FEDERAL/STATE
TECHNICAL GUIDANCE MEETING
NOV. 6, 1979
TALLAHASSEE, FLORIDA

JACKSONVILLE ELECTRIC AUTHORITY
COAL-FIRED POWER PLANT
TWO 600 MWe UNITS

INTRODUCTION

H. S. Oven, Jr.
Administrator, Power Plant Siting Section
Florida Dept. of Environmental Regulation

PROJECT STATUS/SITE SELECTION

R. Breitmoser
Chief, Research and Environmental Affairs Division
JACKSONVILLE ELECTRIC AUTHORITY

THE PLANT

W. D. Rezak
Project Manager
EBASCO SERVICES INCORPORATED

PSD-FL-010
0 310001-NA-AC

SITE CERTIFICATION APPLICATION AND
ENVIRONMENTAL IMPACT ASSESSMENT
PLAN OF STUDY

D. H. Lucas
Environmental Project Coordinator
ENVIROSPHERE COMPANY

ENVIRONMENTAL STUDY PLANS

A. Air Quality/Meteorology

D. Fulle
Supervisor, Air Quality/Meteorology

B. Surface Water Hydrology/Water Quality

H. Frediani
Senior Hydrothermal Engineer
R. Boyd
Supervisor, Water and Wastewater

C. Groundwater Hydrology/Water Quality

F. Titus
Manager, Geosciences

D. Geology/Soils

G. Bain
Geologist/Hydrologist

E. Terrestrial Ecology

B. Floyd
Terrestrial Ecologist

F. Aquatic Ecology

H. L. Davis
Supervisor, Water Resources

G. Land Use/Socioeconomics

S. Kangisser
Resource Planner

H. Noise

D. Fulle
Supervisor, Air Quality/Meteorology

JACKSONVILLE ELECTRIC AUTHORITY

Overall Project Schedule

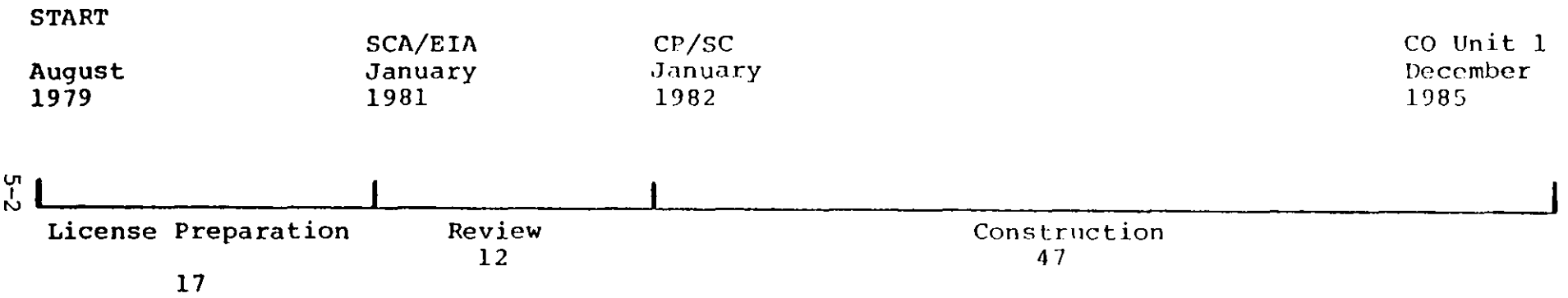

EXHIBIT 5.1-1

JACKSONVILLE ELECTRIC AUTHORITY

Environmental Licensing Milestone Schedule

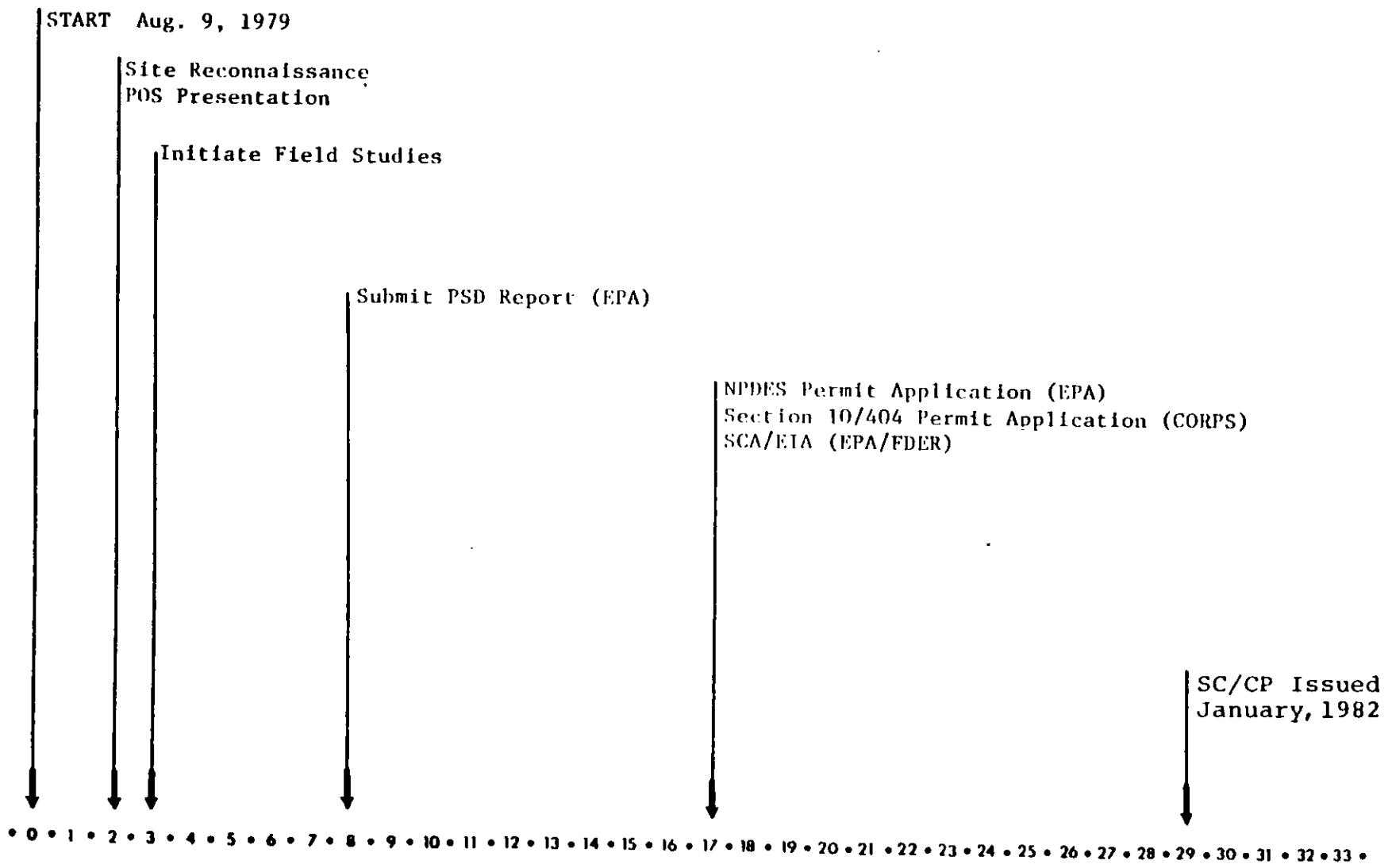

EXHIBIT 5.2-1

AIR QUALITY/METEOROLOGY
STUDY PLAN OBJECTIVES

- TO DEFINE THE EXISTING AIR QUALITY/METEOROLOGICAL CONDITIONS.
- TO EVALUATE VARIOUS PLANT DESIGN ALTERNATIVES.
- TO ASSESS THE IMPACT OF PLANT CONSTRUCTION AND OPERATION.
- TO SUGGEST AN APPROPRIATE OPERATIONAL MONITORING PROGRAM.
- TO SATISFY THE REQUIREMENTS OF THE SCA, NEPA, AND PSD REGULATIONS AND PROVIDE SUFFICIENT INFORMATION TO ALLOW INFORMED DECISION MAKING BY THE REGULATORY AUTHORITIES.

AIR QUALITY/METEOROLOGY

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- AIR QUALITY/METEOROLOGY MONITORING PROGRAM
- DESCRIPTION OF BASELINE CONDITIONS
- DESCRIPTION OF PLANT AIR QUALITY CONTROL SYSTEMS
- ASSESSMENT OF IMPACT OF PLANT CONSTRUCTION
- ASSESSMENT OF IMPACT OF PLANT OPERATION
- ASSESSMENT OF COOLING SYSTEM IMPACTS
- EVALUATION OF ALTERNATIVES
- DEVELOPMENT OF PROPOSED OPERATIONAL MONITORING PROGRAM
- REPORT PREPARATION

AIR QUALITY/METEOROLOGY
STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY/DATA SEARCH

   - TOPICS
     - REGIONAL CLIMATE
     - LOCAL DISPERSION CONDITIONS
     - BACKGROUND AIR QUALITY
     - EMISSION INVENTORY
   - SOURCES
     - NATIONAL CLIMATE CENTER
     - FDER
     - EPA
     - JACKSONVILLE BES
     - PREVIOUS STUDIES

2. AIR QUALITY/METEOROLOGY MONITORING PROGRAM

- LOCATIONS
  - ONE MILE NORTH OF EASTPORT
  - BETWEEN WILLIS POINT AND WALKILL
- PARAMETERS
  - SULFUR DIOXIDE
  - NITROGEN DIOXIDE
  - CARBON MONOXIDE
  - OZONE
  - TOTAL SUSPENDED PARTICULATES
  - METEOROLOGY (WIND SPEED, WIND DIRECTION, TEMPERATURE, DEWPOINT, SIGMA THETA, PRECIPITATION)
- OPERATION
  - ONSITE TECHNICIAN/FIELD COORDINATOR
  - DATA LOGGERS/FLOPPY DISKS/STRIP CHARTS
  - QUALITY ASSURANCE PER "APPENDIX B"

3. DESCRIPTION OF BASELINE CONDITIONS

- SOURCES
  - TASK 1 (LITERATURE SURVEY)
  - TASK 2 (ON-SITE MONITORING PROGRAM)
- RESULTS
  - INPUT TO PSD AND SCA/EIA REPORTS
  - INPUT TO PLANT DESIGN

4. DESCRIPTION OF PLANT AIR QUALITY CONTROL SYSTEMS

- FUEL CHARACTERISTICS
- EMISSION SOURCES
- BEST AVAILABLE CONTROL TECHNOLOGY DEMONSTRATION
  - (1) ECONOMICS
  - (2) ENERGY
  - (3) ENVIRONMENT

5. ASSESSMENT OF PLANT CONSTRUCTION IMPACTS

- FUGITIVE DUST
- VEHICULAR EMISSIONS
- OPEN BURNING

6. ASSESSMENT OF PLANT OPERATION IMPACTS

- CONSIDERATIONS
  - COMPLIANCE WITH FAAQS AND NAAQS
  - CONSUMPTION OF PSD INCREMENTS
  - IMPACT ON NONATTAINMENT AREAS
  - VISIBILITY, ACID RAIN, TRACE ELEMENTS
- ANALYTICAL TOOLS
  - CRSTERM, AQUAL, RAM FOR SHORT RANGE
  - IMPACT, MESODIF, NOAA FOR LONG RANGE
  - LITERATURE SURVEY FOR OTHER EFFECTS

7. ASSESSMENT OF COOLING SYSTEM IMPACTS

- CONSIDERATIONS/ANALYTICAL TOOLS
  - FOGGING - GRDFOG
  - DRIFT DEPOSITION - SALDEP
  - VISIBLE VAPOR PLUMES - ELEPLUME

8. EVALUATION OF ALTERNATIVES

  - AQCS - BACT
  - STACKHEIGHT
  - FUEL QUALITY
  - COOLING SYSTEMS
  - SITES

9. DEVELOP PROPOSED OPERATIONAL MONITORING PROGRAM

- REGULATION CONSIDERATIONS
- STACK EMISSIONS
- AMBIENT AIR QUALITY
- METEOROLOGY

10. REPORT PREPARATION

- PSD REPORT
- SCA/EIA

SURFACE WATER HYDROLOGY/HYDROTHERMAL STUDIES

STUDY PLAN OBJECTIVES

- TO ESTABLISH THE EXISTING SURFACE WATER HYDROLOGICAL CHARACTERISTICS OF THE RECEIVING AND ON-SITE WATER BODIES.
- TO EVALUATE AND DESCRIBE HEAT DISSIPATION SYSTEM ALTERNATIVES IN ORDER TO MINIMIZE IMPACT ON THE RECEIVING WATER BODY.
- TO PREDICT THE IMPACTS OF PLANT CONSTRUCTION AND OPERATION ON THE RECEIVING AND ON-SITE WATER BODIES.

SURFACE WATER HYDROLOGY/HYDROTHERMAL STUDIES

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- BASELINE MONITORING PROGRAM
- DESCRIPTION OF PLANT HEAT DISSIPATION SYSTEM
- ASSESSMENT OF IMPACT OF PLANT CONSTRUCTION
- ASSESSMENT OF IMPACT OF PLANT OPERATION
- HEAT DISSIPATION ALTERNATIVES
- REPORT PREPARATION

SURFACE WATER HYDROLOGY/HYDROTHERMAL STUDIES

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY/DATA SEARCH

- SOURCES
  - GOVERNMENTAL AGENCIES
  - UNIVERSITIES
  - UTILITIES
  - OTHER INDUSTRIES
  - TECHNICAL JOURNAL
- INFORMATION
  - FLOWS
  - STAGES
  - CURRENTS
  - BOTTOM AND SHORELINE CONFIGURATIONS
  - AMBIENT TEMPERATURES
  - APPLICABLE THERMAL STANDARDS
  - MODELS
  - TECHNIQUES

2. HEAT DISSIPATION SYSTEM

- INTAKE LOCATION, DIMENSION, VELOCITY
- CONDENSER COOLING SYSTEM DESIGN AND OPERATION
- DISCHARGE LOCATION, TYPE, DIMENSION

3. PLANT CONSTRUCTION IMPACT

- SITE DRAINAGE IMPACT ON ON-SITE WATER BODIES
- IMPACT ON ST. JOHNS RIVER OF INTAKE AND DISCHARGE STRUCTURES CONSTRUCTION

4. PLANT OPERATION IMPACT

- THERMAL PLUME
  - SHAPE AND LENGTH
  - AREAL AND VOLUMETRIC EXTENT
  - TIME OF TRAVEL
  - RATE OF TEMPERATURE CHANGE
- INTAKE
  - INTAKE FLOW RATE
  - AMBIENT FLOWS AND STAGES
  - AVERAGE EXTREME VELOCITIES

5. HEAT DISSIPATION ALTERNATIVES

- ONCE-THROUGH VS. CLOSED CYCLE COOLING
  - (1) PONDS
  - (2) SPRAYS
  - (3) NATURAL DRAFT TOWERS
  - (4) MECHANICAL DRAFT TOWERS
- OFFSHORE VS. ONSHORE INTAKE, DISCHARGE
- SURFACE VS. SUBSURFACE INTAKE, DISCHARGE
- INTAKE AND DISCHARGE VELOCITIES

6. REPORT PREPARATION

- ASSUMPTIONS
- METHODOLOGY
- DATA
- RESULTS
- DESIGN RATIONALE

SURFACE WATER QUALITY

STUDY PLAN OBJECTIVES

- IDENTIFY AMBIENT SURFACE WATER QUALITY ON AND ADJACENT TO PROPOSED PLANT SITE
- ASSESS IMPACT ON WATER QUALITY ASSOCIATED WITH PLANT CONSTRUCTION ACTIVITIES
- ASSESS IMPACT ON WATER QUALITY ASSOCIATED WITH PROPOSED PLANT OPERATIONS
- ASSESS IMPACT ON WATER QUALITY FROM PROPOSED ACTION AND ASSOCIATED ALTERNATIVES
- ESTABLISH SURFACE WATER QUALITY MONITORING FOR CONSTRUCTION AND OPERATION PHASES
- REPORT PREPARATION TO SATISFY THE REQUIREMENTS OF THE SCA, NEPA, AND OTHER REGULATIONS

SURFACE WATER QUALITY

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- SURFACE WATER QUALITY MONITORING PROGRAM
- DESCRIPTION OF PLANT WATER USE AND WASTE HANDLING PLANS
- ASSESSMENT OF IMPACT OF PLANT CONSTRUCTION
- ASSESSMENT OF IMPACT OF PLANT OPERATION
- ASSESSMENT OF WATER QUALITY IMPACTS OF DESIGN ALTERNATIVES
- PREPARATION OF PLANS FOR MONITORING APPROPRIATE WATER QUALITY PARAMETERS DURING PLANT CONSTRUCTION AND OPERATION
- REPORT PREPARATION

SURFACE WATER QUALITY

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY/DATA SEARCH

- FEDERAL AGENCIES
    - (1) EPA
    - (2) USGS
    - (3) U. S. ARMY CORPS OF ENGINEERS
- STATE AGENCIES
    - (1) DER
    - (2) DNR
- ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
- LOCAL GOVERNMENT AGENCIES/GROUPS
    - (1) JACKSONVILLE BIO--ENVIRONMENTAL SERVICES
    - (2) CITY OF JACKSONVILLE PUBLIC WORKS DEPARTMENT
    - (3) CITY OF PALATKA WATER DEPARTMENT
- UNIVERSITY PERSONNEL
- SEMINOLE ELECTRICAL COOPERATIVE, INC.
- OTHER

2. SURFACE WATER QUALITY MONITORING PROGRAM

- PRELIMINARY SURVEY
- FACTORS FOR PHYSICAL AND CHEMICAL VARIABLE SELECTION
    - (1) EFFLUENT GUIDELINES AND STANDARDS
    - (2) FLORIDA WATER QUALITY RULES
    - (3) AQUATIC ECOLOGY
    - (4) PLANT WATER REQUIREMENTS
    - (5) PROXIMITY OF OTHER DISCHARGES
- FACTORS IN SAMPLING PROCEDURE AND METHODOLOGY SELECTION
    - (1) SALT WATER INFLUENCE
    - (2) TIDAL PHASE
    - (3) FRESH WATER FLOW
    - (4) RIVER CONFIGURATION
    - (5) TIME OF YEAR
    - (6) HISTORICAL DATA AVAILABILITY AND APPLICABILITY

3. DESCRIPTION OF PLANT WATER USE AND WASTE HANDLING PLAN

- IDENTIFY PLANT WATER MAKEUP REQUIREMENTS
- IDENTIFY PLANT WASTEWATER AND SOLID WASTE CHARACTERISTICS
- IDENTIFY HANDLING AND TREATMENT METHODS FOR WASTES
- IDENTIFY PLANT WASTEWATER DISCHARGE CHARACTERISTICS
- PREPARE SCHEMATIC DIAGRAM OF PLANT WATER BALANCE

4. ASSESSMENT OF IMPACT OF PLANT CONSTRUCTION

- IDENTIFY CONSTRUCTION ACTIVITY SCHEDULE AND PHASING
- DEVELOP SEDIMENT AND EROSION CONTROL MEASURES
- PHASE SEDIMENT AND EROSION CONTROL PLAN WITH CONSTRUCTION ACTIVITIES
- IDENTIFY OTHER WASTE HANDLING AND TREATMENT METHODS REQUIRED
- DETERMINE APPROXIMATE LEVELS OF PHYSICAL AND CHEMICAL DISHCARGES DURING CONSTRUCTION
- DISCUSS INTERACTION BETWEEN CONSTRUCTION-RELATED DISCHARGES AND EXISTING SURFACE WATER BODIES

5. ASSESSMENT OF IMPACT OF PLANT OPERATION

- DESCRIBE PROPOSED PLANT WATER AND WASTEWATER MANAGEMENT PLAN
- CHARACTERIZE QUALITY AND QUANTITY OF DISCHARGES IDENTIFIED IN PLAN
- DESCRIBE RECEIVING SURFACE WATER BASELINE WATER QUALITY CONDITIONS
- DESCRIBE RESULTANT WATER QUALITY VARIATIONS IN RECEIVING SURFACE WATERS

6. ASSESSMENT OF WATER QUALITY IMPACTS OF DESIGN ALTERNATIVES

- IDENTIFY VIABLE WATER AND WASTEWATER MANAGEMENT PLAN ALTERNATIVES
- DESCRIBE RESULTANT WATER QUALITY VARIATIONS FROM EACH DESIGN ALTERNATIVE
- COMPARE IMPACTS ON SURFACE WATER QUALITY FOR PROPOSED ACTION AND ALTERNATIVES

7. PREPARATION OF PLANS FOR MONITORING WATER QUALITY PARAMETERS DURING PLANT CONSTRUCTION AND OPERATION

- IDENTIFY PARAMETERS OF CONCERN DURING THE CONSTRUCTION AND OPERATION
- IDENTIFY DESIRED MONITORING LOCATIONS
- IDENTIFY FEASIBLE ANALYTICAL TECHNIQUES (I.E., IN-SITU VS. LABORATORY)
- IDENTIFY SAMPLING FREQUENCY AND DURATION

8. REPORT PREPARATION

- SCA/EIA

GROUNDWATER HYDROLOGY/WATER QUALITY

STUDY PLAN OBJECTIVES

- DETERMINE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE SYSTEM
- EVALUATE, AND PROVIDE INPUT TO, DESIGN ALTERNATIVES AFFECTING GROUNDWATER
- PREDICT AND MONITOR IMPACTS OF FACILITY CONSTRUCTION AND OPERATION

GROUNDWATER HYDROLOGY/WATER QUALITY

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- SUBSURFACE INVESTIGATION
- DATA REDUCTION AND EVALUATION
- DESCRIPTION OF PLANT FACILITIES AND OPERATIONS AFFECTING GROUNDWATER
- ASSESSMENT OF DESIGN ALTERNATIVES
- DESIGN AND IMPLEMENTATION OF PRECONSTRUCTION MONITORING PROGRAM
- IMPACT EVALUATION
- REPORT PREPARATION

GEOLOGY/SOILS

STUDY PLAN OBJECTIVES

- PROVIDE A PICTURE OF THE PHYSIOGRAPHY, REGIONAL GEOLOGY, REGIONAL SEISMIC HIGTORY, AND GENERAL SOIL AND ROCK CHARACTERISTICS OF THE SITE REGION

- PROVIDE SUPPLEMENTARY INFORMATION ON LOCATION OF REGIONAL AND LOCAL STRUCTURES

- COLLECT FIELD DATA ON SURFICIAL GEOLOGICAL CONDITIONS, SUBSURFACE SOIL AND ROCK MATERIALS. AND GROUNDWATER CONDITIONS

- QUANTIFY AND SUPPLEMENT THE DESCRIPTIONS OF SOIL AND ROCK PROPERTIES

- EVALUATE THE GEOLOGICAL CONSEQUENCES OF ALTERNATE PLANT AND TRANSMISSION CORRIDER LAYOUTS

- DESCRIBE BASELINE CONDITIONS RELEVANT TO THE REGION AND SITE AND POTENTIAL IMPACTS ON PLANT CONSTRUCTION AND OPERATION

GEOLOGY/SOILS

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- REMOTE SENSING ANALYSIS AND INTERPRETATION
- SURFACE AND SUBSURFACE FIELD INVESTIGATIONS
- LABORATORY TESTING
- EVALUATION OF PLANT LAYOUT ALTERNATIVES
- REPORT PREPARATION

GEOLOGY/SOILS

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY/DATA SEARCH

   - COLLECT DATA FROM AVAILABLE MAPS, TECHNICAL PAPERS AND SEARCH FEDERAL, STATE, AND UNIVERSITY FILES.

2. REMOTE SENSING

   - STUDY AERIAL PHOTOS, PHOTO MOSAICS, AND/OR ERTS IMAGERY FOR ADDITIONAL GEOLOGICA INFORMATION, I.E., LINEAMENTS, SINKHOLES AND OTHER GEOLOGIC HAZARDS.

3. SURFACE AND SUBSURFACE FIELD INVESTIGATIONS

   - CORE AND LOG GEOLOGIC MATERIALS TO DETERMINE LOAD BEARING CHARACTER, HYDROLOGY, LIQUIFACTION POTENTIAL, AND ENVIRONMENTAL IMPACT.
   - MEASURE AND RECORD GROUNDWATER LEVELS.

4. LABORATORY TESTING

   - TEST SOIL AND ROCK MATERIALS IN ACCORDANCE WITH (ASTM) STANDARDS TO DEFINE MATERIAL PROPERTIES DATA.

5. EVALUATION OF PLANT LAYOUT

- EVALUATE GEOLOGIC, HYDROLOGIC AND SOILS IMPACT ON PLANT LAYOUT AND DESIGN.

6. REPORT PREPARATION

- DESCRIBE, ACCORDING TO APPLICABLE REGULATIONS, BASELINE CONDITIONS AND POTENTIAL ENVIRONMENTAL IMPACT OF PLANT CONSTRUCTION AND OPERATION.

TERRESTRIAL ECOLOGY

STUDY PLAN OBJECTIVES

- CHARACTERIZE THE VEGETATION OF THE PROPOSED POWER PLANT SITE AND DIRECTLY ASSOCIATED TRANSMISSION LINE CORRIDORS.
- CHARACTERIZE FAUNAL POPULATION (MAMMALS, AVIFAUNA, REPTILES, AND AMPHIBIANS) WHICH OCCUR ON THE PROPOSED POWEP PLANT SITE AND DIRECTLY ASSOCIATED TRANSMISSION CORRIDORS.
- EVALUATE THE WILDLIFE HABITAT OF THE PPOPOSED POWER PLANT SITE AND DIRECTLY ASSOCIATED TRANSMISSION! LINE CORRIDORS.
- DETERMINE THE PRESENCE OF RARE, THREATENED OR ENDANGERED FLORAL AND FAUNAL SPECIES ON THE PROPOSED POWER PLANT SITE AND DIRECTLY ASSOCIATED TRANSMISSION LINE CORRIDORS.
- IDENTIFY AND EVALUATE THE POTENTIAL EFFECTS ASSOCIATED WITH THE CONSTRUCTION AND OPERATION OF THE PROPOSED POWER PLANT AND DIRECTLY ASSOCIATED TRANSMISSION LINE CORRIDORS.

TERRESTRIAL ECOLOGY
STUDY PLAN TASKS

- LITERATURE REVIEW
- PRELIMINARY SITE RECONNAISSANCE
- FIELD SAMPLING PROGRAM
- DATA ANALYSIS
- SITE DESCRIPTION
- IMPACT ASSESSMENT
- REPORT PREPARATION

TERRESTRIAL ECOLOGY

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE REVIEW

   - BIOSIS, APTIC
   - PERSONAL CONTACT

2. PRELIMINARY SITE RECONNAISSANCE

   - IDENTIFY PREDOMINANT VEGETATION COMMUNITIES/ WILDLIFE HABITAT
   - AID IN FINALIZATION OF FIELD SAMPLING PROGRAM

3. FIELD PROGRAM

   - VEGETATION DESCRIPTION
   - INVENTORY OF MAMMALS
   - INVENTORY OF AVIFAUNA
   - INVENTORY OF REPTILES AND AMPHIBIANS
   - INVENTORY OF IMPORTANT SPECIES

4. DATA ANALYSIS

   - RUDIMENTARY STATISTICAL TREATMENT

5. SITE DESCRIPTION

   - FLORAL COMMUNITIES
   - EXISTING PERTURBATIONS
   - WILDLIFE SPECIES
   - WILDLIFE HABITAT EVALUATION
   - SOIL TYPES

6. IMPACT ASSESSMENT

- CONSTRUCTION RELATED EFFECTS
- OPERATIONAL RELATED EFFECTS

7. REPORT PREPARATION

AQUATIC ECOLOGY

STUDY PLAN OBJECTIVES

- TO SATISFY THE REQUIREMENTS OF THE SCA AND NEPA
- TO DESCRIBE THE ECOLOGY OF THE AQUATIC SYSTEMS ON THE SITE AS WELL AS THOSE SUBJECT TO POTENTIAL IMPACT BY THE PROPOSED POWER PLANT AND ASSOCIATED TRANSMISSION FACILITIES
- TO EVALUATE VARIOUS PLANT DESIGN ALTERNATIVES
- TO PREDICT THE EFFECTS OF THE CONSTRUCTION AND OPERATION OF THE PLANT AND TRANSMISSION FACILITIES ON THE AQUATIC ECOSYSTEM

AQUATIC ECOLOGY

STUDY PLAN TASKS

- LITERATURE SURVEY/DATA SEARCH
- DEVELOPMENT OF FIELD DATA ACQUISITION PROGRAM
- BASELINE MONITORING
- DATA MANAGEMENT AND ANALYSIS
- PREPARATION OF SCA/EIA REPORT

AQUATIC ECOLOGY

DESCRIPTION OF TASKS

1. LITERATURE SURVEY/DATA SEARCH

- COLLECT AVAILABLE PUBLISHED AND UNPUBLISHED DATA:

  (1) SPORT AND COMMERCIAL FISHERIES

  (2) RARE AND ENDANGERED SPECIES

  (3) LOCAL, REGIONAL, STATE, AND FEDERAL AGENCY SURVEYS

- ENVIRONMENTAL LICENSING REPORTS

- BIOLOGICAL AND ECOLOGICAL REPORTS, THESES AND DISSERTATIONS

2. DEVELOPMENT OF FIELD DATA ACQUISITION PROGRAM

- OBTAIN SCIENTIFIC COLLECTORS PERMITS
- PRELIMINARY SAMPLING TO SELECT APPROPRIATE METHODOLOGY
- DELINEATE SAMPLING ZONES
- REFINEMENT OF FIELD TECHNIQUES
    - (1) SPECIES SATURATION CURVES
    - (2) CATCH PER UNIT EFFORT

3. BASELINE MONITORING

- MEROPLANKTON
- ZOOPLANKTON
- PHYTOPLANKTON
- PERIPHYTON
- MACROPHYTES
- MACROINVERTEBRATES
- FISHERIES
- MANATEES AND OTHER RARE AND ENDANGERED SPECIES
- HABITAT MAPPING

4. DATA MANAGEMENT AND ANALYSIS

- STORAGE/RETRIEVAL
- GRAPHICS AND MAPPING
- STATISTICAL ANALYSIS OF DISTRIBUTION AND ABUNDANCE OF ORGANISMS (TIME AND SPACE)
- IMPACT PROJECTIONS FOR:
    (1) PLANT CONSTRUCTION
    (2) TRANSMISSION LINE CONSTRUCTION
    (3) SITE RUNOFF AND SEDIMENTATION
    (4) DREDGE AND FILL
    (5) BLOWDOWN
    (6) ENTRAINMENT, IMPINGEMENT, ENTRAPMENT
    (7) COAL STORAGE RUNOFF
- ASSESSMENT OF DESIGN ALTERNATIVES
- DEVELOP AQUATIC MONITORING PROGRAM FOR CONSTRUCTION AND OPERATIONAL PHASES

5. PREPARATION OF SCA/EIA REPORT

- AQUATIC ECOLOGY - SETTING
- SITE PREPARATION AND PLANT CONSTRUCTION
- CONSTRUCTION OF DIRECTLY ASSOCIATED TRANSMISSION FACILITIES
- WATER DISCHARGES
- COOLING WATER INTAKE
- PRE-APPLICATION MONITORING
- CONSTRUCTION AND OPERATIONAL MONITORING
- CONDENSER SYSTEM

LAND USE/SOCIOECONOMICS

STUDY PLAN OBJECTIVES

TO DETERMINE WHAT EFFECTS THE CONSTRUCTION AND OPERATION OF THE POWER PLANT WILL HAVE ON:

- CURRENT AND PROJECTED LAND USE PATTERNS
- HISTORICAL AND ARCHEOLOGICAL SITES
- AESTHETIC VALUE OF THE AREA
- DEMOGRAPHIC PROFILES AND SOCIAL STRUCTURE
- EMPLOYMENT AND INCOME
- GOVERNMENT FISCAL CONDITIONS
- COMMUNITY SERVICES
- HOUSING
- TRANSPORTATION
- RECREATIONAL OPPORTUNITIES

LAND USE/SOCIOECONOMICS

STUDY PLAN TASKS

IN ORDER TO MEET STUDY OBJECTIVES THE FOLLOWING TASKS WILL BE PERFORMED:

1. LITERATURE SURVEY
2. AERIAL PHOTO INTERPRETATION
3. FIELD SURVEYS
   - ARCHEOLOGIC
   - VIEWSHED
   - INTERVIEWS
4. FORECASTS AND ANALYSIS
5. DETERMINATION OF PROJECT BENEFITS AND COSTS
6. REPORT PREPARATION

LAND USE/SOCIOECONOMICS

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY

- LOCAL GOVERNMENT OFFICIALS
- REGIONAL GOVERNMENT OFFICIALS
- STATE GOVERNMENT OFFICIALS
- FEDERAL AGENCY OFFICIALS
- UNIVERSITY PERSONNEL
- LOCAL DEVELOPERS
- HISTORICAL SOCIETIES
- COMPUTER DATA BASES
- LIBRARY SEARCH
- OTHER

2. AERIAL PHOTO INTERPRETATION

- OPEN
- AGRICULTURAL
- RESIDENTIAL
- INDUSTRIAL
- COMMERCIAL
- ROAD
- RECREATIONAL
- ENVIRONMENTALLY SENSITIVE AREAS
- OPEN WATER
- WOODED LANDS
- HISTORIC SITES/ARTIFACTS
- OTHER

3. FIELD SURVEY

- DATA VERIFICATION
- VIEWSHED SURVEY
    - (1) DOMINANT SCENIC ELEMENTS
    - (2) VARIETY OF SCENERY
    - (3) DISTANCE
    - (4) VIEWERS
- COMMUNITY SERVICES
    - (1) POLICE
    - (2) FIRE
    - (3) MEDICAL
    - (4) SCHOOLS
- HOUSING

4. FORECASTS AND ANALYSIS

- FORECASTS

  (1) EMPLOYMENT RATE AND LABOR FORCE
  (2) HOUSING DEMAND
  (3) INCOME LEVEL AND DISTRIBUTION
  (4) POPULATION GROWTH
  (5) TRANSPORTATION
  (6) COMMUNITY SERVICES

- ANALYSIS

  (1) LAND USE IMPACTS
      A. REMOVAL OF LAND
      B. NOISE
      C. COOLING TOWER FOGGING
      D. AESTHETIC IMPACTS
      E. FUGITIVE DUST
  (2) EMPLOYMENT AND INCOME
      A. REGIONAL EMPLOYMENT BY INDUSTRY
      B. UNEMPLOYMENT RATES
      C. LABOR FORCE
      D. SIZE OF LABOR FORCE
      E. REGIONAL INCOME DISTRIBUTION
  (3) SOCIAL IMPACTS
  (4) HISTORICAL AND ARCHEOLOGICAL SITES
  (5) VIEWSHED
  (6) COMMUNITY SERVICES
  (7) HOUSING
  (8) TRANSPORTATION
  (9) RECREATION

5. BENEFITS AND COSTS ANALYSIS

- DEMOGRAPHY
- COMMUNITY SERVICES
- EMPLOYMENT AND INCOME
- INFRASTRUCTURE
- HOUSING
- OTHER

6. REPORT PREPARATION

- SCA/EIA SECTIONS

LAND USE ANALYSIS

- OPEN
- AGRICULTURAL
- RESIDENTIAL
- INDUSTRIAL
- COMMERCIAL
- ROAD
- RECREATIONAL
- ENVIRONMENTALLY SENSITIVE AREAS
- OPEN WATER
- WOODED LANDS
- HISTORIC SITES/ARTIFACTS
- OTHER

NOISE

STUDY PLAN OBJECTIVES

- TO DEFINE THE EXISTING NOISE ENVIRONMENT AND LOCATE NOISE SENSITIVE AREAS
- TO DETERMINE THE REGULATORY FRAMEWORK
- TO ASSESS THE NOISE IMPACTS OF PLANT CONSTRUCTION AND PLANT OPERATION
- TO SATISFY THE REQUIREMENTS OF THE SCA AND NEPA REGULATIONS

NOISE

STUDY PLAN TASKS

1. LITERATURE SURVEY/DATA SEARCH
2. SITE SURVEY FOR NOISE SENSITIVE AREAS
3. PLAN AMBIENT NOISE SURVEY
4. CONDUCT AMBIENT NOISE SURVEY
5. ANALYZE DATA
6. COMPARE EXISTING NOISE LEVELS WITH GUIDELINES
7. ACQUIRE NOISE LEVEL DATA ON CONSTRUCTION EQUIPMENT & SCHEDULE
8. CALCULATE/ESTIMATE CONSTRUCTION NOISE IMPACT
9. COMPARE CONSTRUCTION NOISE PLUS AMBIENT WITH GUIDELINES
10. ACQUIRE NOISE LEVEL DATA ON PLANT OPERATION
11. CALCULATE/ESTIMATE OPERATIONAL NOISE IMPACT
12. COMPARE OPERATIONAL NOISE PLUS AMBIENT WITH GUIDELINES
13. REPORT PREPARATION

NOISE

STUDY PLAN TASK DESCRIPTIONS

1. LITERATURE SURVEY/DATA SEARCH

   - IDENTIFY APPLICABLE ORDINANCES, STANDARDS, GUIDELINES
   - COLLECT THE RESULTS OF ANY AVAILABLE NOISE SURVEYS

2. SITE SURVEY FOR NOISE SENSITIVE AREAS
   - MAP REVIEW AND FIELD SURVEY
   - WORK WITH SOCIOECONOMICS TASK ON LAND USE
   - LOCATE SCHOOLS, HOSPITALS, RESIDENTIAL AREAS

3. PLAN AMBIENT NOISE SURVEY

   - DETERMINE SAMPLING LOCATIONS
   - DETERMINE SAMPLING SCHEDULE

4. CONDUCT AMBIENT NOISE SURVEY

   - CONTINUOUS 24-HOUR OPERATION AT EACH SITE
   - COMPUTATION OF L_{EQ}, L_{DN}, L_{10}, L_{50}, L_{90}
   - CORRELATION WITH METEORLOGICAL DATA

NOISE

5. ANALYZE DATA

   - VARIATIONS BY MONITORING LOCATION
   - DAY/NIGHT VARIATIONS
   - SEASONAL VARIATIONS

6. COMPARE EXISTING NOISE LEVELS WITH GUIDELINES

7. ACQUIRE NOISE LEVEL DATA ON CONSTRUCTION EQUIPMENT AND OBTAIN CONSTRUCTION SCHEDULE

   - LITERATURE/VENDOR INFORMATION
   - NUMBERS, TYPES, & SCHEDULE FOR EQUIPMENT OPERATION

8. CALCULATE/ESTIMATE CONSTRUCTION NOISE IMPACT

   - EXTRAPOLATE SITE NOISE LEVELS TO RECEPTORS
   - IDENTIFY CRITICAL AREAS AND CRITICAL TIMES

9. COMPARE CONSTRUCTION NOISE PLUS AMBIENT WITH GUIDELINES

NOISE

10. ACQUIRE NOISE LEVEL DATA ON PLANT OPERATION

    - LITERATURE/VENDOR INFORMATION
    - LOCATIONS - PLANT LAYOUT
    - FANS, CRUSHERS, CONVEYORS, COOLING TOWERS, COAL YARD, UNLOADING AREA, ETC.

11. CALCULATE/ESTIMATE OPERATIONAL NOISE IMPACT

    - CONTINUOUS SOURCES - FANS, COOLING TOWERS, ETC.
    - INTERMITTENT SOURCES - COAL TRAINS, ETC.
    - EXTRAPOLATE TO RECEPTORS
    - IDENTIFY CRITICAL AREAS AND CRITICAL TIMES

12. COMPARE OPERATIONAL NOISE PLUS AMBIENT WITH GUIDELINES

13. REPORT PREPARATION

    - SCA/EIA