

18.2 RESPONSE TO REQUIREMENTS IN NUREG 0694

NUREG-0694 supersedes NUREG 0578. The clarifications given in the Vassallo letter on November 9, 1979 were used in the development of applicable responses.

18.2.1 SHIFT TECHNICAL ADVISOR (I.A.1.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.1 for response.

18.2.2 SHIFT SUPERVISOR ADMINISTRATIVE DUTIES (I.A.1.2)18.2.2.1 Statement of Requirement

Review the administrative duties of the shift supervisor and delegate functions that detract from or are subordinate to the management responsibility for assuring safe operation of the plant to other personnel not on duty in the control room. This requirement shall be met before fuel load.

18.2.2.2 Interpretation

None required.

18.2.2.3 Statement of Response

PP&L has restructured the operations organization and redefined responsibilities of shift personnel to relieve the shift supervisor of routine administrative duties.

Administrative procedure NDAP-QA-0300, "Conduct of Operations," implements this policy.

The Plant Manager reviews and approves the Shift Supervisor's responsibilities to ensure proper delegation of duties that detract from or are subordinate to the safe operation of the plant.

18.2.3 SHIFT MANNING (I.A.1.3)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.3 for response.

18.2.4 IMMEDIATE UPGRADING OF OPERATOR AND SENIOR OPERATOR TRAINING AND QUALIFICATION (I.A.2.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.4 for response.

18.2.5 REVISE SCOPE AND CRITERIA FOR LICENSING EXAMINATIONS (I.A.3.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.6 for response.

18.2.6 EVALUATION OF ORGANIZATION AND MANAGEMENT IMPROVEMENTS OF NEAR-TERM OPERATING LICENSE APPLICANTS (I.B.1.2)18.2.6.1 Statement of Requirement

The licensee organization shall comply with the findings and requirements generated in an interoffice NRC review of licensee organization and management. The review will be based on an NRC document entitled Draft Criteria for Utility Management and Technical Competence. The first draft of this document was dated February 25, 1980, but the document is changing with use and experience in ongoing reviews. These draft criteria address the organization, resources, training, and qualifications of plant staff, and management (both onsite and offsite) for routine operations and the resources and activities (both onsite and offsite) for accident conditions. This requirement shall be met prior to fuel load.

18.2.6.2 Interpretation

None required.

18.2.6.3 Statement of Response

A review of organization and management has been completed in accordance with draft NUREG 0731, "Guidelines for Utility Management Structure and Technical Competence." An NRC audit of the organization was conducted March 2-6, 1981.

18.2.7 SHORT-TERM ACCIDENT ANALYSIS AND PROCEDURE REVISION (I.C.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.8 for response.

18.2.8 SHIFT RELIEF AND TURNOVER PROCEDURES (I.C.2)18.2.8.1 Statement of Requirement

Revise plant procedures for shift relief and turnover to require signed checklists and logs to assure that the operating staff (including auxiliary operators and maintenance personnel) possess adequate knowledge of critical plant parameter status, system status, availability and alignment. This requirement shall be met prior to fuel load.

18.2.8.2 Interpretation

None required.

18.2.8.3 Statement of Response

Administrative procedures OP-AD-002, "Operations Standards for Error and Event Prevention" and OP-AD-003 "Shift Surveillance Scheduling, Log Sheets, and Turnover Sheets" discuss operations personnel responsibilities at shift turnover and specifically define the shift turnover process.

18.2.9 SHIFT SUPERVISOR RESPONSIBILITIES (I.C.3)18.2.9.1 Statement of Requirement

Issue a corporate management directive that clearly establishes the command duties of the shift supervisor and emphasizes the primary management responsibility for safe operation of the plant. Revise plant procedures to clearly define the duties, responsibilities and authority of the shift supervisor and the control room operators. This requirement shall be met prior to fuel load.

18.2.9.2 Interpretation

None required.

18.2.9.3 Statement of Response

The Senior Vice President - Chief Nuclear Officer has issued a statement of policy establishing the primary responsibility of the Shift Supervisor for safe operation of the plant under all conditions and establishing authority to direct actions leading to safe operation in the Shift Supervisor. The Senior Vice President - Chief Nuclear Officer shall re-issue this statement of policy on an annual basis.

Administrative Procedure NDAP-QA-0300, "Conduct of Operations," sets forth the plant policy on Shift Supervisor duties.

Training for Shift Supervisors includes plant Administrative Procedures, and will encompass NDAP-QA-0300.

18.2.10 CONTROL ROOM ACCESS (I.C.4)18.2.10.1 Statement of Requirement

Revise plant procedures to limit access to the control room to those individuals responsible for the direct operation of the plant, technical advisors, specified NRC personnel, and to establish a clear line of authority, responsibility, and succession in the control room. This requirement shall be met prior to fuel load.

18.2.10.2 Interpretation

None required.

18.2.10.3 Statement of Response

Administrative procedure OP-AD-002, Operations Standards for Error and Event Prevention provides the authority and instructions for control room access control.

18.2.11 PROCEDURES FOR FEEDBACK OF OPERATING EXPERIENCE TO PLANT STAFF (I.C.5)

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Requirement superseded by NUREG 0737. Refer to Subsection 18.1.12 for response.

18.2.12 NSSS VENDOR REVIEW OF PROCEDURES (I.C.7)18.2.12.1 Statement of Requirement

Obtain nuclear steam supply system vendor review of low-power testing procedures to further verify their adequacy. This requirement shall be met prior to fuel load.

Obtain NSSS vendor review of power-ascension test and emergency procedures to further verify their adequacy. This requirement must be met before issuance of a full-power license.

18.2.12.2 Interpretation

None required.

18.2.12.3 Statement of Response

The General Electric Company, through its site startup organization, has reviewed all startup tests associated with NSSS systems and will review all Emergency Operating procedures that were submitted to NRC in response to item I.C.8 (see Subsection 18.2.13). The startup tests encompass the low power testing and the power ascension testing phases.

18.2.13 PILOT MONITORING OF SELECTED EMERGENCY PROCEDURES NEAR-TERM OPERATING LICENSE APPLICANTS (I.C.8)

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18.2.13.1 Statement of Requirement

Correct emergency procedures, as necessary, based on the NRC audit of selected plant emergency operating procedures (e.g., small-break LOCA, loss of feedwater, restart of engineered safety features following a loss of AC power or, steam-line break).

18.2.13.2 Interpretation

None required.

### 18.2.13.3 Statement of Response

Emergency procedures based on those guidelines have been developed and are currently in trial use on the Susquehanna SES Simulator. These procedures have been reviewed by the NRC. Final versions which incorporated NRC comments were submitted in a letter from N. W. Curtis to B. J. Youngblood on May 15, 1981 (PLA-791).

### 18.2.14 CONTROL ROOM DESIGN (I.D.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.16 for response.

### 18.2.15 TRAINING DURING LOW POWER TESTING (I.G.1)

#### 18.2.15.1 Statement of Requirement

Define and commit to a special low-power testing program approved by NRC to be conducted at power levels no greater than 5 percent for the purposes of providing meaningful technical information beyond that obtained in the normal startup test program and to provide supplemental training. This requirement shall be met before fuel load.

Supplement operator training by completing the special low-power test program. Tests may be observed by other shifts or repeated on other shifts to provide training to the operators. This requirement shall be met before issuance of a full-power license.

#### 18.2.15.2 Interpretation

None required.

#### 18.2.15.3 Statement of Response

The BWR Owners' Group has prepared a generic response to this requirement. This was transmitted to D. G. Eisenhut by a letter from D. B. Waters on February 4, 1981. PP&L concurs with this response. This generic approach outlines an extensive testing program designed to contribute to and provide for extensive training opportunities during the start-up program. The objectives of this program are to provide:

1. A plant that has been thoroughly tested.
2. An operating staff that has received the maximum experience and in-plant training to safely operate it.
3. Plant procedures that have been reviewed and revised to provide the staff with proven directions and controls.

Susquehanna's Operator Training Program has been in progress since 1977 and is completing the final phases of training at this time. This program utilizes the Susquehanna Simulator

located at the plant site and provides the operators with extensive training prior to actual operations in the plant itself. The Simulator is also used for procedure development and check out.

The Operator Training Program that is being developed for the Preoperational and Low Power Testing Program incorporates and builds on the extensive training already completed by the operations section. It will include the recommendation presented in the BWR Owners' Group position but goes beyond those recommendations by maximizing the use of the Susquehanna Simulator in preparing the operators for the start-up tests to be performed.

The objective of the Operator Training Program is to provide each operator with the maximum learning experience during the start-up phase. In order to achieve this objective, a comprehensive training program is being developed that utilizes the many training opportunities that are available during this period and ensures actual testing. This program covers the period from Preoperational/Acceptance Testing through the Power Test Program on Unit 1. To support this amount of training the operations section which is staffed for six sections has reorganized into four sections. This reorganization provided the benefit of allowing more operators off shift to attend formal training as well as provide more operating experience for each shift team. Every effort is being made to keep the shifts intact and provide training that promotes the "Shift Team" concept.

The training program being developed covers the areas of activities listed below but recognizes the overlap that exists between some of the areas.

- I. Preoperational/Acceptance Testing
- II. Cold Functional Testing
- III. Hot Functional Testing
- IV. Start-up Tests
- V. Additional Testing

Each area of testing has activities that lend itself to operator training. The major ones are outlined in Table 18.2-1. The training program provides a vehicle to identify activities that have a significant benefit for training, documents this training, and ensures that all shift crews receive equal experience opportunities. The program also attempts to schedule repeats of certain evolutions that are considered critical and cannot be routinely performed at a later time. The training program will identify areas of testing/training that while not required by start-up program would have additional training benefit. This testing/training could then be scheduled into the testing program as additional testing.

Finally this program will develop the basis for the In-Plant Drill Program. This comprehensive approach to testing/training more than adequately satisfies the requirements of NUREG 0737.

On June 15, 1982 (PLA-1136) PP&L submitted a station blackout Safety Analysis which demonstrates that a station blackout test unnecessarily jeopardizes the plant and the public. Therefore, no station blackout test will be performed on Susquehanna SES Units 1 and 2. PP&L has completed additional testing per the BWROG recommendations during the Startup

Test Program for Unit 1 which satisfies the intent of this requirement. As stated in Generic Letter 83-24, this additional testing along with the safety analysis will satisfy Item I.G.1.

18.2.16 REACTOR COOLANT SYSTEM VENTS (II.B.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.19 for response.

18.2.17 PLANT SHIELDING (II.B.2)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.20 for response.

18.2.18 POST-ACCIDENT SAMPLING (II.B.3)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.21 for response.

18.2.19 TRAINING FOR MITIGATING CORE DAMAGE (II.B.4)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.22 for response.

18.2.20 RELIEF AND SAFETY VALVE TEST REQUIREMENTS (II.D.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.23 for response.

18.2.21 RELIEF AND SAFETY VALVE POSITION INDICATION (II.D.3)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.24 for response.

18.2.22 CONTAINMENT ISOLATION DEPENDABILITY (II.E.4.2)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.29 for response.

18.2.23 ADDITIONAL ACCIDENT MONITORING INSTRUMENTATION (II.F.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.30 for response.

18.2.24 INADEQUATE CORE COOLING INSTRUMENTS (II.F.2)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.31 for response.

18.2.25 ASSURANCE OF PROPER ESF FUNCTIONING (II.K.1.5)

#### 18.2.25.1 Statement of Requirement

Review all valve positions, positioning requirements, positive controls and related test and maintenance procedures to assure proper ESF functioning. This requirement shall be met by fuel load.

#### 18.2.25.2 Interpretation

None required.

#### 18.2.25.3 Statement of Response

Operating and surveillance procedures are currently being developed. Writing the procedures to reflect ESF requirement is a key objective of procedure originators. Additionally, these procedures will receive a review (independent of the originator) to provide further assurance that the procedure is technically correct and provides for accomplishment of procedural objectives (including maintenance of proper safety function).

### 18.2.26 SAFETY RELATED SYSTEM OPERABILITY STATUS (II.K.1.10)

#### 18.2.26.1 Statement of Requirement

Review and modify, as required, procedures for removing safety-related systems from service (and restoring to service) to assure operability status is known. This requirement shall be met by fuel load.

#### 18.2.26.2 Interpretation

None required.

#### 18.2.26.3 Statement of Response

Surveillance testing will be controlled by administrative procedure NDAP-QA-0722. This procedure requires surveillance implementing procedures contain a review of redundant component operability prior to removing the system to be tested from service, (if such removal is required by the test), a review of proper system status prior to return of the tested system to service, and provide for notification to Operations of the need for system status changes.

Administrative Procedure NDAP-QA-0302, "System Status and Equipment Control," (see Subsection 18.1.13.3) establishes control of system status as an operations responsibility and will provide the same reviews described above during normal operations and maintenance activities. Maintenance procedures will only cover activities while systems and components are removed from service, the Operations section will actually accomplish changes in system status as controlled by the described Instruction.



### 18.2.27 TRIP PRESSURIZER LOW-LEVEL COINCIDENT SIGNAL BISTABLES (II.K.1.17)

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This requirement is not applicable to Susquehanna SES.

### 18.2.28 OPERATOR TRAINING FOR PROMPT MANUAL REACTOR TRIP (II.K.1.20)

This requirement is not applicable to Susquehanna SES.

### 18.2.29 AUTOMATIC SAFETY GRADE ANTICIPATORY TRIP (II.K.1.21)

This requirement is not applicable to Susquehanna SES.

### 18.2.30 AUXILIARY HEAT REMOVAL SYSTEMS OPERATING PROCEDURES (II.K.1.22)

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#### 18.2.30.1 Statement of Requirement

Describe the automatic and manual actions necessary for proper functioning of the auxiliary heat removal systems that are used when the main feedwater system is not operable. This requirement shall be met by fuel load.

#### 18.2.30.2 Interpretation

None required.

#### 18.2.30.3 Statement of Response

A generic response to this requirement was provided by General Electric in NEDO-24708, "Additional Information Required for NRC Staff Generic Report on Boiling Water Reactors," (August, 1979) and supplement 1. A plant specific description is provided below.

If the main feedwater system is not operable, a reactor scram will automatically initiate when reactor water level falls to Level 3 (540.5 inches above vessel bottom or 178.2 inches above the top of the active fuel). The operator can then remote manually initiate the reactor core isolation cooling system from the main control room, or the system will be automatically initiated when reactor water level decreases to Level 2 (489.5 inches above vessel bottom or 127.2 inches above the top of the active fuel) due to boil-off. At this point, the high pressure coolant injection system will also automatically start supplying makeup water to the vessel. These systems will continue automatic injection until the reactor water level reaches Level 8 (581.5 inches above vessel bottom or 219.2 inches above top of the active fuel), at which time the high pressure coolant injection turbine and the reactor core isolation cooling turbine are automatically tripped.

In the non-accident case, the reactor core isolation cooling system is utilized to furnish subsequent makeup water to the reactor pressure vessel. The Reactor core isolation cooling system and the high pressure coolant injection system will restart automatically when the level

falls to Level 2 (The reactor core isolation cooling system is being modified to automatically restart, see subsection 18.1.50). No manual actions are required for these systems to restart. Reactor vessel pressure is regulated by the automatic or remote manual operation of the main steam relief valves which blow down to the suppression pool.

To remove decay heat, assuming that the main condenser is not available, the main steam relief valves can be manually actuated from the control room. Remote manual alignment of the residual heat removal system into the suppression pool cooling mode is then required for suppression pool heat removal. Makeup water to the vessel is still supplied by the reactor core isolation cooling system under manual control.

For the accident case with the reactor pressure vessel at high pressure, the high pressure coolant injection system is utilized to automatically provide the required makeup flow. No manual operations are required since the high pressure coolant injection system will cycle on and off automatically as water level reaches Level 2 and Level 8, respectively. If the high pressure coolant injection system fails under these conditions, the operator can manually depressurize the reactor vessel using the automatic depressurization system to permit the low pressure emergency core cooling systems to provide makeup coolant. Automatic depressurization will occur if all of the following signals are present: high drywell pressure 1.69 psig, Level 3 water Level permissive, Level 1 water level (398.5 inches above vessel bottom or 36.2 inches above the top of the active fuel), pressure in at least one low pressure injection system and the run out of a 120 second timer (set at 105 seconds) which starts with the coincidence of the other four signals.

### 18.2.31 REACTOR LEVEL INSTRUMENTATION (II.K.1.23)

#### 18.2.31.1 Statement of Requirement

For boiling water reactors, describe all uses and types of reactor vessel level indication for both automatic and manual initiation of safety systems. Describe other instrumentation that might give the operator the same information on plant status. This requirement shall be met before fuel load.

#### 18.2.31.2 Interpretation

None required.

#### 18.2.31.3 Statement of Response

The response to this requirement was provided by General Electric in NEDO-24708, Additional Information Required for NRC Staff Generic Report on Boiling Water Reactors," (August 1979) and Supplement 1.

### 18.2.32 COMMISSION ORDERS ON BABCOCK AND WILCOX PLANTS (II.K.2)

These requirements are not applicable to Susquehanna SES.

### 18.2.33 REPORTING REQUIREMENTS FOR SAFETY/RELIEF VALVE FAILURES OR CHALLENGES (II.K.3.3)

#### 18.2.33.1 Statement of Requirement

Assure that any failure of a PORV or safety valve to close will be reported to the NRC promptly. All challenges to the PORVs or safety valves should be documented in the annual report. This requirement shall be met before issuance of a full-power license.

#### 18.2.33.2 Interpretation

Prompt reporting to the NRC consists of notification within 24 hours by telephone with confirmation by telegraph, mailgram or facsimile transmission, followed by a written report within 14 days.

The annual operating report has been supplanted by more detailed Monthly Operating Reports. Documentation required to be included in the annual report will be supplied in Monthly Operating Reports.

#### 18.2.33.3 Statement of Response

Subsection 6.9.1.8 of the Technical Specifications requires prompt reporting with written followup for failures of main steamline Safety/Relief Valves to reclose after actuation.

Subsection 6.9.1.6 of the Technical Specifications requires documentation of all challenges to main steamline Safety/Relief Valves to be included in the Monthly Reactor Operating Report.

### 18.2.34 PROPORTIONAL INTEGRAL DERIVATIVE CONTROLLER (II.K.3.9)

This requirement is not applicable to Susquehanna SES.

### 18.2.35 ANTICIPATORY REACTOR TRIP MODIFICATION (II.K.3.10)

This requirement is not applicable to Susquehanna SES.

### 18.2.36 POWER OPERATED RELIEF VALVE FAILURE RATE (II.K.3.11)

This requirement is not applicable to Susquehanna SES.

### 18.2.37 ANTICIPATORY REACTOR TRIP ON TURBINE TRIP (II.K.3.12)

This requirement is not applicable to Susquehanna SES.

### 18.2.38 EMERGENCY PREPAREDNESS-SHORT TERM (III.A.1.1)

#### 18.2.38.1 Statement of Requirement

Comply with Appendix E, "Emergency Facilities," to 10 CFR Part 50, Regulatory Guide 1.101, "Emergency Planning for Nuclear Power Plants," and for the offsite plans, meet essential elements of NUREG-75/111 (Ref. 28) or have a favorable finding from FEMA. This requirement shall be met prior to fuel load.

Provide an emergency response plan in substantial compliance with NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (which may be modified as a result of public comments solicited in early 1980) except that only a description of and completion schedule for the means for providing prompt notification to the population (App. 3), the staffing for emergencies in addition to that already required (Table B.1), and an upgraded meteorological program (App. 2) need be provided (Ref. 10). NRC will give substantial weight findings on offsite plans in judging the adequacy against NUREG-0654. Perform an emergency response exercise to test the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. This requirement shall be met before issuance of a full-power license.

#### 18.2.38.2 Interpretation

PP&L is interpreting Emergency Facilities as encompassing those requirements for TSC, Interim TSC, EOF, Interim EOF, SPDS, OSC as outlined in NUREG 0696 and TMI Action Items in 0737. Develop Site, State, County, Township and Municipality Emergency Plans using the Guidelines of NUREG-0654 Rev. 1. Exercise the plans to ensure they are integrated and workable. Comply with meteorological requirements of NUREG 0654 Rev. 1 Appendix 2.

#### 18.2.38.3 Statement of Response

The proposed method of responding to this requirement was submitted by a letter to B. J. Youngblood from N. W. Curtis on April 2, 1981 (PLA-704). Details on the emergency response facilities are presented in the Emergency Plan.

#### 18.2.39 UPGRADE EMERGENCY SUPPORT FACILITIES (III.A.1.2)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.67 for response.

#### 18.2.40 PRIMARY COOLANT SOURCES OUTSIDE CONTAINMENT (III.D.1.1)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.69 for response.

#### 18.2.41 INPLANT RADIATION MONITORING (III.D.3.3)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.70 for response.

18.2.42 CONTROL ROOM HABITABILITY (III.D.3.4)

Requirement superseded by NUREG 0737. Refer to Subsection 18.1.71 for response.

TABLE 18.2-1

TESTING PROGRAM OUTLINE

- I. Preoperational/Acceptance Testing.
  1. Perform system checkout & operations under the direction of the start-up engineer.
  2. ECCS Testing.
  3. System Flushing.
  4. Procedure "dry run".
- II. Cold Functional Testing.\*
  1. Procedure review/verification performed by operators.
  2. Operation of equipment for training under the direction of Shift Supervisor.
- III. Hot Functional Testing.
  1. Procedure review/verification performed by operators.
  2. Operations of equipment for training under the direction of Shift Supervision.
  3. Set up of systems for operations at rated conditions under the direction of the Start-up Engineer or Technical Section Engineer.
- IV. Start-Up Testing.
  1. Performance of the Start-Up Test will be balanced among the shifts so each shift will:
    - a. See at least one reactor scram transient.
    - b. See at least one pressure regulator transient.
    - c. See at least one turbine trip or load rejection transient.
    - d. See at least one water level transient.
    - e. See at least one recirc flow transient.
    - f. Operate the HPCI or RCIC system.

\* This testing is not Preoperational Test P 100.

SSES-PSAR

TABLE 18.2-1 (Continued)

2. Conduct preselected start-up tests on the simulator prior to the actual test in the plant.
3. Feedback of data/response to the Nuclear Training Department to update the simulator & materials.
4. Provide each shift with training on testing that they did not perform.

V. Additional Testing

A group of supplemental tests will be developed, to be performed during the Preoperational Test Program, which will provide meaningful technical information in addition to established tests programs. The following procedures will be written or revised to incorporate the supplemental tests as developed by the BWR Owners' Group. The PSAR will be revised as appropriate.

1. TP 2.14 will be revised to incorporate the "integrated Reactor Pressure Vessel Level Instrument Test."
2. P59.2 will be revised to incorporate the "Integrated Containment Pressure Instrumentation Test."
3. New Technical Procedures (TP's) will be written to incorporate three RCIC System Tests.
  - a. Start-up of the RCIC system after a loss of alternating current (AC) power to the system.
  - b. Operation of the RCIC system with a sustained loss of AC power to the system.
  - c. Operation of the RCIC system to verify direct current power separation.