

I. OVERVIEW / SIGNATURES

Facility: Waterford 3

Document Reviewed: OP-903-066 Change 4/Rev.: 7, OP-903-001 Change 6/ Rev 26

System Designator(s)/Description: Electric Breaker Alignment Check, Technical Specification Surveillance Logs

Description of Proposed Change:

The revision to this procedure changes the maximum allowed value for 480V Bus Voltage to 506 VAC during periods where the bus is fed from offsite power via the Startup Transformers. This limit was previously recommended by engineering input provided in ER-W3-2003-0662-000-00 and is consistent with information contained in the existing plant design basis.

OP-903-066 and OP-903-001 currently establish a limit of 500 VAC for allowable bus voltage. This allowable voltage is acceptable for normal plant operations, however it does not adequately allow for bus voltages expected during normal load conditions.

During refueling operations bus voltage is expected to be higher for the following reasons:

- a) 4160 V bus voltage is higher due to the fact that the AC voltage is directly tied to grid voltage through the startup transformers
- b) The 480 V buses are lightly loaded due to the shutdown of equipment. This results in less inductive voltage loss through the station service transformers feeding the 480 V switchgear and MCC's.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>05-009</u>)	Sections I, II, and IV required

Preparer: Joel P Rachal / [Signature] / Entergy Nuclear / DE E&IC 2/11/05
 Name (print) / Signature / Company / Department / Date

Reviewer: Casey Weber / [Signature] // Entergy Nuclear / DE E&IC 2/11/05
 Name (print) / Signature / Company / Department / Date

OSRC: R. A. Dodds / [Signature] / 4 Apr 2005
 Chairman's Name (print) / Signature / Date
 [Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.]

II. SCREENINGS

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM ENS-LI-113. (See Section 5.2[13] for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change. If obtaining NRC approval, document the LBD change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC. AND initiate an LBD change in accordance with NMM ENS-LI-113.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM ENS-LI-113. No further 50.59 review is required.

¹ If "YES," see Section 5.2[5]. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed. Attach the 50.54 Review.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? Yes
 No

If "yes," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR and why the proposed activity does or does not involve a new test or experiment not previously described in the FSAR. Discuss other LBDs if impacted. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.

Technical Specifications

The onsite AC power distribution system is described in Technical Specification 3/4.8 and TS Bases 3/4.8. Neither of these documents provides a specific requirement or bases for maximum bus voltage on the 480 VAC buses. This activity is below the level of detail provided in these documents.

FSAR and other Licensing Documents

The onsite distribution system is described in the FSAR section 8.3. Section 8.3.1.1.B describes the 480 V distribution systems. FSAR section 8.3.1.1.2.11.d describes the bus protection scheme for the 480 VAC buses. There is no information contained in the FSAR that provides a maximum operating limit for the 480 VAC buses.

FSAR Table 8.3-2 describes the ratings for various components in the onsite power distribution system. The table states that the 480 V motor control centers and their components are rated for a maximum of 600VAC which is within the limits described by this revision. The input rating for the SUPS is shown as 480 VAC. This is a nominal rating reflected in the FSAR, as design basis documentation shows that the SUPS is rated for 480 V +/- 10% or 528 V.

This review determined that there is no explicit change to any information contained in the FSAR. ER-W3-2003-0662-000-00 previously reviewed the specifications for equipment powered from the 480 VAC system. This ER concluded that higher bus voltages when the bus is lightly loaded are an expected condition when the bus is powered via the SUT transformer. This ER established that a value of bus voltage of 506 VAC is within the design specifications and capabilities of the equipment. The change in allowable bus voltage changes the manner in which the electrical system is controlled. This change is potentially nonconservative, so a 50.59 evaluation will be performed.

Test or Experiment

This activity is limited in scope to specifying acceptance criteria for 480VAC bus voltage. The scope does not involve the manipulation or modification of plant equipment and does not constitute a test or experiment.

4. References

LBDs/Documents reviewed via keyword search: Keywords:

*Autonomy Search on W3 documents using
50.59 Search*

*480 V Bus Voltage, Maximum bus voltage, max
bus voltage*

LBDs/Documents reviewed manually:

***FSAR Section 8.3, FSAR Table 8.3-2,
Technical Specification 3.4.8 and Technical
Specification Bases 3.4.8***

5. Is the validity of this Review dependent on any other change? Yes
 No

If "YES", list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

(List the required changes / submittals.)

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure ENS-EV-115, "Environmental Evaluations," and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed Change being evaluated:

- | | Yes | No | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, or stream? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any chemicals new or different from that previously discharged? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure ENS-EV-117, "Air Emissions Management Program," for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Cause materials or equipment to be placed or installed within the Security Isolation Zone? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the operation or field of view of the security cameras? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's telephone or security radio systems? |

Documentation for accepting any "yes" statement for these reviews will be attached to this 50.59 Review or referenced below.

III. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A.1.

A. Check the applicable boxes below. If any of the boxes are checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- The proposed activity meets all of the following criteria regarding design function per Section 5.5[1](a):

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended design function(s) of an SSC described in the FSAR will be accomplished.

- An approved, valid 50.59 Review(s) covering associated aspects of the proposed activity already exists per Section 5.5[1](b). Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.
- The NRC has approved the proposed activity or portions thereof per Section 5.5[1](c).
Reference: _____

B. Basis

Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions.

(Insert basis discussion.)

IV. 50.59 EVALUATION

License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation Yes
ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer No
 all questions below.

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident Yes
 previously evaluated in the FSAR? No

BASIS:

This activity changes the maximum limit for bus voltage for the 480 V distribution systems during low load conditions. The limit established is within the existing design capabilities of the equipment. Therefore all equipment fed from these buses would be expected to perform as previously analyzed. This activity would not cause the equipment to operate in a different manner or result in an equipment failure, therefore this activity would have no effect on the frequency with which accidents would occur as evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a Yes
 structure, system, or component important to safety previously evaluated in the FSAR? No

BASIS:

The allowable bus voltage being allowed is enveloped by the existing design specifications for the powered equipment. Since the equipment is still being operated within its design parameters no malfunction of equipment important to safety would be expected to occur as a result of this activity.

3. Result in more than a minimal increase in the consequences of an accident previously Yes
 evaluated in the FSAR? No

BASIS:

The revised allowable bus voltage is enveloped by the existing design specifications for the powered equipment. Since the equipment is still being operated within its design parameters, the ability of 480 V safety related loads remains unaffected. This equipment would still continue to function as analyzed in the FSAR. Therefore, the consequences of an accident previously evaluated remain unchanged.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, Yes
 system, or component important to safety previously evaluated in the FSAR? No

BASIS:

The equipment affected by this activity will still continue to operate within its established design parameters. ER-W3-2003-0662-000-00 has reviewed the specifications for equipment powered from the 480 V bus and has determined that 506 VAC is enveloped by the existing design basis for the equipment. There is no automatic overvoltage protection provided for the 480 V buses. In addition this increase in voltage will not affect other equipment such as thermal overloads and circuit breakers. An increase voltage will result in a reduction of running current and thus increase the margin to protective trips such as motor overloads or circuit breakers. The increase in voltage provides a 10% increase in starting current for motors loaded on the bus, however this is offset by a resultant 20% increase in starting torque which results in a smaller acceleration time. Studies performed on thermal overload sizing (Reference Waterford RAI response W3F1-2005-0004) show there is ample capacity in thermal overload timing to offset this effect as well.

This activity does not cause the malfunction of any equipment, or cause equipment to respond differently in the event of a malfunction.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? Yes
 No

BASIS:

This activity does not change the function or operation of equipment powered by the 480 V bus. Because the operation of equipment is not affected, its postulated response during normal or accident conditions does not change. Therefore, this change does not create the possibility for a different type of accident.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? Yes
 No

BASIS:

The 480 V buses and its associated loads will continue to be operated in a manner consistent with existing design basis information. There is no change to the existing power distribution scheme, equipment ratings or protective settings as a result of this change. Because the new allowed voltage is enveloped by the existing design specifications there will be no new malfunctions introduced than previously analyzed. Because all equipment is operated within its specifications, the consequences of a possible malfunction remain bounded by the existing analyses.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? Yes
 No

BASIS:

Specification 1564.25B Containment Electric Penetrations states that low voltage penetrations are rated for 600 VAC. The new bus voltage limit is enveloped by this specification. Therefore the design basis limit for the penetrations is not affected.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? Yes
 No

BASIS:

The new bus voltage limit has been determined from existing design basis information. The resultant limit was established by design review of this information. This is a manner similar to that established in the existing documentation. The compilation of this evaluation and the establishment of a new setpoint therefore does not use a new method of evaluation or code.

If any of the above questions is checked "YES", obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure ENS-LI-113.