

Mechanic Shop:

Truck Ag & Auto
Phone 254-965-4403
Parts-254-965-4403
After Hours – 254-596-3599

After Hours – 254-592-3830
Cell-254-592-2549
House -254-386-4767

Towing Service:

Parham's Garage
254-965-7490

After Hours - home -254-965-7456

The Mill Towing
254-918-2165

Cleburne Area:

Mechanic Shop:
TEXAS TOWING
24 Hour Contact # 817-877-0206

Towing Service:

Texas Towing Equipment:

- HD Wreckers 80K LBS
- 75Ton rotator units. (Mobile Crane)
- Mack Tractor with 50' trailer and winch
- medium duty wreckers 20K LBS
- Roll Up Wreckers 10K LBS.
- Service Truck

General Manager: Sam Knight Cell 817-822-5850
Owner: Jerry Clay JR.
24 Hour Contact # 817-877-0206

Beard's Towing:
Burleson Office
Contact 817-295-1173

Ricks Automotive:

- Medium duty Roll Back Wrecker (20) LBS
- Medium Duty Roll Up Wreckers 10K LBS

817-558-2523
817-783-3259
817-401-3258
817-401-8430
817-401-8556
817-401-5878

Lonestar Collision & Towing
101 Maxie St.
Cleburne, TX 76033
817-556-9400 office
817-933-7410 Frank Roberts
817-487-5765 Lee Smith

- (1) 35 Ton Heavy Duty Wreckers
- (1) 50 Ton Heavy Duty Wreckers
- (5) 12K Roll Back Wreckers

B&W Wrecker
1960 S. Burleson Blvd.
Burleson, TX 76028
817-295-8613 office
817-538-6571 mobile

- (3) 50 Ton Heavy Duty Wreckers
- (4) 12K Roll Back Wreckers