

SAN ONOFRE UNIT 2 LICENSEE CONTROLLED SPECIFICATIONS

LIST OF EFFECTIVE PAGES

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3.3 INSTRUMENTATION

LCS 3.3.109 Turbine Overspeed Protection System (TOPS)

The Turbine Overspeed Protection Systems shall be OPERABLE with capability to operate one of the two Overspeed Trip Relays (OSTR1 or OSTR2) and one of the two Turbine Trip Relays (TTR1 or TTR2).

VALIDITY STATEMENT: Revs. 0, 3 and 5 effective 02/20/07 to be implemented within 60 days.

APPLICABILITY: MODE 1
MODES 2 and 3 with any MSIV or MSIV bypass valve not fully closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One stop valve or one control valve per high pressure turbine steam lead inoperable.	A.1 Restore valve to OPERABLE status.	72 hours
B. One reheat stop or one reheat intercept valve per low pressure turbine steam lead inoperable.	B.1 Restore valve to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A and/or B not met.	C.1 Close at least one valve in the affected steam lead.	6 hours
	<u>OR</u> C.2 Isolate the turbine from the steam supply.	6 hours
D. Required TOPS inoperable for reasons other than Conditions A or B.	D.1 Isolate the turbine from the steam supply.	6 hours

(continued)

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action(s) and/or associated Completion Time(s) of Condition C or D not met.	E.1 Perform a Cause Evaluation.	Within the time specified by the controlling site procedure.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.109.1 Verify by direct observation the movement of each of the following valves through one complete cycle from the running position.</p> <ol style="list-style-type: none"> 1. Four high pressure turbine stop valves. 2. Four high pressure turbine control valves. 3. Six low pressure turbine reheat stop valves. 4. Six low pressure turbine reheat control valves. 	<p>31 days for high pressure turbine valves</p> <p>24 months in the first four years of a 10-year inspection interval and then six months for the remainder of the 10-year inspection interval for low pressure turbine valves</p>
<p>SR 3.3.109.2 Perform a CHANNEL CALIBRATION of the Turbine Overspeed Protection System.</p>	<p>24 months</p>
<p>SR 3.3.109.3 Disassemble one of each of the above valves and perform a visual and surface inspection of the valve seats, disks, and stems and verifying no unacceptable flaws or corrosion.</p>	<p>40 months</p>

LCS 3.3.109 Turbine Overspeed Protection System

BASES

BACKGROUND

The Turbine Overspeed Protection System (TOPS) is designed to ensure that the turbine will not develop excessive overspeed which could generate missiles which could potentially impact and damage safety related components, equipment, or structures.

The TOPS is comprised of two digital overspeed trip systems, one in the Operator Automatic (OA) system and one in the Emergency Trip System (ETS). The OA normally provides the turbine controlling (governing) functions. For emergency overspeed conditions it also provides an overspeed protection trip. The ETS also provides an overspeed protection trip which is independent of the OA overspeed protection trip. The design of these overspeed protection trip systems is similar. Each system monitors turbine speed by means of three dedicated, independent turbine speed probes and each acts to trip the turbine if 2 (or more) of the monitored speed probes exceeds 107% of the rated turbine speed (1800 RPM). Each system has two means of determining an overspeed condition: hardware based and software based.

Each hardware based system is arranged to operate the two OverSpeed Trip Relays (OSTR) which actuate the dual overspeed trip channels where either will trip the turbine by tripping the turbine stop valves closed.

Each software based system is arranged to operate the two Turbine Trip Relays (TTR) which actuate the dual turbine trip channels where either will trip the turbine by tripping the turbine stop valves closed. Each software based system acts as a back-up to its associated hardware based system.

Each overspeed trip system can operate with a loss of one speed probe input. However, if the OA or ETS detects loss of 2 (or more) of its speed probe inputs, the turbine will be automatically tripped.

(continued)

BASES (continued)

APPLICABLE
SAFETY ANALYSES

Accidents analyzed in the UFSAR assume safety related components, equipment, and structures are not damaged by turbine developed missiles. The TOPS provides assurances that the integrity of the safety related components, equipment, and structures is maintained.

LCS

The TOPS must be OPERABLE to ensure that the integrity of safety related components, equipment, and structures is maintained.

APPLICABILITY

The TOPS is required to be OPERABLE whenever the system is credited for protection: MODE 1, MODE 2 with any MSIV or MSIV bypass valve not fully closed, and MODE 3 with any MSIV or MSIV bypass valve not fully closed.

ACTIONS

A.1

The stop valve and the control valve in each high pressure steam lead act as a redundant valve pair that will close when the turbine is tripped by the TOPS. If one of these valves per high pressure steam lead is inoperable, the risk of producing a missile that could cause damage to safety related components, equipment, or structures is increased due to loss of redundancy.

The Completion Time of 72 hours is based on the maximum allowable out of service time per week for redundant safety related systems.

B.1

The stop valve and the intercept valve in each low pressure turbine steam lead act as a redundant valve pair that will close when the turbine is tripped by the TOPS. If one of these valves per low pressure turbine steam lead is inoperable, the risk of producing a missile that could cause damage to safety related components, equipment, or structures is increased due to loss of redundancy.

The Completion Time of 72 hours is based on the maximum allowable out of service time per week for redundant safety related systems.

(continued)

BASES (continued)

ACTIONS
(continued)

C.1 OR C.2

If an inoperable turbine stop or control/intercept valve can not be restored to OPERABLE status within the Condition A and/or B Completion Time, the safety of the safety related components, equipment, or structures must be ensured by closing at least one valve in the affected steam lead or by isolating the turbine from the steam supply.

The Completion Time of 6 hours is adequate for planning and executing valve closure or turbine isolation.

D.1

A required TOPS inoperable for reasons other than Conditions A or B represents a loss of protection that increases the risk of producing a missile that could cause damage to safety related components, equipment, or structures above an acceptable value. The turbine must be isolated from the steam supply.

The Completion Time of 6 hours is adequate for planning and executing the turbine isolation.

E.1

Performance of a Cause Evaluation will provide an understanding of the circumstances leading to the TOPS inoperability and an understanding of the risks involved in continued plant operation.

SURVEILLANCE
REQUIREMENTS

SR 3.3.109.1

Observing the movement of the turbine valves will verify with a high degree of assurance that the valves will function when tripped shut by the TOPS.

The frequency of performing is per the turbine supplier requirements.

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.109.2

Performing a CHANNEL CALIBRATION of the Turbine Overspeed Protection System will verify with a high degree of assurance that the TOPS will trip the turbine during an overspeed condition.

The frequency of once per 24 months is per the turbine control supplier requirements.

SR 3.3.109.3

Disassembling and inspecting one of each valve will verify with a high degree of assurance that the valves will function when tripped shut by the TOPS.

The frequency of once per 40 months is per the turbine supplier requirements.

SONGS UNIT 3 SINGLE-SIDED

Operating License & Technical Specification/Licensee Controlled Specification

L06-012


Revise Unit 3 Operating License by removing pages and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and/or dates and contain marginal/lines indicating the areas of change. **Please direct any questions regarding filing of information to: (949) 368-6557 or email CDM Controlled Manuals Desk.**

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3.7-108-4	1	10/19/98	3.7-115-1	1	05/25/00
3.7-108-5	1	11/27/96	3.7-115-2	0	08/27/96
3.7-108-6	0	04/24/96	3.7-115-3	1	05/25/00
3.7-108-7	1	06/28/02	3.7-116-1	3	03/26/01
3.7-108-8	1	05/09/97	3.7-116-2	2	03/26/01
3.7-108-9	4	06/28/02	3.7-117-1	3	02/19/04
3.7-108-10	1	10/04/00	3.7-117-2	2	06/12/02
3.7-109-1	2	05/25/00	3.7-118-1	2	12/05/06
3.7-109-2	1	07/29/99	3.7-118-2	2	12/05/06
3.7-109-3	1	05/25/00	3.7-118-3	0	12/05/06
3.7-110-1	3	05/23/01	3.7-118-4	0	12/05/06
3.7-110-2	0	04/24/96	3.7-118-5	0	12/05/06
3.7-110-3	2	02/28/01	3.7-118-6	0	12/05/06
3.7-111-1	1	05/25/00	3.8-100-1	10	11/07/06
3.7-111-2	0	04/24/96	3.8-100-2	3	03/28/05
3.7-111-3	1	05/25/00	3.8-100-3	1	03/06/01
3.7-112-1	1	05/25/00	3.8-100-4	2	11/07/06
3.7-112-2	0	04/24/96	3.8-100-5	2	11/07/06

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3.8-100-8	4	11/22/99	4.0-100-1	1	12/01/97
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3.8-100-12	0	04/24/96	5.0-100-2	3	08/29/06
3.8-100-13	1	04/25/05	5.0-100-3	1	08/29/06
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3.8-102-1	0	01/03/00			
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3.8-102-3	0	01/03/00			
3.8-102-4	0	01/03/00			
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3.3 INSTRUMENTATION

LCS 3.3.109 Turbine Overspeed Protection System (TOPS)

The Turbine Overspeed Protection Systems shall be OPERABLE with capability to operate one of the two Overspeed Trip Relays (OSTR1 or OSTR2) and one of the two Turbine Trip Relays (TTR1 or TTR2).

VALIDITY STATEMENT: Revs. 0, 2 and 3 effective 02/20/07 to be implemented within 60 days.

APPLICABILITY: MODE 1
MODES 2 and 3 with any MSIV or MSIV bypass valve not fully closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One stop valve or one control valve per high pressure turbine steam lead inoperable.	A.1 Restore valve to OPERABLE status.	72 hours
B. One reheat stop or one reheat intercept valve per low pressure turbine steam lead inoperable.	B.1 Restore valve to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A and/or B not met.	C.1 Close at least one valve in the affected steam lead.	6 hours
	<u>OR</u> C.2 Isolate the turbine from the steam supply.	6 hours
D. Required TOPS inoperable for reasons other than Conditions A or B.	D.1 Isolate the turbine from the steam supply.	6 hours

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action(s) and/or associated Completion Time(s) of Condition C or D not met.	E.1 Perform a Cause Evaluation.	Within the time specified by the controlling site procedure.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.109.1 Verify by direct observation the movement of each of the following valves through one complete cycle from the running position.</p> <ol style="list-style-type: none"> 1. Four high pressure turbine stop valves. 2. Four high pressure turbine control valves. 3. Six low pressure turbine reheat stop valves. 4. Six low pressure turbine reheat control valves. 	<p>31 days for high pressure turbine valves</p> <p>6 months for low pressure turbine valves</p>
<p>SR 3.3.109.2 Perform a CHANNEL CALIBRATION of the Turbine Overspeed Protection System.</p>	<p>24 months</p>
<p>SR 3.3.109.3 Disassemble one of each of the above valves and perform a visual and surface inspection of the valve seats, disks, and stems and verifying no unacceptable flaws or corrosion.</p>	<p>40 months</p>

LCS 3.3.109 Turbine Overspeed Protection System

BASES

BACKGROUND

The Turbine Overspeed Protection System (TOPS) is designed to ensure that the turbine will not develop excessive overspeed which could generate missiles which could potentially impact and damage safety related components, equipment, or structures.

The TOPS is comprised of two digital overspeed trip systems, one in the Operator Automatic (OA) system and one in the Emergency Trip System (ETS). The OA normally provides the turbine controlling (governing) functions. For emergency overspeed conditions it also provides an overspeed protection trip. The ETS also provides an overspeed protection trip which is independent of the OA overspeed protection trip. The design of these overspeed protection trip systems is similar. Each system monitors turbine speed by means of three dedicated, independent turbine speed probes and each acts to trip the turbine if 2 (or more) of the monitored speed probes exceeds 107% of the rated turbine speed (1800 RPM). Each system has two means of determining an overspeed condition: hardware based and software based.

Each hardware based system is arranged to operate the two OverSpeed Trip Relays (OSTR) which actuate the dual overspeed trip channels where either will trip the turbine by tripping the turbine stop valves closed.

Each software based system is arranged to operate the two Turbine Trip Relays (TTR) which actuate the dual turbine trip channels where either will trip the turbine by tripping the turbine stop valves closed. Each software based system acts as a back-up to its associated hardware based system.

Each overspeed trip system can operate with a loss of one speed probe input. However, if the OA or ETS detects loss of 2 (or more) of its speed probe inputs, the turbine will be automatically tripped.

(continued)

BASES (continued)

APPLICABLE
SAFETY ANALYSES

Accidents analyzed in the UFSAR assume safety related components, equipment, and structures are not damaged by turbine developed missiles. The TOPS provides assurances that the integrity of the safety related components, equipment, and structures is maintained.

LCS

The TOPS must be OPERABLE to ensure that the integrity of safety related components, equipment, and structures is maintained.

APPLICABILITY

The TOPS is required to be OPERABLE whenever the system is credited for protection: MODE 1, MODE 2 with any MSIV or MSIV bypass valve not fully closed, and MODE 3 with any MSIV or MSIV bypass valve not fully closed.

ACTIONS

A.1

The stop valve and the control valve in each high pressure steam lead act as a redundant valve pair that will close when the turbine is tripped by the TOPS. If one of these valves per high pressure steam lead is inoperable, the risk of producing a missile that could cause damage to safety related components, equipment, or structures is increased due to loss of redundancy.

The Completion Time of 72 hours is based on the maximum allowable out of service time per week for redundant safety related systems.

B.1

The stop valve and the intercept valve in each low pressure turbine steam lead act as a redundant valve pair that will close when the turbine is tripped by the TOPS. If one of these valves per low pressure turbine steam lead is inoperable, the risk of producing a missile that could cause damage to safety related components, equipment, or structures is increased due to loss of redundancy.

The Completion Time of 72 hours is based on the maximum allowable out of service time per week for redundant safety related systems.

(continued)

BASES (continued)

ACTIONS
(continued)

C.1 OR C.2

If an inoperable turbine stop or control/intercept valve can not be restored to OPERABLE status within the Condition A and/or B Completion Time, the safety of the safety related components, equipment, or structures must be ensured by closing at least one valve in the affected steam lead or by isolating the turbine from the steam supply.

The Completion Time of 6 hours is adequate for planning and executing valve closure or turbine isolation.

D.1

A required TOPS inoperable for reasons other than Conditions A or B represents a loss of protection that increases the risk of producing a missile that could cause damage to safety related components, equipment, or structures above an acceptable value. The turbine must be isolated from the steam supply.

The Completion Time of 6 hours is adequate for planning and executing the turbine isolation.

E.1

Performance of a Cause Evaluation will provide an understanding of the circumstances leading to the TOPS inoperability and an understanding of the risks involved in continued plant operation.

SURVEILLANCE
REQUIREMENTS

SR 3.3.109.1

Observing the movement of the turbine valves will verify with a high degree of assurance that the valves will function when tripped shut by the TOPS.

The frequency of performing is per the turbine supplier requirements.

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.109.2

Performing a CHANNEL CALIBRATION of the Turbine Overspeed Protection System will verify with a high degree of assurance that the TOPS will trip the turbine during an overspeed condition.

The frequency of once per 24 months is per the turbine control supplier requirements.

SR 3.3.109.3

Disassembling and inspecting one of each valve will verify with a high degree of assurance that the valves will function when tripped shut by the TOPS.

The frequency of once per 40 months is per the turbine supplier requirements.
