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Haryana Distribution System Efficiency Improvement Training Project

Prepared By
International Resources Group
New Delhi-Washington, D C

August, 1998

For
USAID/India
Mr N V Seshadri

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Partners International Resources Group Winrock International
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Collaborating Institutions Center for Naval Analysis Corporation Conservation International, KNB Engineering and Applied Sciences Inc Keller-Bliesner Engineering Resource Management International Inc
Tellus Institute Urban Institute and World Resources Institute

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HARYANA STATE ELECTRICITY BOARD

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROJECT

SCOPE OF WORK
IMPLEMENTATION APPROACH
AND
SCHEDULE OF TRAINING ACTIVITIES

PREPARED BY THE

IRG INTERNATIONAL RESOURCES GROUP

Management consultants in energy environment & natural resources

NEW DELHI INDIA
AUGUST 1998

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IRg INTERNATIONAL RESOURCES GROUP
Management consultants in energy environment & natural resources

September 7 1998

Mr Ranjit Issar
Chairman
Haryana State Electricity Board
Panchkula, Haryana

Dear Mr Issar

In accordance with your request, IRg is pleased to transmit herein the attached Scope of Work Implementation Approach and Schedule of Activities for the System Efficiency Improvement Training Project. The Plan includes a description of the scope of work the approach to meet project objectives and a Preliminary Schedule of Activities leading to the successful implementation of the System Efficiency Improvement Training Project

The training project is intended to increase the HSEB staff competence in the performance of substation maintenance and operations (M & O) It is also intended to train the HSEB staff in the use of equipment and instruments to collect data that will be needed for the performance of computerized distribution system analysis Technical power loss reduction is one primary objective of the on-the-job training activities

The IRg Training Team consists of a Substation Specialist Mr Burt Hepponstall a Distribution Lines Specialist Mr Paul Lavigne and a Distribution Planning and Operations Specialist Mr Louis A Rodriguez Mr Rodriguez is the Team Leader

I wish to express my thanks for the support that you will be providing to the IRg Team during the implementation of the training project activities The IRg Team will be working with your staff as one team with one common objective the improvement of the operation efficiency of HSEB electric system

I look forward to continue working with HSEB in what will be a most challenging assignment

Sincerely

Louis A Rodriguez
System Efficiency Improvement
Project Team Leader

Cc P K Verma- Haryana State Electricity Board
R K Jain-Haryana State Electricity Board
R Leasburg-IRg India
E Campagna-IRg Washington DC
B Hepponstall-IRg India
P Lavigne-IRg India

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I INTRODUCTION

The United States Agency for International Development (USAID) has approved for the Haryana State Electricity Board (HSEB) a System Efficiency Improvement Training Project International Resources Group (IRg) will be providing this training to selected participants from HSEB HSEB has assigned Mr Metha Chief Engineer Research and Training as a Project Coordinator to work with the IRg Training Team

In accordance with the request of the HSEB Director of Operations Mr P K Verma IRg is pleased to present this Project Implementation Plan It includes a description of the scope of work the approach to meet project objectives and a Preliminary Schedule of Activities leading to the successful implementation of the System Efficiency Improvement Training Program The primary objective of the training program is the reduction of distribution system power losses

In addition the training program is intended to increase the HSEB staff competence in the performance of substation maintenance and operations (M & O) It is also intended to train the HSEB staff in the use of equipment and instruments to collect data that will be needed for the performance of computerized distribution system analysis The program will simulate distribution feeder's configuration and will calculate overloading conditions power flows voltage power factor and location of capacitors Based on these results modifications to these feeders can be simulated tested and recommended for implementation

The HSEB has six Training Institutes that will be used as venues for classroom training Selected substations and HT feeders will also be used to provide on the-job training to the program participants

The schematic diagram of Figure I illustrates the general location of the Training Institutes Substations and feeders that are located near these Institutes have been selected for use during the performance of the on-the-job training project activities The map of Figure II illustrates the location of some of the selected substations

Attachment-I is an outline of the Classroom Training subjects for use by the participants as a reference document during the training sessions

Attachment II outlines the equipment and installations that the participants are expected to check during the field visits to the substations and feeders It is to be used as a check list by each of the participants

Attachment III lists the items that may be included during the development of an Action Plan An attempt will be made to correct these deficiencies with the participation of the trainees Those items that can not be corrected due to unavailability of equipment substation outage approval, and/or detailed engineering and design drawings will be listed in an action plan for future implementation by the HSEB staff

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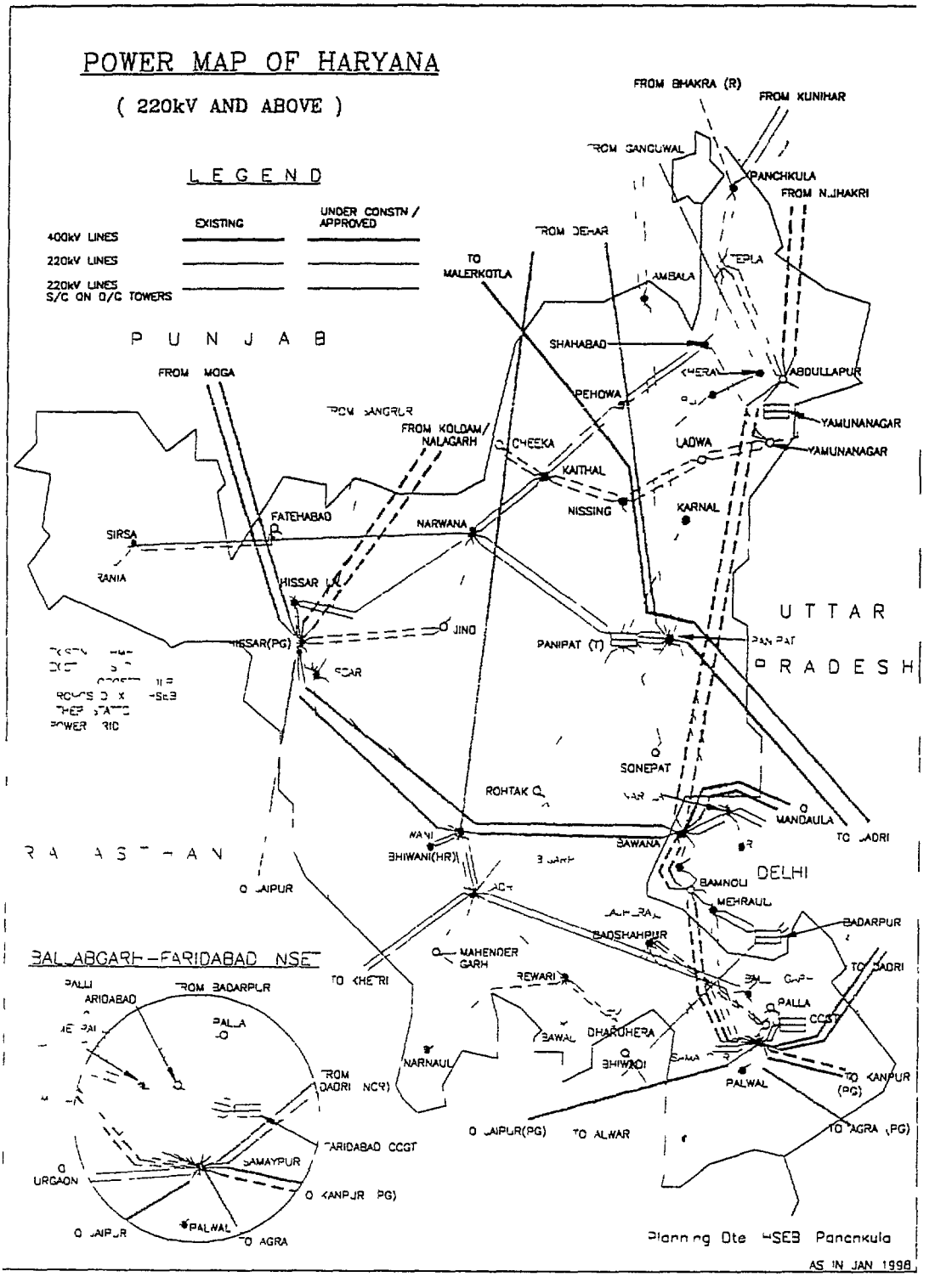
FIGURE 1

Haryana State Electricity Board
Zones, Circles and Districts
Legend
Board Headquarters
Circles
Training Institutes
Zone I
3 Circles
6 Districts
Zone II
5 Circles
7 Districts
Zone III
5 Circles
7 Districts
Panchkula
Chandigarh
Ambala
Yamunanagar
Kurukshetra
Karthal
Karnal
Fatehabad
Sirsa
Panipat
Hisar
Jind
Sonipat
Rohtak
Bhiwani
Jhajjar
Gurgaon
Mahendragarh
Rewari
Faridabad
Narnaul
HSEB

POWER MAP OF HARYANA

(220kV AND ABOVE)



II SCOPE OF WORK

The scope of services to be provided by IRg includes training of the HSEB staff to improve the maintenance of substation equipment and high-tension and low-tension systems It also includes training in the use of instrumentation to collect system data evaluation of the data and use of a computer program to perform technical evaluations of feeders These computerized analyses are aimed at determining the feeder modifications that will result in adequate feeder loadings acceptable voltage profiles and low power losses To meet project objectives IRg will provide the following services

A HIGH AND LOW-TENSION SYSTEMS

1 Provide classroom staff training in the performance of computerized 11 kV feeder analysis and use of planning software and data gathering instrumentation The training program aims to train staff specifically to reduce power losses on high tension (HT) and low-tension (LT) systems

2 The following equipment will be procured for use during the training program

   a One thermovision scanner
   b One three-phase set of load loggers
   c One voltage monitor
   d Two HALO ammeters
   e One Distribution Feeders Analysis Software

3 The instrumentation such as the Load Loggers will be installed to collect feeder power flow profiles over a specified period of time Results will be evaluated and used as input to the feeder planning software

4 As part of the training program feeders of the APL-1 and APL-2 World Bank project will be selected and evaluated from a technical viewpoint Power flows voltage drops power factor and power losses will be calculated for existing system configurations Trainees will have the opportunity to have a hands on training in feeder planning analysis

5 Based on the results of the technical evaluations a bill of material will be prepared and the material will be requested to improve feeders by the installation of capacitors or replacement of overloaded distribution transformers

6 Training will be provided on the use of distribution system analysis software

B SUBSTATIONS AND FEEDERS

1 Classroom training will be provided to the M & O staff from the high voltage (220 kV 132 kV and 66 kV and 33 kV) Substations The training emphasis will be on substation equipment continuing maintenance practices to maintain the high levels of system equipment performance that were demanded in the original design criteria

2 Evaluations will be made at the selected substations to determine inefficiencies resulting from equipment design changes and/or inadequate operation and maintenance practices faulty equipment unsafe practices, or conditions inadequate protection and grounding

3 Field visits will also be made to substations to provide on-the-job training to the substation trainees The scanning equipment will be used to determine overloaded connectors and jumpers at the substations

4 Field visits will be made to provide on-the-job training to the trainees The scanning equipment will be used to determine overloaded connectors and jumpers at the substations and overloaded feeders and distribution transformers of selected feeders All jumpers or connections operating at high temperature levels will be identified and corrective actions developed

C SYSTEM PROTECTION

Starting at the 220 kV substations evaluations will be made of the existing system that protects the power transformers This will include lightning arresters breakers isolators overlapping protective zones and backup protective relaying schemes This will be part of the staff on-the-job training

D ACTION PLAN

A simplified Action Plan will be prepared upon the completion of training session for future implementation

E DELIVERABLES

1 On-the-job-training will be provided to about 20 engineers at training institute during a period of five to six weeks

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2 Based on a period of six months a total of about 100 engineers could be trained
3 A simplified Action Plan to be implemented by each Division under training will be prepared for their implementation by the participants
4 On a level of effort basis training will be provided on
   - HV and distribution substations system protection
   - Feeder planning
   - HV Substation maintenance
   - HT and LT maintenance

F HSEB SUPPORT

The Chief Engineer Research and Training has been assigned by HSEB to work with the IRg Team A key element to the success of the work is the availability of material such as capacitors distribution transformers connectors, fuses and fuse-cutouts lightning arresters of various sizes and various conductor types

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III PROJECT IMPLEMENTATION APPROACH

The proje primary objective is to improve the quality of substations preventive maintena and reduce to the extent possible on a level of effort basis, the power sy m losses with the lowest possible economic and financial impact to the HSEE ile increasing revenues and consumer satisfaction

The app h is to procure and use distribution system planning software thermovision scanners data loggers, HALO ammeters and voltage line monitors and to utilize HSEB staff and material to modify the system facilities as may be required The following are the steps necessary for training program implementation

A SELECT HSEB TRAINING STAFF

The Director Research & Training and corresponding Executive Engineer Operations will select the HSEB staff to be trained The selected staff must have the ability to understand speak and read English Junior Engineers and Engineers responsible for the operation and maintenance of substations will be the best candidates for participating in the substation portion of the training program

In a similar manner the staff to be selected for feeder analysis operation and maintenance training will have to be at the level of electrical engineers experienced with the existing system configuration and overall system operation performance

B ORGANIZE TEAMS

Teams will be organized formed by IRg consultants and HSEB substation operation and maintenance and engineering staff These teams will work under the technical guidance of an IRg Substation Specialist System Planning Specialist and Distribution Lines Specialist Each team may work separately or jointly on various tasks with each corresponding specialist providing the technical guidance as needed

C MONITORING INSTRUMENT INSTALLATION

The data loggers voltage monitors will be installed at key locations during the performance of the work for a period not to exceed three days These data will be used as input to the computer program to simulate existing distribution system conditions

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D ONE-LINE DIAGRAM DEVELOPMENT

Geographical One-Line Diagram (s) for selected distribution substations that are currently highly overloaded will be obtained Feeders emanating out of selected substations or feeders selected by HSEB will be represented in the computer program by their electrical parameters Assisted by the staff from the selected Division the one line diagram will be reviewed carefully from a geographical configuration viewpoint for the electrical characteristics of the feeders and for the loading conditions Also distances location rating and number of distribution transformers and capacitors, if any, along the feeders will be verified to insure quality of the feeder data

E CURRENT AND VOLTAGE MEASUREMENTS

Prior to the undertaking of any major changes in system configuration measurements will be taken of current and voltages at selected points in the system The objective of this activity is to collect data before any changes are made to the configuration of the system and then to collect equivalent data after the system modifications are made This will permit the calculation of the economic benefits derived from the modifications made to high-tension system and distribution substations

F SHORT RANGE FEEDER PLANNING STUDIES

Based on the geographical system configuration shown on the one-line diagram and the electrical system characteristics short-range planning studies will be made Voltages power flows power losses and location of capacitors will be determined Larger transformers will replace existing distribution transformers as the need justifies it feeders bifurcated and loads transferred in an effort to reduce system losses by optimization of the system configuration

G SYSTEM MODIFICATION IMPLEMENTATION

Assisted by the M & O staff of HSEB and utilizing the HALO ammeters optimized location of distribution transformers for a load-centered configuration on the low-tension side of the distribution system will be made

H SYSTEM PROTECTION

Starting at the 220 kV substations evaluations will be made or the existing system that protects the power transformers Relays will be evaluated for

consistency with their intended function and coordination between transformer and feeder breakers/fuses

I LIGHTNING ARRESTERS

The substation lightning arresters type rating and proper physical location will also be evaluated to ensure adequate protection from lightning and surges

J SCANNING EQUIPMENT

1 **At the substations** scanning will be made of the equipment and busses and bus connections to identify hot spots

2 Distribution transformers on the selected feeders will be scanned to identify overloaded transformers and those operating at high temperatures The HSEB staff under the supervision of IRg staff will replace distribution transformers

K ACTION PLAN DEVELOPMENT

The combined Team of specialists and trainees will work together in the development of a plan that is to be implemented by each Division The trainees will participate actively in the development of the final action plan This activity is not intended to be the writing of a major report but rather a simplified one or two pages showing the subsequent steps needed for additional improvements

IV STAFFING

A PROJECT TEAM

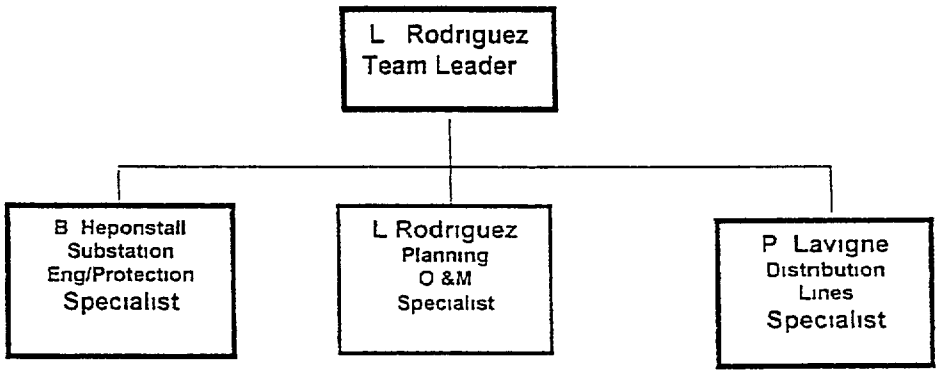
IRg has selected a team of qualified and experienced consultants to perform the services defined under the scope of work The team will consist of three specialists (1) a System Planning Operation and Maintenance Specialist (2) a Substation Engineering and Protection Specialist (2) and (3) Distribution Lines Engineering Specialist

Mr Louis A Rodriguez will be the Team Leader as well as the System Planning, Operation and Maintenance Specialist Mr Burt Heponstall will be the Substation Engineering and Protection Specialist and Mr Paul Lavigne will be the Distribution Lines Engineering Specialist Mr Rodriguez as the Team Leader will coordinate all efforts with the HSEB Coordinator the Chief Engineer R&T

B ORGANIZATION CHART

The project Team organization Chart is as shown below

IRG-EFFICIENCY IMPROVEMENT TEAM ORGANIZATION



V PROJECT COMPLETION SCHEDULE

A survey of the number and location of the HSEB Training Institutes was made as the initial step to develop a Training Schedule of Activities In addition visits were made to some of the high voltage substations in an effort to select those that would be most appropriate for the performance of an on-the-job training program The final Training Schedule of Activities was based on selecting those substations that were within reasonable distance from the existing HSEB Training Institutes to permit the trainees to reach the training areas without any major difficulty

Based on the results of the thermovision scanning, substations and feeders emanating out of these substations may be evaluated and major corrections made as needed If modifications are needed within the substation these will be evaluated and the results included in an Action List for corrective action at a later time during a planned outage

In the scheduling sufficient amount of time has been allowed to permit HSEB to procure any material that might be needed to make corrections at a given substation and/or feeder After obtaining the material the IRg Team will supervise the implementation of any recommendations made to improve the substation or feeders

ATTACHMENT I

CLASSROOM TRAINING OUTLINE

The following is an outline of the System Efficiency Improvement **Classroom-Training** Program The outline includes the training activities that will be covered in sufficient detail to permit the participants to obtain a clear understanding of substation operation and maintenance practices performance of distribution system feeder analysis reduction of power losses and overall system protection

The participants are encouraged to continue self-research activities to become more proficient in each of the subjects covered during the performance of the training program

The participants are also encouraged to actively participate in the program by asking questions expressing and finding solutions to problems that affect their own power distribution systems

A PROTECTION SYSTEMS

1. Protective Zones
2. Overcurrent Differential and Ground Relaying
3. Short Circuit MVA and Fault Currents
4. Transformer Inrush Currents and Thermal Withstand Curves
5. Fuse Characteristics
6. Breaker-Fuse Coordination Principles
7. Breaker Control Schematic Diagrams

B SYSTEM TECHNICAL LOSSES

1. Transformer Losses
   - a Iron
   - b Copper
   - c Auxiliary System
2. Conductor Losses
   - a Undersized Jumpers
   - b Overloaded Feeders
   - c Unbalanced Feeder Loading
3. Connector Losses
   - a Metal to Metal Considerations

b Configuration
c Proper Sizing for equipment Connected
d Fasteners (Bolts or Wedges)

4 Voltage Regulation

a Capacitors
b Automatic Voltage Regulators

5 Savings Case Study

C OVERVOLTAGE PROTECTION

1 Lightning Arresters

a Theory
b Application
c Location

2 Shield Wires

a Substations
b Overhead Lines

3 Arcing Horns

D GROUNDING SYSTEMS

1 HV Switchyard Grounding

a Step and Touch Potential
b Crushed Rock Surface

2 Control Building Equipment Grounding

3 Overhead Lines and Distribution Substations Grounding

ATTACHMENT II

SUBSTATION INSPECTION

The following is an outline of the System Efficiency Improvement **On-The-Job Training** Program The outline includes items that will be covered during the visit to the various substations It is intended that this be used as a guide always be used by participants to identify what to look for when searching for the deficiencies that affect the optimum operation while decreasing reliability

The participants are encouraged to continue self-research activities to become proficient at each of the subjects covered during the performance of the training program

The participants are also encouraged to actively participate in the program by asking questions expressing and finding solutions to problems that affect their own substations and power distribution systems

A HV/MV SWITCHYARD

1 Review Equipment One-Line Diagrams

2 Review System Protection And Metering One-Line Diagrams

3 Inspect Switchyard Facilities

a Incoming HV Gantry Towers
b HV Line Terminations

i Isolators and Grounding
ii Wave Traps
iii Coupling Capacitor Potential Devices
iv Lightning Arresters
v Circuit Breakers
vi Current Transformers

c HV Bus Bussing

i Configuration
ii Isolators
iii Circuit Breakers
iv Lightning Arresters
v Current Transformers
vi Potential Transformers

d Pow r ansformers

i Name Plate Data
- Impedance
- MVA Ratings
- Vector Grouping

ii Cooling Systems
- Natural Air (OA)
- Fan Cooling (FA)
- Oil Cooling (FOA)

iii Lightning Arrester
iv Oil Catch Pits
v Bucholz Relays and Conservator Tanks
vi Temperature Indicators and Alarms
vii Oil Level Indicators and Alarms
viii Silica Gel Breathers
ix Tank Condition (Rust oil leaks)
x Radiators (oil leaks)
xi Tank Grounding
xii Neutral Grounding and Neutral Grounding CT s
xiii Terminations
xiv Fire Protection Systems
xv Firewalls and/or Spacing Between Transformers

e Medium Voltage Switchyards

i Bus Structures and Busbars
ii Cables and Terminations
iii Equipment Terminations
iv Current Transformers
v Potential Transformers
vi Clearances
vii Bus and Feeder Configurations
viii Circuit Breakers

f Switchyard Grounding

i Equipment Grounds
ii OH Lightning Shield Wires
iii Neutral Grounds
iv Lightning Arresters Grounds and Surge Counters/Ammeters
v Grounding Grid Resistance Logs
vi Site Condition of 6 Crushed Rock Insulation Layer

g General

i Cable Installation and Trenches
ii Direct Buried Cable Installation
iii Cable Used versus Application
iv Safety Clearances
v Working Clearances
vi Marshalling Kiosks

4 Utilize Infrared Camera To Detect Hot Spots

a Connectors
b Equipment
c Jumpers
d Ground Wires
e Cable Potheads

5 Prepare Bill of Material

6 Modify Switchyard

B MV METAL-CLAD SWITCHGEAR

1 Review Equipment One-Line Diagrams

2 Review System Protection And Metering One-Line Diagrams

3 Inspect Metal-Clad Switchgear Facilities

a Mimic Diagrams
b Control Philosophy
c Indicating Lights Operation and Test
d Metering and Instrumentation
e Relay settings
f Current and Potential Transformers (Ratios accuracy overlapping zones)
g Transformer and Feeder Voltages and Loadings
h Substation and Feeders Power Factor
i Equipment Short Circuit and Continuous Current Capability
j Cable Terminations
k Connected Equipment Not in Use
l Open Current Transformers if any

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C CONTROL BUILDING AUXILIARIES

1. Inspect Batteries and Battery Chargers
2. Alarms Annunciated on Battery System
3. Auxiliary Station Service Switchgear and AC Panels
4. DC Distribution Panels
5. Annunciator System and Alarm Philosophy
6. HV Relay and Control Panels
   - a Relays and Settings and Flags
   - b Maintenance and Housekeeping Practices
   - c HV Mimic Bus and Control Panels
   - d Semaphores and Lights and Indicating Meters
   - e Color Coding of Mimic Bus
7. Equipment Working Clearances
8. Alarm Circuits Operation and Maintenance
9. Emergency Lighting and Power
10. Fire Protection Systems

D MV FEEDERS

1. Determine Magnitude and Time of Peak Loads
2. Distribution Transformers and Feeders Protection
3. Distribution and Substation Class Arresters (Correct Application)
4. Distribution Transformers Fusing (Type Size Configuration)
5. Conductor and /or Cable Sizes Used on Distribution Transformers
6. Distribution Substation Grounding
7. Three Phase Feeder Unbalance Loading
8. Ground Fault settings
9. Branch Circuit Fusing
10. Connectors Used on All Equipment
11. OH Conductor Material Used and Material of All Equipment Connection Terminals
12. Capacitors
    - a Location
    - b Installation
    - c Protection
    - d KVAr Ratings
    - e Grounding
13. Distribution System Construction And Installation Practices
    - a Concrete Structures
    - b Crossarms
    - c Safety Nets
    - d Grounding
    - e Hardware
    - f Connectors
    - g Safety Clearances

14 Take Voltage Readings Along The Line
15 Check Jumper Wire Size
16 Scan For Hot Spots
   a Connectors
   b Jumpers
   c Transformers
   d Fuse Cutouts
   e Isolators
   f Capacitors
17 Evaluate Scanning Results

E PREPARE CORRECTIVE ACTION PLAN

ATTACHMENT III

ACTION PLAN DEVELOPMENT

A HV SWITCHYARD

1 Add lightning arresters where required
2 Correct clearances where required consistent with safety and operating voltages
3 Short circuit opened current transformers if existing
4 Recommend transformer oil replacements as determined by available laboratory testing of dielectric strength
5 Correct other transformer cooling deficiencies if existing
6 Make recommendations if any to improve or add oil catch pits
7 Recommend and/or improve or add fire protection systems
8 Recommend and/or correct for relay or alarm malfunctioning
9 Recommend overlapping protecting zones or add additional relays if non-existent based on latest relaying practices used by the industry
10 Change silica gel if required
11 Implement adequate grounding of equipment
12 Recommend repainting of rusted equipment tanks
13 Recommend and/or correct oil equipment leaks
14 Change all connectors identified as having hot spots with appropriate connectors
15 Ensure that connections of non similar metals are made with appropriate bimetallic connectors
16 Select proper connector type and ensure proper installation
17 Make spot checks of the ground resistance of equipment in the switchyard Selected equipment must be completely disconnected from the system
18 Recommend if required that exposed cables be buried following applicable direct buried procedures
19 Ensure that all power cables are properly terminated using stress cones as required
20 Correct all hot spots identified by scanning device by replacing

   a Connectors
   b Jumpers

21 Make drip loops as required
22 Re-scan equipment at peak load to ensure that Hot Spots have been removed

B MV SWITCHGEAR AND AUXILIARY SYSTEMS

Recommend corrective action or replace

1 Defective bulbs of indicating-lights
2 Defective indicating instruments semaphores and switches
3 Color coding of mimic bus
4 Missing name plates of all switches breakers and transformers etc on mimic bus and switchgear panels and all relays systems on relay panels
5 If recent Short Circuit studies are available review that all breakers have sufficient continuous current and short circuit capacity
6 Relays settings that are not in accordance with the M and P Department Recommendations
7 Protection equipment or systems that are not in accordance with standard industry practices
8 Non overlapping relay zones
9 Mis-coordination between up and down stream relays
10 Batteries having low specific gravity reading
11 Inadequate alarm systems
12 Inadequate working and safety clearances
13 Inadequate procedure for taking out of service and tagging a circuit breaker or motor control center
14 Connected CT ratios identified on panels

C 11 kV FEEDERS

1 Perform feeder planning studies
2 Modify feeders as required to meet loading conditions
3 Install lightning arresters at every substation transformer and overhead line to cable interface
4 Install proper fuses at each transformer station on the MV side
5 Install adequately sized jumpers
6 Use correct connectors on all jumpers equipment and grounds
7 Ground lightning arresters correctly
8 Ensure correct co-coordination of fuses with feeder breakers at substation
9 Ensure that adequately sized cables are terminated properly at the low-tension side of distribution transformers eliminating all exposed wires to prevent acc dental touching by the HSEB staff and the public
10 Ensure proper grounding of concrete structure hardware lightning arresters transformer tanks transformer neutrals and isolator switch operating handles Measure ground resistance at the substation structure

11 Reduce three-phase feeder unbalance loading condition by load transferring among phases
12 Check feeder relay ground fault settings to protect against unbalance conditions
13 Locate or recommend location of capacitors as indicated by results of feeder planning studies
14 Install capacitors with fuse cutouts fuses and surge arresters properly sized to protect the capacitors
15 Ensure proper capacitor bank grounding
16 Measure power factor before and after capacitor installation to determine benefits of modifications
17 Measure voltages at key location along the feeder to established benefit
18 Replace wrap around connections with proper connectors

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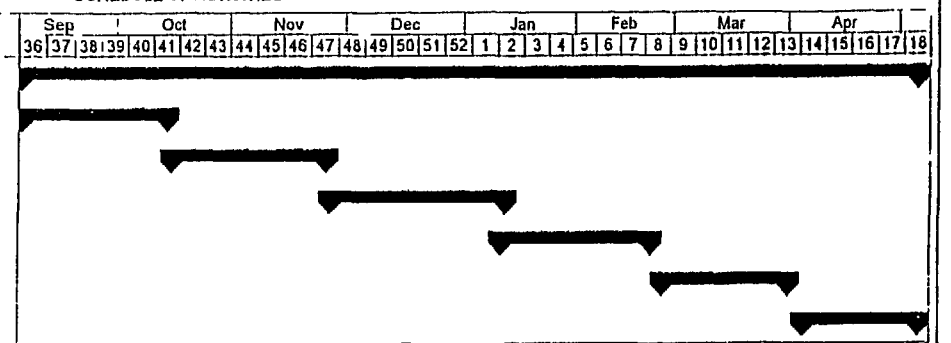
SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
1	SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROJECT
2	AMBALA TRAINING CENTER
118	KARNAL TRAINING CENTER
234	ROHTAK TRAINING CENTER
350	FARIDABAD TRAINING CENTER
428	NARNAUL TRAINING CENTER
506	HISSAR TRAINING CENTER



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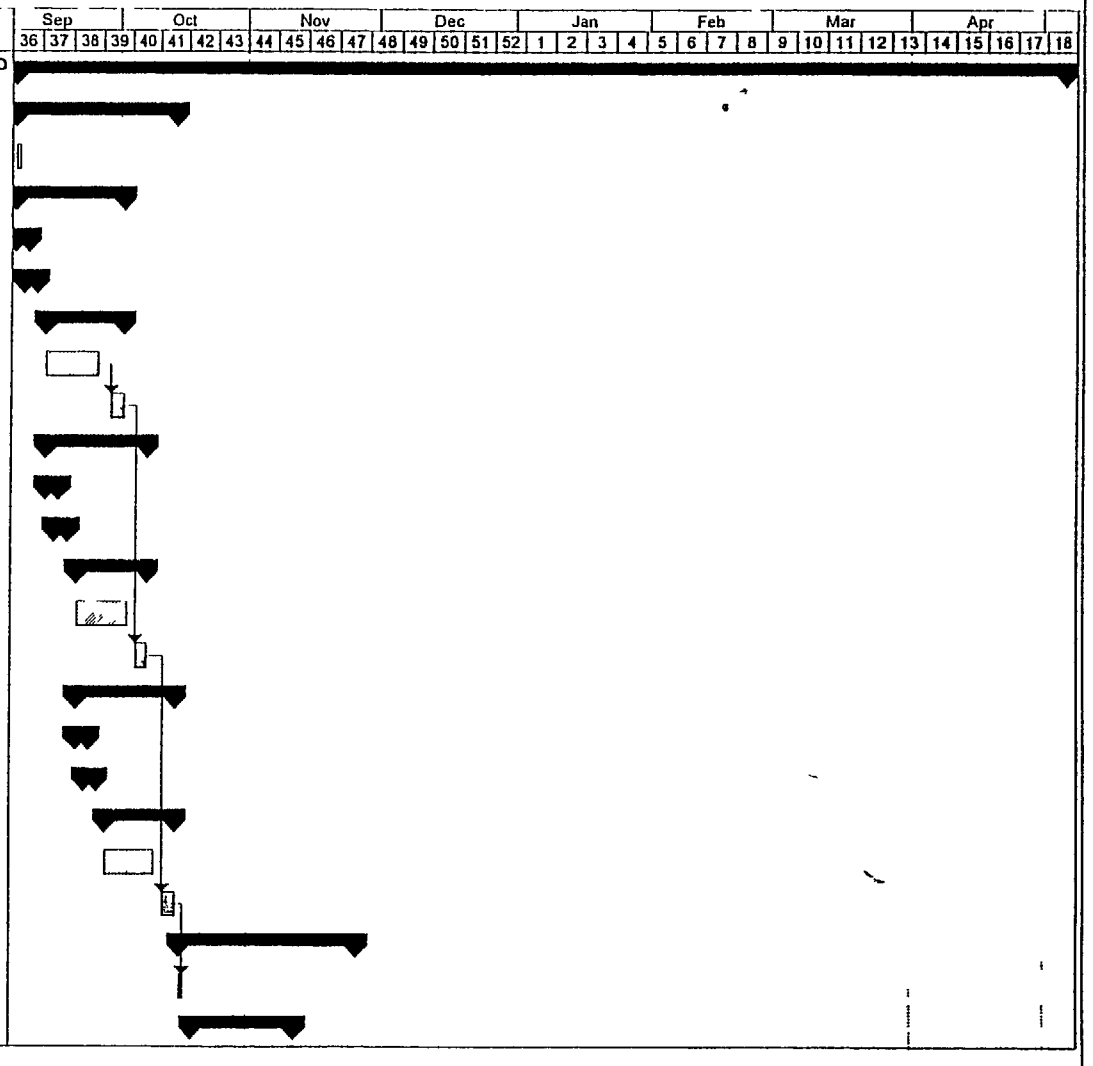
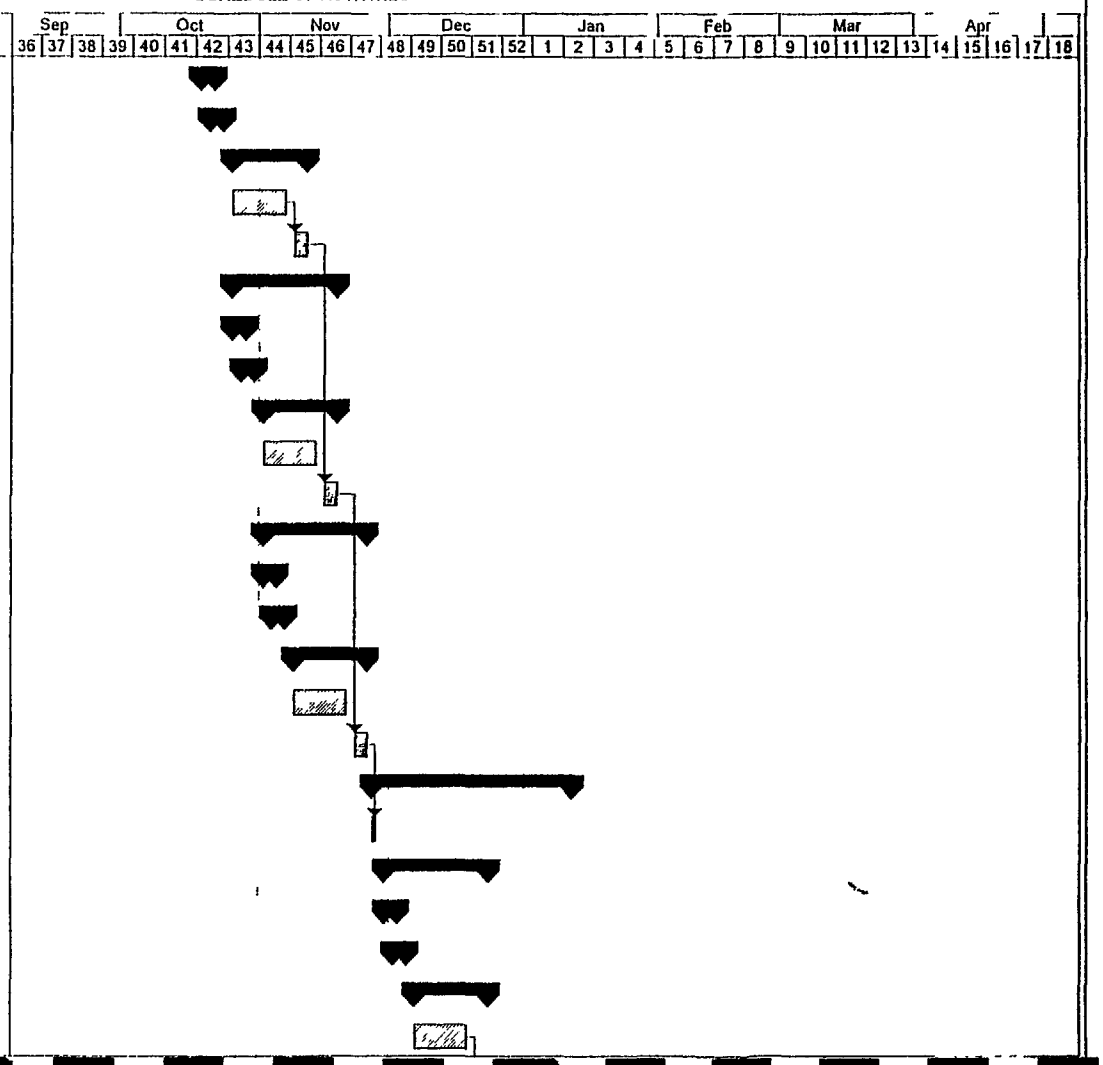
SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
1	SYSTEM EFFICIENCY IMPROVEMENT TRAINING PRO
2	AMBALA TRAINING CENTER
3	Organize Teams and Orientation
4	PINJORE SUBSTATION
5	CLASSROOM TRAINING
23	ON THE-JOB TRAINING
39	PINJORE SUB IMPROVEMENTS
40	HSEB Procures Material
41	Implement Improvements
42	BABYAL SUBSTATION
43	CLASSROOM TRAINING
61	ON THE-JOB TRAINING
77	BABYAL SUB IMPROVEMENTS
78	HSEB Procures Material
79	Implement Improvements
80	BHORE SUBSTATION
81	CLASSROOM TRAINING
99	ON THE-JOB TRAINING
115	BHORE SUB IMPROVEMENTS
116	HSEB Procures Material
117	Implement Improvements
118	KARNAL TRAINING CENTER
119	Organize Teams and Orientation
120	PEHOWA SUBSTATION



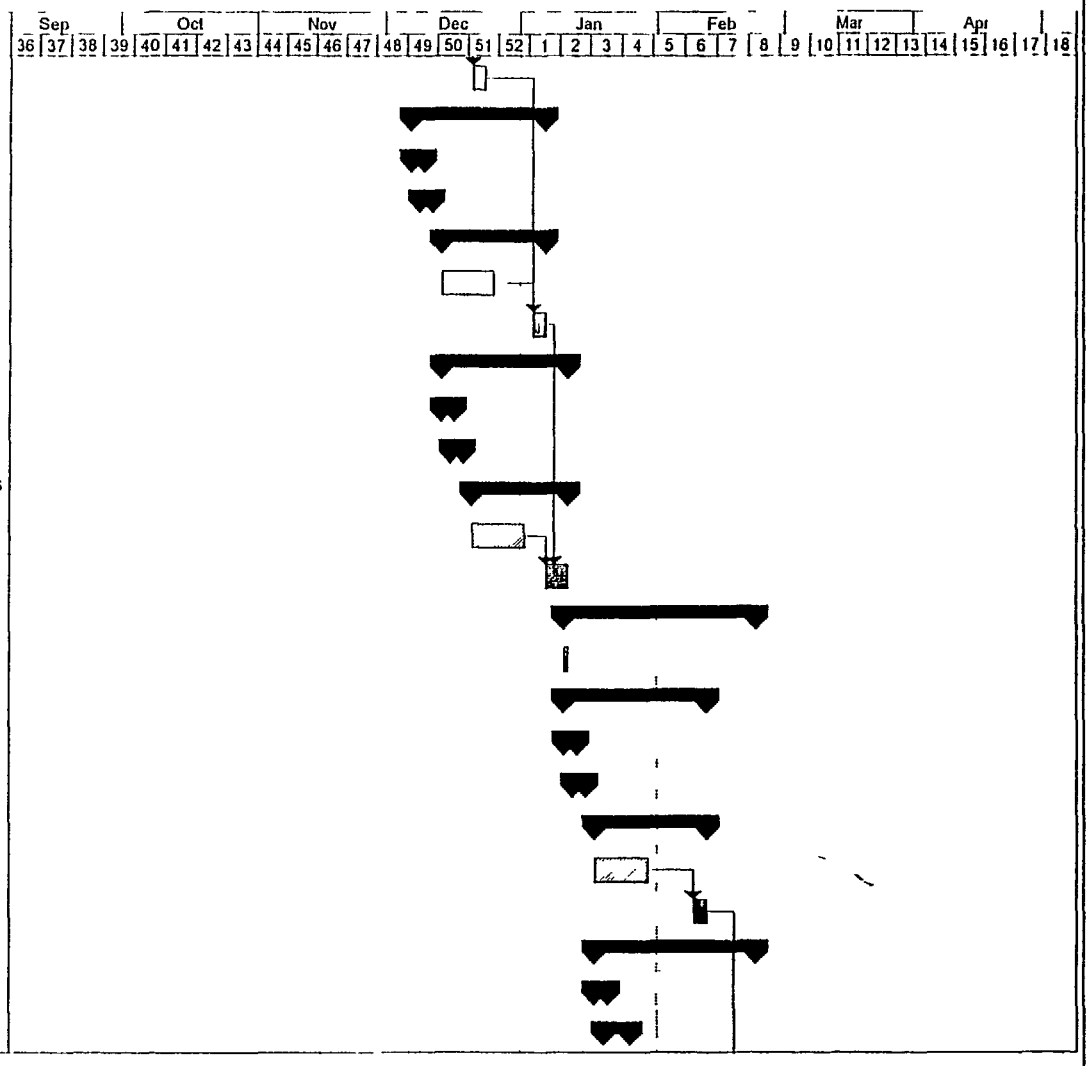
SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
121	CLASSROOM TRAINING
139	ON THE JOB TRAINING
155	PEHOWA SUB IMPROVEMENTS
156	HSEB Procures Material
157	Implement Improvements
158	KATHAIL SUBSTATION
159	CLASSROOM TRAINING
177	ON THE JOB TRAINING
193	KATHAIL SUB IMPROVEMENTS
194	HSEB Procures Material
195	Implement Improvements
196	PANIPAT SUBSTATION
197	CLASSROOM TRAINING
215	ON THE-JOB TRAINING
231	PANIPAT SUB IMPROVEMENTS
232	HSEB Procures Material
233	Implement Improvements
234	ROHTAK TRAINING CENTER
235	Organize Teams and Orientation
236	RAI SUBSTATION
237	CLASSROOM TRAINING
255	ON THE-JOB TRAINING
271	RAI SUB IMPROVEMENTS
272	HSEB Procures Material



SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
273	Implement Improvements
274	ROHTAK SUBSTATION
275	CLASSROOM TRAINING
293	ON THE-JOB TRAINING
309	ROHTAK SUB IMPROVEMENTS
310	HSEB Procures Material
311	Implement Improvements
312	BAHADURGARH SUBSTATION
313	CLASSROOM TRAINING
331	ON THE JOB TRAINING
347	BAHADURGARH SUB IMPROVEMENTS
348	HSEB Procures Material
349	Implement Improvements
350	FARIDABAD TRAINING CENTER
351	Organize Teams and Orientation
352	A3 PALLA SUBSTATION
353	CLASSROOM TRAINING
371	ON THE-JOB TRAINING
387	A3 PALLA SUB IMPROVEMENTS
388	HSEB Procures Material
389	Implement Improvements
390	A2 FARIDABAD SUBSTATION
391	CLASSROOM TRAINING
409	ON THE-JOB TRAINING



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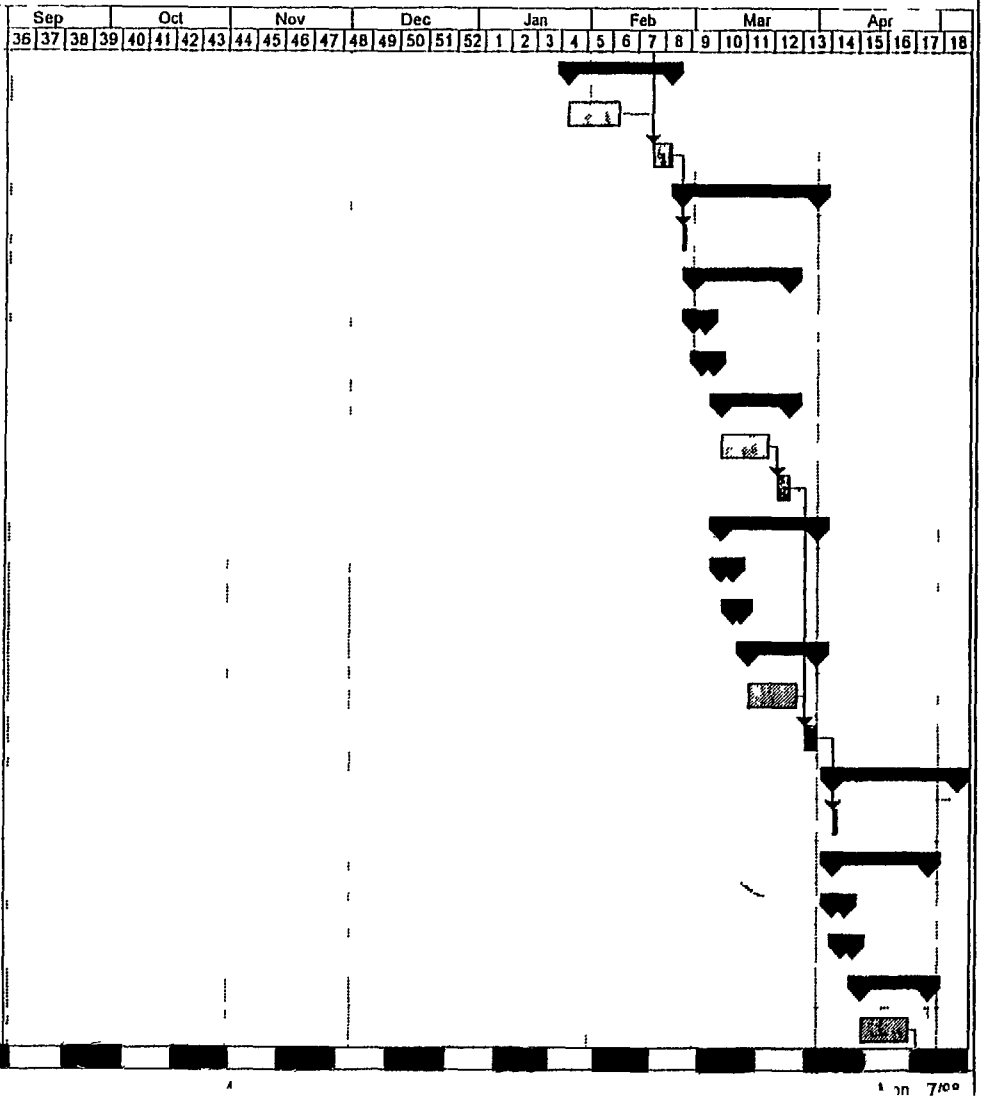
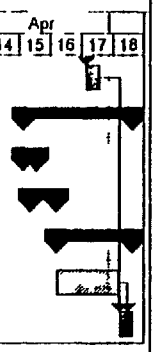
SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
425	A2 FARIDABAD SUB IMPROVEMENTS
426	HSEB Procures Material
427	Implement Improvements
428	NARNAUL TRAINING CENTER
429	Organize Teams and Orientation
430	BARAULI SUBSTATION
431	CLASSROOM TRAINING
449	ON THE-JOB TRAINING
465	BARAULI SUB IMPROVEMENTS
466	HSEB Procures Material
467	Implement Improvements
468	MOHINDER GARH SUBSTATION
469	CLASSROOM TRAINING
487	ON THE JOB TRAINING
503	MOHINDER GARH SUB IMPROVEMENTS
504	HSEB Procures Material
505	Implement Improvements
506	HISSAR TRAINING CENTER
507	Organize Teams and Orientation
508	HISSAR TEXT MILL SUBSTATION
509	CLASSROOM TRAINING
527	ON THE JOB TRAINING
543	HISSAR TEXT MILL SUB IMPROVEMENTS
544	HSEB Procures Material



SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name
545	Implement Improvements
546	**NARWANA SUBSTATION**
547	**CLASSROOM TRAINING**
565	**ON THE-JOB TRAINING**
581	**NARWANA SUB IMPROVEMENTS**
582	HSEB Procures Material
583	Implement Improvements



SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
1	SYSTEM EFFICIENCY IMPROVEMENT TRAINING PRO	Mon 9/7/98	Wed 5/5/99
2	AMBALA TRAINING CENTER	Mon 9/7/98	Wed 10/14/98
3	Organize Teams and Orientation	Mon 9/7/98	Mon 9/7/98
4	PINJORE SUBSTATION	Mon 9/7/98	Thu 10/1/98
5	CLASSROOM TRAINING	Mon 9/7/98	Wed 9/9/98
6	Substations	Mon 9/7/98	Tue 9/8/98
7	Protection System	Mon 9/7/98	Mon 9/7/98
8	Overvoltage Protection	Mon 9/7/98	Mon 9/7/98
9	Grounding	Mon 9/7/98	Mon 9/7/98
10	Substation Power Losses	Tue 9/8/98	Tue 9/8/98
11	Questionaire	Tue 9/8/98	Tue 9/8/98
12	HT/LT Feeder Planning	Mon 9/7/98	Wed 9/9/98
13	Select Feeder and Overview	Mon 9/7/98	Mon 9/7/98
14	Data Loggers and Halo Ammeter	Mon 9/7/98	Mon 9/7/98
15	Install Data Collection Equip	Mon 9/7/98	Mon 9/7/98
16	One Line Diagram Development	Tue 9/8/98	Tue 9/8/98
17	Area And Fder Planning Software	Tue 9/8/98	Tue 9/8/98
18	Loads (kVA kWh Spot)	Tue 9/8/98	Tue 9/8/98
19	Capacitor Location	Tue 9/8/98	Tue 9/8/98
20	Collect/Review Data Field Data	Tue 9/8/98	Wed 9/9/98
21	Feeder Planning Analysis	Wed 9/9/98	Wed 9/9/98
22	Review	Wed 9/9/98	Wed 9/9/98
23	ON THE-JOB TRAINING	Wed 9/9/98	Fri 9/11/98
24	Substation Inspection	Wed 9/9/98	Wed 9/9/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
25		HV Switchyard	Wed 9/9/98	Wed 9/9/98
26		MV Metal Clad Switchgear	Wed 9/9/98	Wed 9/9/98
27		Control Building Auxiliares	Wed 9/9/98	Wed 9/9/98
28		Scanning atTime of Peak Load	Wed 9/9/98	Wed 9/9/98
29		Feeder and Dist Transformer Scannin	Thu 9/10/98	Thu 9/10/98
30		**ACTION PLAN DEVELOPMENT**	Fri 9/11/98	Fri 9/11/98
31		**Substation**	Fri 9/11/98	Fri 9/11/98
32		Summary of Field Results	Fri 9/11/98	Fri 9/11/98
33		Formulate Plan	Fri 9/11/98	Fri 9/11/98
34		Prepare Bill of Material	Fri 9/11/98	Fri 9/11/98
35		**HT Feeders**	Fri 9/11/98	Fri 9/11/98
36		Summary of Field Results	Fri 9/11/98	Fri 9/11/98
37		Formulate Plan	Fri 9/11/98	Fri 9/11/98
38		Prepare Bill of Material	Fri 9/11/98	Fri 9/11/98
39		**PINJORE SUB IMPROVEMENTS**	Mon 9/14/98	Thu 10/1/98
40		HSEB Procures Material	Mon 9/14/98	Fri 9/25/98
41		Implement Improvements	Tue 9/29/98	Thu 10/1/98
42		**BABYAL SUBSTATION**	Mon 9/14/98	Wed 10/7/98
43		**CLASSROOM TRAINING**	Mon 9/14/98	Wed 9/16/98
44		**Substations**	Mon 9/14/98	Tue 9/15/98
45		Protection System	Mon 9/14/98	Mon 9/14/98
46		Overvoltage Protection	Mon 9/14/98	Mon 9/14/98
47		Grounding	Mon 9/14/98	Mon 9/14/98
48		Substation Power Losses	Tue 9/15/98	Tue 9/15/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
49	Questionaire	Tue 9/15/98	Tue 9/15/98
50	**HT/LT Feeder Planning**	**Mon 9/14/98**	**Wed 9/16/98**
51	Select Feeder and Overview	Mon 9/14/98	Mon 9/14/98
52	Data Loggers and Halo Ammeter	Mon 9/14/98	Mon 9/14/98
53	Install Data Collection Equip	Mon 9/14/98	Mon 9/14/98
54	One Line Diagram Development	Tue 9/15/98	Tue 9/15/98
55	Area And Fder Planning Software	Tue 9/15/98	Tue 9/15/98
56	Loads (kVA kWh Spot)	Tue 9/15/98	Tue 9/15/98
57	Capacitor Location	Tue 9/15/98	Tue 9/15/98
58	Collect/Review Data Field Data	Tue 9/15/98	Wed 9/16/98
59	Feeder Planning Analysis	Wed 9/16/98	Wed 9/16/98
60	Review	Wed 9/16/98	Wed 9/16/98
61	**ON THE-JOB TRAINING**	**Wed 9/16/98**	**Fri 9/18/98**
62	**Substation Inspection**	**Wed 9/16/98**	**Wed 9/16/98**
63	HV Switchyard	Wed 9/16/98	Wed 9/16/98
64	MV Metal Clad Switchgear	Wed 9/16/98	Wed 9/16/98
65	Control Building Auxiliares	Wed 9/16/98	Wed 9/16/98
66	Scanning atTime of Peak Load	Wed 9/16/98	Wed 9/16/98
67	Feeder and Dist Transformer Scannin	Thu 9/17/98	Thu 9/17/98
68	**ACTION PLAN DEVELOPMENT**	**Fri 9/18/98**	**Fri 9/18/98**
69	**Substation**	**Fri 9/18/98**	**Fri 9/18/98**
70	Summary of Field Results	Fri 9/18/98	Fri 9/18/98
71	Formulate Plan	Fri 9/18/98	Fri 9/18/98
72	Prepare Bill of Material	Fri 9/18/98	Fri 9/18/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
73		HT Feeders	Fri 9/18/98	Fri 9/18/98
74		Summary of Field Results	Fri 9/18/98	Fri 9/18/98
75		Formulate Plan	Fri 9/18/98	Fri 9/18/98
76		Prepare Bill of Material	Fri 9/18/98	Fri 9/18/98
77		BABYAL SUB IMPROVEMENTS	Mon 9/21/98	Wed 10/7/98
78		HSEB Procures Material	Mon 9/21/98	Fri 10/2/98
79		Implement Improvements	Mon 10/5/98	Wed 10/7/98
80		BHORE SUBSTATION	Mon 9/21/98	Wed 10/14/98
81		CLASSROOM TRAINING	Mon 9/21/98	Wed 9/23/98
82		Substations	Mon 9/21/98	Tue 9/22/98
83		Protection System	Mon 9/21/98	Mon 9/21/98
84		Overvoltage Protection	Mon 9/21/98	Mon 9/21/98
85		Grounding	Mon 9/21/98	Mon 9/21/98
86		Substation Power Losses	Tue 9/22/98	Tue 9/22/98
87		Questionaire	Tue 9/22/98	Tue 9/22/98
88		HT/LT Feeder Planning	Mon 9/21/98	Wed 9/23/98
89		Select Feeder and Overview	Mon 9/21/98	Mon 9/21/98
90		Data Loggers and Halo Ammeter	Mon 9/21/98	Mon 9/21/98
91		Install Data Collection Equip	Mon 9/21/98	Mon 9/21/98
92		One Line Diagram Development	Tue 9/22/98	Tue 9/22/98
93		Area And Fder Planning Software	Tue 9/22/98	Tue 9/22/98
94		Loads (kVA kWh Spot)	Tue 9/22/98	Tue 9/22/98
95		Capacitor Location	Tue 9/22/98	Tue 9/22/98
96		Collect/Review Data Field Data	Tue 9/22/98	Wed 9/23/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
97		Feeder Planning Analysis	Wed 9/23/98	Wed 9/23/98
98		Review	Wed 9/23/98	Wed 9/23/98
99		**ON THE-JOB TRAINING**	**Wed 9/23/98**	**Fri 9/25/98**
100		**Substation Inspection**	**Wed 9/23/98**	**Wed 9/23/98**
101		HV Switchyard	Wed 9/23/98	Wed 9/23/98
102		MV Metal Clad Switchgear	Wed 9/23/98	Wed 9/23/98
103		Control Building Auxiliares	Wed 9/23/98	Wed 9/23/98
104		Scanning atTime of Peak Load	Wed 9/23/98	Wed 9/23/98
105		Feeder and Dist Transformer Scannin	Thu 9/24/98	Thu 9/24/98
106		**ACTION PLAN DEVELOPMENT**	**Fri 9/25/98**	**Fri 9/25/98**
107		***Substation***	***Fri 9/25/98***	***Fri 9/25/98***
108		Summary of Field Results	Fri 9/25/98	Fri 9/25/98
109		Formulate Plan	Fri 9/25/98	Fri 9/25/98
110		Prepare Bill of Material	Fri 9/25/98	Fri 9/25/98
111		**HT Feeders**	**Fri 9/25/98**	**Fri 9/25/98**
112		Summary of Field Results	Fri 9/25/98	Fri 9/25/98
113		Formulate Plan	Fri 9/25/98	Fri 9/25/98
114		Prepare Bill of Material	Fri 9/25/98	Fri 9/25/98
115		**BHORE SUB IMPROVEMENTS**	**Mon 9/28/98**	**Wed 10/14/98**
116		HSEB Procures Material	Mon 9/28/98	Fri 10/9/98
117		Implement Improvements	Mon 10/12/98	Wed 10/14/98
118		**KARNAL TRAINING CENTER**	**Fri 10/16/98**	**Wed 11/25/98**
119		Organize Teams and Orientation	Fri 10/16/98	Fri 10/16/98
120		**PEHOWA SUBSTATION**	**Mon 10/19/98**	**Wed 11/11/98**

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
121		**CLASSROOM TRAINING**	**Mon 10/19/98**	**Wed 10/21/98**
122		**Substations**	**Mon 10/19/98**	**Tue 10/20/98**
123		Protection System	Mon 10/19/98	Mon 10/19/98
124		Overvoltage Protection	Mon 10/19/98	Mon 10/19/98
125		Grounding	Mon 10/19/98	Mon 10/19/98
126		Substation Power Losses	Tue 10/20/98	Tue 10/20/98
127		Questionaire	Tue 10/20/98	Tue 10/20/98
128		**HT/LT Feeder Planning**	**Mon 10/19/98**	**Wed 10/21/98**
129		Select Feeder and Overview	Mon 10/19/98	Mon 10/19/98
130		Data Loggers and Halo Ammeters	Mon 10/19/98	Mon 10/19/98
131		Install Data Collection Equip	Mon 10/19/98	Mon 10/19/98
132		One Line Diagram Development	Tue 10/20/98	Tue 10/20/98
133		Area And Fder Planning Software	Tue 10/20/98	Tue 10/20/98
134		Loads (kVA kWh Spot)	Tue 10/20/98	Tue 10/20/98
135		Capacitor Location	Tue 10/20/98	Tue 10/20/98
136		Collect/Review Data Field Data	Tue 10/20/98	Wed 10/21/98
137		Feeder Planning Analysis	Wed 10/21/98	Wed 10/21/98
138		Review	Wed 10/21/98	Wed 10/21/98
139		**ON THE-JOB TRAINING**	**Wed 10/21/98**	**Fri 10/23/98**
140		**Substation Inspection**	**Wed 10/21/98**	**Wed 10/21/98**
141		HV Switchyard	Wed 10/21/98	Wed 10/21/98
142		MV Metal Clad Switchgear	Wed 10/21/98	Wed 10/21/98
143		Control Building Auxiliares	Wed 10/21/98	Wed 10/21/98
144		Scanning atTime of Peak Load	Wed 10/21/98	Wed 10/21/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
145	Feeder and Dist Transformer Scannin	Thu 10/22/98	Thu 10/22/98
146	**ACTION PLAN DEVELOPMENT**	**Fri 10/23/98**	**Fri 10/23/98**
147	**Substation**	**Fri 10/23/98**	**Fri 10/23/98**
148	Summary of Field Results	Fri 10/23/98	Fri 10/23/98
149	Formulate Plan	Fri 10/23/98	Fri 10/23/98
150	Prepare Bill of Material	Fri 10/23/98	Fri 10/23/98
151	**HT Feeders**	**Fri 10/23/98**	**Fri 10/23/98**
152	Summary of Field Results	Fri 10/23/98	Fri 10/23/98
153	Formulate Plan	Fri 10/23/98	Fri 10/23/98
154	Prepare Bill of Material	Fri 10/23/98	Fri 10/23/98
155	**PEHOWA SUB IMPROVEMENTS**	**Mon 10/26/98**	**Wed 11/11/98**
156	HSEB Procures Material	Mon 10/26/98	Fri 11/6/98
157	Implement Improvements	Mon 11/9/98	Wed 11/11/98
158	**KATHAIL SUBSTATION**	**Mon 10/26/98**	**Wed 11/18/98**
159	**CLASSROOM TRAINING**	**Mon 10/26/98**	**Wed 10/28/98**
160	**Substations**	**Mon 10/26/98**	**Tue 10/27/98**
161	Protection System	Mon 10/26/98	Mon 10/26/98
162	Overvoltage Protection	Mon 10/26/98	Mon 10/26/98
163	Grounding	Mon 10/26/98	Mon 10/26/98
164	Substation Power Losses	Tue 10/27/98	Tue 10/27/98
165	Questionaire	Tue 10/27/98	Tue 10/27/98
166	**HT/LT Feeder Planning**	**Mon 10/26/98**	**Wed 10/28/98**
167	Select Feeder and Overview	Mon 10/26/98	Mon 10/26/98
168	Data Loggers and Halo Ammeter	Mon 10/26/98	Mon 10/26/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
169	Install Data Collection Equip	Mon 10/26/98	Mon 10/26/98
170	One Line Diagram Development	Tue 10/27/98	Tue 10/27/98
171	Area And Fder Planning Software	Tue 10/27/98	Tue 10/27/98
172	Loads (kVA kWh Spot)	Tue 10/27/98	Tue 10/27/98
173	Capacitor Location	Tue 10/27/98	Tue 10/27/98
174	Collect/Review Data Field Data	Tue 10/27/98	Wed 10/28/98
175	Feeder Planning Analysis	Wed 10/28/98	Wed 10/28/98
176	Review	Wed 10/28/98	Wed 10/28/98
177	**ON THE-JOB TRAINING**	**Wed 10/28/98**	**Fri 10/30/98**
178	**Substation Inspection**	**Wed 10/28/98**	**Wed 10/28/98**
179	HV Switchyard	Wed 10/28/98	Wed 10/28/98
180	MV Metal-Clad Switchgear	Wed 10/28/98	Wed 10/28/98
181	Control Building Auxiliares	Wed 10/28/98	Wed 10/28/98
182	Scanning atTime of Peak Load	Wed 10/28/98	Wed 10/28/98
183	Feeder and Dist Transformer Scannin	Thu 10/29/98	Thu 10/29/98
184	**ACTION PLAN DEVELOPMENT**	**Fri 10/30/98**	**Fri 10/30/98**
185	**Substation**	**Fri 10/30/98**	**Fri 10/30/98**
186	Summary of Field Results	Fri 10/30/98	Fri 10/30/98
187	Formulate Plan	Fri 10/30/98	Fri 10/30/98
188	Prepare Bill of Material	Fri 10/30/98	Fri 10/30/98
189	**HT Feeders**	**Fri 10/30/98**	**Fri 10/30/98**
190	Summary of Field Results	Fri 10/30/98	Fri 10/30/98
191	Formulate Plan	Fri 10/30/98	Fri 10/30/98
192	Prepare Bill of Material	Fri 10/30/98	Fri 10/30/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
193	**KATHAIL SUB IMPROVEMENTS**	**Mon 11/2/98**	**Wed 11/18/98**
194	HSEB Procures Material	Mon 11/2/98	Fri 11/13/98
195	Implement Improvements	Mon 11/16/98	Wed 11/18/98
196	**PANIPAT SUBSTATION**	**Mon 11/2/98**	**Wed 11/25/98**
197	**CLASSROOM TRAINING**	**Mon 11/2/98**	**Wed 11/4/98**
198	**Substations**	**Mon 11/2/98**	**Tue 11/3/98**
199	Protection System	Mon 11/2/98	Mon 11/2/98
200	Overvoltage Protection	Mon 11/2/98	Mon 11/2/98
201	Grounding	Mon 11/2/98	Mon 11/2/98
202	Substation Power Losses	Tue 11/3/98	Tue 11/3/98
203	Questionaire	Tue 11/3/98	Tue 11/3/98
204	**HT/LT Feeder Planning**	**Mon 11/2/98**	**Wed 11/4/98**
205	Select Feeder and Overview	Mon 11/2/98	Mon 11/2/98
206	Data Loggers and Halo Ammeter	Mon 11/2/98	Mon 11/2/98
207	Install Data Collection Equip	Mon 11/2/98	Mon 11/2/98
208	One Line Diagram Development	Tue 11/3/98	Tue 11/3/98
209	Area And Feder Planning Software	Tue 11/3/98	Tue 11/3/98
210	Loads (kVA kWh Spot)	Tue 11/3/98	Tue 11/3/98
211	Capacitor Location	Tue 11/3/98	Tue 11/3/98
212	Collect/Review Data Field Data	Tue 11/3/98	Wed 11/4/98
213	Feeder Planning Analysis	Wed 11/4/98	Wed 11/4/98
214	Review	Wed 11/4/98	Wed 11/4/98
215	**ON THE-JOB TRAINING**	**Wed 11/4/98**	**Fri 11/6/98**
216	**Substation Inspection**	**Wed 11/4/98**	**Wed 11/4/98**

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
217	HV Switchyard	Wed 11/4/98	Wed 11/4/98
218	MV Metal Clad Switchgear	Wed 11/4/98	Wed 11/4/98
219	Control Building Auxiliares	Wed 11/4/98	Wed 11/4/98
220	Scanning atTime of Peak Load	Wed 11/4/98	Wed 11/4/98
221	Feeder and Dist Transformer Scannin	Thu 11/5/98	Thu 11/5/98
222	**ACTION PLAN DEVELOPMENT**	Thu 11/5/98	Fri 11/6/98
223	Substation	Thu 11/5/98	Thu 11/5/98
224	Summary of Field Results	Thu 11/5/98	Thu 11/5/98
225	Formulate Plan	Thu 11/5/98	Thu 11/5/98
226	Prepare Bill of Material	Thu 11/5/98	Thu 11/5/98
227	HT Feeders	Fri 11/6/98	Fri 11/6/98
228	Summary of Field Results	Fri 11/6/98	Fri 11/6/98
229	Formulate Plan	Fri 11/6/98	Fri 11/6/98
230	Prepare Bill of Material	Fri 11/6/98	Fri 11/6/98
231	**PANIPAT SUB IMPROVEMENTS**	Mon 11/9/98	Wed 11/25/98
232	HSEB Procures Material	Mon 11/9/98	Fri 11/20/98
233	Implement Improvements	Mon 11/23/98	Wed 11/25/98
234	**ROHTAK TRAINING CENTER**	Fri 11/27/98	Mon 1/11/99
235	Organize Teams and Orientation	Fri 11/27/98	Fri 11/27/98
236	**RAI SUBSTATION**	Mon 11/30/98	Wed 12/23/98
237	**CLASSROOM TRAINING**	Mon 11/30/98	Wed 12/2/98
238	Substations	Mon 11/30/98	Tue 12/1/98
239	Protection System	Mon 11/30/98	Mon 11/30/98
240	Overvoltage Protection	Mon 11/30/98	Mon 11/30/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
241	Grounding	Mon 11/30/98	Mon 11/30/98
242	Substation Power Losses	Tue 12/1/98	Tue 12/1/98
243	Questionaire	Tue 12/1/98	Tue 12/1/98
244	**HT/LT Feeder Planning**	**Mon 11/30/98**	**Wed 12/2/98**
245	Select Feeder and Overview	Mon 11/30/98	Mon 11/30/98
246	Data Loggers and Halo Ammeters	Mon 11/30/98	Mon 11/30/98
247	Install Data Collection Equip	Mon 11/30/98	Mon 11/30/98
248	One Line Diagram Development	Tue 12/1/98	Tue 12/1/98
249	Area And Fder Planning Software	Tue 12/1/98	Tue 12/1/98
250	Loads (kVA kWh Spot)	Tue 12/1/98	Tue 12/1/98
251	Capacitor Location	Tue 12/1/98	Tue 12/1/98
252	Collect/Review Data Field Data	Tue 12/1/98	Wed 12/2/98
253	Feeder Planning Analysis	Wed 12/2/98	Wed 12/2/98
254	Review	Wed 12/2/98	Wed 12/2/98
255	**ON THE-JOB TRAINING**	**Wed 12/2/98**	**Fri 12/4/98**
256	**Substation Inspection**	**Wed 12/2/98**	**Wed 12/2/98**
257	HV Switchyard	Wed 12/2/98	Wed 12/2/98
258	MV Metal Clad Switchgear	Wed 12/2/98	Wed 12/2/98
259	Control Building Auxiliares	Wed 12/2/98	Wed 12/2/98
260	Scanning atTime of Peak Load	Wed 12/2/98	Wed 12/2/98
261	Feeder and Dist Transformer Scannin	Thu 12/3/98	Thu 12/3/98
262	**ACTION PLAN DEVELOPMENT**	**Fri 12/4/98**	**Fri 12/4/98**
		Fri 12/4/	Fri 12/4/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
265	Formulate Plan	Fri 12/4/98	Fri 12/4/98
266	Prepare Bill of Material	Fri 12/4/98	Fri 12/4/98
267	**HT Feeders**	**Fri 12/4/98**	**Fri 12/4/98**
268	Summary of Field Results	Fri 12/4/98	Fri 12/4/98
269	Formulate Plan	Fri 12/4/98	Fri 12/4/98
270	Prepare Bill of Material	Fri 12/4/98	Fri 12/4/98
271	**RAI SUB IMPROVEMENTS**	**Mon 12/7/98**	**Wed 12/23/98**
272	HSEB Procures Material	Mon 12/7/98	Fri 12/18/98
273	Implement Improvements	Mon 12/21/98	Wed 12/23/98
274	**ROHTAK SUBSTATION**	**Mon 12/7/98**	**Wed 1/6/99**
275	**CLASSROOM TRAINING**	**Mon 12/7/98**	**Wed 12/9/98**
276	**Substations**	**Mon 12/7/98**	**Tue 12/8/98**
277	Protection System	Mon 12/7/98	Mon 12/7/98
278	Overvoltage Protection	Mon 12/7/98	Mon 12/7/98
279	Grounding	Mon 12/7/98	Mon 12/7/98
280	Substation Power Losses	Tue 12/8/98	Tue 12/8/98
281	Questionaire	Tue 12/8/98	Tue 12/8/98
282	**HT/LT Feeder Planning**	**Mon 12/7/98**	**Wed 12/9/98**
283	Select Feeder and Overview	Mon 12/7/98	Mon 12/7/98
284	Data Loggers and Halo Ammeter	Mon 12/7/98	Mon 12/7/98
285	Install Data Collection Equip	Mon 12/7/98	Mon 12/7/98
286	One Line Diagram Development	Tue 12/8/98	Tue 12/8/98
287	Area And Feder Planning Software	Tue 12/8/98	Tue 12/8/98
288	Loads (kVA kWh Spot)	Tue 12/8/98	Tue 12/8/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
289	Capacitor Location	Tue 12/8/98	Tue 12/8/98
290	Collect/Review Data Field Data	Tue 12/8/98	Wed 12/9/98
291	Feeder Planning Analysis	Wed 12/9/98	Wed 12/9/98
292	Review	Wed 12/9/98	Wed 12/9/98
293	**ON THE-JOB TRAINING**	**Wed 12/9/98**	**Fri 12/11/98**
294	**Substation Inspection**	**Wed 12/9/98**	**Wed 12/9/98**
295	HV Switchyard	Wed 12/9/98	Wed 12/9/98
296	MV Metal Clad Switchgear	Wed 12/9/98	Wed 12/9/98
297	Control Building Auxiliares	Wed 12/9/98	Wed 12/9/98
298	Scanning atTime of Peak Load	Wed 12/9/98	Wed 12/9/98
299	Feeder and Dist Transformer Scannin	Thu 12/10/98	Thu 12/10/98
300	**ACTION PLAN DEVELOPMENT**	**Fri 12/11/98**	**Fri 12/11/98**
301	**Substation**	**Fri 12/11/98**	**Fri 12/11/98**
302	Summary of Field Results	Fri 12/11/98	Fri 12/11/98
303	Formulate Plan	Fri 12/11/98	Fri 12/11/98
304	Prepare Bill of Material	Fri 12/11/98	Fri 12/11/98
305	**HT Feeders**	**Fri 12/11/98**	**Fri 12/11/98**
306	Summary of Field Results	Fri 12/11/98	Fri 12/11/98
307	Formulate Plan	Fri 12/11/98	Fri 12/11/98
308	Prepare Bill of Material	Fri 12/11/98	Fri 12/11/98
309	**ROHTAK SUB IMPROVEMENTS**	**Mon 12/14/98**	**Wed 1/6/99**
310	HSEB Procures Material	Mon 12/14/98	Fri 12/25/98
311	Implement Improvements	Mon 1/4/99	Wed 1/6/99
312	**BAHADURGARH SUBSTATION**	**Mon 12/14/98**	**Mon 1/11/99**

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
313	**CLASSROOM TRAINING**	Mon 12/14/98	Wed 12/16/98
314	**Substations**	Mon 12/14/98	Tue 12/15/98
315	Protection System	Mon 12/14/98	Mon 12/14/98
316	Overvoltage Protection	Mon 12/14/98	Mon 12/14/98
317	Grounding	Mon 12/14/98	Mon 12/14/98
318	Substation Power Losses	Tue 12/15/98	Tue 12/15/98
319	Questionaire	Tue 12/15/98	Tue 12/15/98
320	**HT/LT Feeder Planning**	Mon 12/14/98	Wed 12/16/98
321	Select Feeder and Overview	Mon 12/14/98	Mon 12/14/98
322	Data Loggers and Halo Ammeters	Mon 12/14/98	Mon 12/14/98
323	Install Data Collection Equip	Mon 12/14/98	Mon 12/14/98
324	One Line Diagram Development	Tue 12/15/98	Tue 12/15/98
325	Area And Fder Planning Software	Tue 12/15/98	Tue 12/15/98
326	Loads (kVA kWh Spot)	Tue 12/15/98	Tue 12/15/98
327	Capacitor Location	Tue 12/15/98	Tue 12/15/98
328	Collect/Review Data Field Data	Tue 12/15/98	Wed 12/16/98
329	Feeder Planning Analysis	Wed 12/16/98	Wed 12/16/98
330	Review	Wed 12/16/98	Wed 12/16/98
331	**ON THE-JOB TRAINING**	Wed 12/16/98	Fri 12/18/98
332	**Substation Inspection**	Wed 12/16/98	Wed 12/16/98
333	HV Switchyard	Wed 12/16/98	Wed 12/16/98
334	MV Metal Clad Switchgear	Wed 12/16/98	Wed 12/16/98
335	Control Building Auxiliares	Wed 12/16/98	Wed 12/16/98
336	Scanning atTime of Peak Load	Wed 12/16/98	Wed 12/16/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
337	Feeder and Dist Transformer Scannin	Thu 12/17/98	Thu 12/17/98
338	**ACTION PLAN DEVELOPMENT**	**Fri 12/18/98**	**Fri 12/18/98**
339	**Substation**	**Fri 12/18/98**	**Fri 12/18/98**
340	Summary of Field Results	Fri 12/18/98	Fri 12/18/98
341	Formulate Plan	Fri 12/18/98	Fri 12/18/98
342	Prepare Bill of Material	Fri 12/18/98	Fri 12/18/98
343	**HT Feeders**	**Fri 12/18/98**	**Fri 12/18/98**
344	Summary of Field Results	Fri 12/18/98	Fri 12/18/98
345	Formulate Plan	Fri 12/18/98	Fri 12/18/98
346	Prepare Bill of Material	Fri 12/18/98	Fri 12/18/98
347	**BAHADURGARH SUB IMPROVEMENTS**	**Mon 12/21/98**	**Mon 1/11/99**
348	HSEB Procures Material	Mon 12/21/98	Fri 1/1/99
349	Implement Improvements	Thu 1/7/99	Mon 1/11/99
350	**FARIDABAD TRAINING CENTER**	**Mon 1/11/99**	**Mon 2/22/99**
351	Organize Teams and Orientation	Mon 1/11/99	Mon 1/11/99
352	**A3 PALLA SUBSTATION**	**Mon 1/11/99**	**Thu 2/11/99**
353	**CLASSROOM TRAINING**	**Mon 1/11/99**	**Wed 1/13/99**
354	**Substations**	**Mon 1/11/99**	**Tue 1/12/99**
355	Protection System	Mon 1/11/99	Mon 1/11/99
356	Overvoltage Protection	Mon 1/11/99	Mon 1/11/99
357	Grounding	Mon 1/11/99	Mon 1/11/99
358	Substation Power Losses	Tue 1/12/99	Tue 1/12/99
359	Questionaire	Tue 1/12/99	Tue 1/12/99
360	**HT/LT Feeder Planning**	**Mon 1/11/99**	**Wed 1/13/99**

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
361	Select Feeder and Overview	Mon 1/11/99	Mon 1/11/99
362	Data Loggers and Halo Ammeter	Mon 1/11/99	Mon 1/11/99
363	Install Data Collection Equip	Mon 1/11/99	Mon 1/11/99
364	One Line Diagram Development	Tue 1/12/99	Tue 1/12/99
365	Area And Fder Planning Software	Tue 1/12/99	Tue 1/12/99
366	Loads (kVA kWh Spot)	Tue 1/12/99	Tue 1/12/99
367	Capacitor Location	Tue 1/12/99	Tue 1/12/99
368	Collect/Review Data Field Data	Tue 1/12/99	Wed 1/13/99
369	Feeder Planning Analysis	Wed 1/13/99	Wed 1/13/99
370	Review	Wed 1/13/99	Wed 1/13/99
371	**ON THE-JOB TRAINING**	Wed 1/13/99	Fri 1/15/99
372	**Substation Inspection**	Wed 1/13/99	Wed 1/13/99
373	HV Switchyard	Wed 1/13/99	Wed 1/13/99
374	MV Metal Clad Switchgear	Wed 1/13/99	Wed 1/13/99
375	Control Building Auxiliares	Wed 1/13/99	Wed 1/13/99
376	Scanning atTime of Peak Load	Wed 1/13/99	Wed 1/13/99
377	Feeder and Dist Transformer Scannin	Thu 1/14/99	Thu 1/14/99
378	**ACTION PLAN DEVELOPMENT**	Fri 1/15/99	Fri 1/15/99
379	**Substation**	Fri 1/15/99	Fri 1/15/99
380	Summary of Field Results	Fri 1/15/99	Fri 1/15/99
381	Formulate Plan	Fri 1/15/99	Fri 1/15/99
382	Prepare Bill of Material	Fri 1/15/99	Fri 1/15/99
383	**HT Feeders**	Fri 1/15/99	Fri 1/15/99
384	Summary of Field Results	Fri 1/15/99	Fri 1/15/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
385	Formulate Plan	Fri 1/15/99	Fri 1/15/99
386	Prepare Bill of Material	Fri 1/15/99	Fri 1/15/99
387	**A3 PALLA SUB IMPROVEMENTS**	**Mon 1/18/99**	**Thu 2/11/99**
388	HSEB Procures Material	Mon 1/18/99	Fri 1/29/99
389	Implement Improvements	Tue 2/9/99	Thu 2/11/99
390	**A2 FARIDABAD SUBSTATION**	**Mon 1/18/99**	**Mon 2/22/99**
391	**CLASSROOM TRAINING**	**Mon 1/18/99**	**Wed 1/20/99**
392	**Substations**	**Mon 1/18/99**	**Tue 1/19/99**
393	Protection System	Mon 1/18/99	Mon 1/18/99
394	Overvoltage Protection	Mon 1/18/99	Mon 1/18/99
395	Grounding	Mon 1/18/99	Mon 1/18/99
396	Substation Power Losses	Tue 1/19/99	Tue 1/19/99
397	Questionaire	Tue 1/19/99	Tue 1/19/99
398	**HT/LT Feeder Planning**	**Mon 1/18/99**	**Wed 1/20/99**
399	Select Feeder and Overview	Mon 1/18/99	Mon 1/18/99
400	Data Loggers and Halo Ammeter	Mon 1/18/99	Mon 1/18/99
401	Install Data Collection Equip	Mon 1/18/99	Mon 1/18/99
402	One Line Diagram Development	Tue 1/19/99	Tue 1/19/99
403	Area And Feder Planning Software	Tue 1/19/99	Tue 1/19/99
404	Loads (kVA kWh Spot)	Tue 1/19/99	Tue 1/19/99
405	Capacitor Location	Tue 1/19/99	Tue 1/19/99
406	Collect/Review Data Field Data	Tue 1/19/99	Wed 1/20/99
407	Feeder Planning Analysis	Wed 1/20/99	Wed 1/20/99
408	Review	Wed 1/20/99	Wed 1/20/99

Sun 9/6/98

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
409	**ON THE-JOB TRAINING**	**Wed 1/20/99**	**Mon 1/25/99**
410	**Substation Inspection**	**Wed 1/20/99**	**Wed 1/20/99**
411	HV Switchyard	Wed 1/20/99	Wed 1/20/99
412	MV Metal Clad Switchgear	Wed 1/20/99	Wed 1/20/99
413	Control Building Auxiliares	Wed 1/20/99	Wed 1/20/99
414	Scanning atTime of Peak Load	Thu 1/21/99	Thu 1/21/99
415	Feeder and Dist Transformer Scannin	Fri 1/22/99	Fri 1/22/99
416	**ACTION PLAN DEVELOPMENT**	**Mon 1/25/99**	**Mon 1/25/99**
417	**Substation**	**Mon 1/25/99**	**Mon 1/25/99**
418	Summary of Field Results	Mon 1/25/99	Mon 1/25/99
419	Formulate Plan	Mon 1/25/99	Mon 1/25/99
420	Prepare Bill of Material	Mon 1/25/99	Mon 1/25/99
421	**HT Feeders**	**Mon 1/25/99**	**Mon 1/25/99**
422	Summary of Field Results	Mon 1/25/99	Mon 1/25/99
423	Formulate Plan	Mon 1/25/99	Mon 1/25/99
424	Prepare Bill of Material	Mon 1/25/99	Mon 1/25/99
425	**A2 FARIDABAD SUB IMPROVEMENTS**	**Tue 1/26/99**	**Mon 2/22/99**
426	HSEB Procures Material	Tue 1/26/99	Mon 2/8/99
427	Implement Improvements	Thu 2/18/99	Mon 2/22/99
428	**NARNAUL TRAINING CENTER**	**Fri 2/26/99**	**Wed 3/31/99**
429	Organize Teams and Orientation	Fri 2/26/99	Fri 2/26/99
430	**BARAULI SUBSTATION**	**Mon 3/1/99**	**Wed 3/24/99**
431	**CLASSROOM TRAINING**	**Mon 3/1/99**	**Wed 3/3/99**
432	**Substations**	**Mon 3/1/99**	**Tue 3/2/99**

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
433		Protection System	Mon 3/1/99	Mon 3/1/99
434		Overvoltage Protection	Mon 3/1/99	Mon 3/1/99
435		Grounding	Mon 3/1/99	Mon 3/1/99
436		Substation Power Losses	Tue 3/2/99	Tue 3/2/99
437		Questionaire	Tue 3/2/99	Tue 3/2/99
438		HT/LT Feeder Planning	Mon 3/1/99	Wed 3/3/99
439		Select Feeder and Overview	Mon 3/1/99	Mon 3/1/99
440		Data Loggers and Halo Ammeter	Mon 3/1/99	Mon 3/1/99
441		Install Data Collection Equip	Mon 3/1/99	Mon 3/1/99
442		One Line Diagram Development	Tue 3/2/99	Tue 3/2/99
443		Area And Fder Planning Software	Tue 3/2/99	Tue 3/2/99
444		Loads (kVA kWh Spot)	Tue 3/2/99	Tue 3/2/99
445		Capacitor Location	Tue 3/2/99	Tue 3/2/99
446		Collect/Review Data Field Data	Tue 3/2/99	Wed 3/3/99
447		Feeder Planning Analysis	Wed 3/3/99	Wed 3/3/99
448		Review	Wed 3/3/99	Wed 3/3/99
449		ON THE-JOB TRAINING	Wed 3/3/99	Fri 3/5/99
450		Substation Inspection	Wed 3/3/99	Wed 3/3/99
451		HV Switchyard	Wed 3/3/99	Wed 3/3/99
452		MV Metal Clad Switchgear	Wed 3/3/99	Wed 3/3/99
453		Control Building Auxiliares	Wed 3/3/99	Wed 3/3/99
454		Scanning atTime of Peak Load	Wed 3/3/99	Wed 3/3/99
455		Feeder and Dist Transformer Scannin	Thu 3/4/99	Thu 3/4/99
456		ACTION PLAN DEVELOPMENT	Fri 3/5/99	Fri 3/5/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
457	**Substation**	**Fri 3/5/99**	**Fri 3/5/99**
458	Summary of Field Results	Fri 3/5/99	Fri 3/5/99
459	Formulate Plan	Fri 3/5/99	Fri 3/5/99
460	Prepare Bill of Material	Fri 3/5/99	Fri 3/5/99
461	**HT Feeders**	**Fri 3/5/99**	**Fri 3/5/99**
462	Summary of Field Results	Fri 3/5/99	Fri 3/5/99
463	Formulate Plan	Fri 3/5/99	Fri 3/5/99
464	Prepare Bill of Material	Fri 3/5/99	Fri 3/5/99
465	**BARAULI SUB IMPROVEMENTS**	**Mon 3/8/99**	**Wed 3/24/99**
466	HSEB Procures Material	Mon 3/8/99	Fri 3/19/99
467	Implement Improvements	Mon 3/22/99	Wed 3/24/99
468	**MOHINDER GARH SUBSTATION**	**Mon 3/8/99**	**Wed 3/31/99**
469	**CLASSROOM TRAINING**	**Mon 3/8/99**	**Wed 3/10/99**
470	**Substations**	**Mon 3/8/99**	**Tue 3/9/99**
471	Protection System	Mon 3/8/99	Mon 3/8/99
472	Overvoltage Protection	Mon 3/8/99	Mon 3/8/99
473	Grounding	Mon 3/8/99	Mon 3/8/99
474	Substation Power Losses	Tue 3/9/99	Tue 3/9/99
475	Questionaire	Tue 3/9/99	Tue 3/9/99
476	**HT/LT Feeder Planning**	**Mon 3/8/99**	**Wed 3/10/99**
477	Select Feeder and Overview	Mon 3/8/99	Mon 3/8/99
478	Data Loggers and Halo Ammeters	Mon 3/8/99	Mon 3/8/99
479	Install Data Collection Equip	Mon 3/8/99	Mon 3/8/99
480	One Line Diagram Development	Tue 3/9/99	Tue 3/9/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID		Task Name	Start	Finish
481		Area And Fder Planning Software	Tue 3/9/99	Tue 3/9/99
482		Loads (kVA kWh Spot)	Tue 3/9/99	Tue 3/9/99
483		Capacitor Location	Tue 3/9/99	Tue 3/9/99
484		Collect/Review Data Field Data	Tue 3/9/99	Wed 3/10/99
485		Feeder Planning Analysis	Wed 3/10/99	Wed 3/10/99
486		Review	Wed 3/10/99	Wed 3/10/99
487		**ON THE-JOB TRAINING**	**Thu 3/11/99**	**Fri 3/12/99**
488		**Substation Inspection**	**Thu 3/11/99**	**Thu 3/11/99**
489		HV Switchyard	Thu 3/11/99	Thu 3/11/99
490		MV Metal Clad Switchgear	Thu 3/11/99	Thu 3/11/99
491		Control Building Auxiliares	Thu 3/11/99	Thu 3/11/99
492		Scanning atTime of Peak Load	Thu 3/11/99	Thu 3/11/99
493		Feeder and Dist Transformer Scanning	Thu 3/11/99	Thu 3/11/99
494		**ACTION PLAN DEVELOPMENT**	**Fri 3/12/99**	**Fri 3/12/99**
495		**Substation**	**Fri 3/12/99**	**Fri 3/12/99**
496		Summary of Field Results	Fri 3/12/99	Fri 3/12/99
497		Formulate Plan	Fri 3/12/99	Fri 3/12/99
498		Prepare Bill of Material	Fri 3/12/99	Fri 3/12/99
499		***HT Feeders***	**Fri 3/12/99**	**Fri 3/12/99**
500		Summary of Field Results	Fri 3/12/99	Fri 3/12/99
501		Formulate Plan	Fri 3/12/99	Fri 3/12/99
502		Prepare Bill of Material	Fri 3/12/99	Fri 3/12/99
503		**MOHINDER GARH SUB IMPROVEMENTS**	**Mon 3/15/99**	**Wed 3/31/99**
504		HSEB Procures Material	Mon 3/15/99	Fri 3/26/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
505	Implement Improvements	Mon 3/29/99	Wed 3/31/99
506	**HISSAR TRAINING CENTER**	Mon 4/5/99	Wed 5/5/99
507	Organize Teams and Orientation	Mon 4/5/99	Mon 4/5/99
508	**HISSAR TEXT MILL SUBSTATION**	Mon 4/5/99	Wed 4/28/99
509	**CLASSROOM TRAINING**	Mon 4/5/99	Wed 4/7/99
510	**Substations**	Mon 4/5/99	Tue 4/6/99
511	Protection System	Mon 4/5/99	Mon 4/5/99
512	Overvoltage Protection	Mon 4/5/99	Mon 4/5/99
513	Grounding	Mon 4/5/99	Mon 4/5/99
514	Substation Power Losses	Tue 4/6/99	Tue 4/6/99
515	Questionaire	Tue 4/6/99	Tue 4/6/99
516	**HT/LT Feeder Planning**	Mon 4/5/99	Wed 4/7/99
517	Select Feeder and Overview	Mon 4/5/99	Mon 4/5/99
518	Data Loggers and Halo Ammeters	Mon 4/5/99	Mon 4/5/99
519	Install Data Collection Equip	Mon 4/5/99	Mon 4/5/99
520	One Line Diagram Development	Tue 4/6/99	Tue 4/6/99
521	Area And Feder Planning Software	Tue 4/6/99	Tue 4/6/99
522	Loads (kVA kWh Spot)	Tue 4/6/99	Tue 4/6/99
523	Capacitor Location	Tue 4/6/99	Tue 4/6/99
524	Collect/Review Data Field Data	Tue 4/6/99	Wed 4/7/99
525	Feeder Planning Analysis	Wed 4/7/99	Wed 4/7/99
526	Review	Wed 4/7/99	Wed 4/7/99
527	**ON THE-JOB TRAINING**	Wed 4/7/99	Fri 4/9/99
528	**Substation Inspection**	Wed 4/7/99	Wed 4/7/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
529	HV Switchyard	Wed 4/7/99	Wed 4/7/99
530	MV Metal Clad Switchgear	Wed 4/7/99	Wed 4/7/99
531	Control Building Auxiliares	Wed 4/7/99	Wed 4/7/99
532	Scanning atTime of Peak Load	Wed 4/7/99	Wed 4/7/99
533	Feeder and Dist Transformer Scannin	Thu 4/8/99	Thu 4/8/99
534	**ACTION PLAN DEVELOPMENT**	Fri 4/9/99	Fri 4/9/99
535	**Substation**	Fri 4/9/99	Fri 4/9/99
536	Summary of Field Results	Fri 4/9/99	Fri 4/9/99
537	Formulate Plan	Fri 4/9/99	Fri 4/9/99
538	Prepare Bill of Material	Fri 4/9/99	Fri 4/9/99
539	**HT Feeders**	Fri 4/9/99	Fri 4/9/99
540	Summary of Field Results	Fri 4/9/99	Fri 4/9/99
541	Formulate Plan	Fri 4/9/99	Fri 4/9/99
542	Prepare Bill of Material	Fri 4/9/99	Fri 4/9/99
543	**HISSAR TEXT MILL SUB IMPROVEMENT**	Mon 4/12/99	Wed 4/28/99
544	HSEB Procures Material	Mon 4/12/99	Fri 4/23/99
545	Implement Improvements	Mon 4/26/99	Wed 4/28/99
546	**NARWANA SUBSTATION**	Mon 4/12/99	Wed 5/5/99
547	**CLASSROOM TRAINING**	Mon 4/12/99	Wed 4/14/99
548	**Substations**	Mon 4/12/99	Tue 4/13/99
549	Protection System	Mon 4/12/99	Mon 4/12/99
550	Overvoltage Protection	Mon 4/12/99	Mon 4/12/99
551	Grounding	Mon 4/12/99	Mon 4/12/99
552	Substation Power Losses	Tue 4/13/99	Tue 4/13/99

SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
553	Questionaire	Tue 4/13/99	Tue 4/13/99
554	**HT/LT Feeder Planning**	**Mon 4/12/99**	**Wed 4/14/99**
555	Select Feeder and Overview	Mon 4/12/99	Mon 4/12/99
556	Data Loggers and Halo Ammeter	Mon 4/12/99	Mon 4/12/99
557	Install Data Collection Equip	Mon 4/12/99	Mon 4/12/99
558	One Line Diagram Development	Tue 4/13/99	Tue 4/13/99
559	Area And Feder Planning Software	Tue 4/13/99	Tue 4/13/99
560	Loads (kVA kWh Spot)	Tue 4/13/99	Tue 4/13/99
561	Capacitor Location	Tue 4/13/99	Tue 4/13/99
562	Collect/Review Data Field Data	Tue 4/13/99	Wed 4/14/99
563	Feeder Planning Analysis	Wed 4/14/99	Wed 4/14/99
564	Review	Wed 4/14/99	Wed 4/14/99
565	**ON THE-JOB TRAINING**	**Tue 4/13/99**	**Fri 4/16/99**
566	**Substation Inspection**	**Tue 4/13/99**	**Wed 4/14/99**
567	HV Switchyard	Tue 4/13/99	Tue 4/13/99
568	MV Metal Clad Switchgear	Tue 4/13/99	Wed 4/14/99
569	Control Building Auxiliares	Wed 4/14/99	Wed 4/14/99
570	Scanning atTime of Peak Load	Wed 4/14/99	Wed 4/14/99
571	Feeder and Dist Transformer Scannin	Thu 4/15/99	Thu 4/15/99
572	**ACTION PLAN DEVELOPMENT**	**Fri 4/16/99**	**Fri 4/16/99**
573	**Substation**	**Fri 4/16/99**	**Fri 4/16/99**
574	Summary of Field Results	Fri 4/16/99	Fri 4/16/99
575	Formulate Plan	Fri 4/16/99	Fri 4/16/99
576	Prepare Bill of Material	Fri 4/16/99	Fri 4/16/99

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SYSTEM EFFICIENCY IMPROVEMENT TRAINING PROGRAM
SCHEDULE OF ACTIVITIES

ID	Task Name	Start	Finish
577	**HT Feeders**	**Fri 4/16/99**	**Fri 4/16/99**
578	Summary of Field Results	Fri 4/16/99	Fri 4/16/99
579	Formulate Plan	Fri 4/16/99	Fri 4/16/99
580	Prepare Bill of Material	Fri 4/16/99	Fri 4/16/99
581	**NARWANA SUB IMPROVEMENTS**	**Mon 4/19/99**	**Wed 5/5/99**
582	HSEB Procures Material	Mon 4/19/99	Fri 4/30/99
583	Implement Improvements	Mon 5/3/99	Wed 5/5/99