

Calvert Cliffs Nuclear Power Plant Unit 3

Combined License Application

Part 4: Technical Specifications and Bases

This COLA Part includes RCOLA generic text.
Site Specific Text is enclosed in braces:
{Site Specific Information}

Revision ~~4~~5
~~February~~June, 2009

PART 4 TECHNICAL SPECIFICATIONS AND BASES

Introduction

The U.S. EPR Generic Technical Specifications and Bases, provided in Chapter 16 of the U.S. EPR FSAR, are incorporated by reference.

Section C.III.1 of Regulatory Guide 1.206 states for Chapter 16 that:

10 CFR Part 52 requires that an applicant for a COL that wishes to reference an approved certified design listed in an appendix to 10 CFR Part 52, e.g., Appendix A to Part 52, Section IV.A.2.c, include as part of its application plant-specific TS, consisting of the generic and site-specific TS, that are required by 10 CFR 50.36 and 10 CFR 50.36a.

The U.S. EPR FSAR is not yet a certified design. As such, the Technical Specifications and Bases are undergoing Staff review and are evolving as that review progresses. In addition, the U.S. EPR COL applicants continue to work with AREVA NP to ensure that the U.S. EPR Technical Specifications are complete and accurate and encompass minor plant specific differences.

To simplify review of this COL Application and reinforce the consistency of this facility with the EPR design, a complete set of site specific Technical Specifications will not be included in this COLA part until after the Advanced SER for the U.S. EPR is issued by the NRC Staff.

The differences from Revision 0 (including supplement 1 and 2) of the U.S. EPR Design Certification, either due to Reviewer's Notes called out within the body of the U.S. EPR Generic Technical Specifications and Bases, or as identified by this applicant, are described and justified in the discussion below:

GENERIC CHANGES

These changes are made for all UniStar fleet COLAs.

1 LCO 3.3.1 PROTECTION SYSTEM (PS)

Generic Technical Specifications:

Table 3.3.1-2 includes a bracketed Reviewer's Note that states "The values specified in brackets in the Limiting Trip Setpoint column are included for reviewer information only. A plant specific setpoint study will be conducted. The values of the Limiting Trip Setpoint will then be replaced after the completion of the study."

Note (c) of Table 3.3.1.2 contains the sentence "The methodologies used to determine the as-found and the as-left tolerances are specified in a document controlled under 10 CFR 50.59."

Plant Specific Technical Specifications:

Table 3.3.1-2 is revised to remove the Reviewer's Note.

The last sentence is removed from note (c)

Justification:

A plant specific setpoint study cannot be completed until after selection of instrumentation, which may not occur until after approval of the COL application is granted. The values in the Limiting Trip Setpoint column represent the best information currently available. A plant specific setpoint study will be performed prior to fuel load to confirm acceptability of the Limiting Trip Setpoints. If that plant specific study identifies any necessary alterations to the table, they will be made at that time.

A license condition is provided in Part 10- Inspection, Test, and Analysis Acceptance Criteria (ITAAC) of this application to require an amendment to be submitted once the setpoint study is completed. The amendment will provide any revised plant specific values, and update Table 3.3.1-2.

Changes to plant documents must be controlled under 10 CFR 50.59. Therefore the statement in the note is unnecessary.

2 LCO 3.7.10 CONTROL ROOM EMERGENCY FILTRATION (CREF)

Generic Technical Specifications:

LCO 3.7.10, "Control Room Emergency Filtration (CREF)," Required Action B.1, Required Action D.1, and associated Reviewer's Note contain conceptual design information on toxic gas and hazardous chemicals.

Plant Specific Technical Specifications:

The conceptual design information and reviewers note regarding toxic gas and hazardous chemicals is deleted from the Plant Specific TS and Bases.

Justification:

Toxic gas and hazardous chemical protection for the CREF is not required based on the site-specific evaluation provided in Part 2 of this COL Application (FSAR Sections 2.2.3 and 6.4.4.).

3 LCO 3.7.15 SPENT FUEL STORAGE POOL BORON CONCENTRATION**Generic Technical Specifications:**

LCO 3.7.15, "Spent Fuel Storage Pool Boron Concentration," includes a Reviewer's Note that states "The design of the spent fuel storage racks is to be provided by the COLA applicant. The required boron concentration will be provided as part of the spent fuel rack design." The Boron concentration is provided as bracketed text.

Plant Specific Technical Specifications:

A plant specific LCO is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

4 LCO 3.7.16 SPENT FUEL STORAGE**Generic Technical Specifications:**

LCO 3.7.16 includes a Reviewer's Note that states "The design of the spent fuel storage racks is to be provided by the COLA applicant. The required spent fuel storage configuration will be provided as part of the spent fuel rack design."

Plant Specific Technical Specifications:

A plant specific LCO is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

5 TS 4.3.1 CRITICALITY**Generic Technical Specifications:**

TS 4.3.1, "Criticality," includes a Reviewer's Note that states "Storage rack uncertainties are discussed in the FSAR of COLA Section 9.1." In addition, TS 4.3.1.1.b, 4.3.1.2.b, and 4.3.1.2.c include brackets around the reference (i.e., FSAR) for the location of the description of the spent

and new fuel storage rack uncertainties and brackets the center-to-center distances in 4.3.1.1.c and 4.3.1.2.d.

Plant Specific Technical Specifications:

A plant specific LCO is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

6 TS 4.3.3 CAPACITY

Generic Technical Specifications:

TS 4.3.3, "Capacity," contains bracketed requirements for the COL application to provide the capacity for spent fuel storage in the spent fuel storage pool.

Plant Specific Technical Specifications:

A plant specific LCO is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

7 TS 5.1 RESPONSIBILITY

Generic Technical Specifications:

TS 5.1, "Responsibility," includes two Reviewer's Notes:

1. Titles for members of the unit staff shall be specified by use of an overall statement referencing an ANSI Standard acceptable to the NRC staff from which the titles were obtained, or an alternative title may be designated for this position. Generally, the first method is preferable; however, the second method is adoptable to those unit staffs requiring special titles because of unique organizational structures.
2. The ANSI Standard shall be the same ANSI Standard referenced in Section 5.3, Unit Staff Qualifications. If alternative titles are used, all requirements of these Technical Specifications apply to the position with the alternative title applied with the specified title. Unit staff titles shall be specified in the Final Safety Analysis Report or Quality Assurance Plan. Unit staff titles shall be maintained and revised using those procedures approved for modifying/revising the Final Safety Analysis Report or Quality Assurance Plan.

Plant Specific Technical Specifications:

TS 5.1 is revised to remove the Reviewer's Notes and replace them with a note requiring that the organizational positions listed in the Administrative Controls section have corresponding plant-specific titles specified in the Final Safety Analysis Report (FSAR).

Justification:

The use of generic titles in the TS, and the inclusion of plant-specific, corresponding titles in the FSAR, is consistent with Improved Standard Technical Specifications, Revision 3.1 of NUREG-1430 through NUREG-1434.

8 TS 5.2.2 UNIT STAFF**Generic Technical Specifications:**

TS 5.2.2, "Unit Staff," contains a Reviewer's Note specifying the number of non-licensed operators required for two units when both units are shutdown or defueled.

Plant Specific Technical Specifications:

TS 5.2.2, "Unit Staff," is revised to remove the Reviewer's Note.

Justification:

This is a single unit facility.

9 TS 5.3 UNIT STAFF QUALIFICATIONS**Generic Technical Specifications:**

TS 5.3, "Unit Staff Qualifications," contains a Reviewer's Note on the specification of the minimum qualifications of the unit staff.

Plant Specific Technical Specifications:

TS 5.3, "Unit Staff Qualifications," is revised to remove the Reviewer's Note.

Justification:

The unit staff qualifications standards are provided consistent with the FSAR, including FSAR Section 13.2, ~~for the stated exception regarding cold license operator candidates.~~

10 TS 5.5.11 GASEOUS WASTE PROCESSING SYSTEM RADIOACTIVITY MONITORING PROGRAM**Generic Technical Specifications:**

TS 5.5.11, "Gaseous Waste Processing System Radioactivity Monitoring Program," contains a Reviewer's Note for applicants incorporating outdoor liquid radioactive waste storage tanks in their design.

Plant Specific Technical Specifications:

TS 5.11, "Gaseous Waste Processing System Radioactivity Monitoring Program," is revised to remove the Reviewer's Note.

Justification:

The plant specific design does not include outdoor liquid radioactive waste storage tanks.

11 TS 5.5.15 CONTAINMENT LEAKAGE RATE TESTING PROGRAM**Generic Technical Specifications:**

TS 5.5.15, "Containment Leakage Rate Testing Program," contains a Reviewer's Note indicating that, as discussed in FSAR Section 6.2.6, the U.S. EPR has no penetrations that are classified as bypass leakage paths.

Plant Specific Technical Specifications:

TS 5.5.15, "Containment Leakage Rate Testing Program," is revised to remove the Reviewer's Note.

Justification:

The plant specific design has no penetrations that are classified as bypass leakage paths. This design information is reflected in FSAR Section 6.2.6 and does not need to be repeated in the TS.

12 TS 5.5.17 CONTROL ROOM ENVELOPE HABITABILITY PROGRAM**Generic Technical Specifications:**

TS 5.5.17, "Control Room Envelop Habitability Program," contains conceptual design information—identified by enclosure in double square brackets "[[. . .]]"—regarding hazardous chemicals.

Plant Specific Technical Specifications:

The conceptual design information regarding hazardous chemicals is deleted from the Plant Specific Technical Specifications.

Justification:

Toxic gas and hazardous chemical protection for the CREF is not required based on the site-specific evaluation provided in Part 2 of this COL Application (FSAR Sections 2.2.3 and 6.4.4.).

13 TS 5.6.1 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT**Generic Technical Specifications:**

TS 5.6.1, "Annual Radiological Environmental Operating Report," contains a Reviewer's Note to allow a single report submittal for all units at a multi-unit site.

Plant Specific Technical Specifications:

TS 5.6.1, "Annual Radiological Environmental Operating Report," is revised to remove the Reviewer's Note.

Justification:

The allowance for submittal of single reports for multiple units is not being pursued at this time.

14 TS 5.6.2 RADIOACTIVE EFFLUENT RELEASE REPORT**Generic Technical Specifications:**

TS 5.6.2, "Radioactive Effluent Release Report" contains a Reviewer's Note to allow a single report submittal for all units at a multi-unit site.

Plant Specific Technical Specifications:

TS 5.6.2, "Radioactive Effluent Release Report" is revised to remove the Reviewer's Note.

Justification:

The allowance for submittal of single reports for multiple units is not being pursued at this time.

15 BASES 3.3.1 PROTECTION SYSTEM (PS)**Generic Technical Specifications:**

- a. TS Bases 3.3.1, "Protection System (PS)," includes a Reviewer's Note in the Background section that describes the term Limiting Trip Setpoint and plant specific requirements when LTSPs are not included in Table 3.3.1-2.
- b. TS Bases 3.3.1, "Protection System (PS)," includes a Reviewer's Note in the Surveillance Requirements section that states "In order for a plant to take credit for topical reports as the basis for justifying Frequencies, topical reports must be supported by an NRC staff SER that establishes the acceptability of each topical report for that unit."
- c. TS Bases 3.3.1, "Protection System (PS)," includes a Reviewer's Note in the Surveillance Requirements section that states "The Notes in Table 3.3.1-1 requiring reset of the division to a predefined as-left tolerance and the verification of the as-found tolerance are only associated with SL-LSSS values. Therefore, the Notes are placed at the top of the LTSP column in the Table and applied to all Functions with LTSPs in the table. The Notes may be applied to specific SRs for the associated functions in the SR column only." This is followed by a second note that describes exclusions that would preclude the notes from being applicable. This third Reviewers Note concludes with the statement "Each licensee proposing to fully adopt this TSTF must review the potential SL-LSSS Functions to identify which of the identified functions are SL-LSSS according to the definition of SL-LSSS and their plant specific safety analysis. The two TSTF Notes are not required to be applied to any of the listed Functions which meet any of the exclusion criteria or are not SL-LSSS based on the plant specific design and analysis."

Plant Specific Technical Specifications:

- a. TS Bases 3.3.1, "Protection System (PS)" is revised to remove the Reviewer's Note from the background section.
- b. TS Bases 3.3.1, "Protection System (PS)," in the Surveillance Requirements section, is revised to remove the Reviewer's Note regarding topical reports.

- c. TS Bases 3.3.1, "Protection System (PS)," in the Surveillance Requirements section, is revised to remove the two Reviewer's Note regarding Notes (b) and (c) in Table 3.3.1-2.

Justification:

- a. As discussed for LCO 3.3.1, a plant specific setpoint study cannot be completed until after selection of instrumentation, which may not occur until after approval of the COL application is granted. That justification includes a license condition to amend the Technical Specifications once the setpoint study is completed. The Bases will be updated to support any changes to the LCO or to Table 3.3.1-2.
- b. The specified Frequencies in the plant specific TS 3.3.1 are based on the Frequencies specified in the generic TS 3.3.1. Topical reports are not credited as the basis for justifying Surveillance Frequencies.
- c. The application of the actions required by notes (b) and (c) to all the Limiting Trip Setpoints identified in Table 3.3.1-1 is acceptable until a plant specific setpoint study is completed. If that plant specific study identifies any necessary alterations to the table, they will be made at that time.

16 BASES 3.6.1 CONTAINMENT

Generic Technical Specifications:

TS Bases 3.6.1, "Containment," contains a Reviewer's Note, in the Bases for SR 3.6.1.1 indicating that Regulatory Guide 1.163 and NEI 94-01 contain acceptance criteria for containment leakage which may be reflected in the Bases.

Plant Specific Technical Specifications:

TS Bases 3.6.1, "Containment," is revised to remove the Reviewer's Note.

Justification:

The Containment Leakage Rate Testing Program is conducted as required by TS 5.5.15, "Containment Leakage Rate Testing Program," and U.S. EPR FSAR 6.2.6, "Containment Leakage Testing." U.S. EPR FSAR 6.2.6 was developed to be consistent with Regulatory Guide 1.163 and NEI 94-01. Therefore, the information reflected in the Reviewer's Note does not need to be included in the Bases.

17 BASES 3.7.10 CONTROL ROOM EMERGENCY FILTRATION (CREF)

Generic Technical Specifications:

TS Bases 3.7.10, "Control Room Emergency Filtration (CREF)," contains conceptual design information—identified by enclosure in double square brackets "[[. . .]]"—regarding hazardous chemicals, toxic gas detectors, and Control Room isolation for toxic gas.

Plant Specific Technical Specifications:

The detection of toxic gases and subsequent isolation of the Control Room Envelope (CRE) is not required and is not a part of the design basis. The results of the toxic chemicals evaluation in Section 2.2.3 did not identify any credible toxic chemical accidents that exceed the limits established in Regulatory Guide 1.78. As a result, toxic gas detectors and CRE isolation are not required. Therefore all the conceptual design information is deleted.

In addition, there are several statements within the bases that relate to the conceptual design information, but were not bracketed. These are described below:

The first sentence in the sixth paragraph of the Background:

Actuation of the CREF places the system in either of two separate states (emergency radiation state or toxic gas isolation state) of the emergency mode of operation, depending on the initiation signal.

is deleted. The last sentence in the seventh paragraph:

The actions taken in the toxic gas isolation state are the same, except that the signal switches the CREF to an isolation alignment to minimize any outside air from entering the CRE through the CRE boundary. Justification:

is deleted. The last sentence in the eighth paragraph:

The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state.

is also deleted.

Within the Actions section of the Bases, the last (third) paragraph in the discussion of Actions D.1 and D.2:

Required Action D.1 is modified by a Note indicating to place the system in the toxic gas isolation state with outside air isolated.

is deleted.

Justification:

Toxic gas and hazardous chemical protection for the CREF is not required based on the site-specific evaluation provided in Part 2 of this COL Application (FSAR Sections 2.2.3 and 6.4.4.).

18 BASES 3.7.12 SAFEGUARD BUILDING CONTROLLED AREA VENTILATION SYSTEM (SBVS)

Generic Technical Specifications:

TS Bases 3.7.12, "Safeguard Building Controlled Area Ventilation System (SBVS)," contains a Reviewer's Note in the Actions section for Required Action B.1, that indicates that the adoption of Condition B is dependent on a commitment from the licensee to have guidance available describing compensatory measures to be taken in the event of intentional or unintentional entry into Condition B. The discussion also includes conceptual design information—identified by enclosure in double square brackets "[[. . .]]"—regarding toxic chemicals.

Plant Specific Technical Specifications:

Bases 3.7.12, "Safeguard Building Controlled Area Ventilation System (SBVS)," is revised to remove the Reviewer's Note and modify the discussion for Required Action B.1 to include the required commitment. The revision also deletes the conceptual design information. The revised text is:

B.1

If the safeguard buildings or fuel building boundary is inoperable in MODE 1, 2, 3, or 4, the SBVS trains may not be able to perform their intended functions. Actions must be taken to restore an OPERABLE safeguard buildings and fuel building boundaries within 24 hours. During the period that the safeguard buildings or fuel building boundary is inoperable, appropriate compensatory measures consistent with the intent, as applicable, of GDC 19 and 10 CFR Part 100 shall be utilized to protect plant personnel from potential hazards such as radioactive contamination, smoke, temperature and relative humidity, and physical security. Preplanned measures shall be available and implemented upon entry into the condition to address these concerns regardless of whether the entry is intentional or unintentional entry. The 24 hour Completion Time is reasonable based on the low probability of a postulated accident occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the safeguard buildings or fuel building boundary.

Justification:

The site specific commitment provided is consistent with the requirements in the Reviewer's Note for adoption of the allowance provided in Condition B of TS 3.7.12, "Safeguard Building Controlled Area Ventilation System (SBVS)."

19 BASES 3.7.15 SPENT FUEL POOL BORON CONCENTRATION

Generic Technical Specifications:

Bases 3.7.15, "Spent Fuel Pool Boron Concentration," contains a Reviewer's Note stating that the design of the spent fuel storage racks is to be provided by the COLA applicant. and that the required boron concentration will be provided as a part of the spent fuel rack design.

Plant Specific Technical Specifications:

A plant specific LCO and Bases is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

20 BASES 3.7.16 SPENT FUEL STORAGE

Generic Technical Specifications:

Bases 3.7.16, "Spent Fuel Storage," contains a Reviewer's Note stating that the design of the spent fuel storage racks is to be provided by the COLA applicant. The required spent fuel storage configuration will be provided as a part of the spent fuel rack design.

Plant Specific Technical Specifications:

A plant specific LCO and Bases is not being developed at this time.

Justification:

As discussed in FSAR Section 9.1, The design and analysis for the new and spent fuel pool storage racks will be incorporated into a future revision of the U.S. EPR FSAR. At that time, the U.S. EPR FSAR will include appropriate generic Technical Specifications. If the generic Technical Specifications contain reviewer notes or bracketed information, it will be addressed in a subsequent revision to this COLA.

SITE SPECIFIC CHANGES

{These changes are unique to Calvert Cliffs Nuclear Power Plant Unit 3.

1 TS 4.1 SITE LOCATION

Generic Technical Specifications:

TS 4.1, "Site Location," contains a bracketed requirement for the COL application to provide site specific information for Section 4.1, "Site Location."

Plant Specific Technical Specifications:

The bracketed information will be replaced with the following site specific information:

The site for the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 is located on the western shore of the Chesapeake Bay in Calvert County, Maryland, about 10.5 miles southeast of Prince Frederick, Maryland. The site is approximately 45 miles southeast of Washington, DC, and 60 miles south of Baltimore, Maryland. The exclusion area boundary for CCNPP Unit 3 is a circle with a radius of 3324 feet. The exclusion area boundary establishes a radius of at least 2640 feet from potential CCNPP Unit 3 release points. .

Justification:

The site location information provided is consistent with the CCNPP Unit 3 FSAR description of site location.

2 BASES 3.7.8 ESSENTIAL SERVICE WATER (ESW) SYSTEM

Generic Technical Specifications:

GTS Bases 3.7.8, "Essential Service Water (ESW) System," contains a bracketed requirement in the Background section:

[The seismic Category 1 makeup necessary to support 30 days of post accident mitigation is site specific and details are to be provided by the Combined License applicant]

a related requirement in the LCO discussion :

[COL applicant to provide definition of OPERABLE makeup source.]

and provides a bracketed maximum ESW basin temperature in the discussion of Surveillance Requirement 3.7.8.2 of:

[90]°F

Plant Specific Technical Specifications:

The CCNPP Unit 3 Bases 3.7.8, "Essential Service Water (ESW) System," is revised, in the Background section, to remove the bracketed requirement and provide plant specific information. The following text is inserted:

The seismic Category 1 emergency makeup water supply, to the ESW cooling tower basins, necessary to support 30 days of post accident mitigation is provided by the safety-related Ultimate Heat Sink (UHS) Makeup Water System that draws water from the Chesapeake Bay. Chesapeake Bay water enters the UHS Makeup Water Intake Structure through an intake channel shared the Circulating Water System Makeup Intake Structure. The UHS Makeup Water Intake Structure houses four independent UHS Makeup Water System trains, one for each ESW division. Each train has one pump, a discharge check valve, and a pump discharge isolation motor operated valve, all housed in the UHS Makeup Water Intake Structure, plus the buried piping running up to and into the ESW pumphouse at the ESW cooling tower basin. Each UHS Makeup Water System pump is rated at 750 gpm.

To address the bracketed text in the LCO section, the bracketed text and the end of the preceding sentence “. . .with capability from makeup from an Operable source.” is replaced with the following:

. . .with capability for makeup from an OPERABLE source. An OPERABLE emergency makeup water source consists of one OPERABLE train of the UHS Makeup Water System capable of providing makeup water to its associated ESW cooling tower basin. Each UHS Makeup Water System train includes a pump, valves, piping, instruments and controls to ensure the transfer of the required supply of water from the Chesapeake Bay to its associated ESW cooling tower.

The brackets are removed from 90°F In the discussion of SR 3.7.8.2. The revised text is provided below:

SR 3.7.8.2

This SR verifies that the ESW System is available to cool the CCW System and EDG to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a postulated accident. With water temperature of the ESW basin ≤ 90 F, the design basis assumption associated with initial ESW temperature are bounded. With the water temperature of the ESW basin > 90 F, long term cooling capability of the Emergency Core Cooling System (ECCS) loads and Diesel Generators (DGs) may be affected. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES.

Justification:

The site specific information provided is consistent with the CCNPP Unit 3 FSAR Section 9.2 description of seismic Category 1 ESW System makeup source.}