PUBLIC SERVICE COMPANY OF COLORADO
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OSCAR R. LEE
VICE PRESIDENT

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November 4, 1983
Fort St. Vrain
Unit #1
P-83359

Darrell G. Eisenhut, Director
Division of Licensing
United States Nuclear Regulatory Commission
Washington, D.C. 20555

DOCKET NO. 50-267

SUBJECT: RESPONSE TO GENERIC LETTER 83-28

REFERENCE: (1) NRC Letter, Eisenhut to All Licensees, et.al, dated 7-08-83 (G-83256)

(2) PSC Letter, Warembourg to Eisenhut, dated 9-19-83 (P-83314)

(3) AEC Letter, Clark to Walker, dated 11-15-73 (Pre-G Letter)

Dear Mr. Eisenhut:

Enclosed, please find the Public Service Company of Colorado response to Reference (1), "Required Actions Based on Generic Implications of Salem ATWS Events (Generic Letter 83-28)".

A005
1/1

While this response addresses all Required Actions that were indicated as applicable to the Fort St. Vrain High Temperature Gas-Cooled Reactor (HTGR), it is our understanding that the need for protection against ATWS has not yet been evaluated for HTGRs.

If you have any questions, please contact Mr. Don Warembourg at (303) 785-2224.

Very truly yours,

O. R. Lee
Vice President
Electric Production

Enclosure

ORL/djm

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Public Service Company of Colorado	)	Docket No. 50-267
Fort St. Vrain Unit No. 1	)	

AFFIDAVIT

O. R. Lee, being duly sworn, hereby deposes and says that he is Vice President of Electrical Production of Public Service Company of Colorado; that he is duly authorized to sign the file with the Nuclear Regulatory Commission the attached response to Generic Letter 83-28; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

O. R. Lee
Vice President of Electrical Production

STATE OF Colorado)
) ss
COUNTY OF Denver)

Subscribed and sworn to before me, a Notary Public in and for State of Colorado on this 4th day of Novemer, 1983.

Notary Public

My commission expires April 3, 1984

ENCLOSURE TO P-83359

PUBLIC SERVICE COMPANY OF COLORADO
RESPONSE TO REQUIRED ACTIONS
BASED ON GENERIC IMPLICATIONS
OF SALEM ATWS EVENTS
(GENERIC LETTER 83-28)

ACTION 1.1: POST TRIP REVIEW (PROGRAM DESCRIPTION AND PROCEDURE)

Provided as Attachment 1 to this Enclosure is a copy of the current Station Manager Administrative Procedure for Post Trip Reviews at Fort St. Vrain. All Position Items associated with this Required Action are addressed in the body of the procedure.

ACTION 1.2: POST TRIP REVIEW-DATA AND INFORMATION CAPABILITY

Position Item 1 (Action 1.2)

The primary source of information used in assessing the sequence of events associated with an unscheduled reactor trip is the plant process computer. Characteristics of the "on-off" indication capabilities are described below in the specific responses to each Position Sub-Item.

1. The plant process computer main frame is a Control Data Corporation (CDC) Model 1784 with 64K RAM. System peripherals include four disk drives, two magnetic tape drives, one card reader/card punch, three printers, six CS-19 terminals utilized as "two-on-one" consoles (three consoles with two independent CRTs and one assignable keyboard at each console). A NOVA 3 unit is utilized as an interface with the CDC-1784 and the CS-19 terminals and line printers. Plant process input/output is performed utilizing CDC-1500 gear consisting of an analog-to-digital converter, a digital-to-analog converter, change-of-state cards (digital inputs), pulse counters, multiplexed signal field terminations, and a RS-232 Serial Board.

2. See Attachment 2 for a listing of the parameters monitored.

3. Digital input event times are time stamped at one second intervals. Events are listed in their order of occurrence with a two millisecond time discrimination.

4. Refer to Attachment 3. This attachment shows an alarm typer report including both digital and analog inputs, from an actual transient which occurred on December 29, 1982.

5. Back-up system tapes are generally made, as a minimum, on a daily basis Monday through Friday. From these back-up tapes, the Monday and Friday tapes are archived for a period of approximately six months. Plant technical staff are given an opportunity to specify back-up tapes that they feel should be retained for longer periods for further use prior to the tapes being re-used.

The system back-up tapes allow review of plant parameters at (1) 15 minute intervals for a period of six days prior to the time that the tape was saved and (2) 1 minute intervals for a period of 2 hours and 28 minutes from the time that the tape was saved. Additionally, post-trip review files and plant/computer event logs that were on the system at the time that the back-up tape was created are stored.

There is also a history file which retains plant data points at a maximum of 30 minute intervals. Rapid, short-term changes in plant power level (as determined by linear power channels), core moisture level, average region outlet temperature, helium circulator inlet temperature, regulating control rod position, and shim group average control rod position will cause fast storage of history sets at 30 second intervals until parameter rates of change are below pre-set limits. The history set files retain up to 654 time points and are down loaded to tape on a routine basis, transferred to mass storage tape volumes, and permanently retained.

Hard copy of alarm typer outputs and event logs are routinely retained for a period of approximately three months. Hard copy of post-trip files, plots, and Transient Review Committee findings are retained for the life of the plant.

6. Currently, the power source to the plant computer (data logger) is a Non-Class 1E, non-interruptible bus. A 120 VAC backup power source is provided from one of the essential 480V (transformed) motor control centers (Turbine Plant MCC3). A static transfer switch in the inverter provides a switch over to backup power in approximately 1/4 cycle.

Position Item 2 (Action 1.2)

The two major sources of analog information used for assessing the time history associated with unscheduled reactor shutdowns and the functioning of safety related equipment are the plant process computer and the control room strip chart recorders. Characteristics of the analog indication capabilities of these two sources are described separately in the specific responses to each Position Sub-Item below.

1. Equipment

   a. Plant Process Computer

      The response to Sub-Item 1 of Position Item 1 (Action 1.2) above provides a description of the plant process computer at Fort St. Vrain.

b. Control Room Strip Chart Recorders

There are currently 14 recorders in the Control Room which monitor safety related parameters and an additional 55 recorders which monitor other various plant parameters. Control of these recorders is governed by Fort St. Vrain Administrative Procedure, P-1.

2. Parameters Monitored

a. Plant Process Computer

Attachment 4 contains a complete listing of the analog parameters currently monitored by the plant process computer. Current "Warning" and "Alarm" setpoints for these parameters are provided on the right-hand side of the listing as applicable. Analog parameters monitored by the plant process computer have been selected by cognizant individuals from various departments to provide as representative a plant operating history as reasonably achievable. All analog parameters are sampled at five second intervals.

b. Control Room Strip Chart Recorders

Attachment 5 contains a listing of the strip chart recorders currently located in the Control Room and a description of the parameters monitored by each. The sampling rate of the parameters monitored by control room strip chart recorders is either continuous or such that trends for individual parameters can be analyzed depending on the possible rate of change involved. The basis for selection of the parameters monitored was in the original design of the plant. Additions and changes to the recorded parameters have been implemented as seen fit to include pertinent parameters.

3. Duration of Time History

a. Plant Process Computer

The plant process computer will automatically initiate Post-Trip Review files (both five second and one minute interval data) as a result of relay closure for the following situations:

Reactor Scram, Automatic

Loop Shutdown, Automatic

Helium Circulator Steam Turbine Trips

Turbine Generator Trip

Reactor Runback on Turbine Trip (Power Demand)

Turbine Setback Limit Runback

Stator Coolant Turbine Runback

Power/Load Unbalance Turbine Runback

Initial Pressure Regulator (First Stage Turbine) Runback

Closure of more than one relay during the period that a post-trip file is being saved will not interrupt storage of that post-trip file, nor will it result in the start of an additional post-trip file.

A post-trip file may also be initiated manually via operator action at a data entry terminal. If a post-trip file is manually initiated, that file request will terminate any automatically initiated post-trip file, and begin storage of the manually initiated post-trip file.

The following durations apply to the duration of time history for post-trip reviews:

Automatic Initiated Post Trip

1 minute file - 30 minutes before initiation and 10 minutes after initiation.

5 second file - 6 minutes before initiation and 10 minutes after initiation.

Manual Post Trip

No automatic post-trip file store in progress at time of initiation.

1 minute file - stores data for the previous 40 minutes from initiation.

5 second file - stores data for the previous 16 minutes from initiation.

Automatic post trip file store in progress at time of initiation.

Both the 1 minute and 5 second post-trip file, if not completed, are terminated and purged. The manually initiated post-trip files will store the previous 40 minutes of data from initiation time for the 1 minute file, and the previous 16 minutes data for the 5 second file.

b. Control Room Strip Chart Recorders

The duration of time history is continuous for most recorders. Exceptions include multi-point recorders (2 to 24 data points) which sample parameters with a frequency dependent upon the number of inputs.

4. Format for Displaying Data

a. Plant Process Computer

A Post-Trip Review file sample is attached (Attachment 6). This sample displays data from a single group of the 5 second Post-Trip file initiated as a result of the Loop 1 shutdown and two loop trouble scram occurring at 03:38:09 on 12/29/82 (also reference Attachment 3 from the same event). The file indicates that it was initated by Loop 1 Shutdown Automatic (XA-93223), as this trip preceded the tripping of the automatic scram breakers (K52 and K52).

b. Control Room Strip Chart Recorders

In general, the ranges of the recorders are the same as those of the instruments being recorded. This verifies that the full range of operation is recorded. Time history is ensured by surveillance on a daily basis.

5. Retention of Data

a. Plant Process Computer

Post-trip files initiated as a result of unscheduled reactor shutdowns are normally printed at the earliest possible time following the transient and if so, will be retained for the life of the plant as part of the Transient Review Committee findings.

b. Control Room Strip Chart Recorders

All recorder charts are transmitted to Record Storage on a monthly basis where they are then available, at a minimum, for the specific retention time identified in applicable regulatory guidance.

6. Power Source(s)

a. Plant Process Computer

See response to Sub-Item 6 of Position Item 1 (Action 1.2).

b. Control Room Strip Chart Recorders

Most of the control room strip chart recorders are powered from the Class IE, Non-Interruptible instrument buses. Some, however, are powered from the Non-Class IE, Interruptible Instrument Bus No. 3.

Position Item 3 (Action 1.2)

Duty reactor operators and other personnel, where appropriate, are interviewed in accordance with the Post-Trip Review procedure (Attachment 1), and written statements of the observations such as control room alarms, parameter indications, first-in-with-lockout alarms, etc. are provided. Additionally, there are various plant sub-systems that have been provided special diagnostic recording equipment to assist in analyzing means of improving plant performance and system reliability. The data from these sub-system recording devices are utilized as applicable, and pertinent records added to the transient file utilized by the Transient Review Committee.

Position Item 4 (Action 1.2)

It is anticipated that during the next refueling outage a second main frame CDC-1784 will be installed. This second main frame will serve as a back-up computer duplicating all functions of the existing unit. This will serve to increase the reliability of the Fort St. Vrain computer system.

ACTION 2.1: EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE (REACTOR TRIP SYSTEM COMPONENTS)

As part of the environmental qualification program for Fort St. Vrain (FSV), Public Service Company of Colorado (PSC), is engaged in a project that will highlight Class I electrical equipment required for safe shutdown on schematic drawings. Safe shutdown components include the reactor trip system components. Audits have recently been completed to verify that safety related components are indicated as such on the computerized Safety Related Component List (SR-6-2), the Process and Instrumentation (P & I) diagrams, Instrumentation and Control (IC) diagrams, and Instrumentation Block (IB) diagrams.

Established procedures involving the components required for reactor trip were prepared using Safety Related criteria. While the components may not be specifically labeled as Safety Related within these procedures, the procedures were prepared in accordance with the Fort St. Vrain Administrative Procedures and, therefore, incorporate appropriate guidance when addressing safety related work.

Contact with our Nuclear Steam Supply System (NSSS) vendor is on-going. In the case of Fort St. Vrain, however, the vendor interface program is different than would be expected for a plant for which several similar units exist. Since Fort St. Vrain is a unique plant, most of the information that is generated concerning plant operations and necessary improvements originate at FSV rather than with the NSSS vendor. As a result, we often work with the NSSS vendor to find a solution to a problem and then generate the documentation internally to revise plant drawings, vendor drawings, or operations and maintenance manuals.

Public Service Company of Colorado is currently participating in a Nuclear Utility Task Action Committee (NUTAC) sponsored by the Institute of Nuclear Power Operations (INPO) to address the vendor interface issue. Components in the reactor trip system that would not be included as part of the NSSS vendor's components (such as the Control Rod Drive Motor Control Centers), will be addressed under Position Item 2 of Action 2.2. In any event, the control rod circuitry at Fort St. Vrain uses contactors that fail in the safe mode to allow the control rods to drop and, therefore, a failure in the Control Rod Drive Motor Control Centers is not considered a safety issue.

ACTION 2.2: EQUIPMENT CLASSIFICAITON AND VENDOR INTERFACE (PROGRAMS FOR ALL SAFETY RELATED COMPONENTS

Position Item 1

The programs in force at Fort St. Vrain for ensuring that all components of safety-related systems remain capable of accomplishing required safety functions are described below in the specific responses to each Position Sub-Item.

1. Fort St. Vrain Adminstrative Procedure G-1 defines Safety Related items as follows: "Those plant systems, structures, equipment and components which are identified in the FSAR and as detailed and supplemented by available P & I, IB and IC diagrams and SR-6-2 and SR-6-8 lists" to include the following:

   a. Class I per the updated FSAR, Tables 1.4-1 and 1.4-3.

   b. Safe shutdown components per the updated FSAR, Tables 1.4-2 and 1.4-3.

2. Computerized data bases identify which components are safety related. Output from these data bases is available in the form of printouts or on-line via CRT's located throughout Fort St. Vrain offices, the Nuclear Engineering Division offices, and other Compar, orfices where this information may be required.

Update of the computerized data bases is controlled under Fort St. Vrain Engineering Procedures (ENG 1,2,3). Engineering Change Notices are prepared to update these data bases. Data sheets for the applicable data bases are included as a part of the Change Notice. Entry of the information into the data base is done as a routine part of the documentation updating that is initiated via the Change Notice procedures. Verification that the correct information has been entered into the data bases is performed at a later date by a person other than the one who originally entered the information.

3. Attachment 7 contains copies of current Fort St. Vrain and Station Manager Administrative Procedures that apply to maintenance, surveillance, parts replacement, modification, and testing activities associated with safety-related components. Processes by which station personnel use information from the computerized data bases that identify safety-related components are described in detail within the body of these procedures.

4. The Engineering Procedures control the updating and validation of the computerized data bases as discussed in Item 2.2.1.2, above. The same procedures require that the Change Notice that are required to update computerized data bases receive appropriate reviews and approvals. For Safety-Related changes, an independent review of the Change Notice is required. One of the independent reviewer's responsibilities is to review the documentation which will affect the data bases. In addition to the independent review, a Change Notice receives design interface reviews (for effect on other engineering disciplines), a licensing review, a review by the FSV Technical Services Department and a Quality Assurance review.

5. Public Service Company's Nuclear Engineering Division is currently engaged in an environmental qualification program to perform an audit of environmental records. This program, along with schedules for implementation, is discussed in PSC letter P-83178, (O.R. Lee to John T. Collins, dated May 17, 1983). Once this audit has been completed, we will have an auditable records system to demonstrate that the appropriate qualification testing has been done for existing Safety-Related components.

For future procurement, a design directive (DD-CQD-1), entitled "Component Qualification Directive for the Fort St. Vrain Nuclear Generating Station" is in the approval cycle. This document will provide Nuclear Engineering Division personnel the information necessary to determine what qualification testing for expected safety service conditions is necessary during the procurement of safety related components.

In addition to the above, all Purchase Requisitions involving Safety-Related material purchases are routed through the Quality Assurance Department for review to verify that the appropriate design verification and qualification testing criteria have been requested.

Position Item 2 (Action 2.2)

Public Service Company of Colorado is currently participating in a Nuclear Utility Task Action Committee (NUTAC) sponsored by the Institute of Nuclear Power Operations (INPO) to address the vendor interface issue. It is our intention to incorporate the results of the NUTAC as applicable to the Fort St. Vrain high temperature gas cooled reactor (HTGR). These results are expected to be available for approval during February, 1984.

ACTION 3.1: POST MAINTENANCE TESTING (REACTOR TRIP COMPONENTS)

Post-maintenance testing requirements for Reactor Trip System components are identical to those for all safety-related components at Fort St. Vrain. Refer to the response to Action 3.2.

ACTION 3.2: POST MAINTENANCE TESTING (ALL OTHER SAFETY-RELATED COMPONENTS)

Post-maintenance testing is required to be conducted on all safety-related components at Fort St. Vrain per the Fort St. Vrain Administrative Procedures. Such testing is required to demonstrate that the component is capable of performing its safety functions before being returned to service. If the component's normal operation demonstrates that it is capable of performing its safety functions, satisfactory in-service operation fulfills the testing requirements.

As a matter of course, vendor and engineering recommendations received are reviewed for impact on test and maintenance procedures, and appropriate test guidance is included in the procedures where required. Due to the negligible amount of vendor and engineering recommendations that have been received, however, a formal system for handling this type of information has never been developed. It is anticipated that the implementation of the NUTAC recommendations comprising the PSC response to Position Item 2 of Action 2.2 will include the formalization of such a program.

ACTION 4.1: REACTOR TRIP SYSTEM RELIABILITY (VENDOR-RELATED MODIFICATIONS)

This action does not apply to HTGR licensees.

ACTION 4.2: REACTOR TRIP SYSTEM RELIABILITY (PREVENTATIVE MAINTENANCE AND SURVEILLANCE PROGRAM FOR REACTOR TRIP BREAKERS)

This action does not apply to HTGR licensees.

ACTION 4.3: REACTOR TRIP SYSTEM RELIABILITY (AUTOMATIC ACTUATION OF SHUNT TRIP ATTACHMENT FOR WESTINGHOUSE AND B & W PLANTS

This action does not apply to HTGR licensees.

ACTION 4.4: REACTOR TRIP SYSTEM RELIABILITY (IMPROVEMENTS IN MAINTENANCE AND TEST PROCEDURES FOR B & W PLANTS)

This action does not apply to HTGR licensees.

ACTION 4.5: REACTOR TRIP SYSTEM RELIABILITY (SYSTEM FUNCTIONAL TESTING)

Position Item 1

The action associated with the Position Item does not apply to HTGR licensees.

Position Item 2

Fort St. Vrain is currently designed to permit periodic on-line testing of the reactor trip system. Therefore, this Position Item does not apply.

Position Item 3

Existing intervals for on-line functional testing required by the Technical Specifications are currently under review by Public Service Company of Colorado (PSC) and the Nuclear Regulatory Commission Region IV staff. The current testing frequency at Fort St. Vrain has been dictated by the Nuclear Regulatory Commission staff.

ATTACHMENT 1

TITLE: POST-TRIP REVIEWS

ISSUANCE AUTHORIZED BY	Milt McBride		
PORC REVIEW	PORC 541 NOV 3- 1983		EFFECTIVE DATE 11-3-83

1.0 PURPOSE

The purpose of this procedure is to provide a systematic method for diagnosing the causes of reactor trips, ascertaining the proper functioning of safety-related and other important equipment prior to restart, and making the determination that the plant can be restarted safely. This procedure or portions thereof may also be used for transients other than reactor trips at the Station Manager's option.

2.0 APPLICABILITY

Post-trip reviews establish a consistent, comprehensive, and systematic method to determine the causes and conditions associated with reactor trips. This documented review should help ensure events that may have had an impact on the cause of the trip and subsequent equipment response are identified and thoroughly understood. The review results will permit a determination to be made as to the readiness of the plant to safely return to operation.

3.0 GENERAL REQUIREMENTS

The Station Manager has the overall responsibility for ensuring appropriate analysis has been performed for each trip. He or his designate will make the decision to start up the reactor.

4.0 PROCEDURE

4.1 DEFINITIONS

4.1.1 Cause - the root initiator of an event (usually an equipment malfunction, procedural error, or personnel error). When the cause is corrected, the possibility of the event recurring is minimized.

4.1.2 Data Package - a collection of information used to conduct an investigation and review of an unscheduled reactor trip. The data package includes a completed Post-Trip Review Report, hard-copy recorded data, and written statements from personnel involved in the event.

4.1.3 Analysis - a systematic approach to the identification of problems and selection of appropriate corrective measures. Individuals participating in post trip reviews should be trained in analyses.

4.1.4 Results Engineer - an on-call individual possessing a bachelor of science degree in engineering or related science or equivalent plus training in power plant systems, integrated plant operation, and transient analysis. The Results Engineer shall not be a member of the Operations shift at the time of the reactor trip.

4.1.5 Technical Advisor - an on-call individual possessing a bachelor degree or equivalent in a scientific or engineering discipline with specific training in plant design and response and analysis of the plant for transients and accidents.

4.1.6 Preliminary Safety Assessment - a systematic review of events preceding and following a reactor trip conducted to determine if the plant exceeded design specifications.

4.1.7 Reactor Trip (scram) - a manual or automatic insertion of control rods into the reactor core to interrupt the reactor's ability to sustain a chain reaction and the subsequent plant response.

4.1.8 Alarm Printout - a hard-copy display of the chronological sequence of major plant alarms, trips, and actuations.

4.1.9 Transient Review Committee (TRC) Membership

The membership of the TRC shall be:

Chairman (Superintendent of Nuclear Betterment Engineering)
Results Engineer
Technical Advisor
Operations
Training
Others at the option of the TRC Chairman

4.2 RESPONSIBILITIES

The responsibilities listed below are as they pertain to the review of unscheduled reactor trips.

4.2.1 Results Engineer/Technical Advisor

The Technical Advisor and Results Engineer are responsible for the investigation phase of the post trip review. The Technical Advisor shall emphasize cause of occurrence, Technical Specification compliance, and assessment of plant conditions to mitigate and minimize the effects of the incident. The Results Engineer shall emphasize the cause and effect of the incident and overall plant performance during and after the transient.

4.2.2 Plant Personnel

Plant personnel involved in the unscheduled trip are responsible for providing Results Engineer with objective comments that describe their observations of and/or participation in the trip event.

4.2.3 Transient Review Committee

The Transient Review Committee (TRC) is responsible for reviewing the unscheduled reactor trip report and applicable data. The TRC shall review the post-trip report prior to restart if the cause of the reactor trip is not positively known or if the plant response demonstrated an abnormal behavior that has not been corrected or results in Technical Specification start-up constraints.

4.2.4 Station Manager

The Station Manager or his designate is responsible for making the decision to start up the reactor.

4.2.5 Transient Review Committee Chairman

The Transient Review Committee Chairman is responsible for ensuring lessons learned from unscheduled reactor trip events are used to improve plant safety and reliability and to transfer in-house experience of generic interest to the industry. The Chairman of the Transient Review Committee shall be the Superintendent of Nuclear Betterment Engineering.

4.3 INSTRUCTIONS

4.3.1 General

The post-trip review process is a five-step process. The five steps are as follows:

Step	Responsibility
1) Data collection	Results Engineer/ Technical Advisor
2) Trip investigation	Results Engineer/ Technical Advisor
3) Trip investigation review	TRC
4) Restart decision	Station Manager
5) Identification of lessons learned - follow-up actions	TRC Chairman

a) Objective

The overall objective of the review is to determine the acceptability of performing a reactor restart. The Post-Trip Review Report, (Attachment SMAP-7A), guides and documents the trip review process.

b) Initiation

Any unscheduled reactor trip will require a post-trip review process to be initiated. The Results Engineer and the Technical Advisor will be notified by the Shift Supervisor and, if not already on site, will report to the site to participate in the investigation process. The post-trip review shall be initiated after plant conditions have stabilized. The post-trip review shall not distract the Shift Supervisor or Operations personnel from their primary responsibility of monitoring plant parameters and maintaining the plant in a safe condition.

4.3.2 Data Collection

a) Purpose

The purpose of the data collection phase of the trip review is to gather sufficient data to reconstruct the transient from prior to the initiating signal until plant parameters have stabilized.

b) Hard Copy Information

The Results Engineer/Technical Advisor are responsible for collecting the required hard copy information. Part 2, Section II, A, B and C of Attachment SMAP-7A, lists the information that shall be collected.

c) Operator Statements

After the plant is in a safe, stable condition, each individual involved in the trip event (e.g., Reactor Operator, Maintenance Technician, etc.) shall provide the Results Engineer with a written statement concerning his/her involvement in the reactor trip. These handwritten statements shall be restricted to facts concerning the events, and the facts should be listed chronologically, if possible. The statements should be written to include the following type of information:

(1) plant conditions prior to the trip (for Maintenance/Results personnel this will include the status of maintenance or testing)

(2) first indication that a problem existed

(3) individual's actions as a result of the indications

(4) subsequent indications and plant response including manual actions

(5) noted equipment malfunctions or inadequacies

(6) procedure deficiencies identified during the situation

The written statements should be included in the reactor trip data package to assist in the event reconstruction.

In some cases, it may be appropriate for the Technical Advisor/Results Engineer to interview personnel involved in the reactor trip or for the Technical Advisor/Results Engineer to conduct a critique with all personnel involved in the trip. If either of these techniques is used the type of information listed above should be obtained.

d) Post-Trip Review Report Data

The Results Engineer or Technical Advisor shall complete Part 1 and Part 2 of the Post-Trip Review Report documenting the initial plant conditions and the plant response. Information for the Post-Trip Review Report shall come from a compilation of available data.

e) Post-Trip Review Data Package

The Results Engineer or Technical Advisor shall collect the hard-copy information, written statements, and the Post-Trip Review Report. This will be the post-trip review data package and shall be used during the post-trip investigation.

4.3.3 Post-Trip Investigation

a) Purpose and Discussion

The Technical Advisor and the Results Engineer are responsible for the initial post-trip investigation. The purpose of this investigation is to determine the cause of the trip and/or to assess the plant's readiness to return to operation.

b) Event Reconstruction

The Technical Advisor and the Results Engineer will reconstruct the transient in Part 4 of the Post-Trip Review Report using the collected data. A chronological description of the event will be developed. Selected plant parameters should be incorporated into the chronological list of events in the reconstruction.

c) Comparison

When possible, the reconstruction shall be compared with similar transients described in the Final Safety Analysis Report or previous data packages for similar trips. This will assist in identifying abnormal or degraded indications. The event reconstruction shall also be compared with the required procedure actions to determine the affect of the procedure actions on the plant response.

d) Analysis and Evaluation

The Technical Advisor and the Results Engineer shall analyze and evaluate the event and event comparison to determine the cause of the trip and the following:

(1) if all major safety-related and other important equipment involved in the trip operated as anticipated or expected

(2) if the trip/transient caused any detrimental effects on plant equipment

(3) if it is acceptable to restart the reactor

The Technical Advisor and the Results Engineer shall look beyond the obvious indications to diagnose the cause of the trip and evaluate the plant response. Dependent upon the event, available information, such as: (1) abnormal indications or degraded trends in equipment performance, (2) events occurring out of the normal or anticipated sequence, (3) failed or degraded response of equipment to control signals, (4) unusual chemistry results or radiation readings, and (5) unanticipated alarms will be evaluated. The actual or suspected cause of the trip and any abnormal or degraded indications identified during the transient shall be documented in Parts 4 through 6 of the Post-Trip Review Report.

e) Preliminary Safety Assessment

A preliminary safety assessment of the trip and subsequent plant response shall be performed by the Technical Advisor and the Results Engineer. The maximum and minimum values of selected parameters shall be compared with their design specifications. Parts 2 and 7 of the Post-Trip Review Report will document this safety assessment.

f) Trip Classification

(1) Based on the results of the analysis and evaluation of the plant trip and subsequent response, the Technical Advisor and the Results Engineer shall classify the event as one of the following conditions:

(a) Condition I — The cause of the trip is positively known and has been corrected; all safety-related and other important equipment functioned properly during the trip.

(b) Condition II — The cause of the trip is positively known and has been corrected; some safety-related and/or other important equipment did not function properly; however, the malfunction has been corrected or a Technical Specification constraint does not prohibit a start-up.

(c) Condition III — The cause of the trip is not positively known and/or some safety-related and/or other important equipment functioned in an abnormal or degraded manner during the trip and the malfunction has not been corrected or a start-up is prevented due to Technical Specification constraints.

The Shift Supervisor shall review and approve the event classification.

If the Shift Supervisor and Results Engineer/Technical Advisor cannot agree on classification of the transient, the event will be referred to the TRC.

4.3.4 Investigation Review

a) CONDITION I AND II EVENTS

Condition I or II events shall be reviewed by the TRC during the next regularly scheduled TRC meeting. This review is not required prior to reactor restart.

b) CONDITION III EVENT

A Condition III event shall be reviewed by the TRC before a reactor restart is commenced.

The TRC will analyze the event reconstruction, emphasizing the determination of the cause of the trip and the resolution of abnormal or degraded indications. The TRC shall use available expertise to resolve questions concerning the cause and plant response. Sources of expertise that should be considered by the TRC include consultants, vendor engineers, on-site engineering staff, Nuclear Engineering Division staff, and other experienced Operations and Maintenance personnel. The TRC shall supply the following information to the Station Manager:

(1) the actual or most probable cause of the trip or

(2) the maintenance and testing necessary before reactor restart including additional measures to verify the most probable cause

(3) additional monitoring or trending required during and/or after reactor restart

(4) necessary briefings to Operations and/or Maintenance personnel concerning specific equipment indications or possible malfunctions

(5) the conditions necessary for a reactor restart

4.3.5 Restart Decision

a) CONDITION I & II EVENTS

The Shift Supervisor shall inform the Station Manager that the unscheduled reactor trip was classified as a Condition I or II event.

b) CONDITION III EVENT

The Shift Supervisor shall inform the Station Manager when an event is classified Condition III or when the classification cannot be agreed upon. The TRC shall recommend to the Station Manager the required actions and conditions necessary to perform a reactor restart.

c) Station Manager Evaluation and Decision

The Station Manager shall evaluate the recommendation made by the personnel performing the trip investigation and, if necessary, the investigation review. His decision to restart the reactor shall include the following considerations:

(1) The cause of the trip is known and corrected.

(2) Major safety-related and other important equipment functioned properly during the transient, or corrective maintenance and satisfactory testing has been performed or will be completed when plant conditions permit.

(3) The plant response during the trip has been analyzed and the plant responded as anticipated, or all significant abnormalities are understood and corrected as necessary to ensure compliance with the Technical Specifications.

If the cause of the trip has not been positively identified, the Station Manager shall determine if the cause and the circumstances surrounding the cause have been analyzed adequately. The recommendations of the TRC shall be considered in the decision for reactor restart.

4.3.6 Transient Review Committee

The post-trip review data package shall be sent to the Transient Review Committee Chairman. The post-trip review data package should be screened to determine its generic significance to plant safety and reliability. Following the screening process, the event may be evaluated to determine additional corrective actions (e.g., procedure changes, design modifications) and/or lessons learned for Operator and plant staff training and for dissemination to the industry.

4.3.7 Retention

The post-trip review data package shall be transmitted to Technical Services for review and transmittal to Records Storage to be retained for the life of the plant.

5.0 REFERENCES

None.

6.0 ATTACHMENTS

SMAP-7A, Post Trip Review

PUBLIC SERVICE COMPANY
OF COLORADO

FORT ST. VRAIN
NUCLEAR GENERATING STATION

POST TRIP REVIEW

PREPARED BY: _____
Technical Advisor

_____
Results Engineer

PART 1 INITIAL NOTIFICATION

I. Idenfication of transient

A. Date of occurrence: _____

Time: _____

B. Description of transient:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

C. Cause of transient:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

PART 2 PRELIMINARY INVESTIGATION

I. Initial Conditions

A. Reactor Power:_____

B. Reactor Pressure:_____

C. ISS Position: (Circle)

Start-up

Low Power

Power

D. Reactor Mode Switch: (Circle)

Off

Fuel Loading

Run

E. Turbine Load:_____

F. Boiler Feed Pumps Operating (Circle) A B C

G. PPS Trips (List)

_____

_____ _____

H. Overall Plant Controls

1. Flux Controller: Manual Local Set Remote Set
MC-1199

2. Circulator Speed (Steam Turbine)

a. Circ. 1A: SC-2105 — Manual | Local Set | Remote Set

b. Circ. 1B: SC-2111 — Manaul | Local Set | Remote Set

c. Circ. 1C: SC-2106 — Manual | Local Set | Remote Set

d. Circ. 1D: SC-2112 — Manual | Local Set | Remote Set

3. Circulator Speed (Water Turbine)

a. Circ. 1A: SC-2109 — Manual | Local Set | Remote Set

b. Circ. 1B: SC-2115 — Manual | Local Set | Remote Set

c. Circ. 1C: SC-2110 — Manual | Local Set | Remote Set

d. Circ. 1D: SC-2116 — Manual | Local Set | Remote Set

4. Depressurization Control

a. Loop 1: PC-22129 — Manual | Local Set | Remote Set

b. Loop 2: PC-22130 — Manual | Local Set | Remote Set

5. Feedwater Flow

a. Loop 1: FC-2205 — Manual | Local Set | Remote Set

b. Loop 2: FC-2206 — Manual | Local Set | Remote Set

I. Off-Normal Status of Safety (Backup)

Systems	Details
1. PPS:	
2. Emergency Diesel Generator	
a. A Set:	
b. B Set:	
3. ACM:	
4. Emergency Feedwater:	
5. Backup Bearing Water:	

J. Testing in Progess:

II. Trip (Transient)

A. Obtain a Printout from:

___ 1. Alarm Printer

___ 2. Post Trip Review

___ 3. Fast Post Trip Review

___ 4. All other data required in accordance with APM P-11 (optional)

B. Obtain transient monitor plots of pertinent plant parameters.

C. Obtain pertinent logs from the past 24-hours (Shift Supervisor, Reactor Operator, Equipment Operator, Auxiliary Tender, Chemistry, etc.).

D. Safety System Actuation and Performance

1. PPS

a. Type of Trip:_____

b. Time:_____

2. Emergency Diesel Generators (Circle)

a. Start: Yes No

b. Load: Yes No

3. ACM (Give Details):

_____

_____

E. Control System Actions

1. Reactor Runback (Yes/No):_____

a. Power From:_____ To:_____

b. Time From:_____ To:_____

2. Turbine Runback (Yes/No):_____

a. Load From:_____ To:_____

b. Time From:_____ To:_____

F. Manual Actions

1. Were any overall plant controls removed from remote set to either manual or local set?: ___

_____

_____

_____

2. Other manual actions:_____

_____

_____

_____

G. Was the RERP initiated? (Circle) Yes No

Details:_____

_____

_____

_____

III. Transient Data for Pertinent Plant Parameters

	MAX	MIN
Reactor Pressure	_____psia	_____psia
Circ. Inlet Temp. A	_____°F	_____°F
Circ. Inlet Temp. B	_____°F	_____°F
Circ. Inlet Temp. C	_____°F	_____°F
Circ. Inlet Temp. D	_____°F	_____°F
Avg. Region Outlet Temp.	_____°F	_____°F
Main Stm. Temp. Loop 1	_____°F	_____°F
Main Stm. Temp. Loop 2	_____°F	_____°F
Reheat Stm. Temp.	_____°F	_____°F
Circulator Speed A	_____RPM	_____RPM
Circulator Flow A	_____#/HR	_____#/HR
Circulator Speed B	_____RPM	_____RPM
Circulator Flow B	_____#/HR	_____#/HR
Circulator Speed C	_____RPM	_____RPM
Circulator Flow C	_____#/HR	_____#/HR
Circulator Speed D	_____RPM	_____RPM
Circulator Flow D	_____#/HR	_____#/HR
Main Stm. Pressure Loop 1	_____PSIG	_____PSIG
Main Stm. Pressure Loop 2	_____PSIG	_____PSIG
Feedwater Flow Loop 1	_____#/HR	_____#/HR
Feedwater Flow Loop 2	_____#/HR	_____#/HR
Feedwater to Econ. Temp.	_____°F	_____°F

PART 3 PLANT PERSONNEL STATEMENTS

Attach a written statement from each person associated with the trip concerning the events that preceded and followed the trip. The statement should describe the trip event sequence as that individual remembers it. Include the plant conditions prior to the trip, indications that a problem existed, actions as a result of those indications, noted equipment malfunctions or inadequacies, and any identified procedure deficiencies. Also include any information considered important to review this transient.

List all Operations and Health Physics personnel who were on shift at the time of the transient:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

PART 4 SEQUENCE OF EVENTS

Sequence of events including unexpected and/or unexplained aspects of transient behavoir:

Time	Event Description

PART 5 PROBABLE CAUSE OF TRIP

PART 6 INDENTIFICATION OF SYSTEMS WITH INADEQUATE PERFORMANCE

A. Discuss the nature of the deficiency:

B. Identification of need for any follow-up analysis:

_____

_____

_____

_____

PART 7 PRELIMINARY SAFETY ASSESSMENT

List all Tech. Spec. LCO's which were violated:

_____

_____

_____

_____

PART 8 EVENT CONDITION

Classify trip as a Condition I, II, or III according to the guidelines in the procedure.

The event on _____ (DATE) at ___:___ (TIME) is a condition _____ (I II III).

Signature indicates agreement with condition:

_____ _____/_____
TECHNICAL ADVISOR DATE TIME

_____ _____/_____
RESULTS ENGINEER DATE TIME

_____ _____/_____
SHIFT SUPERVISOR DATE TIME

Notification

Station Manager notified of Condition event classification.

Comments: _____

_____

_____

_____ _____/_____
SHIFT SUPERVISOR DATE TIME

PART 9 PERMISSION TO START-UP

Condition I, II Events

Station Manager notified and permission granted to start-up the reactor:

_____ _____/_____
SHIFT SUPERVISOR DATE TIME

Comments: _____

_____

_____

Condition III, Events

TRC review of the event which occurred on _____, meeting number _____. Response to Items 1 through 5 of Section 4.3.4b) attached.

_____ _____/_____
TRC CHAIRMAN DATE TIME

Permission is granted to start-up the reactor:

_____ _____/_____
STATION MANAGER DATE TIME

Comments: _____

_____

_____

ATTACHMENT 2

64	0	NSH-1133-6 SCRAM RX POWER HIGH
	1	NSH-1135-4 SCRAM RX POWER HIGH
	2	PSH-1106-1 SCRAM RX PRESS HIGH
	3	PSL-1109-1 SCRAM RX PRESS LOW
	4	MAH-9369 LP 1 SHUTDN MOISTURE HI
	5	MAH-9370 LP 2 SHUTDN MOISTURE HI
	6	SAH-9361 A CIRC TRIP SPEED FX HI
	7	SAL-9363 A CIRC TRIP SPEED PG LO
	8	PAL-93355 A CIRC TRIP PGM PR LOW
	9	PAH-93329 A CIRC TRIP PENET HI
	10	XCR-93137 A CIRC TRIP AUTOMATIC
	11	HS-93311 A CIRC TRIP MANUAL
	12	SAH-9367 B CIRC TRIP SPEED FX HI
	13	SAL-9369 B CIRC TRIP SPEED PG LO
	14	PAL-93357 B CIRC TRIP PGM PR LOW
	15	PAH-93327 B CIRC TRIP PENET HI
	16	XCR-93139 B CIRC TRIP AUTOMATIC
	17	HS-93335 B CIRC TRIP MANUAL
	18	SAH-9365 C CIRC TRIP SPEED FX HI
	19	SAL-9367 C CIRC TRIP SPEED PG LO
	20	PAL-93356 C CIRC TRIP PGM PR LOW
	21	PAH-93326 C CIRC TRIP PENET HI
	22	XCR-93138 C CIRC TRIP AUTOMATIC
	23	HS-93334 C CIRC TRIP MANUAL
	24	SAH-9368 D CIRC TRIP SPEED FX HI
	25	SAL-93100 D CIRC TRIP SPEED PG LO
	26	PAL-93358 D CIRC TRIP PGM PR LOW
	27	PAH-93328 D CIRC TRIP PENET HI
	28	XCR-93150 D CIRC TRIP AUTOMATIC
	29	HS-93336 D CIRC TRIP MANUAL
	30	PDSL-2133 LOOP 1 BRG WTR DP LOW
	31	PDSL-2134 LOOP 2 BRG WTR DP LOW
	32	SPARE CABLE 27810
	33	PDS-2179 A CIRC STM/STMWTR DRAIN
	34	FSH-21137 A CIRC BUBH FLOW HIGH
	35	PAL-93103 A CIRC TRIP BEARNG WTR
	36	PAL-93107 A CIRC TRIP BUF/MIDBUF
	37	PDAL-93269 A CIRC TRIP DRAIN MAL
	38	SPARE CABLE 27813
	39	PDS-2181 B CIRC STM/STMWTR DRAIN
	40	FSH-21139 B CIRC BUBH FLOW HIGH
	41	PAL-93105 B CIRC TRIP BEARNG WTR
	42	PAL-93109 B CIRC TRIP BUF/MIDBUF
	43	PDAL-93271 B CIRC TRIP DRAIN MAL
	44	SPARE CABLE 27816
	45	PDS-2180 C CIRC STM/STMWTR DRAIN
	46	FSH-21138 C CIRC BUBH FLOW HIGH
	47	PAL-93104 C CIRC TRIP BEARNG WTR
	48	PAL-93108 C CIRC TRIP BUF/MIDBUF
	49	PDAL-93270 C CIRC TRIP DRAIN MAL
	50	SPARE CABLE 27820
	51	PDS-2182 D CIRC STM/STMWTR DRAIN
	52	FSH-21140 D CIRC BUBH FLOW HIGH
	53	PAL-93106 D CIRC TRIP BEARNG WTR
	54	PAL-93110 D CIRC TRIP BUF/MIDBUF

1229

STATION	POINT	POINT DESCRIPTION
	55	PSL-[illegible] TRIP DRAIN HDR
	56	PAH-[illegible] STM GEN PENET HIGH
	57	PAH-[illegible] STM GEN PENET HIGH
	58	TAL-[illegible] STEAM TEMP LOW
	59	TAL-9374 EP 2 SR STEAM TEMP LOW
	60	PAL-[illegible] SG A1 SR STEAM PRESS LO
	61	PAL-[illegible] SCRAM HDR STM PRESS LO
	62	TAH-[illegible] SCRAM HDR STEAM TEMP HI
	63	XAH-9371 EP1 VIBRATION HDR ACTIVITY
	64	XAH-9372 EP2 VIBRATION HDR ACTIVITY
	65	SPARE 64-65 EP1 NOISE ??
	66	SPARE 64-66 EP2 NOISE ??
	67	XA-9377 EP 1 SUBTORN PIPE RUPTURE
	68	XA-9378 EP 2 SUBTORN PIPE RUPTURE
	69	XA-9379 EP 1 SUBTORN AUTOMATIC
	70	XA-9380 EP 2 SUBTORN AUTOMATIC
	71	XA-9381 SCRAM TWO LOOP TROUBLE
	72	EAL-9360 SCRAM 480 V BUS LOSS
	73	K52 & K53 SCRAM AUTOMATIC
	74	HS-9310 SCRAM MANUAL
	75	HS-1102-1,HS-1104-1 7 HOPPERS
	76	HS-1102-2,HS-1104-2 30 HOPPERS
	77	TSH-9347? SCRAM RX BLDG TEMP HI
	78	PSL-3[illegible]92 TD MDH BYPASS VALVES
	79	XK-5101-[illegible] TURBINE SETBK LIM ANBK
	80	HS-1225 ROD GROUP 2B
	81	HS-1225 ROD GROUP 3C
	82	HS-1225 ROD GROUP 3D
	83	HS-1225 ROD GROUP 4D
	84	HS-1225 ROD GROUP 4E
	85	HS-1225 ROD GROUP 4F
	86	SPARE 64-86
	87	SPARE 64-87
	88	HS-1226 ROD GROUP 2A
	89	HS-1226 ROD GROUP 3A
	90	HS-1226 ROD GROUP 3B
	91	HS-1226 ROD GROUP 4A
	92	HS-1226 ROD GROUP 4B
	93	HS-1226 ROD GROUP 4C
	94	SPARE 64-94
	95	SPARE 64-95
	96	PS-5120B,D1 TURBINE BKG OIL PRES
	97	XMS-1126, POWER/FLOW
	98	PS-5121 EHC FLUID PRESSURE
	99	HS-5127-2 EHC OIL PUMP TRIP
	100	LS-5149-1,-2 EHC FLUID TNK LEVEL
	101	TS-5125 EXHAUST HOOD TEMP HIGH
	102	PS-5122,3 TURBINE TRIP LO VACUUM
	103	EHC S-[illegible] MANUAL TURBINE TRIP
	104	SPARE [illegible] OVERSPEED TRIP
	105	PSL-5220 EHC ENG MAIN STM PRESS
	106	P-5103X EHC BEARING OIL PUMP
	107	HS-5105 TURNING GEAR OIL PUMP
	108	P-5105X EHC H2 SEAL OIL PUMP
	109	LS-5501 EHC OIL RESERVOIR LEVEL
	110	CR-5106 EMERG PRESS REGULATOR
	111	SEE [illegible] REGULATOR

11 - BLUE
12 - RED

11 - TAN
12 - GREEN

STATION	POINT		POINT DESCRIPTION	
	112		HS-5117 GENERATOR FIELD BREAKER	
	113		XRA-[illegible] GEN PROTECTION 86G	
	114		OCB-5109 230 KV GENERATOR	
	115		GE-[illegible] GENERATOR FIELD GROUND	
	116		SPARE 62 SEAL OIL TROUBLE	
	117		SPARE STATOR COOLANT TROUBLE	
	118		63-[illegible] STATOR COOLANT RUNBACK	
	119		GR-[illegible] OVERLOAD URBAL RUNBACK	
	120		GR-9213 UAT POWER TRANSFORMER	
	121		OCB-5335 [illegible] KV RAT	
	122		XRA-92129 UAT PROTECTION 86TT	
	123		XRA-92201 RAT PROTECTION 86RT	
	124		HS-9203 4KV BUS 1 MAIN FEED	
	125		HS-9207 4KV RESERVE FEED	
	126		HS-9205 4KV BUS 3 MAIN FEED	
	127		SPARE 64-127 (OLD PL#2511)	
	128		SPARE 64-128 (OLD PL# 2521)	
	129		HS-9249 A STANDBY GENERATOR RUN	
	130		HS-9248 B STANDBY GENERATOR RUN	
	131		OCB-5301 230 KV GENERATOR	
	132		OCB-53XX 230 KV WELD	
	133		OCB-5306 230 KV LOOKOUT-RAT	
	134		OCB-5309 230 KV SMOKEY HILL	
	135		OCB-5310 230 KV SMOKEY-PAWNEE	
	136		OCB-5311 230 KV PAWNEE	
	137		OCB-5307 230 KV LOOKOUT	
	138		OCB-5313 230 KV PLATTE RIVER PA	
	139		OCB-5317 230 KV PLATTE RIVER PA	
	140		SPARE 125 V DC BUS	
	141		LS-3147,3148 HOTWELL LEVEL	
	142		CR-3382-1,-2 HOTWELL CONDUCTIVITY	
	143		I-06 B 31 FW STM GEN CONDUCTIVITY	
	144		I-06 B 51 FW DEAERATOR OUTLET O2	
	145		HS-3126-3131 CONDENSATE PUMP	
	146		LS-3139,3142 CONDENSATE STOR TK	
	147		I-06 B 41 DEMIN CONDUCTIVITY	
	148		RM-[illegible] RM2-[illegible] MAKE-UP DEMIN CONDUC	
	149		LS-3193,3194 DEAERATOR LEVEL	
	150		I-06 B 35 DEAERATOR PRESSURE	
	151		LCV-3209 HTR 5 DRAIN VALVE	
	152		HS-3203 HEATER 5 DRAIN PUMP	
	153		PS-31159,60 BFP HYDR OIL PRESS	
	154		TSL-R-1,R-2 A/C BFP BEARING VIB	
	155		HS-31136,37,38 BFP AUX OIL PUMP	
	156		PS-311989-1-2 BFP THRUST BEARNG	
	157		SPARE 69-157	
	158		TSL-5220 TURBINE MAIN STEAM TEMP	
	159		I-06 G 26 CIRC WATER TOWER BASIN	
	160		HS-4110-1,4111 CIRC WATER PUMP	
	161		LS-4217 SERVICE WTR TOWER BASIN	
	162		LS-4208-1 SERV WTR RETURN SUMP	
	163		PS-4211 SERVICE WTR HEADER PRESS	
	164		PS-4201 SERVICE WTR RETURN PRESS	
	165		HS-4211-1-/-3 SERV WATER PUMP	
	166		HS-4201-1-/-3 SW RETURN PUMP	
	167		PS-8212,8259 INSTRUMENT AIR PRES	
	168		PS-8209 SERVICE AIR PRESSURE	

#1 - BLUE
#2 - RED

#1 - TAN
#2 - GREEN

169	[illegible]	INSTRUMENT AIR DRYER
170	AS-8211-1	INST AIR COMPRESSR
171	AS-8201	SERVICE AIR COMPRESSOR
172	SPARE	INSTRUMENT POWER (1-64)
173	SPARE	69-173
174	CR-9207&9208	STANDBY GEN OVERVLT
175	UNDERVOLT	RELAYS 125VDC BUS VOLT
176	GE LS-1	A BFP STOP VALVE
177	P-3102	A BFP BREAKER
178	GE LS-1	B BFP STOP VALVE
179	TSI-3-77	A BFP OVERSPEED TRIP
180	TSI-3-77C	B BFP OVERSPEED TRIP
181	CR-9210-86	UNIT AUX TRANSFORMER
182	CR-9210-87	RESERVE AUX TRANSFRMR
183	TR-5220	MAIN STEAM ABNORMAL
184	CR-5220-1	MAIN GENERATOR BREAKR
185	CR-5220-2	STOP & CRH VALVES
186	XRT-1106-2	RX RNDCR ON TURB TRIP
187	SPARE	69-187
188	SPARE	69-188
189	SPARE	69-189
190	SPARE	69-190 SPDS BLINKER
191	SPARE	69-191
192	PS-1255	PCRV RELIEF VALVE
193	PS-1256	PCRV RELIEF VALVE
194	ZI-2109-1	A CIRC PELTON HTR IN
195	ZI-2109-2	A CIRC PELTON HTR OUT
196	ZI-2110-1	C CIRC PELTON HTR IN
197	ZI-2110-2	C CIRC PELTON HTR OUT
198	ZI-2115-1	B CIRC PELTON HTR IN
199	ZI-2115-2	B CIRC PELTON HTR OUT
200	ZI-2116-1	D CIRC PELTON HTR IN
201	ZI-2116-2	D CIRC PELTON HTR OUT
202	ZI-2201-1	LOOP 1 FEEDWATER INLET
203	ZI-2202-1	LOOP 2 FEEDWATER INLET
204	ZI-2203-1	LP1 EMER FEEDWATER IN
205	ZI-2204-1	LP2 EMER FEEDWATER IN
206	ZI-2215	LP1 FEEDWATER DUMP VALVE
207	ZI-2216	LP2 FEEDWATER DUMP VALVE
208	ZI-2217	LP1 FEEDWATER DUMP VALVE
209	ZI-2218	LP2 FEEDWATER DUMP VALVE
210	ZI-2223-1	LP1 MAIN STM STOP CK
211	ZI-2224-1	LP2 MAIN STM STOP CK
212	ZI-2237	LP1 [illegible]BRG CONDENSATE
213	ZI-2238	LP2 [illegible]BRG CONDENSATE
214	ZI-2241-1	LP1 STM TURB BYPAS BLK
215	ZI-2242-1	LP2 STM TURB BYPAS BLK
216	ZI-2245	A CIRC STEAM TURBINE VLV
217	ZI-2246	C CIRC STEAM TURBINE VLV
218	ZI-2247	B CIRC STEAM TURBINE VLV
219	ZI-2248	D CIRC STEAM TURBINE VLV
220	ZI-2249-1	A CIRC STM TURB TRIP
221	ZI-2250-1	C CIRC STM TURB TRIP
222	ZI-2251-1	B CIRC STM TURB TRIP
223	ZI-2252-1	D CIRC STM TURB TRIP
224	ZI-2253-1	LP1 TURB STOP CHECK
225	ZI-2254-1	LP2 TURB STOP CHECK

227	ZI-2303	MAIN PURIF INLET
228	ZI-2303 A	MAIN PURIF FILTER IN
229	ZI-2304 B	MAIN PURIF FILTER IN
230	ZI-2290	LP2 EMER COND TO STM GEN
231	ZI-2291	LP1 EMER COND TO STM GEN
232	ZI-2292	LP2 FLASH TANK
233	ZI-2293	LP1 FLASH TANK
234	HV-21187-A	A CIRC ACCUMULATOR
235	HV-21187-B	B CIRC ACCUMULATOR
236	HV-21188-C	C CIRC ACCUMULATOR
237	HV-21190-D	D CIRC ACCUMULATOR
238	HV-21415-1	LP1 GAS ACCUMULATOR
239	HV-21416-1	LP2 GAS ACCUMULATOR
240	HV-2265	LP1 HRH STM SAMPLE VALVE
241	HV-2266	LP2 HRH STM SAMPLE VALVE
242	ZI-22115	LP1 STM HTR DUMP
243	ZI-22116	LP2 STM HTR DUMP
244	ZI-22117	LP1 STM HTR DUMP
245	ZI-22118	LP2 STM HTR DUMP
246	HV-22221	LP1 MS BYPASS DRAIN
247	HV-22222	LP2 MS BYPASS DRAIN
248	HV-22223	LP1 MS BYPASS DRAIN
249	HV-22224	LP2 MS BYPASS DRAIN
250	HV-22225	LP1 MS BYPASS DRAIN
251	HV-22226	LP2 MS BYPASS DRAIN
252	HV-22227	LP1 MS BYPASS DRAIN
253	HV-22228	LP2 MS BYPASS DRAIN
254	[illegible]	LP1 MS STARTUP BYPASS [illegible]
255	[illegible]	LP2 MS STARTUP BYPASS [illegible]
256	HV-21191-1	A CIRC X SEAL VENT
257	HV-21191-2	A CIRC X SEAL PRESS
258	HV-21191-3	A CIRC Y SEAL VENT
259	HV-21191-4	A CIRC Y SEAL PRESS
260	HV-21193-1	B CIRC X SEAL VENT
261	HV-21193-2	B CIRC X SEAL PRESS
262	HV-21193-3	B CIRC Y SEAL VENT
263	HV-21193-4	B CIRC Y SEAL PRESS
264	HV-21192-1	C CIRC X SEAL VENT
265	HV-21192-2	C CIRC X SEAL PRESS
266	HV-21192-3	C CIRC Y SEAL VENT
267	HV-21192-4	C CIRC Y SEAL PRESS
268	HV-21194-1	D CIRC X SEAL VENT
269	HV-21194-2	D CIRC X SEAL PRESS
270	HV-21194-3	D CIRC Y SEAL VENT
271	HV-21194-4	D CIRC Y SEAL PRESS
272	HV-21203-1	A CIRC X BRAKE VENT
273	HV-21203-2	A CIRC X BRAKE PRESS
274	HV-21203-3	A CIRC Y BRAKE VENT
275	HV-21203-4	A CIRC Y BRAKE PRESS
276	HV-21205-1	B CIRC X BRAKE VENT
277	HV-21205-2	B CIRC X BRAKE PRESS
278	HV-21205-3	B CIRC Y BRAKE VENT
279	HV-21205-4	B CIRC Y BRAKE PRESS
280	HV-21204-1	C CIRC X BRAKE VENT
281	HV-21204-2	C CIRC X BRAKE PRESS
282	HV-21204-3	C CIRC Y BRAKE VENT

284	[illegible]
285	HV-21206-1 D CIRC X BRAKE VENT
286	HV-21206-2 D CIRC X BRAKE PRESS
287	HV-21206-3 D CIRC Y BRAKE VENT
288	HV-21206-4 D CIRC Y BRAKE PRESS
289	HV-22133 LP1 FW TO CRH ATTEM BLK
290	HV-22134 LP2 FW TO CRH ATTEM BLK
291	HV-22167 LP1 MS ELECTRO RELIEF
292	HV-22168 LP2 MS ELECTRO RELIEF
293	ZI-2311-1 A TRAIN FILTER PUMPDN
294	ZI-2312-2 B TRAIN FILTER PUMPDN
295	HV-3108 A BFP DISCH VALVE
296	HV-3107 B BFP DISCH VALVE
297	HV-3110 C BFP DISCH VALVE
298	ZI-31191 COND TO EMER COND HDR
299	HV-31118 A BFP TO EMERG FW HEADR
300	HV-31119 B BFP TO EMERG FW HEADR
301	HV-31120 C BFP TO EMERG FW HEADR
302	ZI-4133 CIRC WTR TO NON-ESS CELL
303	HS-46227 PCRV COOL WTR RECIRC
304	HS-46228 PCRV COOL WTR RECIRC
305	EMG FULL ARC / PARTIAL ARC
306	HV-5221-1 LP1 HRH ELECTRO RELIEF
307	HV-5221-2 LP2 HRH ELECTRO RELIEF
308	DCE-5315 230 KV FIELD
309	HS-9209 4KV TIE BUS 2 TO BUS 1
310	HS-9211 4KV TIE BUS 2 TO BUS 3
311	HS-9213 4KV FEED TO 480 V TRAN 1
312	HS-9214 4KV FEED TO 480 V TRAN 2
313	HS-9215 4KV FEED TO 480 V TRAN 3
314	HS-9216 4KV FEED TO 480 V TRAN 4
315	HS-9217 4KV FEED TO 480 V TRAN 5
316	HS-9218 4KV FEED TO 480 V TRAN 6
317	HS-9219 4KV FEED TO 480 V TRAN 7
318	152-TR8 TURBINE BLDG HVAC TRAN 8
319	152-TR9 REACTOR BLDG HVAC TRAN 9
320	152-141 4KV TIE HVAC TO 152-1
321	152-1 4KV TIE HVAC TO ACM BUS
322	152-ACM 4KV ACM TO 480 V ACM
323	HS-9221 480 V MAIN FEED BUS 1
324	HS-9223 480 V MAIN FEED BUS 2
325	HS-9225 480 V MAIN FEED BUS 3
326	HS-9227 480 V MAIN FEED BUS 4
327	HS-9229 480 V MAIN FEED BUS 5
328	HS-9231 480 V MAIN FEED BUS 6
329	HS-9233 480 V MAIN FEED BUS 7
330	HS-9235 480 V TIE BUS 1 TO BUS 2
331	HS-9237 480 V TIE BUS 3 TO BUS 2
332	HS-9239 480 V TIE BUS 4 TO BUS 5
333	A-9236 480 V BUS 3 TO A INSTR
334	A-9235 480 V BUS 2 TO B INSTR
335	SPARE 64-335
336	SPARE 64-336
337	SPARE 64-337
338	SPARE 64-338
339	SPARE 64-339
340	SPARE 64-340

#3 - BLUE
#4 - RED

#1 - TAN
#2 - GREEN

[illegible]	SPARE	64-340
341	SPARE	64-341
342	SPARE	64-342
343	SPARE	64-343
344	SPARE	64-344
345	SPARE	64-345
346	SPARE	64-346
347	SPARE	64-347
348	SPARE	64-348
349	SPARE	64-349
350	SPARE	64-350
351	SPARE	64-351
352	SPARE	64-352
353	SPARE	64-353
354	SPARE	64-354
355	SPARE	64-355
356	SPARE	64-356
357	SPARE	64-357
358	SPARE	64-358
359	SPARE	64-359
360	SPARE	64-360
361	SPARE	64-361
362	SPARE	64-362
363	SPARE	64-363
364	SPARE	64-364
365	SPARE	64-365
366	SPARE	64-366
367	SPARE	64-367
368	SPARE	64-368
369	SPARE	64-369
370	SPARE	64-370
371	SPARE	64-371
372	SPARE	64-372
373	SPARE	64-373
374	SPARE	64-374
375	SPARE	64-375
376	SPARE	64-376
377	SPARE	64-377
378	SPARE	64-378
379	SPARE	64-379
380	SPARE	64-380
381	SPARE	64-381
382	SPARE	64-382
383	SPARE	64-383

89

0	1500 CARD EMESO 0400 REJECTING
1	1500 CARD EMESO 0401 REJECTING
2	1500 CARD EMESO 0402 REJECTING
3	1500 CARD EMESO 0403 REJECTING
4	1500 CARD EMESO 0404 REJECTING
5	1500 CARD EMESO 0405 REJECTING
6	1500 CARD EMESO 0406 REJECTING
7	1500 CARD EMESO 0407 REJECTING
8	1500 CARD EMESO 0408 REJECTING
9	1500 CARD EMESO 0409 REJECTING
10	1500 CARD EMESO 040A REJECTING
11	1500 CARD EMESO 040B REJECTING
12	1500 CARD EMESO 04[illegible] REJECTING

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    14    1500 CARD EWESO 040E REJECTING
    15    1500 CARD EWESO 040F REJECTING
    16    1500 CARD EWESO 0600 REJECTING
    17    1500 CARD EWESO 0601 REJECTING
    18    1500 CARD EWESO 0602 REJECTING
    19    1500 CARD EWESO 0603 REJECTING
    20    1500 CARD EWESO 0604 REJECTING
    21    1500 CARD EWESO 0605 REJECTING
    22    1500 CARD EWESO 0606 REJECTING
    23    1500 CARD EWESO 0607 REJECTING
    24    1500 CARD EWESO 0608 REJECTING
    25    1500 CARD EWESO 0609 REJECTING
    26    1500 CARD EWESO 060A REJECTING
    27    1500 CARD EWESO 060B REJECTING
    28    1500 CARD EWESO 060C REJECTING
    29    1500 CARD EWESO 060D REJECTING
    30    1500 CARD EWESO 060E REJECTING
    31    1500 CARD EWESO 060F REJECTING
    32    1500 CARD EWESO 0610 REJECTING
    33    1500 CARD EWESO 0611 REJECTING
    34    1500 CARD EWESO 0612 REJECTING
    35    1500 CARD EWESO 0613 REJECTING
    36    1500 CARD EWESO 0614 REJECTING
    37    1500 CARD EWESO 0615 REJECTING
    38    1500 CARD EWESO 0616 REJECTING
    39    1500 CARD EWESO 0617 REJECTING
    40    1500 CARD EWESO 0618 REJECTING
    41    1500 CARD EWESO 0619 REJECTING
    42    1500 CARD EWESO 061A REJECTING
    43    1500 CARD EWESO 061B REJECTING
    44    1500 CARD EWESO 061C REJECTING
    45    1500 CARD EWESO 061D REJECTING
    46    1500 CARD EWESO 061E REJECTING
    47    1500 CARD EWESO 061F REJECTING
    48    1500 CARD EWESO 0620 REJECTING
    49    1500 CARD EWESO 0621 REJECTING
    50    1500 CARD EWESO 0622 REJECTING
    51    1500 CARD EWESO 0623 REJECTING
    52    1500 CARD EWESO 0624 REJECTING
    53    1500 CARD EWESO 0625 REJECTING
    54    1500 CARD EWESO 0626 REJECTING
    55    1500 CARD EWESO 0627 REJECTING
    56    1500 CARD EWESO 0628 REJECTING
    57    1500 CARD EWESO 0629 REJECTING
    58    1500 CARD EWESO 062A REJECTING
    59    1500 CARD EWESO 062B REJECTING
    60    1500 CARD EWESO 062C REJECTING
    61    1500 CARD EWESO 062D REJECTING
    62    1500 CARD EWESO 062E REJECTING
    63    1500 CARD EWESO 062F REJECTING
    64    1500 CARD EWESO 0630 REJECTING
    65    1500 CARD EWESO 0631 REJECTING
    66    1500 CARD EWESO 0632 REJECTING
    67    1500 CARD EWESO 0633 REJECTING
    68    1500 CARD EWESO 0634 REJECTING
    69    1500 CARD EWESO 0635 REJECTING
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[illegible]
 70    1500 CARD CHESO 06[illegible]6 REJECTING
 71    1500 CARD CHESO 0637 REJECTING
 72    1500 CARD CHESO 0638 REJECTING
 73    1500 CARD CHESO 0639 REJECTING
 74    1500 CARD CHESO 063A REJECTING
 75    1500 CARD CHESO 063B REJECTING
 76    1500 CARD CHESO 063C REJECTING
 77    1500 CARD CHESO 063D REJECTING
 78    1500 CARD CHESO 063E REJECTING
 79    1500 CARD CHESO 063F REJECTING
 80    1500 CARD CHESO 0640 REJECTING
 81    1500 CARD CHESO 0641 REJECTING
 82    1500 CARD CHESO 0642 REJECTING
 83    1500 CARD CHESO 0643 REJECTING
 84    1500 CARD CHESO 0644 REJECTING
 85    1500 CARD CHESO 0645 REJECTING
 86    1500 CARD CHESO 0646 REJECTING
 87    1500 CARD CHESO 0647 REJECTING
 88    1500 CARD CHESO 0648 REJECTING
 89    1500 CARD CHESO 0649 REJECTING
 90    1500 CARD CHESO 064A REJECTING
 91    1500 CARD CHESO 064B REJECTING
 92    1500 CARD CHESO 064C REJECTING
 93    1500 CARD CHESO 064D REJECTING
 94    1500 CARD CHESO 064E REJECTING
 95    1500 CARD CHESO 064F REJECTING
 96    LOGICAL UNIT 001 IN STANDBY MCP
 97    LOGICAL UNIT 002 IN STANDBY MCP
 98    LOGICAL UNIT 003 IN STANDBY MCP
 99    LOGICAL UNIT 004 IN STANDBY MCP
100    LOGICAL UNIT 005 IN STANDBY MCP
101    LOGICAL UNIT 006 IN STANDBY MCP
102    LOGICAL UNIT 007 IN STANDBY MCP
103    LOGICAL UNIT 008 IN STANDBY MCP
104    LOGICAL UNIT 009 IN STANDBY MCP
105    LOGICAL UNIT 010 IN STANDBY MCP
106    LOGICAL UNIT 011 IN STANDBY MCP
107    LOGICAL UNIT 012 IN STANDBY MCP
108    LOGICAL UNIT 013 IN STANDBY MCP
109    LOGICAL UNIT 014 IN STANDBY MCP
110    LOGICAL UNIT 015 IN STANDBY MCP
111    LOGICAL UNIT 016 IN STANDBY MCP
112    LOGICAL UNIT 017 IN STANDBY MCP
113    LOGICAL UNIT 018 IN STANDBY MCP
114    LOGICAL UNIT 019 IN STANDBY MCP
115    LOGICAL UNIT 020 IN STANDBY MCP
116    LOGICAL UNIT 021 IN STANDBY MCP
117    LOGICAL UNIT 022 IN STANDBY MCP
118    LOGICAL UNIT 023 IN STANDBY MCP
119    LOGICAL UNIT 024 IN STANDBY MCP
120    LOGICAL UNIT 025 IN STANDBY MCP
121    LOGICAL UNIT 026 IN STANDBY MCP
122    LOGICAL UNIT 027 IN STANDBY MCP
123    LOGICAL UNIT 028 IN STANDBY MCP
124    LOGICAL UNIT 029 IN STANDBY MCP
125    LOGICAL UNIT 030 IN STANDBY MCP
126    LOGICAL UNIT 031 IN STANDBY MCP
```

1233

```
                LOGICAL UNIT 033 IN STANDBY MCP
129             LOGICAL UNIT 034 IN STANDBY MCP
130             LOGICAL UNIT 035 IN STANDBY MCP
131             LOGICAL UNIT 036 IN STANDBY MCP
132             LOGICAL UNIT 037 IN STANDBY MCP
133             LOGICAL UNIT 038 IN STANDBY MCP
134             LOGICAL UNIT 039 IN STANDBY MCP
135             LOGICAL UNIT 040 IN STANDBY MCP
136             LOGICAL UNIT 041 IN STANDBY MCP
137             LOGICAL UNIT 042 IN STANDBY MCP
138             LOGICAL UNIT 043 IN STANDBY MCP
139             LOGICAL UNIT 044 IN STANDBY MCP
140             LOGICAL UNIT 045 IN STANDBY MCP
141             LOGICAL UNIT 046 IN STANDBY MCP
142             LOGICAL UNIT 047 IN STANDBY MCP
143             LOGICAL UNIT 048 IN STANDBY MCP
144             LOGICAL UNIT 049 IN STANDBY MCP
145             LOGICAL UNIT 050 IN STANDBY MCP
146             LOGICAL UNIT 051 IN STANDBY MCP
147             LOGICAL UNIT 052 IN STANDBY MCP
148             LOGICAL UNIT 053 IN STANDBY MCP
149             LOGICAL UNIT 054 IN STANDBY MCP
150             LOGICAL UNIT 055 IN STANDBY MCP
151             LOGICAL UNIT 056 IN STANDBY MCP
152             LOGICAL UNIT 057 IN STANDBY MCP
153             LOGICAL UNIT 058 IN STANDBY MCP
154             LOGICAL UNIT 059 IN STANDBY MCP
155             LOGICAL UNIT 060 IN STANDBY MCP
156             LOGICAL UNIT 061 IN STANDBY MCP
157             LOGICAL UNIT 062 IN STANDBY MCP
158             LOGICAL UNIT 063 IN STANDBY MCP
159             LOGICAL UNIT 064 IN STANDBY MCP
160             LOGICAL UNIT 065 IN STANDBY MCP
161             LOGICAL UNIT 066 IN STANDBY MCP
162             LOGICAL UNIT 067 IN STANDBY MCP
163             LOGICAL UNIT 068 IN STANDBY MCP
164             LOGICAL UNIT 069 IN STANDBY MCP
165             LOGICAL UNIT 070 IN STANDBY MCP
166             LOGICAL UNIT 071 IN STANDBY MCP
167             LOGICAL UNIT 072 IN STANDBY MCP
168             LOGICAL UNIT 073 IN STANDBY MCP
169             LOGICAL UNIT 074 IN STANDBY MCP
170             LOGICAL UNIT 075 IN STANDBY MCP
171             LOGICAL UNIT 076 IN STANDBY MCP
172             LOGICAL UNIT 077 IN STANDBY MCP
173             LOGICAL UNIT 078 IN STANDBY MCP
174             LOGICAL UNIT 079 IN STANDBY MCP
175             LOGICAL UNIT 080 IN STANDBY MCP
176             LOGICAL UNIT 081 IN STANDBY MCP
177             LOGICAL UNIT 082 IN STANDBY MCP
178             LOGICAL UNIT 083 IN STANDBY MCP
179             LOGICAL UNIT 084 IN STANDBY MCP
180             LOGICAL UNIT 085 IN STANDBY MCP
181             LOGICAL UNIT 086 IN STANDBY MCP
182             LOGICAL UNIT 087 IN STANDBY MCP
183             LOGICAL UNIT 088 IN STANDBY MCP
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185    LOGICAL UNIT 090 IN STANDBY HCP
186    LOGICAL UNIT 091 IN STANDBY HCP
187    LOGICAL UNIT 092 IN STANDBY HCP
188    LOGICAL UNIT 093 IN STANDBY HCP
189    LOGICAL UNIT 094 IN STANDBY HCP
190    LOGICAL UNIT 095 IN STANDBY HCP
191    LOGICAL UNIT 096 IN STANDBY HCP
192    LOGICAL UNIT 097 IN STANDBY HCP
193    LOGICAL UNIT 098 IN STANDBY HCP
194    LOGICAL UNIT 099 IN STANDBY HCP
195    LOGICAL UNIT 100 IN STANDBY HCP
196    LOGICAL UNIT 101 IN STANDBY HCP
197    MISC2A SPARE 00
198    MISC2A SPARE 01
199    MISC2A SPARE 02
200    MISC2A SPARE 03
201    MISC2A SPARE 04
202    MISC2A SPARE 05
203    MISC2A SPARE 06
204    MISC2A SPARE 07
205    MISC2A SPARE 08
206    MISC2A SPARE 09
207    MISC2A SPARE 10
00       0    1500 CARD EMESO 0400
         1    1500 CARD EMESO 0401
         2    1500 CARD EMESO 0402
         3    1500 CARD EMESO 0403
         4    1500 CARD EMESO 0404
         5    1500 CARD EMESO 0405
         6    1500 CARD EMESO 0406
         7    1500 CARD EMESO 0407
         8    1500 CARD EMESO 0408
         9    1500 CARD EMESO 0409
        10    1500 CARD EMESO 040A
        11    1500 CARD EMESO 040B
        12    1500 CARD EMESO 040C
        13    1500 CARD EMESO 040D
        14    1500 CARD EMESO 040E
        15    1500 CARD EMESO 040F
        16    1500 CARD EMESO 0600
        17    1500 CARD EMESO 0601
        18    1500 CARD EMESO 0602
        19    1500 CARD EMESO 0603
        20    1500 CARD EMESO 0604
        21    1500 CARD EMESO 0605
        22    1500 CARD EMESO 0606
        23    1500 CARD EMESO 0607
        24    1500 CARD EMESO 0608
        25    1500 CARD EMESO 0609
        26    1500 CARD EMESO 060A
        27    1500 CARD EMESO 060B
        28    1500 CARD EMESO 060C
        29    1500 CARD EMESO 060D
        30    1500 CARD EMESO 060E
        31    1500 CARD EMESO 060F
        32    1500 CARD EMESO 0610
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1500 CARD EMESU 0613
1500 CARD EMESU 0614
1500 CARD EMESU 0615
1500 CARD EMESU 0616
1500 CARD EMESU 0617
1500 CARD EMESU 0618
1500 CARD EMESU 0619
1500 CARD EMESU 061A
1500 CARD EMESU 061B
1500 CARD EMESU 061C
1500 CARD EMESU 061D
1500 CARD EMESU 061E
1500 CARD EMESU 061F
1500 CARD EMESU 0620
1500 CARD EMESU 0621
1500 CARD EMESU 0622
1500 CARD EMESU 0623
1500 CARD EMESU 0624
1500 CARD EMESU 0625
1500 CARD EMESU 0626
1500 CARD EMESU 0627
1500 CARD EMESU 0628
1500 CARD EMESU 062A
1500 CARD EMESU 062B
1500 CARD EMESU 062C
1500 CARD EMESU 062D
1500 CARD EMESU 062E
1500 CARD EMESU 062F
1500 CARD EMESU 0630
1500 CARD EMESU 0631
1500 CARD EMESU 0632
1500 CARD EMESU 0633
1500 CARD EMESU 0634
1500 CARD EMESU 0635
1500 CARD EMESU 0636
1500 CARD EMESU 0637
1500 CARD EMESU 0638
1500 CARD EMESU 0639
1500 CARD EMESU 063A
1500 CARD EMESU 063B
1500 CARD EMESU 063C
1500 CARD EMESU 063D
1500 CARD EMESU 063E
1500 CARD EMESU 063F
1500 CARD EMESU 0640
1500 CARD EMESU 0641
1500 CARD EMESU 0642
1500 CARD EMESU 0643
1500 CARD EMESU 0644
1500 CARD EMESU 0645
1500 CARD EMESU 0646
1500 CARD EMESU 0647
1500 CARD EMESU 0648
1500 CARD EMESU 0649

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                91    1500 CARD EMESG 0648
                92    1500 CARD EMESG 064C
                93    1500 CARD EMESG 064D
                94    1500 CARD EMESG 064E
                95    1500 CARD EMESG 064F
                96    EVENT FILE 0 - WARN1 EXCEEDED
                97    EVENT FILE 0 - WARN2 EXCEEDED
                98    EVENT FILE 0 - CLEARED
                99    EVENT FILE 0 - PURGE IN PROGRESS
               100    ERR MSG: ANALOG PTS OUT OF SCAN
               101    PRINT FILE 1 - WARN1 EXCEEDED
               102    PRINT FILE 1 - WARN2 EXCEEDED
               103    PRINT FILE 1 - CLEARED
               104    PRINT FILE 1 - PURGE IN PROGRESS
               105    TREND PEN NO. 01 OUT OF RANGE
               106    TREND PEN NO. 02 OUT OF RANGE
               107    TREND PEN NO. 03 OUT OF RANGE
               108    TREND PEN NO. 04 OUT OF RANGE
               109    TREND PEN NO. 05 OUT OF RANGE
               110    TREND PEN NO. 06 OUT OF RANGE
               111    TREND PEN NO. 07 OUT OF RANGE
               112    TREND PEN NO. 08 OUT OF RANGE
               113    TREND PEN NO. 09 OUT OF RANGE
               114    TREND PEN NO. 10 OUT OF RANGE
               115    TREND PEN NO. 11 OUT OF RANGE
               116    TREND PEN NO. 12 OUT OF RANGE
               117    TREND PEN NO. 13 OUT OF RANGE
               118    TREND PEN NO. 14 OUT OF RANGE
               119    TREND PEN NO. 15 OUT OF RANGE
               120    TREND PEN NO. 16 OUT OF RANGE
               121    INVALID CONVER ROUTINE-ANLPSV
               122    MISC2 SPARE 00
               123    MISC2 SPARE 01
               124    MISC2 SPARE 02
               125    MISC2 SPARE 03
               126    MISC2 SPARE 04
               127    MISC2 SPARE 05
94               0    1500 CARD EMESG 0400 REJECTING
                 1    1500 CARD EMESG 0401 REJECTING
                 2    1500 CARD EMESG 0402 REJECTING
                 3    1500 CARD EMESG 0403 REJECTING
                 4    1500 CARD EMESG 0404 REJECTING
                 5    1500 CARD EMESG 0405 REJECTING
                 6    1500 CARD EMESG 0406 REJECTING
                 7    1500 CARD EMESG 0407 REJECTING
                 8    1500 CARD EMESG 0408 REJECTING
                 9    1500 CARD EMESG 0409 REJECTING
                10    1500 CARD EMESG 040A REJECTING
                11    1500 CARD EMESG 040B REJECTING
                12    1500 CARD EMESG 040C REJECTING
                13    1500 CARD EMESG 040D REJECTING
                14    1500 CARD EMESG 040E REJECTING
                15    1500 CARD EMESG 040F REJECTING
                16    1500 CARD EMESG 0600 REJECTING
                17    1500 CARD EMESG 0601 REJECTING
                18    1500 CARD EMESG 0602 REJECTING
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```
20    1500 CARD EWESO 0604 REJECTING
21    1500 CARD EWESO 0605 REJECTING
22    1500 CARD EWESO 0606 REJECTING
23    1500 CARD EWESO 0607 REJECTING
24    1500 CARD EWESO 0608 REJECTING
25    1500 CARD EWESO 0609 REJECTING
26    1500 CARD EWESO 060A REJECTING
27    1500 CARD EWESO 060B REJECTING
28    1500 CARD EWESO 060C REJECTING
29    1500 CARD EWESO 060D REJECTING
30    1500 CARD EWESO 060E REJECTING
31    1500 CARD EWESO 060F REJECTING
32    1500 CARD EWESO 0610 REJECTING
33    1500 CARD EWESO 0611 REJECTING
34    1500 CARD EWESO 0612 REJECTING
35    1500 CARD EWESO 0613 REJECTING
36    1500 CARD EWESO 0614 REJECTING
37    1500 CARD EWESO 0615 REJECTING
38    1500 CARD EWESO 0616 REJECTING
39    1500 CARD EWESO 0617 REJECTING
40    1500 CARD EWESO 0618 REJECTING
41    1500 CARD EWESO 0619 REJECTING
42    1500 CARD EWESO 061A REJECTING
43    1500 CARD EWESO 061B REJECTING
44    1500 CARD EWESO 061C REJECTING
45    1500 CARD EWESO 061D REJECTING
46    1500 CARD EWESO 061E REJECTING
47    1500 CARD EWESO 061F REJECTING
48    1500 CARD EWESO 0620 REJECTING
49    1500 CARD EWESO 0621 REJECTING
50    1500 CARD EWESO 0622 REJECTING
51    1500 CARD EWESO 0623 REJECTING
52    1500 CARD EWESO 0624 REJECTING
53    1500 CARD EWESO 0625 REJECTING
54    1500 CARD EWESO 0626 REJECTING
55    1500 CARD EWESO 0627 REJECTING
56    1500 CARD EWESO 0628 REJECTING
57    1500 CARD EWESO 0629 REJECTING
58    1500 CARD EWESO 062A REJECTING
59    1500 CARD EWESO 062B REJECTING
60    1500 CARD EWESO 062C REJECTING
61    1500 CARD EWESO 062D REJECTING
62    1500 CARD EWESO 062E REJECTING
63    1500 CARD EWESO 062F REJECTING
64    1500 CARD EWESO 0630 REJECTING
65    1500 CARD EWESO 0631 REJECTING
66    1500 CARD EWESO 0632 REJECTING
67    1500 CARD EWESO 0633 REJECTING
68    1500 CARD EWESO 0634 REJECTING
69    1500 CARD EWESO 0635 REJECTING
70    1500 CARD EWESO 0636 REJECTING
71    1500 CARD EWESO 0637 REJECTING
72    1500 CARD EWESO 0638 REJECTING
73    1500 CARD EWESO 0639 REJECTING
74    1500 CARD EWESO 063A REJECTING
75    1500 CARD EWESO 063B REJECTING
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                1500 CARD EWESO 063D REJECTING
                1500 CARD EWESO 063E REJECTING
                1500 CARD EWESO 063F REJECTING
                1500 CARD EWESO 0640 REJECTING
                1500 CARD EWESO 0641 REJECTING
                1500 CARD EWESO 0642 REJECTING
                1500 CARD EWESO 0643 REJECTING
                1500 CARD EWESO 0644 REJECTING
                1500 CARD EWESO 0645 REJECTING
                1500 CARD EWESO 0646 REJECTING
                1500 CARD EWESO 0647 REJECTING
                1500 CARD EWESO 0648 REJECTING
                1500 CARD EWESO 0649 REJECTING
                1500 CARD EWESO 064A REJECTING
                1500 CARD EWESO 064B REJECTING
                1500 CARD EWESO 064C REJECTING
                1500 CARD EWESO 064D REJECTING
                1500 CARD EWESO 064E REJECTING
                1500 CARD EWESO 064F REJECTING
                LOGICAL UNIT 001 IN ON-LINE MCP
                LOGICAL UNIT 002 IN ON-LINE MCP
                LOGICAL UNIT 003 IN ON-LINE MCP
                LOGICAL UNIT 004 IN ON-LINE MCP
                LOGICAL UNIT 005 IN ON-LINE MCP
                LOGICAL UNIT 006 IN ON-LINE MCP
                LOGICAL UNIT 007 IN ON-LINE MCP
                LOGICAL UNIT 008 IN ON-LINE MCP
                LOGICAL UNIT 009 IN ON-LINE MCP
                LOGICAL UNIT 010 IN ON-LINE MCP
                LOGICAL UNIT 011 IN ON-LINE MCP
                LOGICAL UNIT 012 IN ON-LINE MCP
                LOGICAL UNIT 013 IN ON-LINE MCP
                LOGICAL UNIT 014 IN ON-LINE MCP
                LOGICAL UNIT 015 IN ON-LINE MCP
                LOGICAL UNIT 016 IN ON-LINE MCP
                LOGICAL UNIT 017 IN ON-LINE MCP
                LOGICAL UNIT 018 IN ON-LINE MCP
                LOGICAL UNIT 019 IN ON-LINE MCP
                LOGICAL UNIT 020 IN ON-LINE MCP
                LOGICAL UNIT 021 IN ON-LINE MCP
                LOGICAL UNIT 022 IN ON-LINE MCP
                LOGICAL UNIT 023 IN ON-LINE MCP
                LOGICAL UNIT 024 IN ON-LINE MCP
                LOGICAL UNIT 025 IN ON-LINE MCP
                LOGICAL UNIT 026 IN ON-LINE MCP
                LOGICAL UNIT 027 IN ON-LINE MCP
                LOGICAL UNIT 028 IN ON-LINE MCP
                LOGICAL UNIT 029 IN ON-LINE MCP
                LOGICAL UNIT 030 IN ON-LINE MCP
                LOGICAL UNIT 031 IN ON-LINE MCP
                LOGICAL UNIT 032 IN ON-LINE MCP
                LOGICAL UNIT 033 IN ON-LINE MCP
                LOGICAL UNIT 034 IN ON-LINE MCP
                LOGICAL UNIT 035 IN ON-LINE MCP
                LOGICAL UNIT 036 IN ON-LINE MCP
                LOGICAL UNIT 037 IN ON-LINE MCP
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LOGICAL UNIT 039 IN ON-LINE MCP
LOGICAL UNIT 040 IN ON-LINE MCP
LOGICAL UNIT 041 IN ON-LINE MCP
LOGICAL UNIT 042 IN ON-LINE MCP
LOGICAL UNIT 043 IN ON-LINE MCP
LOGICAL UNIT 044 IN ON-LINE MCP
LOGICAL UNIT 045 IN ON-LINE MCP
LOGICAL UNIT 046 IN ON-LINE MCP
LOGICAL UNIT 047 IN ON-LINE MCP
LOGICAL UNIT 048 IN ON-LINE MCP
LOGICAL UNIT 049 IN ON-LINE MCP
LOGICAL UNIT 050 IN ON-LINE MCP
LOGICAL UNIT 051 IN ON-LINE MCP
LOGICAL UNIT 052 IN ON-LINE MCP
LOGICAL UNIT 053 IN ON-LINE MCP
LOGICAL UNIT 054 IN ON-LINE MCP
LOGICAL UNIT 055 IN ON-LINE MCP
LOGICAL UNIT 056 IN ON-LINE MCP
LOGICAL UNIT 057 IN ON-LINE MCP
LOGICAL UNIT 058 IN ON-LINE MCP
LOGICAL UNIT 059 IN ON-LINE MCP
LOGICAL UNIT 060 IN ON-LINE MCP
LOGICAL UNIT 061 IN ON-LINE MCP
LOGICAL UNIT 062 IN ON-LINE MCP
LOGICAL UNIT 063 IN ON-LINE MCP
LOGICAL UNIT 064 IN ON-LINE MCP
LOGICAL UNIT 065 IN ON-LINE MCP
LOGICAL UNIT 066 IN ON-LINE MCP
LOGICAL UNIT 067 IN ON-LINE MCP
LOGICAL UNIT 068 IN ON-LINE MCP
LOGICAL UNIT 069 IN ON-LINE MCP
LOGICAL UNIT 070 IN ON-LINE MCP
LOGICAL UNIT 071 IN ON-LINE MCP
LOGICAL UNIT 072 IN ON-LINE MCP
LOGICAL UNIT 073 IN ON-LINE MCP
LOGICAL UNIT 074 IN ON-LINE MCP
LOGICAL UNIT 075 IN ON-LINE MCP
LOGICAL UNIT 076 IN ON-LINE MCP
LOGICAL UNIT 077 IN ON-LINE MCP
LOGICAL UNIT 078 IN ON-LINE MCP
LOGICAL UNIT 079 IN ON-LINE MCP
LOGICAL UNIT 080 IN ON-LINE MCP
LOGICAL UNIT 081 IN ON-LINE MCP
LOGICAL UNIT 082 IN ON-LINE MCP
LOGICAL UNIT 083 IN ON-LINE MCP
LOGICAL UNIT 084 IN ON-LINE MCP
LOGICAL UNIT 085 IN ON-LINE MCP
LOGICAL UNIT 086 IN ON-LINE MCP
LOGICAL UNIT 087 IN ON-LINE MCP
LOGICAL UNIT 088 IN ON-LINE MCP
LOGICAL UNIT 089 IN ON-LINE MCP
LOGICAL UNIT 090 IN ON-LINE MCP
LOGICAL UNIT 091 IN ON-LINE MCP
LOGICAL UNIT 092 IN ON-LINE MCP
LOGICAL UNIT 093 IN ON-LINE MCP
LOGICAL UNIT 094 IN ON-LINE MCP
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[illegible]
191   LOGICAL UNIT 096 IN ON-LINE MCP
192   LOGICAL UNIT 097 IN ON-LINE MCP
193   LOGICAL UNIT 098 IN ON-LINE MCP
194   LOGICAL UNIT 099 IN ON-LINE MCP
195   LOGICAL UNIT 100 IN ON-LINE MCP
196   LOGICAL UNIT 101 IN ON-LINE MCP
197   MISCOA SPARE 00
198   MISCOA SPARE 01
199   MISCOA SPARE 02
200   MISCOA SPARE 03
201   MISCOA SPARE 04
202   MISCOA SPARE 05
203   MISCOA SPARE 06
204   MISCOA SPARE 07
205   MISCOA SPARE 08
206   MISCOA SPARE 09
207   MISCOA SPARE 10
  0   1500 CARD EMESO 0400
  1   1500 CARD EMESO 0401
  2   1500 CARD EMESO 0402
  3   1500 CARD EMESO 0403
  4   1500 CARD EMESO 0404
  5   1500 CARD EMESO 0405
  6   1500 CARD EMESO 0406
  7   1500 CARD EMESO 0407
  8   1500 CARD EMESO 0408
  9   1500 CARD EMESO 0409
 10   1500 CARD EMESO 040A
 11   1500 CARD EMESO 040B
 12   1500 CARD EMESO 040C
 13   1500 CARD EMESO 040D
 14   1500 CARD EMESO 040E
 15   1500 CARD EMESO 040F
 16   1500 CARD EMESO 0600
 17   1500 CARD EMESO 0601
 18   1500 CARD EMESO 0602
 19   1500 CARD EMESO 0603
 20   1500 CARD EMESO 0604
 21   1500 CARD EMESO 0605
 22   1500 CARD EMESO 0606
 23   1500 CARD EMESO 0607
 24   1500 CARD EMESO 0608
 25   1500 CARD EMESO 0609
 26   1500 CARD EMESO 060A
 27   1500 CARD EMESO 060B
 28   1500 CARD EMESO 060C
 29   1500 CARD EMESO 060D
 30   1500 CARD EMESO 060E
 31   1500 CARD EMESO 060F
 32   1500 CARD EMESO 0610
 33   1500 CARD EMESO 0611
 34   1500 CARD EMESO 0612
 35   1500 CARD EMESO 0613
 36   1500 CARD EMESO 0614
 37   1500 CARD EMESO 0615
 38   1500 CARD EMESO 0616
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1500 CARD EWSD 0618
1500 CARD EWSD 0619
1500 CARD EWSD 061A
1500 CARD EWSD 061B
1500 CARD EWSD 061C
1500 CARD EWSD 061D
1500 CARD EWSD 061E
1500 CARD EWSD 061F
1500 CARD EWSD 0620
1500 CARD EWSD 0621
1500 CARD EWSD 0622
1500 CARD EWSD 0623
1500 CARD EWSD 0624
1500 CARD EWSD 0625
1500 CARD EWSD 0626
1500 CARD EWSD 0627
1500 CARD EWSD 0628
1500 CARD EWSD 0629
1500 CARD EWSD 062A
1500 CARD EWSD 062B
1500 CARD EWSD 062C
1500 CARD EWSD 062D
1500 CARD EWSD 062E
1500 CARD EWSD 062F
1500 CARD EWSD 0630
1500 CARD EWSD 0631
1500 CARD EWSD 0632
1500 CARD EWSD 0633
1500 CARD EWSD 0634
1500 CARD EWSD 0635
1500 CARD EWSD 0636
1500 CARD EWSD 0637
1500 CARD EWSD 0638
1500 CARD EWSD 0639
1500 CARD EWSD 063A
1500 CARD EWSD 063B
1500 CARD EWSD 063C
1500 CARD EWSD 063D
1500 CARD EWSD 063E
1500 CARD EWSD 063F
1500 CARD EWSD 0640
1500 CARD EWSD 0641
1500 CARD EWSD 0642
1500 CARD EWSD 0643
1500 CARD EWSD 0644
1500 CARD EWSD 0645
1500 CARD EWSD 0646
1500 CARD EWSD 0647
1500 CARD EWSD 0648
1500 CARD EWSD 0649
1500 CARD EWSD 064A
1500 CARD EWSD 064B
1500 CARD EWSD 064C
1500 CARD EWSD 064D
1500 CARD EWSD 064E
1500 CARD EWSD 064F
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41 - TAN
42 - GREEN
43 - BLUE
44 - RED

97	EVENT FILE 0 - WARN2 EXCEEDED
98	EVENT FILE 0 - CLEARED
99	EVENT FILE 0 - PURGE IN PROGRESS
100	1 OR MORE ANALOG PTS OUT OF SCAN
101	PRINT FILE 1 - WARN1 EXCEEDED
102	PRINT FILE 1 - WARN2 EXCEEDED
103	PRINT FILE 1 - CLEARED
104	PRINT FILE 1 - PURGE IN PROGRESS
105	TREND PEN NO. 01 OUT OF RANGE
106	TREND PEN NO. 02 OUT OF RANGE
107	TREND PEN NO. 03 OUT OF RANGE
108	TREND PEN NO. 04 OUT OF RANGE
109	TREND PEN NO. 05 OUT OF RANGE
110	TREND PEN NO. 06 OUT OF RANGE
111	TREND PEN NO. 07 OUT OF RANGE
112	TREND PEN NO. 08 OUT OF RANGE
113	TREND PEN NO. 09 OUT OF RANGE
114	TREND PEN NO. 10 OUT OF RANGE
115	TREND PEN NO. 11 OUT OF RANGE
116	TREND PEN NO. 12 OUT OF RANGE
117	TREND PEN NO. 13 OUT OF RANGE
118	TREND PEN NO. 14 OUT OF RANGE
119	TREND PEN NO. 15 OUT OF RANGE
120	TREND PEN NO. 16 OUT OF RANGE
121	INVALID CONVER ROUTINE-ANLFS
122	MISCO SPARE 00
123	MISCO SPARE 01
124	MISCO SPARE 02
125	MISCO SPARE 03
126	MISCO SPARE 04
127	MISCO SPARE 05

ATTACHMENT 3

[illegible]	I-06 B 33 DEAERATOR PRESSURE	NU			12/29/82	
03:24:02	I-06 B 33 DEAERATOR PRESSURE		ALARM			12/29/82
03:30:12	ST-2106 C CIRC SPEED	NORMAL	1140	820	12/29/82	
03:32:41	ST-2112 D CIRC SPEED	LOWARN	690	700	12/29/82	
03:37:56	ST-2112 D CIRC SPEED	NORMAL	955	820	12/29/82	
03:38:09	MAH-9369 LP 1 SHUTDN MOISTURE HI		ALARM			12/29/82
03:38:09	XA-93369 SCRAM TWO LOOP TROUBLE		ALARM			12/29/82
03:38:09	XA-93223 LP 1 SHUTDN AUTOMATIC		ALARM			12/29/82
03:38:09	K52 & K53 SCRAM AUTOMATIC		ALARM			12/29/82
03:38:11	AUTO PIR INITIATED				12/29/82	
03:38:23	HS-9330 SCRAM MANUAL		ALARM			12/29/82
03:38:24	XA-93369 SCRAM TWO LOOP TROUBLE		NORMAL			12/29/82
03:38:54	XA-93223 LP 1 SHUTDN AUTOMATIC		NORMAL			12/29/82
03:38:54	MAH-9369 LP 1 SHUTDN MOISTURE HI		NORMAL			12/29/82
03:41:56	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
03:48:04	AUTO PIR SAVED				12/29/82	
03:55:16	HS-9330 SCRAM MANUAL		NORMAL			12/29/82
03:55:19	K52 & K53 SCRAM AUTOMATIC		NORMAL			12/29/82
03:56:22	HS-9330 SCRAM MANUAL		ALARM			12/29/82
03:56:22	K52 & K53 SCRAM AUTOMATIC		ALARM			12/29/82
03:56:45	ST-2112 D CIRC SPEED	LOWARN	681	700	12/29/82	
04:01:19	I-04 B 33 DEAERATOR PRESSURE		NORMAL			12/29/82
04:17:17	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
04:17:31	ST-2111 B CIRC SPEED	LOWARN	681	700	12/29/82	
04:18:16	SC-2111 B CIRC SPEED CONTROLLER	HIALRM	78.4	75.0	12/29/82	
04:19:45	ST-2111 B CIRC SPEED	NORMAL	991	820	12/29/82	
04:22:01	SC-2111 B CIRC SPEED CONTROLLER	NORMAL	73.5	75.0	12/29/82	
04:22:16	SC-2111 B CIRC SPEED CONTROLLER	HIALRM	75.4	75.0	12/29/82	
04:22:31	ST-2105 A CIRC SPEED	LOWARN	540	700	12/29/82	
04:22:46	ST-2112 D CIRC SPEED	NORMAL	1491	820	12/29/82	
04:26:16	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.01	-1.00	12/29/82	
04:27:16	ST-2106 C CIRC SPEED	LOWARN	651	700	12/29/82	
04:32:02	MI-9306 MOISTURE MONITOR TEMP	HIWARN	60.2	50.0	12/29/82	
04:33:01	MI-9307 MOISTURE MONITOR TEMP	HIWARN	53.0	50.0	12/29/82	
04:33:31	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:33:46	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:01	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:16	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:31	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:31	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:47	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:34:47	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:02	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:02	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:17	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:17	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:42	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:42	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:56	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.95	-0.97	12/29/82	
04:35:56	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:35:56	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:36:11	CALC MI-9306 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:36:11	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:36:26	CALC MI-9306 MOISTURE PPM	NORMAL	27982	ZONERR	12/29/82	
04:36:26	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:36:42	MI-9306 MOISTURE MONITOR TEMP	NORMAL	1.1	32767	12/29/82	
[illegible]	CALC MI-9307 MOISTURE	HIALRM	32767		12/29/82	
04:36:56	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:37:12	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:37:27	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:37:42	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:37:56	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:38:12	MI-9307 MOISTURE MONITOR TEMP	NORMAL	5.1	45.0	12/29/82	
04:38:12	CALC MI-9307 MOISTURE PPM	HIALRM	32767	32767	12/29/82	
04:38:27	CALC MI-9307 MOISTURE PPM	NORMAL	556	ZONERR	12/29/82	
04:45:26	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
04:52:41	TE-4149 CIRCULAT WTR INLET TEMP	NORMAL	42	42	12/29/82	
04:56:12	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
04:56:12	TE-3193 BFP SUCTION TEMP	HIWARN	200	200	12/29/82	
05:05:41	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
05:14:11	TE-5308 HEATER 6 EXTRACTION TEMP	LOWARN	138	138	12/29/82	
05:17:42	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
05:25:27	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
05:36:12	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
05:37:28	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
05:37:55	I-06 B 33 DEAERATOR PRESSURE		ALARM			12/29/82
05:38:02	ST-2105 A CIRC SPEED	NORMAL	925	820	12/29/82	
05:38:02	PI-5192 GLAND SEAL STEAM PRESS	LOWDEN	-0.1	1.0	12/29/82	
05:38:18	ST-2111 B CIRC SPEED	LOWARN	696	700	12/29/82	
05:38:18	ST-2106 C CIRC SPEED	NORMAL	1140	820	12/29/82	
05:38:18	ST-2112 D CIRC SPEED	LOWARN	510	700	12/29/82	
05:41:31	PI-5343 HEATER 1 EXTRACT PRESS	NORMAL	1.97	1.00	12/29/82	
05:41:46	PT-5247-2 CONDENSER PRESSURE	HIALRM	4.12	4.00	12/29/82	
05:42:02	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
[illegible]	PS-5127-8 TURBINE [illegible] TRIP	TRIP	ALARM			

05:45:44	AUTO PIR INITIATED				12/29/82	
	05:49:41 I-06 B 33 DEAERATOR PRESSURE		NORMAL			12/29/82
05:50:31	PT-5102 GLAND SEAL STEAM PRESS	NORMAL	1.4	1.2	12/29/82	
05:52:46	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
05:53:02	ST-2111 B CIRC SPEED	NORMAL	840	820	12/29/82	
	05:55:22 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	05:55:22 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
05:56:00	ST-2111 B CIRC SPEED	LOWARN	501	700	12/29/82	
05:56:14	AUTO PIR SAVED				12/29/82	
	05:56:59 I-06 B 33 DEAERATOR PRESSURE		ALARM			12/29/82
05:57:16	PT-5102 GLAND SEAL STEAM PRESS	LOWARN	-0.3	1.0	12/29/82	
06:03:16	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
06:09:01	PT-5340 HEATER 2 EXTRACT PRESS	NORMAL	2.41	2.40	12/29/82	
06:09:16	TE-3195 BFP SUCTION TEMP	NORMAL	190	190	12/29/82	
	06:14:48 XA-93223 LP 1 SHUTDN AUTOMATIC		NORMAL			12/29/82
	06:14:48 MAH-9369 LP 1 SHUTDN MOISTURE HI		NORMAL			12/29/82
06:16:31	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
06:18:16	PT-5339 HEATER 3 EXTRACT PRESS	NORMAL	3.60	3.60	12/29/82	
06:28:01	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
	06:29:22 I-06 B 33 DEAERATOR PRESSURE		NORMAL			12/29/82
06:29:31	PT-5102 GLAND SEAL STEAM PRESS	NORMAL	1.3	1.2	12/29/82	
06:31:17	SC-2111 B CIRC SPEED CONTROLLER	NORMAL	20.2	75.0	12/29/82	
06:34:16	PT-5339 HEATER 3 EXTRACT PRESS	LOWARN	2.86	3.00	12/29/82	
06:36:16	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
06:36:46	PT-5340 HEATER 2 EXTRACT PRESS	LOWARN	1.97	2.00	12/29/82	
	06:40:55 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	06:40:55 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
	06:41:51 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	06:41:51 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
	06:42:50 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	06:42:50 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
06:43:16	TE-5161 TURBINE EXHUST HOOD TEMP	HIWARN	175	175	12/29/82	
	06:43:50 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	06:43:50 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
	06:44:51 I-06 B 51 FW DEAERATOR OUTLET 02		ALARM			12/29/82
	06:44:51 I-06 B 51 FW DEAERATOR OUTLET 02		NORMAL			12/29/82
06:46:01	LT-3175 DEARATOR LEVEL FROM NORM	NORMAL	-0.97	-0.97	12/29/82	
06:51:31	TE-5161 TURBINE EXHUST HOOD TEMP	NORMAL	165	165	12/29/82	
06:56:07	LT-3175 DEARATOR LEVEL FROM NORM	LOWARN	-1.00	-1.00	12/29/82	
	06:56:14 FS-5177,8 TURBINE TRIP LO VACUUM		NORMAL			12/29/82
07:01:43	PT-5247-2 CONDENSER PRESSURE	NORMAL	3.97	4.00	12/29/82	

ATTACHMENT 4

STATION	POINT #	POINT DESCRIPTION	PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
8	00	COMPUTER TIME: HOURS - MINUTES	9000				
	1	COMPUTER TIME: SECONDS	9001				
	2	SPARE 8-2	0				
	3	CC TC PANEL 01 RTD VOLTAGE	0				
	4	CALC CC TC PANEL 01 REF TEMP	9002				
	5	CALC CC TC PANEL 01 REF VOLTS	9003	90.0	90.0	45.0	45.0
	6	CC TC PANEL 02 RTD VOLTAGE	0				
	7	CALC CC TC PANEL 02 REF TEMP	9004				
	8	CALC CC TC PANEL 02 REF VOLTS	9005	90.0	90.0	45.0	45.0
	9	GERMINOL TC PANEL RTD VOLTAGE	0				
	10	CALC GERMINOL TC PANEL REF TEMP	9006				
	11	CALC GERMINOL TC PANEL REF VOLTS	9007	90.0	90.0	45.0	45.0
	12	CALC GERMINOL TC PANEL REF BIAS	9008				
	13	NO INST # AUX ROOM AIR SUP TEMP	0				
	14	# CABINET AMBIENT AIR TEMP	0	78	75		
	15	NO INST # COMPUTER AIR TEMP OUT	0	80	75	65	60
	16	SPARE 8-16 SPDS BLINKER	0	120	101		
	17	SPARE 8-17	0	1	1		
	18	NO INST # REACTIVITY COMPUTER	0				
	19	RTD REFERENCE VOLTAGE J-68-E	0		9.00	-9.00	
	20	RTD REFERENCE VOLTAGE J-68-F	0				
	21	SPARE 8-21	0				
	22	SPARE 8-22	0				
	23	SPARE 8-23	0				
	24	SPARE 8-24	0				
	25	SPARE 8-25	0				
	26	SPARE 8-26	0				
	27	SPARE 8-27	0				
	28	SPARE 8-28 MUX $100	0				
	29	SPARE 8-29 MUX $10E	0				
	30	SPARE 8-30 MUX $10D	0				
	31	SPARE 8-31 MUX $0E	0				
11	0	SPARE 11-00	0				
	1	TE-11101-2 CORE OUT GAS TEMP 01	16		1520	100	
	2	TE-11102-2 CORE OUT GAS TEMP 02	17		1520	100	
	3	TE-11103-2 CORE OUT GAS TEMP 03	18		1520	100	
	4	TE-11104-2 CORE OUT GAS TEMP 04	19		1520	100	
	5	TE-11105-2 CORE OUT GAS TEMP 05	20		1520	100	
	6	TE-11106-2 CORE OUT GAS TEMP 06	21		1520	100	
	7	TE-11107-2 CORE OUT GAS TEMP 07	22		1520	100	
	8	TE-11108-2 CORE OUT GAS TEMP 08	23		1520	100	
	9	TE-11109-2 CORE OUT GAS TEMP 09	24		1520	100	
	10	TE-11110-2 CORE OUT GAS TEMP 10	25		1520	100	
	11	TE-11111-2 CORE OUT GAS TEMP 11	26		1520	100	
	12	TE-11112-2 CORE OUT GAS TEMP 12	27		1520	100	
	13	TE-11113-2 CORE OUT GAS TEMP 13	28		1520	100	
	14	TE-11114-2 CORE OUT GAS TEMP 14	29		1520	100	
	15	TE-11115-2 CORE OUT GAS TEMP 15	30		1520	100	
	16	TE-11116-2 CORE OUT GAS TEMP 16	31		1520	100	
	17	TE-11117-2 CORE OUT GAS TEMP 17	32		1520	100	
	18	TE-11118-2 CORE OUT GAS TEMP 18	33		1520	100	
	19	TE-11119-2 CORE OUT GAS TEMP 19	34		1520	200	
	20	REGION 20 OUTLET TE	35		1520	100	
	21	TE-11121-2 CORE OUT GAS TEMP 21	36		1520	100	

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STATION	POINT	POINT DESCRIPTION	INTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	22	TE-11122-2 CORE OUT GAS TEMP 22	37		1520	100	
	23	TE-11123-2 CORE OUT GAS TEMP 23	38		1520	100	
	24	TE-11124-2 CORE OUT GAS TEMP 24	39		1520	100	
	25	TE-11125-2 CORE OUT GAS TEMP 25	40		1520	100	
	26	TE-11126-2 CORE OUT GAS TEMP 26	41		1520	100	
	27	TE-11127-2 CORE OUT GAS TEMP 27	42		1520	100	
	28	TE-11128-2 CORE OUT GAS TEMP 28	43		1520	100	
	29	TE-11129-2 CORE OUT GAS TEMP 29	44		1520	100	
	30	TE-11130-2 CORE OUT GAS TEMP 30	45		1520	100	
	31	TE-11131-2 CORE OUT GAS TEMP 31	46		1520	100	
	32	REGION 32 OUTLET TEMP	47		1520	100	
	33	REGION 33 OUTLET TEMP	48		1520	100	
	34	REGION 34 OUTLET TEMP	49		1520	100	
	35	REGION 35 OUTLET TEMP	50		1520	100	
	36	REGION 36 OUTLET TEMP	51		1520	100	
	37	REGION 37 OUTLET TEMP	52		1520	100	
	38	SPARE 11-38	0				
	39	CALC A CIRC IN TEMP WITH BIAS	0				
	40	CALC A CIRC IN TEMP WITH BIAS	0				
	41	CALC B CIRC IN TEMP WITH BIAS	0				
	42	CALC B CIRC IN TEMP WITH BIAS	393				
	43	CALC C CIRC IN TEMP WITH BIAS	0				
	44	CALC C CIRC IN TEMP WITH BIAS	0				
	45	CALC D CIRC IN TEMP WITH BIAS	0				
	46	CALC D CIRC IN TEMP WITH BIAS	0				
	47	PDM-1157-2 A CIRC FLOW DP (LOW)	398		0.450	-0.450	
	48	PDM-1159-2 B CIRC FLOW DP (LOW)	399		0.450	-0.450	
	49	PDM-1158-2 C CIRC FLOW DP (LOW)	400		0.450	-0.450	
	50	PDM-1160-2 D CIRC FLOW DP (LOW)	401		0.450	-0.450	
	51	PDT-1157-1 A CIRC FLOW DP (HIGH)	308		45.00	0.45	
	52	PDT-1159-1 B CIRC FLOW DP (HIGH)	67		45.00	0.45	
	53	PDT-1158-1 C CIRC FLOW DP (HIGH)	61		45.00	0.45	
	54	PDT-1160-1 D CIRC FLOW DP (HIGH)	73		45.00	0.45	
	55	PDT-1179 A CIRC DP	439		18.00	0.00	
	56	PDT-1181 B CIRC DP	440		18.00	0.00	
	57	PDT-1180 C CIRC DP	441		18.00	0.00	
	58	PDT-1182 D CIRC DP	442		18.00	0.00	
	59	PDT-1132 CORE PRESSURE DROP	445		5.00	0.50	
	60	PT-1180 PRIMARY COOLANT PRESS	9		600	600	
	61	PT-11271P PRIMARY COOLANT PRESS	542				
	62	PT-1130 PENETRATION PRESSURE	543				
	63	NIM-1131-1 LOG RATE CHANNEL 1	544				
	64	NIM-1132-1 LOG RATE CHANNEL 2	545				
	65	NIM-1133-1 WIDE RANGE CHANNEL 3	546				
	66	NIM-1134-1 WIDE RANGE CHANNEL 4	547				
	67	NIM-1135-1 WIDE RANGE CHANNEL 5	548				
	68	NIM-1131-3 LINEAR POWER CHANL 3	1		100.0	0.0	
	69	NIM-1132-3 LINEAR POWER CHANL 4	2		100.0	0.0	
	70	NIM-1133-3 LINEAR POWER CHANL 5	3		100.0	0.0	
	71	NIM-1136 LINEAR POWER CHANNEL 6	4		100.0	0.0	
	72	NIM-1137 LINEAR POWER CHANNEL 7	5		100.0	0.0	
	73	NIM-1138 LINEAR POWER CHANNEL 8	6		100.0	0.0	
	74	NIC-1197 FLUX CONTROLLER PERCENT	549				
	75	FR-11200 POWER/FLOW RATIO	550	10.50	10.50		
	76	FI-11263 PUMP RPM POWER FLOW	551				
	77	SPARE 11-77	0				

	78	SPARE 11-78	0				
	79	SPARE 11-79	0				
	80	SPARE 11-80	0				
	81	CALC AVE CORE INLET TEMP	9009				
	82	CALC AVE FUEL TEMP	9010				
	83	CALC AVE CORE OUTLET TEMP	9011				45
	84	SPARE 11-84	0				
	85	SPARE 11-85	0				
	86	SPARE 11-86	0				
	87	SPARE 11-87	0				
	88	SPARE 11-88	0				
	89	SPARE 11-89	0				
	90	TOTAL CORE HE FLOW MULTIPLIER	0				
	91	CALC A CIRC AVE INLET TEMP	9012				
	92	CALC B CIRC AVE INLET TEMP	9013				
	93	CALC C CIRC AVE INLET TEMP	9014				
	94	CALC D CIRC AVE INLET TEMP	9015				
	95	CALC AVE CIRC INLET TEMP	9016				
	96	SPARE 11-96	0				
	97	CALC A CIRC HELIUM FLOW	9017				
	98	CALC B CIRC HELIUM FLOW	9018				
	99	CALC C CIRC HELIUM FLOW	9019				
	100	CALC D CIRC HELIUM FLOW	9020				
	101	CALC TOTAL HELIUM FLOW	9021				
	102	CALC TOTAL CORE HELIUM FLOW	9022				
	103	CALC PERCENT TOTAL HE FLOW	9023				
	104	CALC PERCENT CORE BYPASS FLOW	9024				
	105	CALC GAS BALANCE POWER MW(T)	9025				
	106	CALC AVE CORRECTED POWER	9026				
	107	CALC SEC HEAT BALANCE POWER MWT	9027				
	108	CALC LINEAR CHANNELS POWER MW(T)	9028				
	109	CALC GAS BALANCE POWER %	9029				
	110	CALC AVE CORRECTED POWER	9030				
	111	CALC SEC HEAT BALANCE POWER-%	9031				
	112	CALC AVE LINEAR CHAN POWER %	9032				
	113	CALC LINEAR CHAN 3 DEV FROM AVE	9033				
	114	CALC LINEAR CHAN 4 DEV FROM AVE	9034				
	115	CALC LINEAR CHAN 5 DEV FROM AVE	9035				
	116	CALC LINEAR CHAN 6 DEV FROM AVE	9036				
	117	CALC LINEAR CHAN 7 DEV FROM AVE	9037				
	118	CALC LINEAR CHAN 8 DEV FROM AVE	9038				
	119	SPARE 11-119	0				
	120	CALC GAS BAL POWER/FLOW RATIO	9039	1.050	1.050		
	121	CALC CORE RESISTANCE	9040				
	122	RXCORE ERROR FLAG	0				
	123	MAN OVERRIDE 0=AUT 1=CRIT 2=SCRM	0				
	124	RUN FLAG 0=SCRAMMED 1=RUN	0				
	125	SELECTED REACTOR PRESSURE	0				
	126	TE-11120-2 CORE OUT GAS TEMP 20	35		1520	100	
	127	TE-11132-2 CORE OUT GAS TEMP 32	47		1520	100	
	128	TE-11133-2 CORE OUT GAS TEMP 33	48		1520	100	
	129	TE-11134-2 CORE OUT GAS TEMP 34	49		1520	100	
	130	TE-11135-2 CORE OUT GAS TEMP 35	50		1520	100	
	131	TE-11136-2 CORE OUT GAS TEMP 36	51		1520	100	
	132	TE-11137-2 CORE OUT GAS TEMP 37	52		1520	100	
	133	CALC OFF TEMP REGION 20	0				

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STATION	POINT	POINT DESCRIPTION	EXTERNAL PT. NO.	ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	134	CALC RPF TEMP REGION 32	0				
	135	CALC RPF TEMP REGION 33	0				
	136	CALC RPF TEMP REGION 34	0				
	137	CALC RPF TEMP REGION 35	0				
	138	CALC RPF TEMP REGION 36	0				
	139	CALC RPF TEMP REGION 37	0				
	140	SPARE 11-140	0				
	141	SPARE 11-141	0				
	142	SPARE 11-142	0				
	143	SPARE 11-143	0				
	144	SPARE 11-144	0				
	145	TE-1175 A CIRC INLET PLENUM TEMP	526				
	146	TE-1176 A CIRC INLET PLENUM TEMP	527				
	147	TE-1177 B CIRC INLET PLENUM TEMP	528				
	148	TE-1178 B CIRC INLET PLENUM TEMP	393				
	149	TE-1179 C CIRC INLET PLENUM TEMP	529				
	150	TE-1174 C CIRC INLET PLENUM TEMP	392				
	151	TE-1171 D CIRC INLET PLENUM TEMP	530				
	152	TE-1172 D CIRC INLET PLENUM TEMP	531				
	153	SPARE 11-153	0				
	154	SPARE 11-154	0				
	155	SPARE 11-155	0				
	156	CALC NEW SEC. HEAT BALANCE MW(T)	0				
	157	CALC NEW SEC. HEAT BALANCE %	0				
	158	TOTAL AVE LINEAR CHANNELS	0				
	159	100 % POWER CONSTANT	0				
12	0	SPARE 12-000	0				
	1	ZT-1212-1 ORIFICE POSITION 01	402		97.5	4.0	
	2	ZT-1212-2 ORIFICE POSITION 02	403		97.5	4.0	
	3	ZT-1212-3 ORIFICE POSITION 03	404		97.5	4.0	
	4	ZT-1212-4 ORIFICE POSITION 04	405		97.5	4.0	
	5	ZT-1212-5 ORIFICE POSITION 05	406		97.5	4.0	
	6	ZT-1212-6 ORIFICE POSITION 06	407		97.5	4.0	
	7	ZT-1212-7 ORIFICE POSITION 07	408		97.5	4.0	
	8	ZT-1212-8 ORIFICE POSITION 08	409		97.5	4.0	
	9	ZT-1212-9 ORIFICE POSITION 09	410		97.5	4.0	
	10	ZT-1212-10 ORIFICE POSITION 10	411		97.5	4.0	
	11	ZT-1212-11 ORIFICE POSITION 11	412		97.5	4.0	
	12	ZT-1212-12 ORIFICE POSITION 12	413		97.5	4.0	
	13	ZT-1212-13 ORIFICE POSITION 13	414		97.5	4.0	
	14	ZT-1212-14 ORIFICE POSITION 14	415		97.5	4.0	
	15	ZT-1212-15 ORIFICE POSITION 15	416		97.5	4.0	
	16	ZT-1212-16 ORIFICE POSITION 16	417		97.5	4.0	
	17	ZT-1212-17 ORIFICE POSITION 17	418		97.5	4.0	
	18	ZT-1212-18 ORIFICE POSITION 18	419		97.5	4.0	
	19	ZT-1212-19 ORIFICE POSITION 19	420		97.5	4.0	
	20	ZT-1212-20 ORIFICE POSITION 20	421		97.5	4.0	
	21	ZT-1212-21 ORIFICE POSITION 21	422		97.5	4.0	
	22	ZT-1212-22 ORIFICE POSITION 22	423		97.5	4.0	
	23	ZT-1212-23 ORIFICE POSITION 23	424		97.5	4.0	
	24	ZT-1212-24 ORIFICE POSITION 24	425		97.5	4.0	
	25	ZT-1212-25 ORIFICE POSITION 25	426		97.5	4.0	
	26	ZT-1212-26 ORIFICE POSITION 26	427		97.5	4.0	
	27	ZT-1212-27 ORIFICE POSITION 27	428		97.5	4.0	
	28	ZT-1212-28 ORIFICE POSITION 28	429		97.5	4.0	
	29	ZT-1212-29 ORIFICE POSITION 29	430		97.5	4.0	

		POINT DESCRIPTION	SEQ. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	30	ZT-1212-30 ORIFICE POSITION 30	431		97.5	4.0	
	31	ZT-1212-31 ORIFICE POSITION 31	432		97.5	4.0	
	32	ZT-1212-32 ORIFICE POSITION 32	433		97.5	4.0	
	33	ZT-1212-33 ORIFICE POSITION 33	434		97.5	4.0	
	34	ZT-1212-34 ORIFICE POSITION 34	435		97.5	4.0	
	35	ZT-1212-35 ORIFICE POSITION 35	436		97.5	4.0	
	36	ZT-1212-36 ORIFICE POSITION 36	437		97.5	4.0	
	37	ZT-1212-37 ORIFICE POSITION 37	438		97.5	4.0	
	38	SPARE 12-38	0				
	39	SPARE 12-39	0				
	40	SPARE 12-40	0				
	41	SPARE 12-41	0				
	42	SPARE 12-42	0				
	43	SPARE 12-43	0				
	44	SPARE 12-44	0				
	45	SPARE 12-45	0				
	46	SPARE 12-46	0				
	47	SPARE 12-47	0				
	48	SPARE 12-48	0				
	49	SPARE 12-49	0				
	50	SPARE 12-50	0				
	51	ZT-1233-1 CONTROL ROD 01	553				
	52	ZT-1233-2 CONTROL ROD 02	554				
	53	ZT-1233-3 CONTROL ROD 03	555				
	54	ZT-1233-4 CONTROL ROD 04	556				
	55	ZT-1233-5 CONTROL ROD 05	557				
	56	ZT-1233-6 CONTROL ROD 06	558				
	57	ZT-1233-7 CONTROL ROD 07	559				
	58	ZT-1233-8 CONTROL ROD 08	560				
	59	ZT-1233-9 CONTROL ROD 09	561				
	60	ZT-1233-10 CONTROL ROD 10	562				
	61	ZT-1233-11 CONTROL ROD 11	563				
	62	ZT-1233-12 CONTROL ROD 12	564				
	63	ZT-1233-13 CONTROL ROD 13	565				
	64	ZT-1233-14 CONTROL ROD 14	566				
	65	ZT-1233-15 CONTROL ROD 15	567				
	66	ZT-1233-16 CONTROL ROD 16	568				
	67	ZT-1233-17 CONTROL ROD 17	569				
	68	ZT-1233-18 CONTROL ROD 18	570				
	69	ZT-1233-19 CONTROL ROD 19	571				
	70	ZT-1233-20 CONTROL ROD 20	572				
	71	ZT-1233-21 CONTROL ROD 21	573				
	72	ZT-1233-22 CONTROL ROD 22	574				
	73	ZT-1233-23 CONTROL ROD 23	575				
	74	ZT-1233-24 CONTROL ROD 24	576				
	75	ZT-1233-25 CONTROL ROD 25	577				
	76	ZT-1233-26 CONTROL ROD 26	578				
	77	ZT-1233-27 CONTROL ROD 27	579				
	78	ZT-1233-28 CONTROL ROD 28	580				
	79	ZT-1233-29 CONTROL ROD 29	581				
	80	ZT-1233-30 CONTROL ROD 30	582				
	81	ZT-1233-31 CONTROL ROD 31	583				
	82	ZT-1233-32 CONTROL ROD 32	584				
	83	ZT-1233-33 CONTROL ROD 33	585				
	84	ZT-1233-34 CONTROL ROD 34	586				
	85	ZT-1233-35 CONTROL ROD 35	587				

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			POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
		86	ZT-1233-36 CONTROL ROD 36	588				
		87	ZT-1233-37 CONTROL ROD 37	589				
		88	SPARE 12-88	0				
		89	SPARE 12-89	0				
		90	SPARE 12-90	0				
		91	SPARE 12-91	0				
		92	SPARE 12-92	0				
		93	SPARE 12-93	0				
		94	SPARE 12-94	0				
		95	SPARE 12-95	0				
	21	0	SPARE 21-00	0				
		1	ST-2105 A CIRC SPEED	53		10800	700	
		2	ST-2111 B CIRC SPEED	64		10800	700	
		3	ST-2106 C CIRC SPEED	58		10800	700	
		4	ST-2112 D CIRC SPEED	70		10800	700	
		5	SC-2105 A CIRC SPEED CONTROLLER	590	75.0	75.0		
		6	SC-2111 B CIRC SPEED CONTROLLER	591	75.0	75.0		
		7	SC-2106 C CIRC SPEED CONTROLLER	592	75.0	75.0		
		8	SC-2112 D CIRC SPEED CONTROLLER	593	75.0	75.0		
		9	FT-2167 A CIRC BUF HE SUPLY FLOW	327		9.50	5.00	
		10	FT-2169 B CIRC BUF HE SUPLY FLOW	329		9.50	5.00	
		11	FT-2168 C CIRC BUF HE SUPLY FLOW	328		9.50	5.00	
		12	FT-2170 D CIRC BUF HE SUPLY FLOW	330		9.50	5.00	
		13	FC-2167 A CIRC BUF HE SUPLY CONT	327				
		14	FC-2169 B CIRC BUF HE SUPLY CONT	329				
		15	FC-2168 C CIRC BUF HE SUPLY CONT	328				
		16	FC-2170 D CIRC BUF HE SUPLY CONT	330				
		17	PDT-21389 A CIRC BUF-MID BUFF DP	598	60	60	5	5
		18	PDT-21391 B CIRC BUF-MID BUFF DP	599	60	60	5	5
		19	PDT-21390 C CIRC BUF-MID BUFF DP	600	60	60	5	5
		20	PDT-21392 D CIRC BUF-MID BUFF DP	601	60	60	5	5
		21	LT-21121 A CIRC HP SEP LEVEL	602				
		22	LT-21123 B CIRC HP SEP LEVEL	603				
		23	LT-21122 C CIRC HP SEP LEVEL	604				
		24	LT-21124 D CIRC HP SEP LEVEL	605				
		25	FT-2171 A CIRC BUF HE RETRN FLOW	323		5.00	2.50	
		26	FT-2173 B CIRC BUF HE RETRN FLOW	324		5.00	2.50	
		27	FT-2172 C CIRC BUF HE RETRN FLOW	325		5.00	2.50	
		28	FT-2174 D CIRC BUF HE RETRN FLOW	326		5.00	2.50	
		29	FC-2171 A CIRC BUF HE RETRN CONT	323				
		30	FC-2173 B CIRC BUF HE RETRN CONT	324				
		31	FC-2172 C CIRC BUF HE RETRN CONT	325				
		32	FC-2174 D CIRC BUF HE RETRN CONT	326				
		33	FT-21425 A CIRC HP SEP DRAIN FLO	610		5.00	2.50	
		34	FT-21427 B CIRC HP SEP DRAIN FLO	611		5.00	2.50	
		35	FT-21426 C CIRC HP SEP DRAIN FLO	612		5.00	2.50	
		36	FT-21428 D CIRC HP SEP DRAIN FLO	613		5.00	2.50	
		37	FM-2183 A CIRC NORM BRG WTR FLOW	82		350.0	140.0	
		38	FM-2185 B CIRC NORM BRG WTR FLOW	88		350.0	140.0	
		39	FM-2184 C CIRC NORM BRG WTR FLOW	94		350.0	140.0	
		40	FM-2186 D CIRC NORM BRG WTR FLOW	100		350.0	140.0	
		41	FM-21137 A CIRC EM BEAR WTR FLOW	614				
		42	FM-21139 B CIRC EM BEAR WTR FLOW	615				
		43	FM-21138 C CIRC EM BEAR WTR FLOW	616				
		44	FM-21140 D CIRC EM BEAR WTR FLOW	617				
		45	PDM-21339 A CIRC MN/STM WTR DRN	618				

STATION	ELEMENT	PT	POINT DESCRIPTION	EXTERNAL POINT ADDR	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	46		PDM-21341 B CIRC MN/STM WTR DRN	619				
	47		PDM-21340 C CIRC MN/STM WTR DRN	620				
	48		PDM-21342 D CIRC MN/STM WTR DRN	621				
	49		PT-21503 A CIRC TURB EXH PRESS	622				
	50		PT-21505 B CIRC TURB EXH PRESS	623				
	51		PT-21504 C CIRC TURB EXH PRESS	624				
	52		PT-21506 D CIRC TURB EXH PRESS	625				
	53		SPARE 21-53	0				
	54		SPARE 21-54	0				
	55		SPARE 21-55	0				
	56		SPARE 21-56	0				
	57		PDT-2143 LP1 BUFF HE RECIRC DP	626				
	58		PDT-2144 LP2 BUFF HE RECIRC DP	627				
	59		PDC-2143 LP1 BUF HE RECIRC CONT	628				
	60		PDC-2144 LP2 BUF HE RECIRC CONT	629				
	61		FT-21411 LP 1 BUFFR HE RECIRC FLO	76	300.0		25.0	
	62		FT-21412 LP 2 BUFFR HE RECIRC FLO	77	300.0		25.0	
	63		PDT-2147 LP1 PCRV/SURGE TNK DP	630				
	64		PDT-2148 LP2 PCRV/SURGE TNK DP	631				
	65		LT-21135 LP1 BW SURGE TANK PRESS	632				
	66		LT-21136 LP2 BW SURGE TANK PRESS	633				
	67		FE-21209 LP1 BW SURGE TK MU FLOW	634				
	68		FE-21208 LP2 BW SURGE TK MU FLOW	635				
	69		PT-21105 BACKUP BRG WTR HDR PRES	636			1750	1750
	70		PC-21105 BACKUP BRG WTR HDR CONT	637				
	71		LT-21118 LP SEPARATOR LEVEL	638				
	72		PT-21493 LP SEPARATOR PRESS	639				
	73		RIS-21251 LP SEP OUTLET RAD MON	640				
	74		SPARE 21-74	0				
	75		SPARE 21-75	0				
	76		CALC RIS-21251 LP SEP OUTLET	9041				
	77		CALS RIS-21251 LP SEP OUTLET E	0				
	78		SPARE 21-78	0				
	79		SPARE 21-79	0				
	80		SPARE 21-80	0				
	81		SPARE 21-81	0				
	82		SPARE 21-82	0				
	83		SPARE 21-83	0				
	84		SPARE 21-84	0				
	85		SPARE 21-85	0				
	86		SPARE 21-86	0				
	87		SPARE 21-87	0				
	88		SPARE 21-88	0				
	89		SPARE 21-89	0				
	90		SPARE 21-90	0				
	91		SPARE 21-91	0				
	92		SPARE 21-92	0				
	93		SPARE 21-93	0				
	94		SPARE 21-94	0				
	95		SPARE 21-95	0				
	96		SPARE 21-96	0				
	97		SPARE 21-97	0				
	98		SPARE 21-98	0				
	99		SPARE 21-99	0				
	100		SPARE 21-100	0				
	101		TE-21272-1 SG B12 HE EXH INLET	0				

#1: BLUE
#1: RED
#1: TAN
#2: GREEN

	TAG NO.	POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
102	TE-21272-2	SG B12 HE RH INLET	0				
103	TE-21272-3	SG B12 HE RH INLET	0				
104	TE-21272-4	SG B12 HE RH INLET	0				
105	TE-21272-5	SG B12 HE RH INLET	0				
106	TE-21272-6	SG B12 HE RH INLET	0				
107	TE-21272-7	SG B11 HE RH INLET	0				
108	TE-21272-8	SG B11 HE RH INLET	0				
109	TE-21272-9	SG B11 HE RH INLET	0				
110	TE-21272-10	SG B11 HE RH INLET	0				
111	TE-21272-11	SG B11 HE RH INLET	0				
112	TE-21272-12	SG B11 HE RH INLET	0				
113	TE-21272-13	SG B13 HE RH INLET	0				
114	TE-21272-14	SG B13 HE RH INLET	0				
115	TE-21272-15	SG B13 HE RH INLET	0				
116	TE-21272-16	SG B13 HE RH INLET	0				
117	TE-21272-17	SG B13 HE RH INLET	0				
118	TE-21272-18	SG B13 HE RH INLET	0				
119	TE-21272-19	SG B14 HE RH INLET	0				
120	TE-21272-20	SG B14 HE RH INLET	0				
121	TE-21272-21	SG B14 HE RH INLET	0				
122	TE-21272-22	SG B14 HE RH INLET	0				
123	TE-21272-23	SG B14 HE RH INLET	0				
124	TE-21272-24	SG B14 HE RH INLET	0				
125	TE-21272-25	SG B15 HE RH INLET	0				
126	TE-21272-26	SG B15 HE RH INLET	0				
127	TE-21272-27	SG B15 HE RH INLET	0				
128	TE-21272-28	SG B15 HE RH INLET	0				
129	TE-21272-29	SG B15 HE RH INLET	0				
130	TE-21272-30	SG B15 HE RH INLET	0				
131	TE-21272-31	SG B16 HE RH INLET	0				
132	TE-21272-32	SG B16 HE RH INLET	0				
133	TE-21272-33	SG B16 HE RH INLET	0				
134	TE-21272-34	SG B16 HE RH INLET	0				
135	TE-21272-35	SG B16 HE RH INLET	0				
136	TE-21272-36	SG B16 HE RH INLET	0				
137	TE-21272-37	SG B23 HE RH INLET	0				
138	TE-21272-38	SG B23 HE RH INLET	0				
139	TE-21272-39	SG B23 HE RH INLET	0				
140	TE-21272-40	SG B23 HE RH INLET	0				
141	TE-21272-41	SG B23 HE RH INLET	0				
142	TE-21272-42	SG B23 HE RH INLET	0				
143	TE-21272-43	SG B23 HE RH INLET	0				
144	TE-21272-44	SG B23 HE RH INLET	0				
145	TE-21272-45	SG B23 HE RH INLET	0				
146	TE-21272-46	SG B23 HE RH INLET	0				
147	TE-21272-47	SG B23 HE RH INLET	0				
148	TE-21272-48	SG B23 HE RH INLET	0				
149	TE-21272-49	SG B26 HE RH INLET	0				
150	TE-21272-50	SG B26 HE RH INLET	0				
151	TE-21272-51	SG B26 HE RH INLET	0				
152	TE-21272-52	SG B26 HE RH INLET	0				
153	TE-21272-53	SG B26 HE RH INLET	0				
154	TE-21272-54	SG B26 HE RH INLET	0				
155	TE-21272-55	SG B22 HE RH INLET	0				
156	TE-21272-56	SG B22 HE RH INLET	0				
157	TE-21272-57	SG B22 HE RH INLET	0				

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STATION	POINT	POINT DESCRIPTION	SETPOINT PT. NO.	HI-HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW-LOW ALARM LIMIT
	158	TE-21272-58 SG B22 HE RH INLET	0				
	159	TE-21272-59 SG B22 HE RH INLET	0				
	160	TE-21272-60 SG B22 HE RH INLET	0				
	161	TE-21272-61 SG B25 HE RH INLET	0				
	162	TE-21272-62 SG B25 HE RH INLET	0				
	163	TE-21272-63 SG B25 HE RH INLET	0				
	164	TE-21272-64 SG B25 HE RH INLET	0				
	165	TE-21272-65 SG B25 HE RH INLET	0				
	166	TE-21272-66 SG B25 HE RH INLET	0				
	167	TE-21272-67 SG B21 HE RH INLET	0				
	168	TE-21272-68 SG B21 HE RH INLET	0				
	169	TE-21272-69 SG B21 HE RH INLET	0				
	170	TE-21272-70 SG B21 HE RH INLET	0				
	171	TE-21272-71 SG B21 HE RH INLET	0				
	172	TE-21272-72 SG B21 HE RH INLET	0				
	173	TE-21272-73 SG B24 HE RH INLET	0				
	174	TE-21272-74 SG B24 HE RH INLET	0				
	175	TE-21272-75 SG B24 HE RH INLET	0				
	176	TE-21272-76 SG B24 HE RH INLET	0				
	177	TE-21272-77 SG B24 HE RH INLET	0				
	178	TE-21272-78 SG B24 HE RH INLET	0				
	179	SPARE 21-179	0				
	180	SPARE 21-180	0				
	181	SPARE 21-181	0				
	182	SPARE 21-182	0				
	183	SPARE 21-183	0				
	184	SPARE 21-184	0				
	185	TE-21272-85 SG B23 HE RH-SH II	0				
	186	TE-21272-86 SG B23 HE RH-SH II	0				
	187	TE-21272-87 SG B23 HE RH-SH II	0				
	188	TE-21272-88 SG B23 HE RH-SH II	0				
	189	TE-21272-89 SG B23 HE RH-SH II	0				
	190	TE-21272-90 SG B23 HE RH-SH II	0				
	191	TE-21272-91 SG B23 HE RH-SH II	0				
	192	TE-21272-92 SG B23 HE RH-SH II	0				
	193	TE-21272-93 SG B23 HE RH-SH II	0				
	194	TE-21272-94 SG B23 HE RH-SH II	0				
	195	TE-21272-95 SG B23 HE RH-SH II	0				
	196	TE-21272-96 SG B23 HE RH-SH II	0				
	197	TE-21272-97 SG B23 HE EES-SH II	0				
	198	TE-21272-98 SG B23 HE EES-SH II	0				
	199	TE-21272-99 SG B23 HE EES-SH II	0				
	200	TE-21272-100 SG B23 HE EES-SH II	0				
	201	TE-21272-101 SG B23 HE EES-SH II	0				
	202	TE-21272-102 SG B23 HE EES-SH II	0				
	203	TE-21272-103 SG B23 HE EES-SH II	0				
	204	TE-21272-104 SG B23 HE EES-SH II	0				
	205	TE-21272-105 SG B23 HE EES-SH II	0				
	206	TE-21272-106 SG B23 HE EES-SH II	0				
	207	TE-21272-107 SG B23 HE EES-SH II	0				
	208	TE-21272-108 SG B23 HE EES-SH II	0				
	209	TE-21272-109 SG B23 HE EES-SH II	0				
	210	TE-21272-110 SG B23 HE EES-SH II	0				
	211	TE-21272-111 SG B23 HE EES-SH II	0				
	212	TE-21272-112 SG B23 HE EES-SH II	0				
	213	TE-21272-113 SG B23 HE EES-SH II	0				

214	TE-21272-114	SG	B23	HE	EES-SH II		0				
215	TE-21272-115	SG	B23	HE	EES-SH II		0				
216	TE-21272-116	SG	B23	HE	EES-SH II		0				
217	TE-21272-117	SG	B23	HE	EES-SH II		0				
218	TE-21272-118	SG	B23	HE	EES-SH II		0				
219	TE-21272-119	SG	B23	HE	EES-SH II		0				
220	TE-21272-120	SG	B23	HE	EES-SH II		0				
221	TE-21272-121	SG	B23	HE	BELOW EES		0				
222	TE-21272-122	SG	B23	HE	BELOW EES		0				
223	TE-21272-123	SG	B23	HE	BELOW EES		0				
224	TE-21272-124	SG	B23	HE	BELOW EES		0				
225	TE-21272-125	SG	B23	HE	BELOW EES		0				
226	TE-21272-126	SG	B23	HE	BELOW EES		0				
227	TE-21272-127	SG	B23	HE	BELOW EES		0				
228	TE-21272-128	SG	B23	HE	BELOW EES		0				
229	TE-21272-129	SG	B23	HE	BELOW EES		0				
230	TE-21272-130	SG	B23	HE	BELOW EES		0				
231	TE-21272-131	SG	B23	HE	BELOW EES		0				
232	TE-21272-132	SG	B26	HE	BELOW EES		0				
233	TE-21272-133	SG	B26	HE	BELOW EES		0				
234	TE-21272-134	SG	B26	HE	BELOW EES		0				
235	TE-21272-135	SG	B26	HE	BELOW EES		0				
236	TE-21272-136	SG	B26	HE	BELOW EES		0				
237	TE-21272-137	SG	B26	HE	BELOW EES		0				
238	TE-21272-138	SG	B22	HE	BELOW EES		0				
239	TE-21272-139	SG	B22	HE	BELOW EES		0				
240	TE-21272-140	SG	B22	HE	BELOW EES		0				
241	TE-21272-141	SG	B22	HE	BELOW EES		0				
242	TE-21272-142	SG	B22	HE	BELOW EES		0				
243	TE-21272-143	SG	B22	HE	BELOW EES		0				
244	TE-21272-144	SG	B25	HE	BELOW EES		0				
245	TE-21272-145	SG	B25	HE	BELOW EES		0				
246	TE-21272-146	SG	B25	HE	BELOW EES		0				
247	TE-21272-147	SG	B25	HE	BELOW EES		0				
248	TE-21272-148	SG	B25	HE	BELOW EES		0				
249	TE-21272-149	SG	B25	HE	BELOW EES		0				
250	TE-21272-150	SG	B21	HE	BELOW EES		0				
251	TE-21272-151	SG	B21	HE	BELOW EES		0				
252	TE-21272-152	SG	B21	HE	BELOW EES		0				
253	TE-21272-153	SG	B21	HE	BELOW EES		0				
254	TE-21272-154	SG	B21	HE	BELOW EES		0				
255	TE-21272-155	SG	B21	HE	BELOW EES		0				
256	TE-21272-156	SG	B24	HE	BELOW EES		0				
257	TE-21272-157	SG	B24	HE	BELOW EES		0				
258	TE-21272-158	SG	B24	HE	BELOW EES		0				
259	TE-21272-159	SG	B24	HE	BELOW EES		0				
260	TE-21272-160	SG	B24	HE	BELOW EES		0				
261	TE-21272-161	SG	B24	HE	BELOW EES		0				
262	TE-21272-162	SG	B23	HE	EES OUTLT		0				
263	TE-21272-163	SG	B23	HE	EES OUTLT		0				
264	TE-21272-164	SG	B23	HE	EES OUTLT		0				
265	TE-21272-165	SG	B23	HE	EES OUTLT		0				
266	TE-21272-166	SG	B23	HE	EES OUTLT		0				
267	TE-21272-167	SG	B23	HE	EES OUTLT		0				
268	TE-21272-168	SG	B23	HE	EES OUTLT		0				
269	TE-21272-169	SG	B23	HE	EES OUTLT		0				

				EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	270	TI-21272-170 SG B23 HL EES OUTLT		0				
	271	TE-21272-171 SG B23 HL EES OUTLT		0				
	272	TE-21272-172 SG B23 HL EES OUTLT		0				
	273	TE-21272-173 SG B23 HL EES OUTLT		0				
	274	TE-21272-174 SG B23 HL EES OUTLT		0				
	275	TE-21272-175 SG B23 HL EES OUTLT		0				
	276	SPARE 21-276		0				
	277	SPARE 21-277		0				
	278	SPARE 21-278		0				
	279	SPARE 21-279		0				
	280	SPARE 21-280		0				
	281	SPARE 21-281		0				
	282	SPARE 21-282		0				
	283	SPARE 21-283		0				
	284	SPARE 21-284		0				
	285	SPARE 21-285		0				
	286	SPARE 21-286		0				
	287	SPARE 21-287		0				
22	0	SPARE 22-00		0				
	1	TI-2205 LOOP 1 FEEDWATER TEMP		642				
	2	TI-2206 LOOP 2 FEEDWATER TEMP		643				
	3	FM-2207 LP 1 FEEDWATER FLOW (LO)		395		1025.0	229.6	
	4	FM-2208 LP 2 FEEDWATER FLOW (LO)		396		1025.0	229.6	
	5	FM-2205-6 LP 1 FEEDWATER FLOW		104		1025.0	209.6	
	6	FM-2206-6 LP 2 FEEDWATER FLOW		110		1025.0	229.6	
	7	FC-2205 LP1 FEEDWATER FLOW CONTR		644				
	8	FC-2206 LP2 FEEDWATER FLOW CONTR		645				
	9	FM-2205-5 LP1 FEEDWTR RATE LIMIT		646				
	10	FM-2206-5 LP2 FEEDWTR RATE LIMIT		0				
	11	FM-2205-8 LP1 FEEDWTR CHARACTER		0				
	12	FM-2206-8 LP2 FEEDWTR CHARACTER		0				
	13	FM-2297 EMERG FEEDWATER FLOW		641				
	14	SPARE 22-14		0				
	15	SPARE 22-15		0				
	16	SPARE 22-16		0				
	17	TDIC-2227-1 SG B-1-1 TRIM VALVE		650				
	18	TDIC-2227-2 SG B-1-2 TRIM VALVE		651				
	19	TDIC-2227-3 SG B-1-3 TRIM VALVE		652				
	20	TDIC-2227-4 SG B-1-4 TRIM VALVE		653				
	21	TDIC-2227-5 SG B-1-5 TRIM VALVE		654				
	22	TDIC-2227-6 SG B-1-6 TRIM VALVE		655				
	23	TDIC-2228-1 SG B-2-1 TRIM VALVE		656				
	24	TDIC-2228-2 SG B-2-2 TRIM VALVE		657				
	25	TDIC-2228-3 SG B-2-3 TRIM VALVE		658				
	26	TDIC-2228-4 SG B-2-4 TRIM VALVE		659				
	27	TDIC-2228-5 SG B-2-5 TRIM VALVE		660				
	28	TDIC-2228-6 SG B-2-6 TRIM VALVE		661				
	29	SPARE 22-29		0				
	30	SPARE 22-30		0				
	31	TE-2227-1 SG B-1-1 MAIN STM TEMP		494				
	32	TE-2227-2 SG B-1-2 MAIN STM TEMP		495				
	33	TE-2227-3 SG B-1-3 MAIN STM TEMP		496				
	34	TE-2227-4 SG B-1-4 MAIN STM TEMP		497				
	35	TE-2227-5 SG B-1-5 MAIN STM TEMP		498				
	36	TE-2227-6 SG B-1-6 MAIN STM TEMP		499				
	37	TE-2228-1 SG B-2-1 MAIN STM TEMP		500				

#1 - BLUE
#2 - RED

#1 - TAN
#2 - GREEN

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	POINT	POINT DESCRIPTION	SEQUENTIAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LO WARNING LIMIT	LOW ALARM LIMIT
	38	TE-2228-2 SG B-2-2 MAIN STM TEMP	501				
	39	TE-2228-3 SG B-2-3 MAIN STM TEMP	502				
	40	TE-2228-4 SG B-2-4 MAIN STM TEMP	503				
	41	TE-2228-5 SG B-2-5 MAIN STM TEMP	504				
	42	TE-2228-6 SG B-2-6 MAIN STM TEMP	505				
	43	SPARE 22-43	0				
	44	SPARE 22-44	0				
	45	TM-2225-6 L1 AVE MAIN STEAM TEMP	662				
	46	TM-2225-6 L2 AVE MAIN STEAM TEMP	663				
	47	TC-2225 LP1 MAIN STEAM TEMP CONT	664				
	48	TC-2226 LP2 MAIN STEAM TEMP CONT	665				
	49	PT-22129 LP 1 MAIN STEAM PRESS	109		2475	2220	
	50	PT-22130 LP 2 MAIN STEAM PRESS	115		2475	2220	
	51	PT-2243-1 LP1 CRH STEAM PRESS	666				
	52	PT-2244-1 LP2 CRH STEAM PRESS	667				
	53	PM-2243 A/B CIRC PRESS RATIO	668				
	54	PM-2244 C/D CIRC PRESS RATIO	669				
	55	PC-2243 A/B CIRC PRES RATIO CONT	670				
	56	PC-2244 C/D CIRC PRES RATIO CONT	671				
	57	PC-22142 PRESS RATIO OVERRIDE	672			99.9	99.9
	58	SPARE 22-58	0				
	59	TM-2225-5 A/B CIRC SPEED SET PT	674				
	60	TM-2226-5 C/D CIRC SPEED SET PT	675				
	61	TE-2255-7 LP1 CIRC TURB EXH TEMP	387		795	475	
	62	TE-2256-7 LP2 CIRC TURB EXH TEMP	389		795	475	
	63	PT-2243-2 LP1 CIRC TURB EXH PRES	386		900	100	
	64	PT-2244-2 LP2 CIRC TURB EXH PRES	388		900	100	
	65	SPARE 22-65	0				
	66	FM-22137 FW/ATTEMP FLOW MS SEL	673				
	67	FM-22119 LP 1 ATTEMPERATOR FLOW	452		60.00	0.00	
	68	FM-22120 LP 2 ATTEMPERATOR FLOW	453		60.00	0.00	
	69	SPARE 22-69	0				
	70	SPARE 22-70	0				
	71	TE-2255-1 SG B-1-1 HRH STM TEMP	510				
	72	TE-2255-2 SG B-1-2 HRH STM TEMP	511				
	73	TE-2255-3 SG B-1-3 HRH STM TEMP	512				
	74	TE-2255-4 SG B-1-4 HRH STM TEMP	513				
	75	TE-2255-5 SG B-1-5 HRH STM TEMP	514				
	76	TE-2255-6 SG B-1-6 HRH STM TEMP	515				
	77	TE-2256-1 SG B-2-1 HRH STM TEMP	516				
	78	TE-2256-2 SG B-2-2 HRH STM TEMP	517				
	79	TE-2256-3 SG B-2-3 HRH STM TEMP	518				
	80	TE-2256-4 SG B-2-4 HRH STM TEMP	519				
	81	TE-2256-5 SG B-2-5 HRH STM TEMP	520				
	82	TE-2256-6 SG B-2-6 HRH STM TEMP	521				
	83	SPARE 22-83	0				
	84	SPARE 22-84	0				
	85	PT-2267 LP1 HOT RHT STEAM PRES	118		675	140	
	86	PT-2268 LP2 HOT RHT STEAM PRES	120		675	140	
	87	TM-2256-7 AVE HOT RHT STM TEMP	122				
	88	TC-2256 HRH STEAM TEMP CONT	676				
	89	TM-2256-5 DEMAND TO FLOW CONT	677				
	90	SPARE 22-90	0				
	91	PDT-22127 LP1 FV-2205 DP	679				
	92	PDT-22128 LP2 FV-2206 DP	680				
	93	PDA-22127 FW VALVE DP LOW SEL	681				

STATION	POINT	POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	94	POL-22127 FW VALVE DP CONTR	0				
	95	LT-2285 DUMP TANK LEVEL	678				
	96	SPARE 22-96	0				
	97	SPARE 22-97	0				
	98	SPARE 22-98	0				
	99	SPARE 22-99	0				
	100	SPARE 22-100	0				
	101	CALC LP1 MAIN STEAM TEMP AVE	9042				
	102	CALC LP2 MAIN STEAM TEMP AVE	9043				
	103	CALC B-1-1 MAIN STM DEV FROM LP1	9044				
	104	CALC B-1-2 MAIN STM DEV FROM LP1	9045				
	105	CALC B-1-3 MAIN STM DEV FROM LP1	9046				
	106	CALC B-1-4 MAIN STM DEV FROM LP1	9047				
	107	CALC B-1-5 MAIN STM DEV FROM LP1	9048				
	108	CALC B-1-6 MAIN STM DEV FROM LP1	9049				
	109	CALC B-2-1 MAIN STM DEV FROM LP2	9050				
	110	CALC B-2-2 MAIN STM DEV FROM LP2	9051				
	111	CALC B-2-3 MAIN STM DEV FROM LP2	9052				
	112	CALC B-2-4 MAIN STM DEV FROM LP2	9053				
	113	CALC B-2-5 MAIN STM DEV FROM LP2	9054				
	114	CALC B-2-6 MAIN STM DEV FROM LP2	9055				
	115	CALC LP1 HOT RHT STEAM TEMP AVE	9056				
	116	CALC LP2 HOT RHT STEAM TEMP AVE	0				
	117	CALC B-1-1 HRH STM DEV FROM LP1	9057				
	118	CALC B-1-2 HRH STM DEV FROM LP1	9058				
	119	CALC B-1-3 HRH STM DEV FROM LP1	9059				
	120	CALC B-1-4 HRH STM DEV FROM LP1	9060				
	121	CALC B-1-5 HRH STM DEV FROM LP1	9061				
	122	CALC B-1-6 HRH STM DEV FROM LP1	9062				
	123	CALC B-2-1 HRH STM DEV FROM LP2	9063				
	124	CALC B-2-2 HRH STM DEV FROM LP2	9064				
	125	CALC B-2-3 HRH STM DEV FROM LP2	9065				
	126	CALC B-2-4 HRH STM DEV FROM LP2	9066				
	127	CALC B-2-5 HRH STM DEV FROM LP2	9067				
	128	CALC B-2-6 HRH STM DEV FROM LP2	9068				
	129	SPARE 22-129	0				
	130	SPARE 22-130	0				
	131	CALC PCRV XCHR IN ENTHAL LOOP1	0				
	132	CALC PCRV XCHR IN ENTHAL LOOP2	0				
	133	CALC PCRV XCHR OUT ENTHAL LOOP 1	0				
	134	CALC PCRV XCHR OUT ENTHAL LOOP2	0				
	135	CALC SHB PCRV TOTAL FLOW LP1	0				
	136	CALC SHB PCRV TOTAL FLOW LP2	0				
	137	CALC SHB PCRV HEAT REMOVAL-LP1	0				
	138	CALC SHB PCRV HEAT REMOVAL-LP2	0				
	139	CALC FW INLET ENTHALPY LOOP1	0				
	140	CALC FW INLET ENTHALPY LOOP2	0				
	141	CALC MAIN STM OUT ENTHAL LOOP1	0				
	142	CALC MAIN STM OUT ENTHAL LOOP2	0				
	143	CALC CIRC STM OUT ENTHAL LOOP1	0				
	144	CALC CIRC STM OUT ENTHAL LOOP2	0				
	145	CALC CIRC STM IN ENTHALPY	0				
	146	CALC RH STM OUT PRESS AVE	0				
	147	CALC RH STM OUT ENTHALPY	0				
	148	CALC RH STM OUT SPECIFIC VOLUME	0				
	149	CALC SHB K FACTOR	0				

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	POINT ID	DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
150	CALC REHEAT BYPASS FLOW-BOTH LPS		0				
151	CALC RH STM TO CIRC FLOW LOOP1		0				
152	CALC RH STM TO CIRC FLOW LOOP2		0				
153	CALC TOTAL REHEAT FLOW LOOP1		0				
154	CALC SHB TOTAL RH FLOW LOOP2		0				
155	CALC RH STM IN ENTHAL LOOP1		0				
156	CALC RH STM IN ENTHAL LOOP2		0				
157	CALC HEAT REM BY MAIN STM LOOP1		0				
158	CALC HEAT REM BY MAIN STM LOOP2		0				
159	CALC HEAT REM BY REHEATERS LOOP1		0				
160	CALC HEAT REM BY REHEATERS LOOP2		0				
161	CALC HEAT CONV BY CIRCS LOOP1		0				
162	CALC HEAT CONV BY CIRCS LOOP2		0				
163	CALC SHB TOTAL POWER LP1		0				
164	CALC SHB TOTAL POWER LP2		0				
165	CALC TOTAL REACTOR POWER MW		0				
166	CALC % TOTAL REACTOR POWER		0				
167	SPARE 22-167		0				
168	SPARE 22-168		0				
169	SPARE 22-169		0				
170	SPARE 22-170		0				
171	SPARE 22-171		0				
172	SPARE 22-172		0				
173	SPARE 22-173		0				
174	SPARE 22-174		0				
175	SPARE 22-175		0				
176	SPARE 22-176		0				
177	SPARE 22-177		0				
178	SPARE 22-178		0				
179	SPARE 22-179		0				
180	SPARE 22-180		0				
181	TE-22186-1	SG B11 SH STEAM OUT	0				
182	TE-22186-2	SG B11 SH STEAM OUT	0				
183	TE-22186-3	SG B11 SH STEAM OUT	0				
184	TE-22186-4	SG B11 SH STEAM OUT	0				
185	TE-22186-5	SG B11 SH STEAM OUT	0				
186	TE-22186-6	SG B11 SH STEAM OUT	0				
187	TE-22186-7	SG B11 SH STEAM OUT	0				
188	TE-22186-8	SG B11 SH STEAM OUT	0				
189	TE-22186-9	SG B11 SH STEAM OUT	0				
190	TE-22186-10	SG B11 SH STEAM OUT	0				
191	TE-22186-11	SG B11 SH STEAM OUT	0				
192	TE-22186-12	SG B11 SH STEAM OUT	0				
193	TE-22186-13	SG B11 SH STEAM OUT	0				
194	TE-22186-14	SG B11 SH STEAM OUT	0				
195	TE-22186-15	SG B11 SH STEAM OUT	0				
196	TE-22186-16	SG B11 SH STEAM OUT	0				
197	TE-22186-17	SG B11 SH STEAM OUT	0				
198	TE-22186-18	SG B11 SH STEAM OUT	0				
199	TE-22186-19	SG B12 SH STEAM OUT	0				
200	TE-22186-20	SG B12 SH STEAM OUT	0				
201	TE-22186-21	SG B12 SH STEAM OUT	0				
202	TE-22186-22	SG B12 SH STEAM OUT	0				
203	TE-22186-23	SG B12 SH STEAM OUT	0				
204	TE-22186-24	SG B12 SH STEAM OUT	0				
205	TE-22186-25	SG B12 SH STEAM OUT	0				

DATE	POINT	DESCRIPTION	ALARM	HI WARNING LIMIT	HI ALARM LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	206	TE-22186-26 SG B12 SH STEAM OUT	0				
	207	TE-22186-27 SG B12 SH STEAM OUT	0				
	208	TE-22186-28 SG B12 SH STEAM OUT	0				
	209	TE-22186-29 SG B12 SH STEAM OUT	0				
	210	TE-22186-30 SG B12 SH STEAM OUT	0				
	211	TE-22186-31 SG B12 SH STEAM OUT	0				
	212	TE-22186-32 SG B12 SH STEAM OUT	0				
	213	TE-22186-33 SG B12 SH STEAM OUT	0				
	214	TE-22186-34 SG B12 SH STEAM OUT	0				
	215	TE-22186-35 SG B12 SH STEAM OUT	0				
	216	TE-22186-36 SG B12 SH STEAM OUT	0				
	217	TE-22186-37 SG B13 SH STEAM OUT	0				
	218	TE-22186-38 SG B13 SH STEAM OUT	0				
	219	TE-22186-39 SG B13 SH STEAM OUT	0				
	220	TE-22186-40 SG B13 SH STEAM OUT	0				
	221	TE-22186-41 SG B13 SH STEAM OUT	0				
	222	TE-22186-42 SG B13 SH STEAM OUT	0				
	223	TE-22186-43 SG B13 SH STEAM OUT	0				
	224	TE-22186-44 SG B13 SH STEAM OUT	0				
	225	TE-22186-45 SG B13 SH STEAM OUT	0				
	226	TE-22186-46 SG B13 SH STEAM OUT	0				
	227	TE-22186-47 SG B13 SH STEAM OUT	0				
	228	TE-22186-48 SG B13 SH STEAM OUT	0				
	229	TE-22186-49 SG B13 SH STEAM OUT	0				
	230	TE-22186-50 SG B13 SH STEAM OUT	0				
	231	TE-22186-51 SG B13 SH STEAM OUT	0				
	232	TE-22186-52 SG B13 SH STEAM OUT	0				
	233	TE-22186-53 SG B13 SH STEAM OUT	0				
	234	TE-22186-54 SG B13 SH STEAM OUT	0				
	235	TE-22186-55 SG B14 SH STEAM OUT	0				
	236	TE-22186-56 SG B14 SH STEAM OUT	0				
	237	TE-22186-57 SG B14 SH STEAM OUT	0				
	238	TE-22186-58 SG B14 SH STEAM OUT	0				
	239	TE-22186-59 SG B14 SH STEAM OUT	0				
	240	TE-22186-60 SG B14 SH STEAM OUT	0				
	241	TE-22186-61 SG B14 SH STEAM OUT	0				
	242	TE-22186-62 SG B14 SH STEAM OUT	0				
	243	TE-22186-63 SG B14 SH STEAM OUT	0				
	244	TE-22186-64 SG B14 SH STEAM OUT	0				
	245	TE-22186-65 SG B14 SH STEAM OUT	0				
	246	TE-22186-66 SG B14 SH STEAM OUT	0				
	247	TE-22186-67 SG B14 SH STEAM OUT	0				
	248	TE-22186-68 SG B14 SH STEAM OUT	0				
	249	TE-22186-69 SG B14 SH STEAM OUT	0				
	250	TE-22186-70 SG B14 SH STEAM OUT	0				
	251	TE-22186-71 SG B14 SH STEAM OUT	0				
	252	TE-22186-72 SG B14 SH STEAM OUT	0				
	253	TE-22186-73 SG B15 SH STEAM OUT	0				
	254	TE-22186-74 SG B15 SH STEAM OUT	0				
	255	TE-22186-75 SG B15 SH STEAM OUT	0				
	256	TE-22186-76 SG B15 SH STEAM OUT	0				
	257	TE-22186-77 SG B15 SH STEAM OUT	0				
	258	TE-22186-78 SG B15 SH STEAM OUT	0				
	259	TE-22186-79 SG B15 SH STEAM OUT	0				
	260	TE-22186-80 SG B15 SH STEAM OUT	0				
	261	TE-22186-81 SG B15 SH STEAM OUT	0				

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	POINT	TAG	DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	262	TE-22186-82	SG B15 SH STEAM OUT	0				
	263	TE-22186-83	SG B15 SH STEAM OUT	0				
	264	TE-22186-84	SG B15 SH STEAM OUT	0				
	265	TE-22186-85	SG B15 SH STEAM OUT	0				
	266	TE-22186-86	SG B15 SH STEAM OUT	0				
	267	TE-22186-87	SG B15 SH STEAM OUT	0				
	268	TE-22186-88	SG B15 SH STEAM OUT	0				
	269	TE-22186-89	SG B15 SH STEAM OUT	0				
	270	TE-22186-90	SG B15 SH STEAM OUT	0				
	271	TE-22186-91	SG B16 SH STEAM OUT	0				
	272	TE-22186-92	SG B16 SH STEAM OUT	0				
	273	TE-22186-93	SG B16 SH STEAM OUT	0				
	274	TE-22186-94	SG B16 SH STEAM OUT	0				
	275	TE-22186-95	SG B16 SH STEAM OUT	0				
	276	TE-22186-96	SG B16 SH STEAM OUT	0				
	277	TE-22186-97	SG B16 SH STEAM OUT	0				
	278	TE-22186-98	SG B16 SH STEAM OUT	0				
	279	TE-22186-99	SG B16 SH STEAM OUT	0				
	280	TE-22186-100	SG B16 SH STEAM OUT	0				
	281	TE-22186-101	SG B16 SH STEAM OUT	0				
	282	TE-22186-102	SG B16 SH STEAM OUT	0				
	283	TE-22186-103	SG B16 SH STEAM OUT	0				
	284	TE-22186-104	SG B16 SH STEAM OUT	0				
	285	TE-22186-105	SG B16 SH STEAM OUT	0				
	286	TE-22186-106	SG B16 SH STEAM OUT	0				
	287	TE-22186-107	SG B16 SH STEAM OUT	0				
	288	TE-22186-108	SG B16 SH STEAM OUT	0				
	289	TE-22186-109	SG B21 SH STEAM OUT	0				
	290	TE-22186-110	SG B21 SH STEAM OUT	0				
	291	TE-22186-111	SG B21 SH STEAM OUT	0				
	292	TE-22186-112	SG B21 SH STEAM OUT	0				
	293	TE-22186-113	SG B21 SH STEAM OUT	0				
	294	TE-22186-114	SG B21 SH STEAM OUT	0				
	295	TE-22186-115	SG B21 SH STEAM OUT	0				
	296	TE-22186-116	SG B21 SH STEAM OUT	0				
	297	TE-22186-117	SG B21 SH STEAM OUT	0				
	298	TE-22186-118	SG B21 SH STEAM OUT	0				
	299	TE-22186-119	SG B21 SH STEAM OUT	0				
	300	TE-22186-120	SG B21 SH STEAM OUT	0				
	301	TE-22186-121	SG B21 SH STEAM OUT	0				
	302	TE-22186-122	SG B21 SH STEAM OUT	0				
	303	TE-22186-123	SG B21 SH STEAM OUT	0				
	304	TE-22186-124	SG B21 SH STEAM OUT	0				
	305	TE-22186-125	SG B21 SH STEAM OUT	0				
	306	TE-22186-126	SG B21 SH STEAM OUT	0				
	307	TE-22186-127	SG B22 SH STEAM OUT	0				
	308	TE-22186-128	SG B22 SH STEAM OUT	0				
	309	TE-22186-129	SG B22 SH STEAM OUT	0				
	310	TE-22186-130	SG B22 SH STEAM OUT	0				
	311	TE-22186-131	SG B22 SH STEAM OUT	0				
	312	TE-22186-132	SG B22 SH STEAM OUT	0				
	313	TE-22186-133	SG B22 SH STEAM OUT	0				
	314	TE-22186-134	SG B22 SH STEAM OUT	0				
	315	TE-22186-135	SG B22 SH STEAM OUT	0				
	316	TE-22186-136	SG B22 SH STEAM OUT	0				
	317	TE-22186-137	SG B22 SH STEAM OUT	0				

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	POINT	POINT DESCRIPTION	SIGNAL SET. NO.	LO ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
318	TE-22186-138	SG B22 SH STEAM OUT	0				
319	TE-22186-139	SG B22 SH STEAM OUT	0				
320	TE-22186-140	SG B22 SH STEAM OUT	0				
321	TE-22186-141	SG B22 SH STEAM OUT	0				
322	TE-22186-142	SG B22 SH STEAM OUT	0				
323	TE-22186-143	SG B22 SH STEAM OUT	0				
324	TE-22186-144	SG B22 SH STEAM OUT	0				
325	TE-22186-145	SG B23 SH STEAM OUT	0				
326	TE-22186-146	SG B23 SH STEAM OUT	0				
327	TE-22186-147	SG B23 SH STEAM OUT	0				
328	TE-22186-148	SG B23 SH STEAM OUT	0				
329	TE-22186-149	SG B23 SH STEAM OUT	0				
330	TE-22186-150	SG B23 SH STEAM OUT	0				
331	TE-22186-151	SG B23 SH STEAM OUT	0				
332	TE-22186-152	SG B23 SH STEAM OUT	0				
333	TE-22186-153	SG B23 SH STEAM OUT	0				
334	TE-22186-154	SG B23 SH STEAM OUT	0				
335	TE-22186-155	SG B23 SH STEAM OUT	0				
336	TE-22186-156	SG B23 SH STEAM OUT	0				
337	TE-22186-157	SG B23 SH STEAM OUT	0				
338	TE-22186-158	SG B23 SH STEAM OUT	0				
339	TE-22186-159	SG B23 SH STEAM OUT	0				
340	TE-22186-160	SG B23 SH STEAM OUT	0				
341	TE-22186-161	SG B23 SH STEAM OUT	0				
342	TE-22186-162	SG B23 SH STEAM OUT	0				
343	TE-22186-163	SG B24 SH STEAM OUT	0				
344	TE-22186-164	SG B24 SH STEAM OUT	0				
345	TE-22186-165	SG B24 SH STEAM OUT	0				
346	TE-22186-166	SG B24 SH STEAM OUT	0				
347	TE-22186-167	SG B24 SH STEAM OUT	0				
348	TE-22186-168	SG B24 SH STEAM OUT	0				
349	TE-22186-169	SG B24 SH STEAM OUT	0				
350	TE-22186-170	SG B24 SH STEAM OUT	0				
351	TE-22186-171	SG B24 SH STEAM OUT	0				
352	TE-22186-172	SG B24 SH STEAM OUT	0				
353	TE-22186-173	SG B24 SH STEAM OUT	0				
354	TE-22186-174	SG B24 SH STEAM OUT	0				
355	TE-22186-175	SG B24 SH STEAM OUT	0				
356	TE-22186-176	SG B24 SH STEAM OUT	0				
357	TE-22186-177	SG B24 SH STEAM OUT	0				
358	TE-22186-178	SG B24 SH STEAM OUT	0				
359	TE-22186-179	SG B24 SH STEAM OUT	0				
360	TE-22186-180	SG B24 SH STEAM OUT	0				
361	TE-22186-181	SG B25 SH STEAM OUT	0				
362	TE-22186-182	SG B25 SH STEAM OUT	0				
363	TE-22186-183	SG B25 SH STEAM OUT	0				
364	TE-22186-184	SG B25 SH STEAM OUT	0				
365	TE-22186-185	SG B25 SH STEAM OUT	0				
366	TE-22186-186	SG B25 SH STEAM OUT	0				
367	TE-22186-187	SG B25 SH STEAM OUT	0				
368	TE-22186-188	SG B25 SH STEAM OUT	0				
369	TE-22186-189	SG B25 SH STEAM OUT	0				
370	TE-22186-190	SG B25 SH STEAM OUT	0				
371	TE-22186-191	SG B25 SH STEAM OUT	0				
372	TE-22186-192	SG B25 SH STEAM OUT	0				
373	TE-22186-193	SG B25 SH STEAM OUT	0				

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TEMP POINT	POINT DESCRIPTION	EXTERNAL RTD	HI LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
374	TE-22186-194 SG B25 SH STEAM OUT	0				
375	TE-22186-195 SG B25 SH STEAM OUT	0				
376	TE-22186-196 SG B25 SH STEAM OUT	0				
377	TE-22186-197 SG B25 SH STEAM OUT	0				
378	TE-22186-198 SG B25 SH STEAM OUT	0				
379	TE-22186-199 SG B26 SH STEAM OUT	0				
380	TE-22186-200 SG B26 SH STEAM OUT	0				
381	TE-22186-201 SG B26 SH STEAM OUT	0				
382	TE-22186-202 SG B26 SH STEAM OUT	0				
383	TE-22186-203 SG B26 SH STEAM OUT	0				
384	TE-22186-204 SG B26 SH STEAM OUT	0				
385	TE-22186-205 SG B26 SH STEAM OUT	0				
386	TE-22186-206 SG B26 SH STEAM OUT	0				
387	TE-22186-207 SG B26 SH STEAM OUT	0				
388	TE-22186-208 SG B26 SH STEAM OUT	0				
389	TE-22186-209 SG B26 SH STEAM OUT	0				
390	TE-22186-210 SG B26 SH STEAM OUT	0				
391	TE-22186-211 SG B26 SH STEAM OUT	0				
392	TE-22186-212 SG B26 SH STEAM OUT	0				
393	TE-22186-213 SG B26 SH STEAM OUT	0				
394	TE-22186-214 SG B26 SH STEAM OUT	0				
395	TE-22186-215 SG B26 SH STEAM OUT	0				
396	TE-22186-216 SG B26 SH STEAM OUT	0				
397	SPARE 22-397	0				
398	SPARE 22-398	0				
399	SPARE 22-399	0				
400	SPARE 22-400	0				
401	TE-22150-1 SG B-2-3 HRH OUTLET	0				
402	TE-22150-2 SG B-2-3 HRH OUTLET	0				
403	TE-22150-3 SG B-2-3 HRH OUTLET	0				
404	TE-22150-4 SG B-2-3 HRH OUTLET	0				
405	TE-22150-5 SG B-2-3 HRH OUTLET	0				
406	TE-22150-6 SG B-2-3 HRH OUTLET	0				
407	TE-22150-7 SG B-2-3 BELOW SH II	0				
408	TE-22150-8 SG B-2-3 BELOW SH II	0				
409	TE-22150-9 SG B-2-3 BELOW SH II	0				
410	TE-22150-10 SG B-2-3 BELOW SH II	0				
411	TE-22150-11 SG B-2-3 BELOW SH II	0				
412	TE-22150-12 SG B-2-3 BELOW SH II	0				
413	TE-22150-13 SG B-2-3 BELOW SH II	0				
414	TE-22150-14 SG B-2-3 BELOW SH II	0				
415	TE-22150-15 SG B-2-3 BELOW SH II	0				
416	TE-22150-16 SG B-2-3 BELOW SH II	0				
417	TE-22150-17 SG B-2-6 BELOW SH II	0				
418	TE-22150-18 SG B-2-6 BELOW SH II	0				
419	TE-22150-19 SG B-2-6 BELOW SH II	0				
420	TE-22150-20 SG B-2-6 BELOW SH II	0				
421	TE-22150-21 SG B-2-6 BELOW SH II	0				
422	TE-22150-22 SG B-2-6 BELOW SH II	0				
423	TE-22150-23 SG B-2-6 BELOW SH II	0				
424	TE-22150-24 SG B-2-6 BELOW SH II	0				
425	TE-22150-25 SG B-2-6 BELOW SH II	0				
426	TE-22150-26 SG B-2-6 BELOW SH II	0				
427	TE-22150-27 SG B-2-7 BELOW SH II	0				
428	TE-22150-28 SG B-2-7 BELOW SH II	0				
429	TE-22150-29 SG B-2-7 BELOW SH II	0				

#1 BLUE
#2 RED

#1 TAN
#2 GREEN

STATION	INDEX #	POINT DESCRIPTION	CAL. DC	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALM LIMIT
	430	TE-22150-30 SG B-2-2 BELOW SH II	0				
	431	TE-22150-31 SG B-2-2 BELOW SH II	0				
	432	TE-22150-32 SG B-2-2 BELOW SH II	0				
	433	TE-22150-33 SG B-2-2 BELOW SH II	0				
	434	TE-22150-34 SG B-2-2 BELOW SH II	0				
	435	TE-22150-35 SG B-2-2 BELOW SH II	0				
	436	TE-22150-36 SG B-2-2 BELOW SH II	0				
	437	TE-22150-37 SG B-2-3 SH II OUT	0				
	438	TE-22150-38 SG B-2-3 SH II OUT	0				
	439	TE-22150-39 SG B-2-3 SH II OUT	0				
	440	TE-22150-40 SG B-2-3 SH II OUT	0				
	441	TE-22150-41 SG B-2-3 SH II OUT	0				
	442	TE-22150-42 SG B-2-3 SH II OUT	0				
	443	TE-22150-43 SG B-2-3 SH II OUT	0				
	444	TE-22150-44 SG B-2-3 SH II OUT	0				
	445	TE-22150-45 SG B-2-3 SH II OUT	0				
	446	TE-22150-46 SG B-2-3 FEEDWATER	0				
	447	TE-22150-47 SG B-2-3 FEEDWATER	0				
	448	TE-22150-48 SG B-2-3 FEEDWATER	0				
	449	TE-22150-49 SG B-2-3 FEEDWATER	0				
	450	SPARE 22-450	0				
	451	SPARE 22-451	0				
	452	SPARE 22-452	0				
	453	SPARE 22-453	0				
	454	SPARE 22-454	0				
	455	SPARE 22-455	0				
	456	SPARE 22-456	0				
	457	SPARE 22-457	0				
	458	SPARE 22-458	0				
	459	SPARE 22-459	0				
	460	SPARE 22-460	0				
	461	SPARE 22-461	0				
	462	SPARE 22-462	0				
	463	SPARE 22-463	0				
23	0	SPARE 23-00	0				
	1	PDT-23113 PURIF HE/PRI COOLNT DP	0				
	2	FT-23112 HE PURIF SYS FLOW	131		45.0	31.0	
	3	PDT-2367 BUFFER HE MAKEUP DP	0				
	4	PDC-2367 BUFF HE MAKEUP DP CONT	0				
	5	SPARE 23-05	0				
	6	SPARE 23-06	0				
	7	SPARE 23-07	0				
	8	SPARE 23-08	0				
	9	SPARE 23-09	0				
	10	SPARE 23-10	0				
	11	SPARE 23-11	0				
	12	SPARE 23-12	0				
	13	SPARE 23-13	0				
	14	SPARE 23-14	0				
	15	SPARE 23-15	0				
24	0	FT-2437 HP HE SUPPLY TANK PRESS	0				
	1	NO INST A A BANK HELIUM PRESSURE	0				
	2	NO INST B B BANK HELIUM PRESSURE	0				
	3	NO INST A C BANK HELIUM PRESSURE	0				
	4	NO INST B D BANK HELIUM PRESSURE	0				
	5	TE-2446 BUFFER BANK AMBIENT TEMP	0				

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TABLE	ADDR	POINT DESCRIPTION	EXTERNAL CI. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	6	SPARE 24-06	0				
	7	SPARE 24-07	0				
	8	SPARE 24-08	0				
	9	SPARE 24-09	0				
	10	SPARE 24-10	0				
	11	SPARE 24-11	0				
	12	SPARE 24-12	0				
	13	SPARE 24-13	0				
	14	SPARE 24-14	0				
	15	SPARE 24-15	0				
25	0	SPARE 25-00	0				
	1	LT-2519-1 LN2 STORAGE LEVEL	0				
	2	SPARE 25-2	0				
	3	SPARE 25-3	0				
	4	SPARE 25-4	0				
	5	SPARE 25-5	0				
	6	SPARE 25-6	0				
	7	SPARE 25-7	0				
	8	SPARE 25-8	0				
	9	SPARE 25-9	0				
	10	SPARE 25-10	0				
	11	SPARE 25-11	0				
	12	SPARE 25-12	0				
	13	SPARE 25-13	0				
	14	SPARE 25-14	0				
	15	SPARE 25-15	0				
31	0	SPARE 31-0	0				
	1	LT-3136 A COND STORAGE TANK LVL	693				
	2	LT-3141 B COND STORAGE TANK LVL	694				
	3	TE-3154 CONDENSATE PUMP DSC TEMP	263	300	180	50	
	4	PT-3167 CONDENSATE HEADER PRESS	443		360	230	
	5	PT-3111 EMERG CONDENSATE PRESS	695				
	6	SPARE 31-6	0				
	7	TE-3180 CONDENSATE HTR1 OUT TEMP	264		241	49	
	8	TE-3185 CONDENSATE HTR2 OUT TEMP	265		331	69	
	9	TE-3189 CONDENSATE HTR3 OUT TEMP	266		331	69	
	10	FM-3151-2 COND FLOW TO DEAERATOR	262		202.5	22.5	
	11	FIC-3175 DEAERATOR FLOW CONTROL	696				
	12	LT-3175 DEARATOR LEVEL FROM NORM	449		1.00	-1.00	
	13	LIC-3179 DEAERATOR LEVEL CONTROL	697				
	14	LT-3192 DEAERATOR LEVEL WIDE RNG	698				
	15	TE-3195 BFP SUCTION TEMP	267		200	79	
	16	SPARE 31-16	0				
	17	FM-3101 A BFP FLOW	701				
	18	FM-3102 B BFP FLOW	702				
	19	FM-3103 C BFP FLOW	703				
	20	FM-3175 TOTAL FW FLOW	699				
	21	TE-3121 FEEDWATER TO HTR 5 TEMP	268		453	79	
	22	TE-3118 FEEDWATER TO HTR 6 TEMP	269		453	79	
	23	TE-3122 FEEDWATER TO ECON TEMP	270		850	79	
	24	PI-3112 FEEDWATER PRESSURE	700				
	25	PT-3126 ECONOMIZER INLET PRESS	271		4500	2150	
	26	PT-31129 EMERG FEEDWATER PRESS	692				
	27	SPARE 31-27	0				
	28	RIS-31193 AIR EJECTOR DISCHARGE	704				
	29	CALC RIS-31193 AIR EJC DISCHARGE	9069				

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STATION	POINT	POINT DESCRIPTION	SYSTEM PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	30	CALS RIS-31193 AIR EJC DISC. E	0				
	31	SPARE 31-31	0				
34	0	SPARE 34-0	0				
	1	XKI-92109 MAIN GEN PULSE COUNTER	0				
	2	XKI-92110 UAT PULSE COUNTER	0				
	3	XKI-92111 RAT PULSE COUNTER	0				
	4	SPARE 34-04	0				
	5	SPARE 34-05	0				
	6	SPARE 34-06	0				
	7	SPARE 34-07	0				
	8	SPARE 34-08	0				
	9	SPARE 34-09	0				
	10	SPARE 34-10	0				
	11	SPARE 34-11	0				
	12	SPARE 34-12	0				
	13	SPARE 34-13	0				
	14	SPARE 34-14	0				
	15	SPARE 34-15	0				
41	0	PT-4135 CIRCULAT HTR INLET PRESS	259	54.00	10.00	10.00	
	1	TE-4149 CIRCULAT HTR INLET TEMP	258	100	32		
	2	TE-4152 N CIRCULAT HTR OUT TEMP	256	180	32		
	3	TE-4145 S CIRCULAT HTR OUT TEMP	257	180	32		
	4	FM-4101-1 CIRC HTR BLOWDOWN FLOW	705				
	5	LI-4102-3 STORAGE POND LEVEL	706				
	6	SPARE 41-06	0				
	7	SPARE 41-07	0				
	8	SPARE 41-08	0				
	9	SPARE 41-09	0				
	10	SPARE 41-10	0				
	11	SPARE 41-11	0				
	12	SPARE 41-12	0				
	13	SPARE 41-13	0				
	14	SPARE 41-14	0				
	15	SPARE 41-15	0				
42	0	TI-4220 SERV WATER SUPPLY TEMP	0				
	1	PT-4229 SERVICE WATER PRESS	0				
	2	SPARE 42-2	0				
	3	SPARE 42-3	0				
	4	SPARE 42-4	0				
	5	SPARE 42-5	0				
	6	SPARE 42-6	0				
	7	SPARE 42-7	0				
	8	SPARE 42-8	0				
	9	SPARE 42-9	0				
	10	SPARE 42-10	0				
	11	SPARE 42-11	0				
	12	SPARE 42-12	0				
	13	SPARE 42-13	0				
	14	SPARE 42-14	0				
	15	SPARE 42-15	0				
45	0	PT-4502 FIRE WATER PRESS	0				
	1	SPARE 45-1	0				
	2	SPARE 45-2	0				
	3	SPARE 45-3	0				
	4	SPARE 45-4	0				
	5	SPARE 45-5	0				

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STATION	POINT	POINT DESCRIPTION	ENGINEERING UNITS	HIGH ALARM LIMIT	HIGH WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	6	SPARE 45-6	0				
	7	SPARE 45-7	0				
	8	SPARE 45-8	0				
	9	SPARE 45-9	0				
	10	SPARE 45-10	0				
	11	SPARE 45-11	0				
	12	SPARE 45-12	0				
	13	SPARE 45-13	0				
	14	SPARE 45-14	0				
	15	SPARE 45-15	0				
46	0	SPARE 46-0	0				
	1	TE-4647 HEAT EXCH 1A + 1C INLET	522				
	2	TE-46XX B HEAT EXCH INLET TEMP	523				
	3	TE-46XX C HEAT EXCH INLET TEMP	524				
	4	TE-46XX D HEAT EXCH INLET TEMP	525				
	5	FT-4639 A HEAT EXCH WTR IN FLOW	711				
	6	FT-4640 B HEAT EXCH WTR IN FLOW	712				
	7	FT-4649 C HEAT EXCH WTR IN FLOW	713				
	8	FT-4650 D HEAT EXCH WTR IN FLOW	714				
	9	TT-4637 A/C HEAT EXCH OUT TEMP	715	118	116		
	10	TT-4638 B/D HEAT EXCH OUT TEMP	716	118	116		
	11	TM-4637-2 LP1 PCRV WTR OUT TEMP	717	118	116		
	12	TM-4638-2 LP2 PCRV WTR OUT TEMP	718	118	116		
	13	CALC AVE PCRV COOL WTR FLOW	7070				
	14	PCRV INLET PRESSURE	0				
	15	PCRV OUTLET PRESSURE	0				
	16	SPARE 46-16	0				
	17	PCRV TEMP IN TO OUT LP 1	0	18	16		
	18	PCRV TEMP IN TO OUT LP 2	0	18	16		
	19	SPARE 46-19	0				
	20	SPARE 46-20	0				
	21	FT-46132 LP1 SUPPORT FLOOR TOP	0				
	22	FT-46133 LP2 SUPPORT FLOOR TOP	0				
	23	FT-46136 LT SUPPORT FLOOR BOTTOM	0				
	24	FT-46137 L2 SUPPORT FLOOR BOTTOM	0				
	25	FT-46138 LP1 SUPPORT FLOOR SIDE	0				
	26	FT-46139 LP2 SUPPORT FLOOR SIDE	0				
	27	FT-46140 LP1 SUPPORT FLOOR SIDE	0				
	28	FT-46141 LP2 SUPPORT FLOOR SIDE	0				
	29	FT-46142 LP1 BOTTOM HDR + PENETR	0				
	30	FT-46143 LP2 BOTTOM HDR + PENETR	0				
	31	FT-46144 BOTTOM HDR AND PENETR	0				
	32	FT-46145 BOTTOM HDR AND PENETR	0				
	33	FT-46160 LP1 TOP PENETR HEADER	0				
	34	FT-46161 LP1 TOP PENETR HEADER	0				
	35	FT-46162 LP1 TOP PENETR HEADER	0				
	36	FT-46163 LP1 TOP PENETR HEADER	0				
	37	FT-46164 LP2 TOP PENETR HEADER	0				
	38	FT-46165 LP2 TOP PENETR HEADER	0				
	39	FT-46166 LP2 TOP PENETR HEADER	0				
	40	FT-46167 LP2 TOP PENETR HEADER	0				
	41	FT-46168 LP1 TOP BARREL	0				
	42	FT-46169 LP1 TOP BARREL	0				
	43	FT-46170 LP1 TOP BARREL	0				
	44	FT-46171 LP1 TOP BARREL	0				
	45	FT-46172 LP1 TOP BARREL	0				

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ITEM	POINT	LONG DESCRIPTION	CAL. NO.	LO ALARM LIMIT	LO WARNING LIMIT	HI WARNING LIMIT	HI ALARM LIMIT
	46	FT-46173 LP2 TOP BARREL	0				
	47	FT-46174 LP2 TOP BARREL	0				
	48	FT-46176 LP2 TOP BARREL	0				
	49	FT-46304 LP2 TOP BARREL	0				
	50	FT-46305 LP2 TOP BARREL	0				
	51	FT-46194 LP1 BOTTOM BARREL	0				
	52	FT-46195 LP2 BOTTOM BARREL	0				
	53	FT-46196 LP1 BOTTOM BARREL	0				
	54	FT-46197 LP2 BOTTOM BARREL	0				
	55	FT-46198 LP1 BOTTOM BARREL	0				
	56	FT-46199 LP2 BOTTOM BARREL	0				
	57	TR-46372 PERV COOL WTR OUT TEMP	0				
	58	SPARE 46-58	0				
	59	SPARE 46-59	0				
	60	SPARE 46-60	0				
	61	TE-46200-1 BOTTOM HDR TEMP	0				
	62	TE-46200-2 BOTTOM HDR TEMP	0				
	63	TE-46200-3 BOTTOM HDR TEMP	0				
	64	TE-46200-4 BOTTOM HDR TEMP	0				
	65	TE-46200-5 BOTTOM HDR TEMP	0				
	66	TE-46200-6 BOTTOM HDR TEMP	0				
	67	TE-46200-7 BOTTOM HDR TEMP	0				
	68	TE-46200-8 BOTTOM HDR TEMP	0				
	69	TE-46200-9 BOTTOM HDR TEMP	0				
	70	TE-46200-10 BOTTOM HDR TEMP	0				
	71	TE-46200-11 BOTTOM HDR TEMP	0				
	72	TE-46200-12 BOTTOM HDR TEMP	0				
	73	TE-46200-13 BOTTOM HDR TEMP	0				
	74	TE-46200-14 BOTTOM HDR TEMP	0				
	75	TE-46200-15 BOTTOM HDR TEMP	0				
	76	TE-46200-16 BOTTOM HDR TEMP	0				
	77	TE-46200-17 BOTTOM HDR TEMP	0				
	78	TE-46200-18 BOTTOM HDR TEMP	0				
	79	TE-46200-19 BOTTOM HDR TEMP	0				
	80	TE-46200-20 BOTTOM HDR TEMP	0				
	81	TE-46200-21 BOTTOM HDR TEMP	0				
	82	TE-46200-22 BOTTOM HDR TEMP	0				
	83	TE-46200-23 BOTTOM HDR TEMP	0				
	84	TE-46200-24 BOTTOM HDR TEMP	0				
	85	MEAS REGION 1 PEAKING FACTOR	0				
	86	MEAS REGION 2 PEAKING FACTOR	0				
	87	MEAS REGION 3 PEAKING FACTOR	0				
	88	MEAS REGION 4 PEAKING FACTOR	0				
	89	MEAS REGION 5 PEAKING FACTOR	0				
	90	MEAS REGION 6 PEAKING FACTOR	0				
	91	MEAS REGION 7 PEAKING FACTOR	0				
	92	MEAS REGION 8 PEAKING FACTOR	0				
	93	MEAS REGION 9 PEAKING FACTOR	0				
	94	MEAS REGION 10 PEAKING FACTOR	0				
	95	MEAS REGION 11 PEAKING FACTOR	0				
	96	MEAS REGION 12 PEAKING FACTOR	0				
	97	MEAS REGION 13 PEAKING FACTOR	0				
	98	MEAS REGION 14 PEAKING FACTOR	0				
	99	MEAS REGION 15 PEAKING FACTOR	0				
	100	MEAS REGION 16 PEAKING FACTOR	0				
	101	MEAS REGION 17 PEAKING FACTOR	0				

#1 BLUE
#2 RED
#1 TAN
#2 GREEN

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POINT	POINT DESCRIPTION	EXTERNAL PT. NO	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
102	MEAS REGION 18 PEAKING FACTOR	0				
103	MEAS REGION 19 PEAKING FACTOR	0				
104	MEAS REGION 20 PEAKING FACTOR	0				
105	MEAS REGION 21 PEAKING FACTOR	0				
106	MEAS REGION 22 PEAKING FACTOR	0				
107	MEAS REGION 23 PEAKING FACTOR	0				
108	MEAS REGION 24 PEAKING FACTOR	0				
109	MEAS REGION 25 PEAKING FACTOR	0				
110	MEAS REGION 26 PEAKING FACTOR	0				
111	MEAS REGION 27 PEAKING FACTOR	0				
112	MEAS REGION 28 PEAKING FACTOR	0				
113	MEAS REGION 29 PEAKING FACTOR	0				
114	MEAS REGION 30 PEAKING FACTOR	0				
115	MEAS REGION 31 PEAKING FACTOR	0				
116	MEAS REGION 33 PEAKING FACTOR	0				
117	MEAS REGION 34 PEAKING FACTOR	0				
118	MEAS REGION 35 PEAKING FACTOR	0				
119	MEAS REGION 35 PEAKING FACTOR	0				
120	MEAS REGION 36 PEAKING FACTOR	0				
121	MEAS REGION 37 PEAKING FACTOR	0				
122	CALC REG 1 RPF DISCREPANCY	0				
123	CALC REG 2 RPF DISCREPANCY	0				
124	CALC REG 3 RPF DISCREPANCY	0				
125	CALC REG 4 RPF DISCREPANCY	0				
126	CALC REG 5 RPF DISCREPANCY	0				
127	CALC REG 6 RPF DISCREPANCY	0				
128	CALC REG 7 RPF DISCREPANCY	0				
129	CALC REG 8 RPF DISCREPANCY	0				
130	CALC REG 9 RPF DISCREPANCY	0				
131	CALC REG 10 RPF DISCREPANCY	0				
132	CALC REG 11 RPF DISCREPANCY	0				
133	CALC REG 12 RPF DISCREPANCY	0				
134	CALC REG 13 RPF DISCREPANCY	0				
135	CALC REG 14 RPF DISCREPANCY	0				
136	CALC REG 15 RPF DISCREPANCY	0				
137	CALC REG 16 RPF DISCREPANCY	0				
138	CALC REG 17 RPF DISCREPANCY	0				
139	CALC REG 18 RPF DISCREPANCY	0				
140	CALC REG 19 RPF DISCREPANCY	0				
141	CALC REG 20 RPF DISCREPANCY	0				
142	CALC REG 21 RPF DISCREPANCY	0				
143	CALC REG 22 RPF DISCREPANCY	0				
144	CALC REG 23 RPF DISCREPANCY	0				
145	CALC REG 24 RPF DISCREPANCY	0				
146	CALC REG 25 RPF DISCREPANCY	0				
147	CALC REG 26 RPF DISCREPANCY	0				
148	CALC REG 27 RPF DISCREPANCY	0				
149	CALC REG 28 RPF DISCREPANCY	0				
150	CALC REG 29 RPF DISCREPANCY	0				
151	CALC REG 30 RPF DISCREPANCY	0				
152	CALC REG 31 RPF DISCREPANCY	0				
153	CALC REG 32 RPF DISCREPANCY	0				
154	CALC REG 33 RPF DISCREPANCY	0				
155	CALC REG 34 RPF DISCREPANCY	0				
156	CALC REG 35 RPF DISCREPANCY	0				
157	CALC REG 36 RPF DISCREPANCY	0				

[illegible]	[illegible]	No.	Point Description	[illegible] NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
		158	CALC REG 37 RPF DISCREPANCY	0				
		159	TE-46201-9 CORE SUP FLR UP FACE	0				
		160	TE-46201-10 CORE SUP FLR UP FACE	0				
		161	TE-46201-11 CORE SUP FLR UP FACE	0				
		162	TE-46201-12 CORE SUP FLR UP FACE	0				
		163	TE-46201-13 CORE SUP FLR UP FACE	0				
		164	TE-46201-14 CORE SUP FLR UP FACE	0				
		165	TE-46201-15 CORE SUP FLR UP FACE	0				
		166	TE-46201-16 CORE SUP FLR UP FACE	0				
		167	TE-46201-17 CORE SUP FLR UP FACE	0				
		168	TE-46201-18 CORE SUP FLR UP FACE	0				
		169	TE-46201-19 CORE SUP FLR UP FACE	0				
		170	TE-46201-20 CORE SUP FLR UP FACE	0				
		171	TE-46201-21 CORE SUP FLR UP FACE	0				
		172	TE-46201-22 CORE SUP FLR UP FACE	0				
		173	TE-46201-23 CORE SUP FLR UP FACE	0				
		174	TE-46201-24 CORE SUP FLR UP FACE	0				
		175	TE-46201-25 CORE SUP FLR UP FACE	0				
		176	TE-46201-26 CORE SUP FLR UP FACE	0				
		177	TE-46201-27 CORE SUP FLR UP FACE	0				
		178	TE-46201-28 CORE SUP FLR UP FACE	0				
		179	TE-46201-29 CORE SUP FLR UP FACE	0				
		180	TE-46201-30 CORE SUP FLR UP FACE	0				
		181	TE-46201-31 CORE SUP FLR UP FACE	0				
		182	TE-46201-32 CORE SUP FLR UP FACE	0				
		183	TE-46201-33 CORE SUP FLR UP FACE	0				
		184	TE-46201-34 CORE SUP FLR UP FACE	0				
		185	TE-46201-35 CORE SUP FLR UP FACE	0				
		186	TE-46201-36 CORE SUP FLR UP FACE	0				
		187	TE-46201-37 CORE SUP FLR UP FACE	0				
		188	TE-46201-38 CORE SUP FLR UP FACE	0				
		189	TE-46201-39 CORE SUP FLR UP FACE	0				
		190	TE-46201-40 CORE SUP FLR UP FACE	0				
		191	TE-46201-41 CORE SUP FLR UP FACE	0				
		192	TE-46201-42 CORE SUP FLR UP FACE	0				
		193	SPARE 46-193	0				
		194	SPARE 46-194	0				
		195	SPARE 46-195	0				
		196	SPARE 46-196	0				
		197	SPARE 46-197	0				
		198	SPARE 46-198	0				
		199	SPARE 46-199	0				
		200	SPARE 46-200	0				
		201	TE-46202-1 CORE SUP FLR PENETR	0				
		202	TE-46202-2 CORE SUP FLR PENETR	0				
		203	TE-46202-3 CORE SUP FLR PENETR	0				
		204	TE-46202-4 CORE SUP FLR PENETR	0				
		205	TE-46202-5 CORE SUP FLR PENETR	0				
		206	TE-46202-6 CORE SUP FLR PENETR	0				
		207	TE-46202-7 CORE SUP FLR PENETR	0				
		208	TE-46202-8 CORE SUP FLR PENETR	0				
		209	TE-46202-9 CORE SUP FLR PENETR	0				
		210	TE-46202-10 CORE SUP FLR PENETR	0				
		211	TE-46202-11 CORE SUP FLR PENETR	0				
		212	TE-46202-12 CORE SUP FLR PENETR	0				
		213	TE-46202-13 CORE SUP FLR PENETR	0				

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STATION	POINT NO.	POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	214	TE-46202-14 CORE SUP FLR PENETR	0				
	215	TE-46202-15 CORE SUP FLR PENETR	0				
	216	TE-46202-16 CORE SUP FLR PENETR	0				
	217	TE-46202-17 CORE SUP FLR PENETR	0				
	218	TE-46202-18 CORE SUP FLR PENETR	0				
	219	TE-46202-19 CORE SUP FLR PENETR	0				
	220	TE-46202-20 CORE SUP FLR PENETR	0				
	221	TE-46202-21 CORE SUP FLR PENETR	0				
	222	TE-46202-22 CORE SUP FLR PENETR	0				
	223	TE-46202-23 CORE SUP FLR PENETR	0				
	224	TE-46202-24 CORE SUP FLR PENETR	0				
	225	SPARE 46-225	0				
	226	SPARE 46-226	0				
	227	SPARE 46-227	0				
	228	SPARE 46-228	0				
	229	SPARE 46-229	0				
	230	SPARE 46-230	0				
	231	TE-46203-1 CORE SUP FLR LO FACE	0				
	232	TE-46203-2 CORE SUP FLR LO FACE	0				
	233	TE-46203-3 CORE SUP FLR LO FACE	0				
	234	TE-46203-4 CORE SUP FLR LO FACE	0				
	235	TE-46203-5 CORE SUP FLR LO FACE	0				
	236	TE-46203-6 CORE SUP FLR LO FACE	0				
	237	TE-46203-7 CORE SUP FLR LO FACE	0				
	238	TE-46203-8 CORE SUP FLR LO FACE	0				
	239	TE-46203-9 CORE SUP FLR LO FACE	0				
	240	TE-46203-10 CORE SUP FLR LO FACE	0				
	241	TE-46203-11 CORE SUP FLR LO FACE	0				
	242	TE-46203-12 CORE SUP FLR LO FACE	0				
	243	TE-46203-13 CORE SUP FLR LO FACE	0				
	244	TE-46203-14 CORE SUP FLR LO FACE	0				
	245	TE-46203-15 CORE SUP FLR LO FACE	0				
	246	TE-46203-16 CORE SUP FLR LO FACE	0				
	247	TE-46203-17 CORE SUP FLR LO FACE	0				
	248	SPARE 46-248	0				
	249	SPARE 46-249	0				
	250	SPARE 46-250	0				
	251	TE-46204-1 CORE SUPRT FLR SIDES	0				
	252	TE-46204-2 CORE SUPRT FLR SIDES	0				
	253	TE-46204-3 CORE SUPRT FLR SIDES	0				
	254	TE-46204-4 CORE SUPRT FLR SIDES	0				
	255	TE-46204-5 CORE SUPRT FLR SIDES	0				
	256	TE-46204-6 CORE SUPRT FLR SIDES	0				
	257	TE-46204-7 CORE SUPRT FLR SIDES	0				
	258	TE-46204-8 CORE SUPRT FLR SIDES	0				
	259	TE-46204-9 CORE SUPRT FLR SIDES	0				
	260	TE-46204-10 CORE SUPRT FLR SIDES	0				
	261	TE-46204-11 CORE SUPRT FLR SIDES	0				
	262	TE-46204-12 CORE SUPRT FLR SIDES	0				
	263	TE-46204-13 CORE SUPRT FLR SIDES	0				
	264	TE-46204-14 CORE SUPRT FLR SIDES	0				
	265	TE-46204-15 CORE SUPRT FLR SIDES	0				
	266	TE-46204-16 CORE SUPRT FLR SIDES	0				
	267	TE-46204-17 CORE SUPRT FLR SIDES	0				
	268	TE-46204-18 CORE SUPRT FLR SIDES	0				
	269	TE-46204-19 CORE SUPRT FLR SIDES	0				

STATION	POINT	POINT DESCRIPTION	EXTERNAL WIRING	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	270	TE-46204-20 CURE SUPRT FLR SIDES	0				
	271	TE-46204-21 CURE SUPRT FLR SIDES	0				
	272	TE-46204-22 CURE SUPRT FLR SIDES	0				
	273	TE-46204-23 CURE SUPRT FLR SIDES	0				
	274	TE-46204-24 CURE SUPRT FLR SIDES	0				
	275	SPARE 46-275	0				
	276	SPARE 46-276	0				
	277	SPARE 46-277	0				
	278	SPARE 46-278	0				
	279	SPARE 46-279	0				
	280	SPARE 46-280	0				
	281	SPARE 46-281	0				
	282	SPARE 46-282	0				
	283	SPARE 46-283	0				
	284	SPARE 46-284	0				
	285	SPARE 46-285	0				
	286	SPARE 46-286	0				
	287	SPARE 46-287	0				
	288	SPARE 46-288	0				
	289	SPARE 46-289	0				
	290	SPARE 46-290	0				
	291	SPARE 46-291	0				
	292	SPARE 46-292	0				
	293	SPARE 46-293	0				
	294	SPARE 46-294	0				
	295	SPARE 46-295	0				
	296	SPARE 46-296	0				
	297	SPARE 46-297	0				
	298	SPARE 46-298	0				
	299	SPARE 46-299	0				
	300	SPARE 46-300	0				
	301	TE-46205-1 TOP PENETRATION	0				
	302	TE-46205-2 TOP PENETRATION	0				
	303	TE-46205-3 TOP PENETRATION	0				
	304	TE-46205-4 TOP PENETRATION	0				
	305	TE-46205-5 TOP PENETRATION	0				
	306	TE-46205-6 TOP PENETRATION	0				
	307	TE-46205-7 TOP PENETRATION	0				
	308	TE-46205-8 TOP PENETRATION	0				
	309	TE-46205-9 TOP PENETRATION	0				
	310	TE-46205-10 TOP PENETRATION	0				
	311	TE-46205-11 TOP PENETRATION	0				
	312	TE-46205-12 TOP PENETRATION	0				
	313	TE-46205-13 TOP PENETRATION	0				
	314	TE-46205-14 TOP PENETRATION	0				
	315	TE-46205-15 TOP PENETRATION	0				
	316	TE-46205-16 TOP PENETRATION	0				
	317	TE-46205-17 TOP PENETRATION	0				
	318	TE-46205-18 TOP PENETRATION	0				
	319	TE-46205-19 TOP PENETRATION	0				
	320	TE-46205-20 TOP PENETRATION	0				
	321	TE-46205-21 TOP PENETRATION	0				
	322	TE-46205-22 TOP PENETRATION	0				
	323	TE-46205-23 TOP PENETRATION	0				
	324	TE-46205-24 TOP PENETRATION	0				
	325	TE-46205-25 TOP PENETRATION	0				

STATION	POINT	POINT DESCRIPTION	EXTERNAL PT. NO.	HIGH ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
326	TE-46205-26	TOP PENETRATION	0				
327	TE-46205-27	TOP PENETRATION	0				
328	TE-46205-28	TOP PENETRATION	0				
329	TE-46205-29	TOP PENETRATION	0				
330	TE-46205-30	TOP PENETRATION	0				
331	TE-46205-31	TOP PENETRATION	0				
332	TE-46205-32	TOP PENETRATION	0				
333	TE-46205-33	TOP PENETRATION	0				
334	TE-46205-34	TOP PENETRATION	0				
335	TE-46205-35	TOP PENETRATION	0				
336	TE-46205-36	TOP PENETRATION	0				
337	TE-46205-37	TOP PENETRATION	0				
338	TE-46205-38	TOP PENETRATION	0				
339	TE-46205-39	TOP PENETRATION	0				
340	TE-46205-40	TOP PENETRATION	0				
341	TE-46205-41	TOP PENETRATION	0				
342	TE-46205-42	TOP PENETRATION	0				
343	TE-46205-43	TOP PENETRATION	0				
344	TE-46205-44	TOP PENETRATION	0				
345	TE-46205-45	TOP PENETRATION	0				
346	TE-46205-46	TOP PENETRATION	0				
347	TE-46205-47	TOP PENETRATION	0				
348	TE-46205-48	TOP PENETRATION	0				
349	TE-46205-49	TOP PENETRATION	0				
350	TE-46205-50	TOP PENETRATION	0				
351	TE-46205-51	TOP PENETRATION	0				
352	TE-46205-52	TOP PENETRATION	0				
353	TE-46205-53	TOP PENETRATION	0				
354	TE-46205-54	TOP PENETRATION	0				
355	TE-46205-55	TOP PENETRATION	0				
356	TE-46205-56	TOP PENETRATION	0				
357	TE-46205-57	TOP PENETRATION	0				
358	TE-46205-58	TOP PENETRATION	0				
359	TE-46205-59	TOP PENETRATION	0				
360	TE-46205-60	TOP PENETRATION	0				
361	TE-46205-61	TOP PENETRATION	0				
362	TE-46205-62	TOP PENETRATION	0				
363	TE-46205-63	TOP PENETRATION	0				
364	TE-46205-64	TOP PENETRATION	0				
365	TE-46205-65	TOP PENETRATION	0				
366	TE-46205-66	TOP PENETRATION	0				
367	TE-46205-67	TOP PENETRATION	0				
368	TE-46205-68	TOP PENETRATION	0				
369	TE-46205-69	TOP PENETRATION	0				
370	TE-46205-70	TOP PENETRATION	0				
371	TE-46205-71	TOP PENETRATION	0				
372	TE-46205-72	TOP PENETRATION	0				
373	TE-46205-73	TOP PENETRATION	0				
374	TE-46205-74	TOP PENETRATION	0				
375	TE-46205-75	TOP PENETRATION	0				
376	TE-46205-76	TOP PENETRATION	0				
377	TE-46205-77	TOP PENETRATION	0				
378	TE-46205-78	TOP PENETRATION	0				
379	TE-46205-79	TOP PENETRATION	0				
380	TE-46205-80	TOP PENETRATION	0				
381	TE-46205-81	TOP PENETRATION	0				

			EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
382	TE-46205-82	TOP PENETRATION	0				
383	TE-46205-83	TOP PENETRATION	0				
384	TE-46205-84	TOP PENETRATION	0				
385	TE-46205-85	TOP PENETRATION	0				
386	TE-46205-86	TOP PENETRATION	0				
387	TE-46205-87	TOP PENETRATION	0				
388	TE-46205-88	TOP PENETRATION	0				
389	TE-46205-89	TOP PENETRATION	0				
390	TE-46205-90	TOP PENETRATION	0				
391	TE-46205-91	TOP PENETRATION	0				
392	TE-46205-92	TOP PENETRATION	0				
393	TE-46205-93	TOP PENETRATION	0				
394	TE-46205-94	TOP PENETRATION	0				
395	TE-46205-95	TOP PENETRATION	0				
396	TE-46205-96	TOP PENETRATION	0				
397	TE-46205-97	TOP PENETRATION	0				
398	TE-46205-98	TOP PENETRATION	0				
399	TE-46205-99	TOP PENETRATION	0				
400	TE-46205-100	TOP PENETRATION	0				
401	TE-46206-1	TOP BARREL SIDE WALL	0				
402	TE-46206-2	TOP BARREL SIDE WALL	0				
403	TE-46206-3	TOP BARREL SIDE WALL	0				
404	TE-46206-4	TOP BARREL SIDE WALL	0				
405	TE-46206-5	TOP BARREL SIDE WALL	0				
406	TE-46206-6	TOP BARREL SIDE WALL	0				
407	TE-46206-7	TOP BARREL SIDE WALL	0				
408	TE-46206-8	TOP BARREL SIDE WALL	0				
409	TE-46206-9	TOP BARREL SIDE WALL	0				
410	TE-46206-10	TOP BARREL SIDE WALL	0				
411	TE-46206-11	TOP BARREL SIDE WALL	0				
412	TE-46206-12	TOP BARREL SIDE WALL	0				
413	TE-46206-13	TOP BARREL SIDE WALL	0				
414	TE-46206-14	TOP BARREL SIDE WALL	0				
415	TE-46206-15	TOP BARREL SIDE WALL	0				
416	TE-46206-16	TOP BARREL SIDE WALL	0				
417	TE-46206-17	TOP BARREL SIDE WALL	0				
418	TE-46206-18	TOP BARREL SIDE WALL	0				
419	TE-46206-19	TOP BARREL SIDE WALL	0				
420	TE-46206-20	TOP BARREL SIDE WALL	0				
421	TE-46206-21	TOP BARREL SIDE WALL	0				
422	TE-46206-22	TOP BARREL SIDE WALL	0				
423	TE-46206-23	TOP BARREL SIDE WALL	0				
424	TE-46206-24	TOP BARREL SIDE WALL	0				
425	TE-46206-25	TOP BARREL SIDE WALL	0				
426	TE-46206-26	TOP BARREL SIDE WALL	0				
427	TE-46206-27	TOP BARREL SIDE WALL	0				
428	TE-46206-28	TOP BARREL SIDE WALL	0				
429	TE-46206-29	TOP BARREL SIDE WALL	0				
430	TE-46206-30	TOP BARREL SIDE WALL	0				
431	TE-46206-31	TOP BARREL SIDE WALL	0				
432	TE-46206-32	TOP BARREL SIDE WALL	0				
433	TE-46206-33	TOP BARREL SIDE WALL	0				
434	TE-46206-34	TOP BARREL SIDE WALL	0				
435	TE-46206-35	TOP BARREL SIDE WALL	0				
436	TE-46206-36	TOP BARREL SIDE WALL	0				
437	TE-46206-37	TOP BARREL SIDE WALL	0				

POINT		POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
438	TE-46206-38	TOP BARRL SIDE WALL	0				
439	TE-46206-39	TOP BARRL SIDE WALL	0				
440	TE-46206-40	TOP BARRL SIDE WALL	0				
441	TE-46206-41	TOP BARRL SIDE WALL	0				
442	TE-46206-42	TOP BARRL SIDE WALL	0				
443	TE-46206-43	TOP BARRL SIDE WALL	0				
444	TE-46206-44	TOP BARRL SIDE WALL	0				
445	TE-46206-45	TOP BARRL SIDE WALL	0				
446	TE-46206-46	TOP BARRL SIDE WALL	0				
447	TE-46206-47	TOP BARRL SIDE WALL	0				
448	TE-46206-48	TOP BARRL SIDE WALL	0				
449	TE-46206-49	TOP BARRL SIDE WALL	0				
450	TE-46206-50	TOP BARRL SIDE WALL	0				
451	TE-46206-51	TOP BARRL SIDE WALL	0				
452	TE-46206-52	TOP BARRL SIDE WALL	0				
453	TE-46206-53	TOP BARRL SIDE WALL	0				
454	TE-46206-54	TOP BARRL SIDE WALL	0				
455	TE-46206-55	TOP BARRL SIDE WALL	0				
456	TE-46206-56	TOP BARRL SIDE WALL	0				
457	TE-46206-57	TOP BARRL SIDE WALL	0				
458	TE-46206-58	TOP BARRL SIDE WALL	0				
459	TE-46206-59	TOP BARRL SIDE WALL	0				
460	TE-46206-60	TOP BARRL SIDE WALL	0				
461	TE-46206-61	TOP BARRL SIDE WALL	0				
462	TE-46206-62	TOP BARRL SIDE WALL	0				
463	TE-46206-63	TOP BARRL SIDE WALL	0				
464	TE-46206-64	TOP BARRL SIDE WALL	0				
465	TE-46206-65	TOP BARRL SIDE WALL	0				
466	TE-46206-66	TOP BARRL SIDE WALL	0				
467	TE-46206-67	TOP BARRL SIDE WALL	0				
468	TE-46206-68	TOP BARRL SIDE WALL	0				
469	TE-46206-69	TOP BARRL SIDE WALL	0				
470	TE-46206-70	TOP BARRL SIDE WALL	0				
471	TE-46206-71	TOP BARRL SIDE WALL	0				
472	TE-46206-72	TOP BARRL SIDE WALL	0				
473	TE-46206-73	TOP BARRL SIDE WALL	0				
474	TE-46206-74	TOP BARRL SIDE WALL	0				
475	TE-46206-75	TOP BARRL SIDE WALL	0				
476	TE-46206-76	TOP BARRL SIDE WALL	0				
477	TE-46206-77	TOP BARRL SIDE WALL	0				
478	TE-46206-78	TOP BARRL SIDE WALL	0				
479	TE-46206-79	TOP BARRL SIDE WALL	0				
480	TE-46206-80	TOP BARRL SIDE WALL	0				
481	TE-46206-81	TOP BARRL SIDE WALL	0				
482	TE-46206-82	TOP BARRL SIDE WALL	0				
483	TE-46206-83	TOP BARRL SIDE WALL	0				
484	TE-46206-84	TOP BARRL SIDE WALL	0				
485	TE-46206-85	TOP BARRL SIDE WALL	0				
486	TE-46206-86	TOP BARRL SIDE WALL	0				
487	TE-46206-87	TOP BARRL SIDE WALL	0				
488	TE-46206-88	TOP BARRL SIDE WALL	0				
489	TE-46206-89	TOP BARRL SIDE WALL	0				
490	TE-46206-90	TOP BARRL SIDE WALL	0				
491	TE-46206-91	TOP BARRL SIDE WALL	0				
492	TE-46206-92	TOP BARRL SIDE WALL	0				
493	TE-46206-93	TOP BARRL SIDE WALL	0				

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TAPE LOC	POINT	DESCRIPTION	EXTERNAL P1, P2,	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
494	TE-46206-94	TOP BARREL SIDE WALL	0				
495	TE-46206-95	TOP BARREL SIDE WALL	0				
496	TE-46206-96	TOP BARREL SIDE WALL	0				
497	TE-46206-97	TOP BARREL SIDE WALL	0				
498	TE-46206-98	TOP BARREL SIDE WALL	0				
499	TE-46206-99	TOP BARREL SIDE WALL	0				
500	TE-46206-100	TOP BARREL SIDE WALL	0				
501	TE-46206-101	TOP BARREL SIDE WALL	0				
502	TE-46206-102	TOP BARREL SIDE WALL	0				
503	TE-46206-103	TOP BARREL SIDE WALL	0				
504	TE-46206-104	TOP BARREL SIDE WALL	0				
505	TE-46206-105	TOP BARREL SIDE WALL	0				
506	TE-46206-106	TOP BARREL SIDE WALL	0				
507	TE-46206-107	TOP BARREL SIDE WALL	0				
508	TE-46206-108	TOP BARREL SIDE WALL	0				
509	TE-46206-109	TOP BARREL SIDE WALL	0				
510	TE-46206-110	TOP BARREL SIDE WALL	0				
511	TE-46206-111	TOP BARREL SIDE WALL	0				
512	TE-46206-112	TOP BARREL SIDE WALL	0				
513	TE-46206-113	TOP BARREL SIDE WALL	0				
514	TE-46206-114	TOP BARREL SIDE WALL	0				
515	TE-46206-115	TOP BARREL SIDE WALL	0				
516	TE-46206-116	TOP BARREL SIDE WALL	0				
517	TE-46206-117	TOP BARREL SIDE WALL	0				
518	TE-46206-118	TOP BARREL SIDE WALL	0				
519	TE-46206-119	TOP BARREL SIDE WALL	0				
520	TE-46206-120	TOP BARREL SIDE WALL	0				
521	TE-46206-121	TOP BARREL SIDE WALL	0				
522	TE-46206-122	TOP BARREL SIDE WALL	0				
523	TE-46206-123	TOP BARREL SIDE WALL	0				
524	TE-46206-124	TOP BARREL SIDE WALL	0				
525	TE-46206-125	TOP BARREL SIDE WALL	0				
526	TE-46206-126	TOP BARREL SIDE WALL	0				
527	TE-46206-127	TOP BARREL SIDE WALL	0				
528	TE-46206-128	TOP BARREL SIDE WALL	0				
529	TE-46206-129	TOP BARREL SIDE WALL	0				
530	TE-46206-130	TOP BARREL SIDE WALL	0				
531	SPARE 46-531		0				
532	SPARE 46-532		0				
533	SPARE 46-533		0				
534	SPARE 46-534		0				
535	SPARE 46-535		0				
536	SPARE 46-536		0				
537	SPARE 46-537		0				
538	SPARE 46-538		0				
539	SPARE 46-539		0				
540	SPARE 46-540		0				
541	TE-46207-1	BOTTM BARL SIDE WALL	0				
542	TE-46207-2	BOTTM BARL SIDE WALL	0				
543	TE-46207-3	BOTTM BARL SIDE WALL	0				
544	TE-46207-4	BOTTM BARL SIDE WALL	0				
545	TE-46207-5	BOTTM BARL SIDE WALL	0				
546	TE-46207-6	BOTTM BARL SIDE WALL	0				
547	TE-46207-7	BOTTM BARL SIDE WALL	0				
548	TE-46207-8	BOTTM BARL SIDE WALL	0				
549	TE-46207-9	BOTTM BARL SIDE WALL	0				

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JUNCTION	POINT #	POINT DESCRIPTION	EXTERNAL 21. RD.	HI ALARM EARLY	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	550	TE-46207-10 BOTTM BARL SIDE WALL	0				
	551	TE-46207-11 BOTTM BARL SIDE WALL	0				
	552	TE-46207-12 BOTTM BARL SIDE WALL	0				
	553	TE-46207-13 BOTTM BARL SIDE WALL	0				
	554	TE-46207-14 BOTTM BARL SIDE WALL	0				
	555	TE-46207-15 BOTTM BARL SIDE WALL	0				
	556	TE-46207-16 BOTTM BARL SIDE WALL	0				
	557	TE-46207-17 BOTTM BARL SIDE WALL	0				
	558	TE-46207-18 BOTTM BARL SIDE WALL	0				
	559	TE-46207-19 BOTTM BARL SIDE WALL	0				
	560	TE-46207-20 BOTTM BARL SIDE WALL	0				
	561	TE-46207-21 BOTTM BARL SIDE WALL	0				
	562	TE-46207-22 BOTTM BARL SIDE WALL	0				
	563	TE-46207-23 BOTTM BARL SIDE WALL	0				
	564	TE-46207-24 BOTTM BARL SIDE WALL	0				
	565	TE-46207-25 BOTTM BARL SIDE WALL	0				
	566	TE-46207-26 BOTTM BARL SIDE WALL	0				
	567	TE-46207-27 BOTTM BARL SIDE WALL	0				
	568	TE-46207-28 BOTTM BARL SIDE WALL	0				
	569	TE-46207-29 BOTTM BARL SIDE WALL	0				
	570	TE-46207-30 BOTTM BARL SIDE WALL	0				
	571	TE-46207-31 BOTTM BARL SIDE WALL	0				
	572	TE-46207-32 BOTTM BARL SIDE WALL	0				
	573	TE-46207-33 BOTTM BARL SIDE WALL	0				
	574	TE-46207-34 BOTTM BARL SIDE WALL	0				
	575	TE-46207-35 BOTTM BARL SIDE WALL	0				
	576	TE-46207-36 BOTTM BARL SIDE WALL	0				
	577	TE-46207-37 BOTTM BARL SIDE WALL	0				
	578	TE-46207-38 BOTTM BARL SIDE WALL	0				
	579	TE-46207-39 BOTTM BARL SIDE WALL	0				
	580	TE-46207-40 BOTTM BARL SIDE WALL	0				
	581	TE-46207-41 BOTTM BARL SIDE WALL	0				
	582	TE-46207-42 BOTTM BARL SIDE WALL	0				
	583	TE-46207-43 BOTTM BARL SIDE WALL	0				
	584	TE-46207-44 BOTTM BARL SIDE WALL	0				
	585	TE-46207-45 BOTTM BARL SIDE WALL	0				
	586	TE-46207-46 BOTTM BARL SIDE WALL	0				
	587	TE-46207-47 BOTTM BARL SIDE WALL	0				
	588	TE-46207-48 BOTTM BARL SIDE WALL	0				
	589	TE-46207-49 BOTTM BARL SIDE WALL	0				
	590	TE-46207-50 BOTTM BARL SIDE WALL	0				
	591	TE-46207-51 BOTTM BARL SIDE WALL	0				
	592	TE-46207-52 BOTTM BARL SIDE WALL	0				
	593	TE-46207-53 BOTTM BARL SIDE WALL	0				
	594	TE-46207-54 BOTTM BARL SIDE WALL	0				
	595	TE-46207-55 BOTTM BARL SIDE WALL	0				
	596	TE-46207-56 BOTTM BARL SIDE WALL	0				
	597	TE-46207-57 BOTTM BARL SIDE WALL	0				
	598	TE-46207-58 BOTTM BARL SIDE WALL	0				
	599	SPARE 46-599	0				
	600	SPARE 46-600	0				
	601	TE-46208-1 TOP HEAD	0				
	602	TE-46208-2 TOP HEAD	0				
	603	TE-46208-3 TOP HEAD	0				
	604	TE-46208-4 TOP HEAD	0				
	605	TE-46208-5 TOP HEAD	0				

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POINT	POINT ID	POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
606	TE-46208-6	TOP HEAD	0				
607	TE-46208-7	TOP HEAD	0				
608	TE-46208-8	TOP HEAD	0				
609	TE-46208-9	TOP HEAD	0				
610	TE-46208-10	TOP HEAD	0				
611	TE-46208-11	TOP HEAD	0				
612	TE-46208-12	TOP HEAD	0				
613	TE-46208-13	TOP HEAD	0				
614	TE-46208-14	TOP HEAD	0				
615	TE-46208-15	TOP HEAD	0				
616	TE-46208-16	TOP HEAD	0				
617	TE-46208-17	TOP HEAD	0				
618	TE-46208-18	TOP HEAD	0				
619	TE-46208-19	TOP HEAD	0				
620	TE-46208-20	TOP HEAD	0				
621	TE-46208-21	TOP HEAD	0				
622	TE-46208-22	TOP HEAD	0				
623	TE-46208-23	TOP HEAD	0				
624	TE-46208-24	TOP HEAD	0				
625	TE-46208-25	TOP HEAD	0				
626	TE-46208-26	TOP HEAD	0				
627	TE-46208-27	TOP HEAD	0				
628	TE-46208-28	TOP HEAD	0				
629	TE-46208-29	TOP HEAD	0				
630	TE-46208-30	TOP HEAD	0				
631	TE-46208-31	TOP HEAD	0				
632	TE-46208-32	TOP HEAD	0				
633	TE-46208-33	TOP HEAD	0				
634	TE-46208-34	TOP HEAD	0				
635	TE-46208-35	TOP HEAD	0				
636	TE-46208-36	TOP HEAD	0				
637	TE-46208-37	TOP HEAD	0				
638	TE-46208-38	TOP HEAD	0				
639	TE-46208-39	TOP HEAD	0				
640	TE-46208-40	TOP HEAD	0				
641	TE-46208-41	TOP HEAD	0				
642	TE-46208-42	TOP HEAD	0				
643	SPARE 46-643		0				
644	SPARE 46-644		0				
645	SPARE 46-645		0				
646	SPARE 46-646		0				
647	SPARE 46-647		0				
648	SPARE 46-648		0				
649	SPARE 46-649		0				
650	SPARE 46-650		0				
651	TE-46328-1	INST PENE-SAFETY VLV	0				
652	TE-46328-2	INST PENE-SAFETY VLV	0				
653	TE-46328-3	INST PENE-SAFETY VLV	0				
654	TE-46328-4	INST PENE-SAFETY VLV	0				
655	TE-46328-5	INST PENE-SAFETY VLV	0				
656	TE-46328-6	INST PENE-SAFETY VLV	0				
657	TE-46328-7	INST PENE-SAFETY VLV	0				
658	TE-46328-8	INST PENE-SAFETY VLV	0				
659	TE-46328-9	INST PENE-SAFETY VLV	0				
660	TE-46328-10	INST PENE-SAFETY VLV	0				
661	TE-46328-11	INST PENE-SAFETY VLV	0				

#1 BLUE
#2 RED

#1 TAN
#2 GREEN

			POINT DESCRIPTION	EXTERNAL PT. NO.	LOW ALARM LIMIT	HI READING	LOW WARNING LIMIT	HIGH ALARM LIMIT
		662	TE-46328-12 INST PENE-SAFETY VLV	0				
		663	TE-46328-13 INST PENE-SAFETY VLV	0				
		664	TE-46328-14 INST PENE-SAFETY VLV	0				
		665	TE-46328-15 INST PENE-SAFETY VLV	0				
		666	TE-46328-16 INST PENE-SAFETY VLV	0				
		667	TE-46328-17 INST PENE-SAFETY VLV	0				
		668	TE-46328-18 INST PENE-SAFETY VLV	0				
		669	TE-46328-19 INST PENE-SAFETY VLV	0				
		670	TE-46328-20 INST PENE-SAFETY VLV	0				
		671	TE-46328-21 INST PENE-SAFETY VLV	0				
		672	TE-46328-22 INST PENE-SAFETY VLV	0				
		673	TE-46328-23 INST PENE-SAFETY VLV	0				
		674	TE-46328-24 INST PENE-SAFETY VLV	0				
		675	TE-46328-25 INST PENE-SAFETY VLV	0				
		676	TE-46328-26 INST PENE-SAFETY VLV	0				
		677	SPARE 46-677	0				
		678	SPARE 46-678	0				
		679	SPARE 46-679	0				
		680	SPARE 46-680	0				
		681	SPARE 46-681	0				
		682	SPARE 46-682	0				
		683	SPARE 46-683	0				
		684	SPARE 46-684	0				
		685	SPARE 46-685	0				
		686	SPARE 46-686	0				
		687	SPARE 46-687	0				
	51	0	PT-5121 EHC FLUID SUPPLY PRESS	168		2250		1100
		1	EHC-CV-5 TOTAL BPV POSITION	719				
		2	SPARE 51-2	0				
		3	SPARE 51-3	0				
		4	PT-5102 GLAND SEAL STEAM PRESS	167		9.0		1.0
		5	TE-5169 GLAND SEAL STEAM TEMP	190		450		350
		6	SPARE 51-6	0				
		7	TE-5158-1 CONTL VLV CHEST INNER	369		1050		800
		8	TE-5158-2 CONTL VLV CHEST OUTER	370		1050		800
		9	TE-5159-1 1ST STAGE SHELL INNER	371		1000		800
		10	TE-5159-2 1ST STAGE SHELL OUTER	372		1000		700
		11	GE-TSC-50 HP EXHAUST UPPER TEMP	532				
		12	GE-TSC-51 HP EXHAUST LOWER TEMP	533				
		13	GE-TSC-61 8TH STAGE EXT UP TEMP	534				
		14	GE-TSC-62 8TH STAGE EXT LO TEMP	535				
		15	GE-TSC-56 CROSSOVER PIPE UP TEMP	536				
		16	GE-TSC-57 CROSSOVER PIPE LO TEMP	537				
		17	TE-5161 TURBINE EXHUST HOOD TEMP	189		175		65
		18	SPARE 51-18	0				
		19	SPARE 51-19	0				
		20	PT-5127 BEARING OIL HEADER PRESS	152		90.0		15.0
		21	TE-5168 OIL TEMP LEAVING COOLER	151		180		80
		22	TE-5162-1 THRUST BRG METAL FRONT	154		180		80
		23	TE-5163-1 THRUST BRG METAL REAR	155		180		80
		24	TE-5164 THRUST BRG OIL TEMP FRNT	157		180		80
		25	TE-5165 THRUST BRG OIL TEMP REAR	158		180		80
		26	SPARE 51-26	0				
		27	TE-5166-1 BRG 1 OIL DRAIN TEMP	159		167		80
		28	TE-5166-2 BRG 2 OIL DRAIN TEMP	160		167		80
		29	TE-5166-3 BRG 3 OIL DRAIN TEMP	161		167		80

		POINT DESCRIPTION	PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	30	TE-5166-4 BRG 4 OIL DRAIN TEMP	162		167	80	
	31	TE-5166-5 BRG 5 OIL DRAIN TEMP	163		167	80	
	32	TE-5166-6 BRG 6 OIL DRAIN TEMP	164		167	80	
	33	TE-5167-1 COLLECTR STM BRG DRAIN	0				
	34	TE-5167-2 REDUCTION GEAR DRAIN	0				
	35	TE-5167-3 EXCITER BRG DRAIN TEMP	0				
	36	SPARE 51-36	0				
	37	TSI-E-1 NO. 1 BEARING VIBRATION	187		7.00	-7.00	
	38	TSI-E-2 NO. 2 BEARING VIBRATION	363		7.00	-0.30	
	39	TSI-E-3 NO. 3 BEARING VIBRATION	364		7.00	-0.30	
	40	TSI-E-4 NO. 4 BEARING VIBRATION	365		10.00	-0.30	
	41	TSI-E-5 NO. 5 BEARING VIBRATION	366		10.00	-0.30	
	42	TSI-E-6 NO. 6 BEARING VIBRATION	367		10.00	-0.30	
	43	TSI-E-3 TURBINE ECCENTRICITY	188		10.00	-0.60	
	44	TSI-E-4 TURBINE SPEED	373	12767	3960	360	
	45	TSI-E-5 DIFFERENTIAL EXPANSION	189		1.70	-0.30	
	46	SPARE 51-46	0				
	47	XPR-5119 HYDROGEN PURITY	0				
	48	PT-5120 HYDROGEN PRESSURE	207				
	49	PT-5183 H2 SEAL OIL SUPPLY PRESS	0				
	50	SPARE 51-50	0				
	51	TE-5170-1 A H2 COOLR GAS OUTLET	208		48.0	10.0	
	52	TE-5170-2 B H2 COOLR GAS OUTLET	209		48.0	10.0	
	53	TE-5170-3 C H2 COOLR GAS OUTLET	210		48.0	10.0	
	54	TE-5170-4 D H2 COOLR GAS OUTLET	211		48.0	10.0	
	55	TE-5181 HOT HYDROGEN GAS TEMP	212		90.0	10.0	
	56	TE-5172 WATER TEMP TO STATOR	214		90.0	10.0	
	57	TE-5171 AIR TEMP LEAVING STATOR	215		90.0	10.0	
	58	TE-5175 COLLECTR & EXCITER AIR IN	0				
	59	TE-5176 COLLECTER AIR TEMP OUT	0				
	60	TE-5177 EXCITER AIR TEMP OUT	222				
	61	NO INST A PHASE STATOR TEMP	0				
	62	NO INST B PHASE STATOR TEMP	0				
	63	NO INST C PHASE STATOR TEMP	0				
	64	NO INST 6 54 GE RTDS STATOR TEMP	206		250.0	-50.0	
	65	NO INST 6 54 GE THERMCPLS STATOR	454		250	50	
	66	SPARE 51-66	0				
	67	ET-5125 FIELD VOLTAGE	218		540	60	
	68	IT-5125 FIELD CURRENT	219		3600	400	
	69	SPARE 51-69	0				
	70	CALC GV CHEST (INNER-OUTER)	9071				
	71	CALC IST STG SHELL (INNER-OUTER)	9072				
	72	CALC HP EXHAUST (LOWER-UPPER)	9073				
	73	CALC 8TH STAGE (LOWER-UPPER)	9074				
	74	CALC CROSSOVR PIPE (LOWER-UPPER)	9075				
	75	SPARE 51-75	0				
	76	SPARE 51-76	0				
	77	SPARE 51-77	0				
	78	SPARE 51-78	0				
	79	SPARE 51-79	0				
52	0	SPARE 52-0	0				
	1	TT-5207 LP1 MAIN STM DESUPR TEMP	721				
	2	TT-5208 LP2 MAIN STM DESUPR TEMP	722				
	3	TIC-5207 LP1 MAIN STM DESUP CONT	723				
	4	TIC-5208 LP2 MAIN STM DESUP CONT	724				
	5	TT-5220 TURBINE MAIN STEAM TEMP	171		1020	850	

			POINT DESCRIPTION	EST ERROR (+/-)	CRT ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
		6	PT-5243 TURBINE MAIN STM PRESS	725				
		7	PC-5243 MAIN STEAM PRESS CONTR	0				
		8	PMP-5243 FEEDWATER FLOW SET PT	727				
		9	PT-5238 STEAM CHEST PRESS	368		3375	375	
		10	PT-5242 TURBINE 1ST STAGE PRESS	172		1600	427	
		11	PM-5242-1 POWER DEMAND	0				
		12	SPARE 52-12	0				
		13	SPARE 52-13	0				
		14	TT-5216 TURBINE COLD REHEAT TEMP	174		795	440	
		15	PT-5217 TURBINE COLD RHT PRESS	173		900	100	
		16	PT-5213 AUX STM PRESS TO CRH HDR	0				
		17	TE-5222 TURBINE HOT RHT TEMP	176		1075	65	
		18	PT-5223 TURBINE HOT RHT PRESS	0				
		19	PT-5240 HRH TURBINE BOWL PRESS	177				
		20	TT-5220-1 HRH BYPASS DESUP TEMP	0				
		21	PT-5260 HRH STEAM PRESS LOW RNG	397		400.0	40.0	
		22	PT-5261-2 CONDENSER PRESSURE	253	4.00	4.00		
		23	SPARE 52-23	0				
		24	SPARE 52-24	0				
		25	SPARE 52-25	0				
		26	SPARE 52-26	0				
		27	SPARE 52-27	0				
		28	SPARE 52-28	0				
		29	SPARE 52-29	0				
		30	SPARE 52-30	0				
		31	SPARE 52-31	0				
	53	0	SPARE 53-0	0				
		1	SPARE 53-1	0				
		2	TE-5331 HEATER 2 EXTRACTION TEMP	359		273	59	
		3	TE-5324 HEATER 3 EXTRACTION TEMP	358		363	69	
		4	TE-5303 DEAERATOR EXTRACT TEMP	357		633	99	
		5	TE-5311 HEATER 5 EXTRACTION TEMP	356		450	109	
		6	TE-5306 HEATER 6 EXTRACTION TEMP	355		994	138	
		7	SPARE 53-7	0				
		8	SPARE 53-8	0				
		9	SPARE 53-9	0				
		10	SPARE 53-10	0				
		11	PT-5341 HEATER 1 EXTRACT PRESS	183		13.50	1.50	
		12	PT-5340 HEATER 2 EXTRACT PRESS	182		18.00	2.00	
		13	PT-5339 HEATER 3 EXTRACT PRESS	181		27.00	3.00	
		14	PT-5326 DEAERATOR EXTRACT PRESS	180		90.0	10.0	
		15	PT-5335 HEATER 5 EXTRACT PRESS	179		180.0	20.0	
		16	PT-5332 HEATER 6 EXTRACT PRESS	178		270.0	30.0	
		17	SPARE 53-17	0				
		18	SPARE 53-18	0				
		19	PIT-5315 A BFP EXTRACT STM PRESS	731				
		20	PIT-5318 C BFP EXTRACT STM PRESS	732				
		21	SI-5313 A BFP SPEED	733				
		22	SI-5320 C BFP SPEED	734				
		23	SPARE 53-23	0				
		24	SPARE 53-24	0				
		25	SPARE 53-25	0				
		26	SPARE 53-26	0				
		27	SPARE 53-27	0				
		28	SPARE 53-28	0				
		29	SPARE 53-29	0				

#1 BLUE #2 RED

#1 TAN #2 GREEN

STATION	POINT	POINT DESCRIPTOR	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	30	SPARE 53-30	0				
	31	SPARE 53-31	0				
67	0	SPARE 62-0	0				
	1	FE-6215 LIQ WASTE BLOWDOWN FLOW	0	10.5	10.0		
	2	SPARE 62-2	0				
	3	SPARE 62-3	0				
	4	SPARE 62-4	0				
	5	SPARE 62-5	0				
	6	SPARE 62-6	0				
	7	SPARE 62-7	0				
	8	SPARE 62-8	0				
	9	SPARE 62-9	0				
	10	SPARE 62-10	0				
	11	SPARE 62-11	0				
	12	SPARE 62-12	0				
	13	SPARE 62-13	0				
	14	SPARE 62-14	0				
	15	SPARE 62-15	0				
63	0	SPARE 63-0	0				
	1	RIS-6314-1 GAS WASTE MONITOR	0				
	2	RIS-6314-2 GAS WASTE MONITOR	0				
	3	FE-6320 GAS WASTE EXHAUST FLOW	0				
	4	SPARE 63-4	0				
	5	SPARE 63-5	0				
	6	SPARE 63-6	0				
	7	SPARE 63-7	0				
	8	SPARE 63-8	0				
	9	SPARE 63-9	0				
	10	SPARE 63-10	0				
	11	CALC RIS-6314-1 GAS WASTE MONITR	9076				
	12	CALC RIS-6314-1 GAS WASTE MON. E	9077				
	13	CALC RIS-6314-2 GAS WASTE MONITR	9078				
	14	CALC RIS-6314-2 GAS WASTE MON. E	9079				
	15	SPARE 63-15	0				
70	0	SPARE 70-0	0				
	1	RIS-21251 INSTRUMENT FAILURE	0	100	100		
	2	RIS-91193 INSTRUMENT FAILURE	0	100	100		
	3	RIS-6314-1 INSTRUMENT FAILURE	0	100	100		
	4	RIS-6314-2 INSTRUMENT FAILURE	0	100	100		
	5	RIS-7312 INSTRUMENT FAILURE	0	100	100		
	6	RIS-7324-1 INSTRUMENT FAILURE	0	100	100		
	7	RIS-7324-2 INSTRUMENT FAILURE	0	100	100		
	8	RIS-7325-1 INSTRUMENT FAILURE	0	100	100		
	9	RIS-7325-2 INSTRUMENT FAILURE	0	100	100		
	10	RIS-73937-1 INSTRUMENT FAILURE	0	100	100		
	11	RIS-73937-2 INSTRUMENT FAILURE	0	100	100		
	12	RIS-9301 INSTRUMENT FAILURE	0	100	100		
	13	RIS-93250-10 INSTRUMENT FAILURE	0	100	100		
	14	RIS-93250-11 INSTRUMENT FAILURE	0	100	100		
	15	RIS-93250-12 INSTRUMENT FAILURE	0	100	100		
	16	LP1 BAD TELE INPUT TO 1-01-A-3-7	0				
	17	LP2 BAD TELE INPUT TO 1-01-A-3-8	0				
	18	SPARE 70-18	0				
	19	SPARE 70-19	0				
	20	SPARE 70-20	0				
	21	SPARE 70-21	0				

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RADIO	LOOP	SEC	POINT	DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
			22	SPARE 70-22	0				
			23	SPARE 70-23	0				
			24	SPARE 70-24	0				
			25	SPARE 70-25	0				
			26	SPARE 70-26	0				
			27	SPARE 70-27	0				
			28	SPARE 70-28	0				
			29	SPARE 70-29	0				
			30	SPARE 70-30	0				
			31	SPARE 70-31	0				
	73		0	RIS-7312 PLANT AIRBORNE	130		-0.337	-6.161	
			1	RIS-7324-1 STACK NOBLE GAS	128		-0.961	-6.888	
			2	RIS-7324-2 STACK NOBLE GAS	0				
			3	RIS-7325-1 PARTICULATE & IODINE	129		7.301	1.477	
			4	RIS-7325-2 STACK CHARCOAL FILTR	0				
			5	RIS-73437-1 STACK IODINE	0				
			6	RIS-73437-2 PARTICULATE MON	0				
			7	SPARE 73-7	0				
			8	SPARE 73-8	0				
			9	TI-73336-1 PCRV SURFACE TEMP	0				
			10	TI-73836-2 PCRV SURFACE TEMP	0				
			11	XEP-7319 RX BLDG AMBIENT DP	745				
			12	XEP-7320 RX BLDG EXHAUST FLOW	746				
			13	CALC RIS-7312 PLANT AIRBORNE	9080				
			14	CALC RIS-7312 PLANT AIRBORNE E	9081				
			15	CALC RIS-7324-1 STK NOBLE GAS	9082				
			16	CALC RIS-7324-1 STK NOBLE GAS E	9083				
			17	CALC RIS-7324-2 STK NOBLE GAS	9084				
			18	CALC RIS-7324-2 STK NOBLE GAS E	9085				
			19	CALC RIS-7325-1 PART. & IODINE	9086		7.301	1.477	
			20	CALC RIS-7325-1 PART.& IODINE E	9087				
			21	CALC RIS-7325-2 STACK CHAR FLTR	9088				
			22	CALC RIS-7325-2 STK CHAR FLTR E	9089				
			23	CALC RIS-73437-1 STACK IODINE	9090				
			24	CALC RIS-73437-1 STACK IODINE E	9091	4	4		
			25	CALC RIS-73437-2 STACK IODINE	9092				
			26	CALC RIS-73437-2 STACK PARTIC E	9093	3	3		
			27	SPARE 73-27	0				
			28	SPARE 73-28	0				
			29	CALC AVE PCRV SURFACE TEMP	9094				
			30	SPARE 73-30	0				
			31	SPARE 73-31	0				
	82		0	SPARE 82-0	0				
			1	PI-8212 A INSTR AIR HEADER PRESS	0				
			2	PI-8294 B INSTR AIR HEADER PRESS	0				
			3	SPARE 82-3	0				
			4	SPARE 82-4	0				
			5	SPARE 82-5	0				
			6	SPARE 82-6	0				
			7	SPARE 82-7	0				
			8	SPARE 82-8	0				
			9	SPARE 82-9	0				
			10	SPARE 82-10	0				
			11	SPARE 82-11	0				
			12	SPARE 82-12	0				
			13	SPARE 82-13	0				

STATION	POINT	TYPE	POINT DESCRIPTION	EXTERNAL PT. NO.	LOW ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	14		SPARE 82-14	0				
	15		SPARE 82-15	0				
84	0		SPARE 84-0	0				
	1		XEP-8421 AUX BOILER #1 STM FLOW	445				
	2		FE-8457 AUX BOILER #2 STM FLOW	0				
	3		SPARE 84-3	0				
	4		SPARE 84-4	0				
	5		SPARE 84-5	0				
	6		SPARE 84-6	0				
	7		SPARE 84-7	0				
	8		SPARE 84-8	0				
	9		SPARE 84-9	0				
	10		SPARE 84-10	0				
	11		SPARE 84-11	0				
	12		SPARE 84-12	0				
	13		SPARE 84-13	0				
	14		SPARE 84-14	0				
	15		SPARE 84-15	0				
90	0		ALRMS DRVD BY PUTALM-ALMBUF FULL	0				
	1		TREND PEN/DPM UPDATE CALIBRATE	0		1		
	2		TREND PEN/DPM UPDATE CANCELLED	0				
	3		FUTURE	0				
	4		FUTURE	0				
	5		FUTURE	0				
	6		FUTURE	0				
	7		FUTURE	0				
	8		FUTURE	0				
	9		FUTURE	0				
	10		FUTURE	0				
	11		FUTURE	0				
	12		FUTURE	0				
	13		FUTURE	0				
	14		FUTURE	0				
	15		FUTURE	0				
92	0		SPARE 92-0	0				
	1		SPARE 92-1	0				
	2		ET-92172 GENERATOR VOLTAGE	204		22.0	3.0	
	3		IT-92173 GENERATOR CURRENT	205		10800	1200	
	4		XET-92174 GENERATR GROSS MEGAWATT	202		34.5	3.5	
	5		XET-92175 GENERATR GROSS MEGAVAR	203		27.00	0.00	0.00
	6		XET-92176 UNIT AUX TRANSFORMER	238		144.0	16.0	
	7		XT-92177 RESERVE AUX TRANSFORMER	237		144.0	16.0	
	8		SPARE 92-8	0				
	9		SPARE 92-9	0				
	10		SPARE 92-10	0				
	11		SPARE 92-11	0				
	12		SPARE 92-12	0				
	13		SPARE 92-13	0				
	14		SPARE 92-14	0				
	15		SPARE 92-15	0				
	16		SPARE 92-16	0				
	17		SPARE 92-17	0				
	18		SPARE 92-18	0				
	19		CALC XKT-92109 GROSS GENERATION	9095				
	20		CALC XKT-92110 UNIT AUX TRANSFMR	9096				
	21		CALC XKT-92111 RES AUX TRANSFMR	9097				

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STATION	POINT	POINT DESCRIPTION	PT. NO.	LOW ALARM LIMIT	HIGH WARNING LIMIT	LOW WARNING LIMIT	HIGH ALARM LIMIT
	22	CALC NET GENERATION	9098				
	23	CALC GENERATOR FIELD TEMP	9099				
	24	SPARE 92-24	0				
	25	SPARE 92-25	0				
	26	SPARE 92-26	0				
	27	SPARE 92-27	0				
	28	SPARE 92-28	0				
	29	SPARE 92-29	0				
	30	SPARE 92-30	0				
	31	SPARE 92-31	0				
93	0	SPARE 93-0	0				
	1	RTS-9301 PRIMRY COOLNT GROSS ACT	321		-0.319	-6.143	
	2	SPARE 93-2	0				
	3	AE-9303 CO ANALYZER	0				
	4	SPARE 93-4	0				
	5	SPARE 93-5	0				
	6	MI-9306 MOISTURE MONITOR TEMP	446		50.0	-110.0	
	7	MI-9307 MOISTURE MONITOR TEMP	447		50.0	-110.0	
	8	SPARE 93-8	0				
	9	SPARE 93-9	0				
	10	RTS-93250-10 LP 1 HRH HEADER ACT	124		3.000	-1.000	
	11	RTS-93250-11 LP 2 HRH HEADER ACT	126		3.000	-1.000	
	12	RTS-93252-12 PCRV RELIEF PIPE	0				
	13	SPARE 93-13	0				
	14	SPARE 93-14	0				
	15	XST-93101 10M TOWER WIND SPEED	478				
	16	XT-93102 10M TOWR WIND DIRECTION	479				
	17	NOAA 10M TOWER TEMP AT 2 METERS	0				
	18	NOAA 10M TOWER DEW POINT	0				
	19	NOAA 10M TOWER RAIN GAUGE	0				
	20	XST-93106 60M TWR WIND SPEED 58M	474				
	21	XT-93107 60M TWR WIND DIRECN 58M	475				
	22	XST-93108 60M TWR WIND SPEED 10M	552				
	23	XT-93109 60M TWR WIND DIRECN 10M	710				
	24	TI-93110-1 60M TOWER TEMP AT 10M	468				
	25	TI-93110-2 60M TWR TEMP (58-10)M	469				
	26	TI-93111 60M TWR DEW POINT TEMP	470				
	27	XT-93114 60M TOWER RAIN GAUGE	467				
	28	REACTOR DEW POINT TEMP	0				
	29	REACTOR DEW POINT TEMP	0				
	30	CALC MI-9306 MOISTURE PPM	9100				
	31	CALC MI-9307 MOISTURE PPM	9101				
	32	CALC RTS-9301 PRIM CLNT GROSS	9102				
	33	CALC RTS-9301 PRIM CLNT GROSS E	9103				
	34	CALC RTS-9301 PRIMARY CLNT ACT	9104				
	35	CALC RTS-9301 PRIMARY CLNT ACT E	9105				
	36	CALC RTS-93250-10 LP 1 HRH ACT	9106				
	37	CALC RTS-93250-10 LP 1 HRH ACT E	9107				
	38	CALC RTS-93250-11 LP 2 HRH ACT	9108				
	39	CALC RTS-93250-11 LP 2 HRH ACT E	9109				
	40	CALC RTS-93252-12 PCRV PIPE ACT	9110				
	41	CALC RTS-93252-12 PCRV PIPE E	9111				
	42	SPARE 93-42	0				
	43	CALC AVE 10M TOWER WIND SPEED	9112				
	44	CALC AVE 10M TOWR WIND DIRECTION	9113				
	45	CALC 10M TOWER TEMP AT 2 METERS	9114				

STATION	POINT	PT. DESCRIPTOR	EXTERNAL PT. NO.	LO ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
	46	CALC 10M TOWER DEW POINT	9115				
	47	CALC 10M TOWER RAIN GAUGE	9116				
	48	CALC AVE 60M TWR WIND SPEED 58M	9117				
	49	CALC AVE 60M TWR WIND DIRECN 58M	9118				
	50	CALC AVE 60M TWR WIND SPEED 10M	9119				
	51	CALC AVE 60M TWR WIND DIRECN 10M	9120				
	52	CALC AVE 60M TOWER TEMP AT 10M	9121				
	53	CALC AVE 60M TWR TEMP 58-10M	9122				
	54	CALC AVE 60M TWR DEW POINT TEMP	9123				
	55	CALC AVE 60M TOWER RAIN GAUGE	9124				
	56	SIGMA THETA 10M TOWER	9125				
	57	SIGMA THETA 60M TOWER AT 58M	9126				
	58	SIGMA THETA 60M TOWER AT 10M	9127				
	59	CALC AVE DELTA TEMP / 100 M	9128				
	60	PASQUILL CATAGORY BY DELTA TEMP	9129				
	61	PASQUILL CAT BY SIGMA THETA 20M	9130				
	62	PASQ CAT BY SIGMA THETA 60M @ 58	9131				
	63	PASQ CAT BY SIGMA THETA 60M @ 10	9132				
	64	SPARE 93-64	0				
	65	SPARE 93-65	0				
	66	SPARE 93-66	0				
	67	SPARE 93-67	0				
	68	SPARE 93-68	0				
	69	SPARE 93-69	0				
	70	SPARE 93-70	0				
	71	SPARE 93-71	0				
	72	SPARE 93-72	0				
	73	SPARE 93-73	0				
	74	SPARE 93-74	0				
	75	SPARE 93-75	0				
	76	SPARE 93-76	0				
	77	SPARE 93-77	0				
	78	SPARE 93-78	0				
	79	SPARE 93-79	0				
	80	SPARE 93-80	0				
	81	SPARE 93-81	0				
	82	SPARE 93-82	0				
	83	SPARE 93-83	0				
	84	SPARE 93-84	0				
	85	SPARE 93-85	0				
	86	SPARE 93-86	0				
	87	SPARE 93-87	0				
	88	SPARE 93-88	0				
	89	SPARE 93-89	0				
	90	SPARE 93-90	0				
	91	SPARE 93-91	0				
	92	SPARE 93-92	0				
	93	SPARE 93-93	0				
	94	SPARE 93-94	0				
	95	SPARE 93-95	0				
95	0	ALARMS DRPD BY PUTALM-ALMBUF FULL	0		1		
	1	TREND PEN/DPM UPDATE CALIBRATE	0				
	2	TREND PEN/DPM UPDATE CANCELLED	0				
	3	FUTURE	0				
	4	FUTURE	0				
	5	FUTURE	0				

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POINT	POINT DESCRIPTION	EXTERNAL PT. NO.	HI ALARM LIMIT	HI WARNING LIMIT	LOW WARNING LIMIT	LOW ALARM LIMIT
6	FUTURE	0				
7	FUTURE	0				
8	FUTURE	0				
9	FUTURE	0				
10	FUTURE	0				
11	FUTURE	0				
12	FUTURE	0				
13	FUTURE	0				
14	FUTURE	0				
15	FUTURE	0				

ATTACHMENT 5

CONTROL ROOM RECORDER LIST

I SAFETY RELATED PARAMETERS

RECORDER	INSTRUMENT(S) RECORDED
TR-4638	TE-4638-1 Heat Exch. 1B & 1D Outlet Loop 2 TE-4638-3 PCRV Barrel Cooling Outlet Loop 2 TE-73336-2 PCRV Surf. Temp. (Not Safety Related)
TR-4637	TE-4637-1 Heat Exch. 1A & 1C Outlet Loop 1 TE-4637-3 PCRV Barrel Cooling Outlet Loop 1 TE-73336-1 PCRV Surf. Temp. (Not Safety Related)
FR-2222	FT-2222-1 thru FT-2222-12 Steam Generator FW Flow Loop 1 & Loop 2
PDR-11226/FR-7216	PDT-11226 PCRV Lo. Hd/Inst. Pntr. Purge
RR-93255	RT-93250-10 Loop 1 Rht. Stm. Activity RT-93250-11 Loop 2 Rht. Stm. Activity RT-93250-12 (Not Safety Related) RT-93251-12 (Not Safety Related) RT-7325-2 (Not Safety Related)
LR-4605	LT-4605 Surge Tank 1A Loop 1 Level LT-4606 Surge Tank 1B Loop 2 Level
PR-2559	PT-2559 Recond. Suct. Press.
PR-1108	PT-1108 Reactor Pressure
NR-1133-2	NE-1133-1 CH 3 Flux Detector For PPS NE-1134-1 CH 4 Flux Detector For PPS NE-1135-1 CH 5 Flux Detector For PPS NE-1136-1 CH 6 Flux Detector For PPS NE-1137-1 CH 7 Flux Detector For PPS NE-1138-1 CH 8 Flux Detector For PPS
NR-1131/1133-1	NE-1131 CH 1 Neutron Counter NE-1132 CH 2 Neutron Counter NE-1133-1 CH 3 Flux Detector For PPS NE-1134-1 CH 4 Flux Detector For PPS NE-1135-1 CH 5 Flux Detector For PPS

PR-2267/FR-2239	PT-2267	Stm. Gen. 1A Rht. Stm. Hdr. Loop 1
	FT-2239	Em. Cond. To Loop 1 Rht.
FR-2205	FT-2205	Loop 1 FW Flow Control
	FT-2207	Loop 1 FW Flow Low Range
FR-2206	FT-2206	Loop 2 FW Flow Control
	FT-2208	Loop 2 FW Flow Low Range
PR-2268/40	PT-2268	Stm. Gen. 1B Rht. Stm. Hdr. Loop 2
	FT-2240	Em. Cond. To Loop 2 Rht.

II NON-SAFETY RELATED PARAMETERS

RECORDER	DESCRIPTION
TR-2322	Purif. Sys. Temps. Low Range
TR-2321	Helium Purif. System Temps.
TR-2232	Steam Generator Reheater Inlet Temp., Loop 1
TR-21269	Circ. Brg. Housing Temp., Loop 2
AR-9303	Process Chromatograph
RR-93252-12	PCRV Relief Valve Pipe Mon.
RR-73437	Rx. Plant Exh. Stack Gas
RR-7312	Plant Gaseous Radioact.
RR-93256	Activity Monitor Recorder
RR-93254	Area Monitor Recorder
TR-1192	Sample Line Temp. Low
ER-92107	Main Generator
IR-92108	Main Generator
TR-5125	Gen. Field
TR-92105	Gen. & Transformers
TR-5156	T-G & BFPT Metal & Drain
RR-93537	Radiation Monitoring
RR-93538	Radiation Monitoring
RR-93539	Radiation Monitoring
RR-93540	Radiation Monitoring
FR-6351/52/75	Surge Tanks to Exhaust/To Reactor Plant Exhaust/Core Support Vent Filter
TR-2227	Every Module Main Steam, Loop 1
TR-2255	Steam Generator Reheat Steam, Loop 1
FR-2339	Helium Purif. System Flow
NR-1199/XR-11262/ FR-11262	Control Ch. Ave. Signal/Pur/Flow Ratio Measure/Pur/Flow Ratio Measure
TR-2256	Reheat Steam Hdr., Loop 1
PR-22129	Loop 1, Main Steam Header
TR-22121/22	Loop 1 Main Steam Temp./Loop 2 M.S. Temp.
MR-9306/07	Pri. Cool. Moist. Select/Same
RR-2263/64	Rht. Condensate Monitors, Loop 1/Loop 2
PR-22130	Loop 2 Main Steam Header
TR-31115	Misc. Operational Temps.
TR-3118	Cycle & Heater Temps.
CR-3390-2	Econ. Inlet Cat. Conduct.
XR-3390-1	Econ. Inlet pH
FR-3151	Cond. To Heater 4
FR-8422	Aux. Blr. Stm. Header
PDR-3380/XR-3387-1	Cond. Drain Vessels/Dea. Inlet DO2
GR-5154	Mn. Turb. Vib. Ecc. & Diff. Exp.
TR-5153	Mn. Turb. Temp. & Diff. Temp.
FR-5242	Main Steam
ZR-5155	Valve Position & Speed
FR-4210	Serv. Wtr. Cool. Twr. Makeup
FR-4101	Main Cool. Twr. Makeup & Blowdown
XR-9005	Trend Recorder

XR-9006	Trend Recorder
ER-92243	System Voltage
MEGAVARS/MEGAWATTS	
SYSTEM FREQ	
LR-4102	Stor. Basin Circ. Water Makeup
FIR-4104	Platte River & St. Vrain Circ. Water Makeup
TR-8903	River Temp. Mon., Flume
TR-8901	River Temp. Mon., Upstream
TR-8702	River Temp. Mon., Downstream
XR-93155-1	Chart Recorder For Meteorological Data 60 Meter Tower
XR-93115-2	Elev. & Coord. - 4829 (H7) - Chart Rec. For Meterological Data - 60 Meter Tower
XR-93115-3	Elev. & Coord. - 4829 (H7) - Chart Rec. For Meterological Data - 60 Meter Tower

ATTACHMENT 6

FAST POST TRIP REVIEW
GROUP TREND LOG NO 1 GROUP 1 SELECTED BY OPERATOR
PRINTED ON 12/29/82 AT 6:55

FAST POST TRIP REVIEW FILE 2
INITIATED 12/29/82 AT 3:38 VIA XA-93223 LP 1 SHUTDN AUTOMATIC

* 9029 CALC GAS BALANCE POWER % 9032 CALC LINEAR CHANNELS POWER 9009 CALC AVE CORE INLET TEMP
* 9010 CALC AVE FUEL TEMP 9011 CALC AVE CORE OUTLET TEMP 9016 CALC AVE CIRC INLET TEMP
* 9040 CALC CORE RESISTANCE 9039 CALC POWER/FLOW RATIO 446 MI-9306 MOISTURE MONITOR TEMP
* 9100 CALC MI-9306 MOISTURE PPM 447 MI-9307 MOISTURE MONITOR TEMP 9101 CALC MI-9307 MOISTURE PPM
* 9012 CALC A CIRC AVE INLET TEMP 9013 CALC B CIRC AVE INLET TEMP 9014 CALC C CIRC AVE INLET TEMP
* 9015 CALC D CIRC AVE INLET TEMP

POINT	9029	9032	9009	9010	9011	9016	9040	9039	446	9100	447	9101	9012	9013	9014	9015
UNIT	%	%	DEGF	DEGF	DEGF	DEGF	NONE	NONE	DEGF	DEGF	DEGF	NONE	NONE	NONE	DEGF	DEGF
TIME																
332																
28	0.8	1.5	106	174	192	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
33	0.8	1.4	106	174	192	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
38	0.8	1.4	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
43	0.8	1.4	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
48	0.8	1.4	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
53	0.8	1.4	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
58	0.8	1.3	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	11
333																
4	0.8	1.3	106	174	193	103	0.60	0.112	-34.2	174	-38.8	131	99	99	112	1.
9	0.8	1.3	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
14	0.8	1.3	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
19	0.8	1.2	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
24	0.8	1.2	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
29	0.8	1.2	106	174	194	104	0.59	0.113	-34.2	174	-38.9	131	99	100	112	11
34	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.9	131	99	100	112	11
39	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.9	131	99	100	112	11
44	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
50	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
55	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
334																
0	0.8	1.1	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
6	0.8	1.0	106	174	194	104	0.59	0.113	-34.2	174	-38.8	131	99	100	112	11
11	0.8	1.0	106	176	195	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
16	0.8	1.0	106	176	195	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
22	0.8	1.0	106	176	195	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
27	DATA NOT AVAILABLE															
32	0.8	0.9	106	176	195	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
37	0.8	0.9	106	176	195	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
42	DATA NOT AVAILABLE															
47	0.8	0.9	106	176	196	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
53	0.8	0.9	106	176	196	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
58	0.8	0.9	106	176	196	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	11
335																
3	0.8	0.9	106	176	196	104	0.60	0.114	-34.2	174	-38.8	131	99	100	112	1
8	0.8	0.9	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11

13	0.8	0.9	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
18	DATA NOT AVAILABLE															
31	0.8	0.9	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
36	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
41	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
46	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
51	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
56	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
336																
1	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
6	0.8	0.8	106	177	197	104	0.59	0.116	-34.2	174	-38.8	131	99	99	112	11
11	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
16	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
21	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
26	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
31	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
36	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
42	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
47	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
52	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
58	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
337																
3	0.8	0.8	106	176	198	106	0.62	0.114	-34.2	174	-38.8	131	100	100	113	11
8	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
13	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
18	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
23	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
28	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.9	131	99	100	113	1
33	0.9	0.8	107	178	199	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
38	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
43	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
48	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
53	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
58	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
338																
3	0.9	0.8	107	178	200	106	0.54	0.118	-34.2	174	-38.8	131	99	100	113	11
8	0.8	0.8	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
→ 13	0.8	0.8	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
18	0.8	0.6	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
23	0.8	0.3	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
28	0.8	0.2	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
33	0.8	0.1	106	178	200	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
38	0.8	0.1	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
43	0.8	0.0	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
48	0.8	0.0	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
53	0.8	0.0	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
58	0.8	0.0	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
339																
3	0.8	0.0	106	178	201	106	0.59	0.118	-34.2	174	-38.8	131	100	100	113	11
8	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11
13	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11
18	DATA NOT AVAILABLE															
31	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	1
36	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11
41	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11

47	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11
52	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	1
58	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.9	131	101	100	113	11
340																
3	0.8	0.0	107	154	202	107	0.57	0.120	-34.2	174	-38.8	131	101	100	113	11
8	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.9	131	101	101	113	11
13	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.9	131	101	101	113	11
18	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
23	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
28	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
34	0.8	0.0	107	155	202	107	0.60	0.120	-34.2	174	-38.9	130	101	101	113	11
39	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
44	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
49	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
54	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
59	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
341																
4	0.8	0.0	107	155	203	107	0.60	0.120	-34.2	174	-38.8	130	101	101	113	11
9	0.8	0.0	108	156	203	108	0.57	0.120	-34.2	174	-38.8	130	102	102	114	11
14	0.8	0.0	108	156	203	108	0.57	0.120	-34.2	174	-38.8	130	102	103	114	11
19	0.8	0.0	108	156	203	108	0.57	0.120	-34.2	174	-38.8	131	102	103	114	11
24	0.8	0.0	108	156	203	108	0.57	0.120	-34.2	174	-38.8	131	102	103	114	11
29	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.8	131	102	103	114	11
35	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.8	131	102	103	114	11
40	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.8	131	102	103	114	11
45	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.8	131	102	103	114	11
51	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.9	131	102	103	114	1
56	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.9	131	102	103	114	1
342																
1	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.9	131	102	103	114	11
6	0.8	0.0	108	156	203	108	0.57	0.120	-34.3	174	-38.9	131	102	103	114	11
11	0.8	0.0	109	157	204	109	0.57	0.120	-34.3	174	-38.9	131	103	103	115	11
16	0.8	0.0	109	157	204	109	0.57	0.120	-34.3	174	-38.9	131	103	103	115	11
21	0.8	0.0	109	157	204	109	0.57	0.120	-34.3	173	-38.9	130	103	103	115	11
26	0.8	0.0	109	157	204	109	0.57	0.120	-34.3	173	-38.9	130	103	103	115	11
31	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
37	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
42	0.8	0.0	109	157	204	109	0.57	0.120	-34.3	173	-38.9	130	103	103	115	11
47	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
52	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
58	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
343																
3	0.8	0.0	109	157	204	109	0.57	0.120	-34.2	173	-38.9	130	103	103	115	11
8	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	173	-38.9	130	102	103	116	11
13	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	173	-38.9	130	102	103	116	11
18	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	174	-38.9	130	102	103	116	11
23	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	174	-38.9	130	102	103	116	11
28	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	174	-38.9	130	102	103	116	11
33	0.9	0.0	109	157	204	109	0.56	0.120	-34.2	174	-38.9	130	102	103	116	11
38	0.9	0.0	109	157	203	109	0.56	0.120	-34.2	174	-38.9	130	102	103	116	11
43	0.9	0.0	109	157	203	109	0.56	0.120	-34.3	174	-38.9	130	102	103	116	11
48	0.9	0.0	109	157	203	109	0.56	0.120	-34.3	174	-38.9	130	102	103	116	11
54	0.9	0.0	109	157	203	109	0.56	0.120	-34.3	174	-38.9	130	102	103	116	1
59	0.9	0.0	109	157	203	109	0.56	0.120	-34.3	174	-38.9	130	102	103	116	11
344																
4	0.9	0.0	109	157	203	109	0.56	0.120	-34.3	174	-38.9	130	102	103	116	11

9	0.8	0.0	109	157	203	109	0.58	0.119	-34.3	174	-38.9	130	102	102	117	11
14	0.8	0.0	109	157	203	109	0.58	0.119	-34.3	174	-38.9	130	102	102	117	1
19	0.8	0.0	109	157	203	109	0.58	0.119	-34.3	173	-38.9	130	102	102	117	11
24	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.9	130	102	102	117	11
29	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.9	130	102	102	117	11
34	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.9	130	102	102	117	11
39	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.9	130	102	102	117	11
44	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.9	130	102	102	117	11
49	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.8	130	102	102	117	11
54	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.8	130	102	102	117	11
59	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.8	130	102	102	117	11
345																
4	0.8	0.0	109	157	203	109	0.58	0.119	-34.2	173	-38.8	130	102	102	117	11
9	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	173	-38.8	130	102	102	119	11
14	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	173	-38.8	130	102	102	119	11
19	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
24	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
29	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
34	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
39	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
44	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
49	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
54	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
59	0.8	0.0	110	157	203	110	0.57	0.118	-34.2	174	-38.8	131	102	102	119	11
346																
4	0.8	0.0	110	157	203	110	0.57	0.118	-34.3	174	-38.8	131	102	102	119	11
9	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
14	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	1
19	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
24	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
29	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
34	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
39	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
45	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
50	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
55	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
347																
1	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
6	0.8	0.0	109	156	202	109	0.60	0.117	-34.2	174	-38.8	131	101	102	117	11
11	0.8	0.0	109	155	202	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
16	0.8	0.0	109	155	202	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
21	0.8	0.0	109	155	202	109	0.61	0.116	-34.0	174	-38.8	131	101	102	116	11
26	0.8	0.0	109	155	202	109	0.61	0.116	-34.0	174	-38.8	131	101	102	116	11
31	0.8	0.0	109	155	202	109	0.61	0.116	-34.0	174	-38.8	131	101	102	116	11
36	0.8	0.0	109	155	202	109	0.61	0.116	-34.0	174	-38.8	131	101	102	116	11
41	0.8	0.0	109	155	201	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
47	0.8	0.0	109	155	201	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
52	0.8	0.0	109	155	201	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
58	0.8	0.0	109	155	201	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
348																
3	0.8	0.0	109	155	201	109	0.61	0.116	-34.2	174	-38.8	131	101	102	116	11
8	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	11
13	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	1
18	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	11
23	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	11

0.1 TAN
0.2 BROWN
0.3 BLUE

28	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	11
33	0.8	0.0	108	155	201	108	0.62	0.116	-34.2	174	-38.8	131	101	102	116	1

#1 TAN
#2 GREEN
#3 BLUE
#4 RED

ATTACHMENT 7

TITLE: CONTROLLED WORK PROCEDURES

ISSUANCE AUTHORIZED BY	6-23-83	7/14/83	7-12-83
PORC REVIEW	PORC 526 JUL 20 1983		EFFECTIVE DATE 7-27-83

1.0 PURPOSE

This procedure establishes the requirements for the development of procedures to control modification installation and selected non-routine maintenance work.

2.0 APPLICABILITY

This procedure applies to all modification work, and to selected non-routine maintenance work, when requested by plant personnel. It does not apply to routine maintenance, or nonroutine maintenance, that is described in Procedure P-7.

3.0 GENERAL REQUIREMENTS

3.1 A Controlled Work Procedure (CWP) is utilized to perform work governed by this procedure.

3.2 A CWP is a detailed step-by-step work plan that reflects the requirements of the job and includes such items as prefabrication, fabrication, welding, non-destructive examinations, inspections, cleaning, testing, installation, a safety evaluation of the Change Notice and any other pertinent work. In addition to the work plan, the CWP also includes the following items when required:

a) Cold Checkout Tests

b) Functional Tests

c) Design Document Installation Requirements

d) Instrument Setpoint Change Forms

e) Temporary Configuration Forms

3.3 A CWP is required for all plant modification work associated with an approved Change Notice. The approval and release of a Change Notice, (CN) authorizes NED-Site to prepare a CWP for the installation work.

3.4 A Plant Trouble Report (PTR), as described in P-7, may identify the need for preparation of an Action Request, which may in turn authorize the preparation of a CWP.

3.5 CWP's are numbered sequentially beginning each year. CWP revisions are identified as "issues" and are sequentially numbered. Example: CWP-80-0001, Issue 1.

3.6 The Records Center will maintain a CWP file which will also serve as CWP log and will generate reports required for control and followup.

3.7 The Records Center shall maintain an up-to-date hard copy suspense file for all open CWP's. Upon receipt of a completed CWP, Records Center shall verify and update all data in the CWP file; file original CWP in archive file; and discard all suspense copies.

3.8. CWP's are prepared or revised using a CWP Form (Attachment G-9A) by NED-Site in accordance with guidance provided by CWP Manual and submitted to Technical Services for coordination of reviews and approvals.

3.9 A Work Review Committee (WRC) reviews all CWP's to:

a) Determine if the work has been clearly and adequately defined.

b) Evaluate the effect on other plant systems, conditions or operations so that the work can be accomplished without compromising plant safety margins, Technical Specifications and Administrative Procedures or endangering plant personnel protection.

c) Determine the need for Health Physics control, Radiation Work Permit (RWP) and/or surveys. The type of Health Physics coverage shall be preliminarily specified.

d) Review impact on operations and determine if special training needed.

3.10 The WRC consists of representatives from the following departments as required:

a) Technical Services (Coordinator)
b) NED-Site
c) Operations
d) Maintenance
e) Radiation Protection
f) Electrical
g) Results
h) Training

3.11 Deviations from CWP's are documented by utilizing the Deviation Report (DR) Form (Attachment G-9B). CWP-DR's are numbered by the addition of an alphabetical suffix to the CWP number. NED Site is responsible for maintaining the CWP-DR number log. Deviations to CWP's may be initiated provided that:

a) The materials and components as specified in the CN are not compromised. Materials and components may be substituted if the substitutions meet or exceed the requirements set forth in the original CN.

b) The design intent, safety evaluation, and/or system process flow as specified in the CN is not altered.

c) The precautions identified in Q-3 and the CWP are not compromised.

If the proposed deviation does not meet the above criteria, all work on that portion of the job must stop until a revision to the affected portion of the CWP is issued.

3.12 A CWP-DR that affects tagging boundaries shall require Shift Supervisor approval.

4.0 PROCEDURE

4.1 CWP PROCESSING, CONTROLLING AND IMPLEMENTATION

RESPONSIBILITY	ACTION
NED-SITE (CWP PREPARER)	1. Receives proper authorization for CWP, prepares CWP per CWP Manual and assigns sequential number.

Q.A.

2. Verifies appropriateness of installation, identifies hold points/witness points for QA, inspection and test verification requirements. Returns CWP to NED-Site.

NED SITE
(CWP PREPARER)

3. Revises, if required. Logs date to WRC and sends to Technical Services. Sends copy to Records Center Suspense file.

TECHNICAL SERVICES

4. Coordinates Work Review Committee, and Technical Services Reviews.

5. Coordinates PORC and NFSC and Plant Management approval as appropriate.

6. Forwards approved CWP to Scheduling Department.

SCHEDULING
DEPARTMENT

7. If work is <u>not</u> to be done by an outside contractor, coordinates the work start date with the availability of materials, the department responsible for the work performance, and Operations. Notifies Technical Services of work start date. Forwards CWP to Shift Supervisor.

   If work is to be done by outside contractor, forwards CWP to NED-Site construction coordinator, who coordinates availability of materials and forwards CWP to Shift Supervisor. Notifies Technical Services of work start date.

   NOTE: Prefabrication of work or materials involved with a CWP may be accomplished prior to the CWP work start date after plant management approval of the CWP provided the prefabrication work does not interfere with plant systems or operation.

SHIFT SUPERVISOR	8. Signs Item 1 of work control block releasing CWP for work. Retains copy and returns original to work coordinator or department performing work.
WORK COORDINATOR/ DEPARTMENT PERFORMING WORK	9. Supervises work implementation and arranges for all required construction inspections and tests. Coordinates sign off for Items 2-9 of Work Control Block.
	10. Assembles all work record data for inclusion into the CWP package upon completion of the work.
SHIFT SUPERVISOR	11. Coordinates CCT's and FT's to plant conditions and signs the CWP original at the completion of the work and related activities. If NA is checked, no signature is required. Forwards to Technical Services.
TECHNICAL SERVICES	12. Assures completion of the CWP Cover Sheet. Logs each CWP that requires reporting and forwards completed CWP to NED-Site.
NED-SITE	13. Coordinates update of Control Room/Shift Supervisor design documents and forwards CWP to QA/QC.
QA/QC	14. Verifies all required signatures and check offs are included on the CWP Cover Sheet.
	15. Reviews the completed CWP for completeness and if complete, forwards to Record Center for retention; if not resolves problems, and forwards to Records Center for retention.

NED-SITE	16. Upon completion of construction, advises NED-DENVER to prepare "As-Built Verification" package.
	17. When a method other than a CN generates a CWP, a copy of the completed CWP shall be forwarded to NED-Denver to insure proper design document updating.
NED-DENVER	18. Prepares "As-Built Verification" information to determine if CN reissue is required.
	19. Incorporates CN into Design Documents, and issues updated documents, and initiates CN close-out.

4.2 DEVIATION REQUESTS

RESPONSIBILITY	ACTION
DEPARTMENT PERFORMING WORK	1. Stops all work on safety-related items associated with the proposed deviation.
	2. Initiates a CWP Deviation Report (CWP-DR) (Attachment G-9B) explaining in detail the desired deviation and the reasons for the deviation.
	3. When appropriate includes marked-up drawings to illustrate the proposed deviation.
	4. Submits the CWP-DR to NED-Site.
NED-SITE (CWP PREPARER)	5. Assigns a CWP-DR number.
	6. Reviews the CWP-DR and coordinates review and approval, as appropriate, by the individual(s) or department(s) responsible for the subject matter of the deviation. If approved, forwards CWP-DR to QA/QC. If the CWP-DR is not approved, it is cancelled and forwarded to QA/QC.

QA/QC

7. Verifies that deviation is adequately documented and justified; signs and dates; returns CWP-DR to NED-Site.

NED-SITE
(CWP PREPARER)

8. Retains copy of CWP-DR, forwards the original of the approved CWP-DR to QA/QC and sends copies to the organization performing the work to be attached to working copy of CWP, to NED-Denver, Technical Services, and Shift Supevisors office.

DEPARTMENT
PERFORMING WORK

9. Upon receipt of the copy of the approved CWP-DR from NED-Site, work may proceed per the CWP-DR.

5.0 REFERENCES

5.1 Procedure G-3, "Action Request-Preparation and Processing"

5.2 Procedure Q-3, "Design Control System"

5.3 "Controlled Work Procedures Manual"

5.4 Technical Specification Section 7.5

5.5 Procedure P-7, "Work Control, - Maintenance on Safety Related Equipment"

5.6 10CFR50

6.0 ATTACHMENTS

G-9A CWP Form

G-9B CWP Deviation Report Form

CONTROLLED WORK PROCEDURE FORM

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

CONTROLLED WORK PROCEDURE

CWP NO. _____ ISSUE _____
CN NO. _____

WORK BY _____

TITLE — TO BE COMPLETED BY NED PLANNER

DESCRIPTION _____

☐SAFETY RELATED ☐NON-SAFETY RELATED

PREPARED BY _____ (SIGNATURE) _____ (DATE) REVIEWED BY QA/QC _____ (SIGNATURE) _____ (DATE)

REVIEW — TO BE COMPLETED BY WORK REVIEW COMMITTEE

LIST REQ'D. TOP'S ☐NA _____ OPERATION IMPACT REVIEWED ☐YES ☐NO

LIST REQ'D. SCR'S ☐NA _____ TRAINING REQUIRED ☐YES ☐NO

FT TEST REQUIRED ☐YES ☐NO CCT TEST REQUIRED ☐YES ☐NO

TYPE OF H.P. REQ'D. ☐NA _____

(SHIFT SUPV. - SIGNATURE) (DATE) (SHIFT SUPV. - SIGNATURE) (DATE) (TECH. SERV. - SIGNATURE) (DATE) (QA - SIGNATURE) (DATE)

REVIEW — TO BE COMPLETED BY TECH. SERV.

LIST OPER. PROC. REQ. REVISION ☐NA _____

_____ (SIGNATURE) (DATE)

REQ'D. REPORTS: 50.59 ☐YES ☐NO TECH. SPEC. ☐YES ☐NO _____ (SIGNATURE) (DATE)

NPRDS UPDATE REQ'D. ☐YES ☐NO _____ (SIGNATURE) (DATE)

SAFETY EVALUATION CONCURRENCE ☐YES ☐NO _____ (SIGNATURE) (DATE)

APPROVAL — TO BE COMPLETED AS NOTED

PORC REVIEW: SAF. SIG. ☐YES ☐NO UNREVIEWED SAF. QUES. ☐YES ☐NO

APPROVED ☐YES ☐NO _____ (SIGNATURE) _____ (TYPE NO.) _____ (DATE)

NPSC CONCUR: SAF. SIG. ☐YES ☐NO UNREVIEWED SAF. QUES. ☐YES ☐NO

APPROVED ☐YES ☐NO _____ (TYPED - SIGNATURE) _____ (TYPE NO.) _____ (DATE)

APPROVED ☐YES ☐NO SUPT. OPER. _____ (SIGNATURE) _____ (DATE)

SCHEDULING: PLANT _____ (INITIAL AND DATE) OUTSIDE CONTRACTOR _____ (INITIAL AND DATE)

WORK CONTROL — TO BE COMPLETED AS NOTED

(1) SYSTEM TAGGED AND RELEASED FOR WORK _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

(1A) CONSTRUCTION COMPLETE _____ (SAF. REQ. CONT. BY THE FOREMAN) _____ (DATE)

(2) WORK SURRENDERED FOR TEST _____ (WORK COORDINATOR - SIGNATURE) _____ (DATE)

(3) TAGS REHUNG FOR REWORK ☐NA _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

(4) WORK SURRENDERED FOR RETEST ☐NA _____ (WORK COORDINATOR - SIGNATURE) _____ (DATE)

(5) WORK / TEST / INSP. COMPLETE _____ (WORK COORDINATOR - SIGNATURE) _____ (DATE)

(6) CCT COMPLETE ☐NA _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

(7) FT COMPLETE ☐NA _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

(8) TOP'S / SCR'S COMPLETE ☐NA _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

(9) OPER. PROC(S) REVISED AND ISSUED ☐NA _____ (PLANT GENERAL - SIGNATURE) _____ (DATE)

(10) TAGS REMOVED AND EQUIP. RETURNED TO SERVICE _____ (SHIFT SUPV. - SIGNATURE) _____ (DATE)

FORM A) 372-22-3643

CWP DEVIATION REPORT FORM

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

CWP - DR NO. _____
CN NO. _____
SAFETY REL. ☐ YES ☐ NO

CWP DEVIATION REPORT

DESCRIPTION — TO BE COMPLETED BY INITIATOR / COG. ENGR

PROBLEM DESCRIPTION: _____

DEVIATION:

CWP STEPS / PAGES AFFECTED: _____

REQUESTED BY _____ _____
(CWP INITIATOR / REP. PLT. / ORGANIZ.) (DATE)

APPROVALS

THIS DR HAS BEEN REVIEWED AND IT HAS BEEN DETERMINED THAT THE DEVIATION(S) DO NOT AFFECT THE DESIGN INTENT, PROCESS FLOW AND / OR SAFETY EVALUATION

THIS DR IS ☐ APPROVED ☐ DISAPPROVED _____ _____
(CONCURRENT CWP - SIGNATURE) (DATE)

NED SITE _____ _____
(SIGNATURE) (DATE)

QUALITY ASSURANCE _____ _____
(SIGNATURE) (DATE)

* SHIFT SUPERVISOR _____ _____
(SIGNATURE) (DATE)

* NEED ONLY IF DR INVOLVES A CHANGE TO TAGGED BOUNDARIES

TITLE: WORK CONTROL - MAINTENANCE ON SAFETY RELATED EQUIPMENT

ISSUANCE AUTHORIZED BY	5-17-83	5-18-83	5/19/83
PORC REVIEW	PORC 518 MAY 25 1983		EFFECTIVE DATE 6-2-83

1.0 PURPOSE

This procedure describes the requirements for the performance of Safety Related maintenance and repair activities at the FSV Nuclear Generating Station. Non-Safety Related maintenance activities are addressed under Maintenance Work Control Procedure as a Level II procedure.

2.0 APPLICABILITY

This procedure applies to site maintenance and repair activities.

Specifically excluded are any modification or calibration activities. For Plant Modifications see Procedure G-9. For calibrations see Procedure Q-12.

3.0 GENERAL REQUIREMENTS

3.1 The Station Manager is responsible for all maintenance activities.

3.2 All Safety-Related maintenance and repair work must be performed according to documented instructions, procedures, or drawings of a type appropriate to the circumstances. Site Engineering shall be notified of any document changes (i.e. material or dimensional changes.)

3.3 The definitions of various types of maintenance to be performed are as follows:

3.3.1 MAINTENANCE

Those policies and practices by which the mechanical, electrical, instrumentation and control systems of Fort Saint Vrain are kept in a condition of good repair or efficiency so they may satisfactorily perform their intended functions.

3.3.2 MAINTENANCE, EMERGENCY

Those maintenance activities which must be performed without delay in order to:

a) Avoid degradation of off-normal conditions which, in themselves, do not constitute an accident, but which could lead to an accident or serious equipment damage if not corrected promptly;

b) Reduce the consequences of an accident or hazardous condition which has already occured:

c) Implement the emergency plan and or security contingency plan;

d) Prepare for an anticipated act of nature;

e) Replace or repair defective parts, components, structures or systems in order to prevent degradation of plant safety margins or further degradation of the quality of the parts, systems or components that could affect the safe operation of the plant.

3.3.3 *MAINTENANCE, ROUTINE

Activities common to daily power plant operation which are repetitive in nature or come at preplanned intervals or are prescribed as a part of the approved routine or preventive maintenance program.

3.3.4 *MAINTENANCE, NON-ROUTINE

Those maintenance activities, performed on structures, systems or components, which are special in nature, are not common to daily power plant routine operations. A Controlled Work Procedure may be required to perform the work. These Controlled Work Procedures may become maintenance procedures upon review and recommendation by Site Engineering.

3.3.5 *REPAIR

The process of restoring a nonconforming item to a condition such that the capability of the item to function reliably and safely is unimpaired even though the item may not conform to its original specified requirements.

NOTE: If not restored to original specification requirements a NCR must be prepared.

*Denotes definitions extracted from FSV Administrative Procedure G-1

3.4 "Emergency Maintenance" is initiated by the Shift Supervisor using a Plant Trouble Report (PTR) marked "For Immediate Follow Up".

3.5 Any site employee may recommend the initiation of a PTR to correct equipment defects, malfunctions or a need for servicing.

3.6 All maintenance performed on Safety Related plant equipment must be recorded and the records kept by the department performing the work. Selected records, as identified in Procedure Q-17 are forwarded to the Records Center.

3.7 All replacement parts and materials used in Safety-Related systems or components are obtained and issued as described in Procedure P-5.

3.8 Maintenance records for Safety-Related systems or components must contain at least the following:

a) A reference to the Instruction, Procedures and/or Drawings used.

b) The plant equipment number, equipment description, or the system number, as applicable.

c) A list of any calibrated tools or equipment used.

d) A brief description of the trouble or symptoms.

e) A description of the work performed.

f) A list of replacement parts used and a copy of the Direct Charge Stores Requisition or a reference to it.

g) The signature or initials of the person authorizing the work.

h) The signature or initials of the person assigning the work.

i) The signature or initials of the workman performing the work.

j) The signature, initials or stamp of the inspector which verfies the acceptability of work performed.

k) The date and time of issuance/surrender of a clearance, if any, or the date and length of time of work performance.

l) The signature or initials of the supervisor reviewing the report.

m) Initials, signature, or stamp of responsible person indicating the acceptance of any testing performed and the results of those tests are in the work package.

n) A record of dimensions, tolerances, or parameters if required.

3.9 Maintenance Procedure format requirements are established by Procedure G-2, Attachment G-2B. The applicable department supervisor establishes a procedure numbering system and maintains a procedure index.

3.10 Consumables such as oil, grease, distilled water, insulation varnishes, cleaning solutions, etc., used in connection with maintenance activities are purchased, identified, and controlled in accordance with Procedure P-5.

3.11 Cleaness of fluid systems, piping and components undergoing maintenance or repair activity shall be maintained in accordance with the applicable requirements and acceptance criteria of STD-3.

3.12 Work performed on Safety-Related equipment or on a Safety-Related system that clearly does not affect the Safety-Related function of the equipment or system can be classified as Non-Safety Related.

3.13 PTR work may be transferred to another department provided the Department Assignment Block notes the "Transferred to" on the white copy and that the Scheduling Department is notified of the transfer.

3.14 When a PTR identifies a need for action by a department other than the Nuclear Production Department such as to require generation of a CWP, an Action Request is prepared and processed per Procedure G-3.

3.15 Maintenance records are periodically reviewed by Technical Services to identify abnormal trends and equipment requiring abnormally frequent repairs. Identified problems are referred to the responsible organization for action.

4.0 PROCEDURES

4.1 EMERGENCY MAINTENANCE PROCEDURE

NOTE: Emergency conditions requiring immediate action are documented and processed on PTR's after or concurrent with work performance.

Under off-normal conditions when normal supervision is unavailable, the Shift Supervisor is responsible for directing emergency maintenance.

RESPONSIBILITY	ACTION
INITIATOR	1. Notifies Shift Supervisor of a need for emergency maintenance or repair.
SHIFT SUPERVISOR	2. Verifies that immediate action is required and that the required work is not a plant modification.

3. Determines requirements for Controlled Work Procedures (CWP), Cold Checkout Test (CCT), Functional Test (FT) and Health Physics coverage. Notifies affected Supervisor(s). Initiates AR if CWP preparation by Site Engineering is appropriate.

4. Initiates a PTR by completing items 1 through 14 of the PTR (See Attachment P-7A). Forwards the green copies of the PTR to the Scheduling Department and forwards the remainder of the PTR to the Department Supervisor as appropriate.

   NOTE: Scheduling will enter the PTR into the PTR data base.

5. Enters PTR data into Station Log.

6. Directs Operations personnel to clear system as required and authorize the start of work.

APPROPRIATE SUPERVISOR

7. Completes the instruction of the PTR.

8. Assembles required craftsmen. Conducts any required job briefings and notifies the Shift Supervisor when ready to start work. Notifies MQC or QA/QC if required, of intent to start work.

9. Schedules and assigns work to craftsmen and supervises work in progress.

10. Assembles work record data such as inspection forms, test results, etc.

11. Arranges for CCT, FT and Health Physics coverage when required.

ASSIGNED CRAFTSMEN

12. Performs necessary maintenance or repair.

13. Completes required PTR entries per Attachment P-7A and returns PTR to the responsible supervisor.

APPROPRIATE SUPERVISOR	14.	Reviews completed work and signs off PTR.
	15.	Forwards PTR to Scheduling.
SCHEDULING UNIT	16.	Distributes completed PTR copies as required.
	17.	Updates data base and forwards PTR to Technical Services.
TECHNICAL SERVICES	18.	Reviews PTR to determine reporting requirements.
	19.	Forwards completed PTR to Records Center.

4.2 NON-ROUTINE MAINTENANCE PROCEDURE

RESPONSIBILITY		ACTION
INITIATOR	1.	Prepares a PTR per Attachment 7A of this procedure when an equipment malfunction, or need for servicing is identified. Forwards PTR to appropriate supervisor.
APPROPRIATE SUPERVISOR	2.	Reviews PTR for accuracy, completeness and, if approved, forwards to the On-Duty Reactor Operator.
REACTOR OPERATOR	3.	Assigns PTR number.
	4.	Reviews for identification of safety-related work.
	5.	Enters PTR data into the Station Log and forwards PTR to Shift Supervisor.
SHIFT SUPERVISOR	6.	Reviews and, if approved, signs and forwards PTR to the Scheduling Department
SCHEDULING	7.	Reviews PTR for identification of Safety Related classifications.
	8.	Removes the green copy. Forwards remainder to the responsible department.

	9.	Files the green copy in the Scheduling office.
	10.	Inputs PTR data into computer program. Forwards PTR to assigned work force and a copy to Technical Services Department.
APPROPRIATE SUPERVISOR	11.	Provides necessary instructions, procedures and/or drawings as required.
	12.	Coordinates job briefings as required and notifies MQC or QA/QC if required, to start work.
SHIFT SUPERVISOR	13.	Directs Operations personnel to attach tags, as required, to alert Operations of existing plant conditions during the work performance.
	14.	Authorizes assigned workman to proceed.
ASSIGNED WORKMAN	15.	For maintenance work not requiring a "clearance", notifies the Shift Supervisor of his intent to proceed and describes the system effect of the work to be performed.
	16.	Implements necessary maintenance or repair..
	17.	Completes required entries on PTR and forwards to Department Supervisor.
APPROPRIATE SUPERVISOR	18.	Reviews completed work and signs off PTR.
	19.	Forwards PTR to Scheduling.
SCHEDULING	20.	Closes out PTR and distributes completed PTR copies as required.
	21.	Updates data base and forwards PTR Technical Services.
TECHNICAL SERVICES	22.	Reviews PTR to determine reporting requirements.
	23.	Forwards completed PTR to Records Center.

4.3 ROUTINE MAINTENANCE PROCEDURE

4.3.1 There are two categories in which routine maintenance may be initiated. They are as follows:

(a) Routine maintenance may be initiated utilizing the same procedure for issuance as stated under Non-Routine Maintenance, Section 4.2 of this procedure.

(b) Routine maintenance may be initiated by the Scheduling Department or the department responsible for performing the routine maintenance by initiating a Maintenance Procedure Control Form and attaching it to the appropriate documented instructions, procedures, or drawings.

4.4 Maintenance Non-Routine requiring a CWP

Responsibility	Action
APPROPRIATE SUPERVISOR	1. Completes PTR section 19 if applicable and notifies Site Engineering
SITE ENGINEERING	2. Determines program method by which work may be performed.

5.0 REFERENCE DOCUMENTS

5.1 Procedure G-1, "Definitions and Abbreviations"
5.2 Procedure G-2, "FSV Procedures Systems"
5.3 Procedure G-3, "Action Request - Preparation and Processing"
5.4 Procedure P-5, "Material Control"
5.5 Procedure G-9, "Controlled Work Procedures"
5.6 Procedure P-8, "Fire Prevention and Fighting"
5.7 Procedure Q-12,"Control of Measuring Equipment"
5.8 FSV-STD-3, "Cleaning of Fluid Systems at Fort St. Vrain"

6.0 ATTACHMENTS

P-7A Plant Trouble Request Preparation Instructions
P-7B Maintenance Procedure Control Form Preparation Instructions

PLANT TROUBLE REPORT PREPARATION PROCEDURE

The numbers below correspond to those in the sample form shown on Page 4 of this attachment.

RESPONSIBILITY		ACTION
INITIATOR	1.	Enters name.
	2.	Enters date.
	3.	Enters when applicable, the Surveillance Test number, Technical Specification LCO number, Preventive Maintenance Operation (PMO) procedure number, or other identifying number.
	4.	Identifies the equipment, by number if possible.
	5.	Identifies the system of which the component is a part, if possible.
	6.	Describe the trouble.
	7.	Indicate plant location. (Reactor Building, Turbine Building, Elevation, General Area, etc.)
REACTOR OPERATOR	8.	Assigns PTR number. PTR numbers are assigned sequentially in the order received. A prefix (1 through 12) indicates the month during which the sequential number is assigned; e.g., 7-43 is the 43rd PTR of the 7th. month.
	9.	Indicates if the equipment involved <u>is</u> or <u>is not</u> "Safety-Related", and initials bottom of entry block.
SHIFT SUPERVISOR	10.	Enters "x" if "Emergency Maintenance" is required, (see Section 4.1), and completes items 13 and 14.
	11.	Enters signature indicating review and approval.
HEALTH PHYSICS	12.	Indicates if Health Physics Coverage <u>is</u> or <u>is not</u> required and initials and dates entry block.

SCHEDULING/ MAINTENANCE QC	13. Indicates department assignment.
MAINTENANCE QC	14. Indicates if Maintenance/QC Inspection of work is or is not required.
	15. Indicates if Department/QC Inspection of work is or is not required.
SCHEDULING/ MAINTENANCE QC	16. Enters signature and assures PTR is issued to responsible department when work can be accomplished.
	17. Indicates type of maintenance to be performed.
APPROPRIATE SUPERVISOR	18. Initials verifying correct type of maintenance is indicated in block 17.
	19. Initiates Action Request if required and enters AR number.
	20. Enters applicable procedure number or the letters "NPR" if no procedure is required.
	21. Indicates post maintenance test requirements, if any; also enters specific instructions to workman if applicable; initials and dates entry block.
FOREMAN/ SENIOR TECHNICIAN	22. Enters name of individual assigned to do the work.
	23. Enters name.
	24. Enters initials to indicate job briefing completed.
	25. Enters date of work assignment.
FOREMAN/ WORKMAN	26. Documents his review of Procedure P-8 fire prevention requirements, as applicable.
	27. Enters a description of the work performed and notes any pertinent information related to the trouble.

28. Entries for these blocks are optional, if the job is incomplete due to material unavailability. The appropriate Direct Charge or Purchase Order number may be entered.

29. If a clearance was not issued complete this block.

30. Enters signature to signify work completion.

31. Enters date work completed.

32. When a clearance is required entries in these blocks will be completed by the individual holding the clearance (s).

QC INSPECTOR

33. Signs indicating approved inspection of work performed.

34. Enters date of inspection approval.

APPROPRIATE SUPERVISOR

35. Signs indicating review of completed work.

36. Enters date review completed.

TECHNICAL SEVICES

37. Indicates if a Nuclear Plant Reliability System (NPRD) report is required.

38. Enters initials certifying that the above review has been completed.

39. Enters date review is completed.

PLANT TROUBLE REPORT

FORM (D) 372-30-2596

FORT ST. VRAIN STATION
PLANT TROUBLE REPORT

NO.: (8)

(10) ☐ FOR IMMEDIATE FOLLOW-UP

TYPE MAINT. ☐ ROUTINE (17) ☐ NON-ROUTINE — VERIFIED BY: (18)

☐ ACTION REQUEST REQUIRED (19) — AR NUMBER

DATE (2)

SAFETY RELATED ☐ YES ☐ NO (9)

ORIGINATOR: (1)

SUPERVISOR: (11)

SCHEDULER: (16)

DEPARTMENT ASSIGNMENT
☐ ELECTRIC ☐ MECHANICAL ☐ RESULTS
☐ H.P. ☐ STORES ☐ CHEM. ☐ TECH. SER.
OTHER: (13) TRANS. TO:

REACTOR OPERATOR

SR., LCO., PMO, NO.: (3)

EQUIP. NO.: (4)

SYSTEM: (5)

DESCRIPTION OF TROUBLE: (6)

PLANT LOCATION: (7)

NOTIFY HEALTH PHYSICS (12) ☐ YES ☐ NO ____ PRIOR TO START
INITIALS: DATE:

TROUBLE SHOOT & REPAIR PER PROCEDURE NO. (20)

(14) MTCL. QC REQUIRED ☐ YES ☐ NO

(15) DEPT. QC REQUIRED ☐ YES ☐ NO

FIRE PROTECTION P-8 REQUIREMENTS
WORKMAN (26)
FOREMAN

INSTRUCTIONS: (21)

DEPT. SUPERVISOR DATE

JOB BRIEFING (24)
1. JOB INVOLVED
2. POTENTIAL HAZARD
3. HAZARD PROTECTION
BRIEFED BY

ASSIGNED TO: (22) BY: (23) DATE: (25)

DESCRIPTION OF WORK: (27)

COMPLETED BY: (30) DATE: (31) QC INSPECTION: (33) DATE: (34)

QC NO. (28) PO NO. (28) REVIEWED BY: (35) DATE: (36)

CLEARANCE ISSUED: TIME: DATE: (32)

CLEARANCE RETURNED: TIME: DATE:

TIME WORKED (29) MAN-HOURS

NPRD REPORT REQUIRED ☐ YES ☐ NO (37)

TECH. SERVICES BY: (38) DATE: (39)

DISTRIBUTION: WHITE—PLANT RECORDS; BLUE—DEPT. USE; GREEN—SCHEDULING DEPT. USE

MAINTENANCE PROCEDURE CONTROL FORM PREPARATION PROCEDURE

The numbers below correspond to those in the sample form shown on Page 3 of this attachment.

RESPONSIBILITY		ACTION
MAINTENANCE SCHEDULER, MAINTENANCE CLERK, OR APPROPRIATE SUPERVISOR	1.	Enters applicable procedure number.
	2.	Enters clearance number, if any.
	3.	Indicates if this is a priority item.
	4.	Enters the title of the applicable procedure.
	5.	Identifies the equipment, by number if possible.
	6.	Indicates Quality Control coverage, if applicable.
	7.	Indicates type of maintenance to be performed.
	8.	Enters scheduled date.
	9.	Enters date due.
	10.	Enters signature and date indicating the review of above items.
	11.	Indicates any special instructions, test or requirements which the tradesman need be aware of.
	12.	Indicates workman to whom work is assigned.
	13.	Signature of person assigning work.
WORKMAN	14.	Enters as found/as left condition of the equipment.
	15.	If any out of specification requirements are noted pertinent data is entered.
	16.	Indicate material used on equipment.

	17. Lists direct charge number or other identifying data if a DC is issued.
	18. Lists purchase order number, heat treatment number or any pertinent data.
	19. Lists any deviations or indicates N/A.
	20. Signs and dates, indicating review and approval of work performed and proper documentation of work performed.
QUALITY CONTROL	21. Signs and dates, indicating approved inspection of work performed.
APPROPRIATE SUPERVISOR	22. Signs and dates, indicating review of completed work.

MAINTENANCE PROCEDURE CONTROL FORM

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

MAINTENANCE PROCEDURE CONTROL

(1) PROC. NO. _____ ISSUE ____
(2) CLEARANCE NO. _____
(3) ☐ PRIORITY

GENERAL — TO BE COMPLETED BY MAINTENANCE SCHEDULER / CLERK / SUPERVISOR

(4) TITLE _____
(5) EQUIP. NO. _____

(6) MAINT. QC REQUIRED ☐ YES ☐ NO DEPT. QC REQUIRED ☐ YES ☐ NO
(7) MAINT. TYPE ☐ ROUTINE ☐ WEEKLY ☐ MONTHLY ☐ BIMONTHLY ☐ QTR ☐ SEMIANN. ☐ ANN.
SCHED. DATE ____ (8) ____ DUE DATE ____ (9) ____ BY _____ (10) _____
(SIGNATURE) (DATE)

INSTRUCTIONS — TO BE COMPLETED BY MAINTENANCE SCHEDULER / CLERK / SUPERVISOR

(11) SPECIAL INSTRUCTIONS _____

(12) ASSIGNED TO _____ BY _____ (13)
(SIGNATURE)

WORK SUMMARY — TO BE COMPLETED BY WORKMAN - USE ADDITIONAL SHEETS IF REQUIRED

(14) AS FOUND / AS LEFT _____

OUT OF SPEC / CORRECTIVE ACTION - SUMMARIZE AND LIST PTR'S _____
(15)

MATERIAL / PARTS UTILIZED

ITEM (16)	DC NO. (17)	PO NO. / HT NO. (18)

DEVIATIONS: LIST AND ATTACH APPROVED COPIES ☐ NA (19) _____

JOB COMPLETION

(20) WORK COMPLETED _____ _____
(WORKMAN - SIGNATURE) (DATE)

(21) WORK INSPECTED _____ _____
(QC - SIGNATURE) (DATE)

(22) REVIEWED _____ _____
(DEPT. SUPV. - SIGNATURE) (DATE)

Form (B) 372-30-3383 DISTRIBUTION WHITE - RECORDS CENTER YELLOW - MAINTENANCE FILE PINK - SCHEDULING

TITLE: DESIGN CONTROL SYSTEM

ISSUANCE AUTHORIZED BY	J W Gahm 5-7-83	5-7-83 Don Warembourg	5/11/83 Lawrence Brey
PORC REVIEW	PORC 520 JUN 6-1983		EFFECTIVE DATE 6-13-83

1.0 PURPOSE

To describe the engineering design controls employed for Plant modifications and changes to design documents.

2.0 APPLICABILITY

This procedure applies to engineering design activities involving Plant or design documentation changes.

3.0 GENERAL REQUIREMENTS

Design control procedures are required to assure that engineering design activities performed for FSV Station modifications:

3.1 Include and correctly translate applicable regulatory, FSAR and Technical Specification requirements.

3.2 Include and specify appropriate quality requirements including acceptance criteria.

3.3 Specify materials, parts, equipment and processes which have been selected and reviewed for suitability for intended applications.

3.4 Are coordinated with all affected design interface groups.

3.5 Are processed in accordance with written procedures for review, approval, release, distribution and revision.

3.6 Are verified or checked for adequacy of design by performance of design reviews, alternate or simplified calculation methods or by the performance of suitable testing safety related modifications only. If a test approach is employed in lieu of other methods, it includes qualification testing of a prototype unit under the most adverse design condition.

3.7 Are verified by qualified individuals other than the original designer(s). (Safety related modifications only).

3.8 That are changed, require the same processing and design controls as applied to the original document.

3.9 Are reviewed by the QA Department to verify appropriateness of quality provisions.

4.0 PROCEDURE

4.1 DESIGN PROCESS

The PSCo design process for FSV modifications requires that:

4.1.1 Design work is performed within the Nuclear Engineering Division in accordance with ENG Procedures, or subcontracted and controlled per Procedures Q-4 and Q-7.

4.1.2 All modifications/changes be authorized and controlled by use of a Change Notice (CN) Form (Attachment Q-3A), which together with it's supporting documents comprises the authorization to change the design of the Plant. The CN also authorizes changes to existing design documents or the creation of new design documents. CN's must be approved by NED, Production, and QA prior to the performance of the work if they involve;

a) Modifications to safety-related facilities, or

b) Revisions to engineering design documents which alter design intent.

Nonsafety related modifications for which engineering design, or material procurements is not required or requested, may be performed prior to CN initiation and approval provided that plant management approval is obtained prior to performance of the work and that a properly approved CWP is used to accomplish the work. Under urgent situations as determined by the Shift Supervisor, work can proceed immediately and the CWP can be back fit. (See paragraph 4.6.3).

4.1.3 Design engineers determine for each modification if any portion is safety-related; and, identify the applicable design input requirements including regulatory requirements, codes, standards and specifications.

4.1.4 Design outputs for safety related modifications are subjected to a design verification process performed by qualified individuals other than the original designer.

4.1.5 A Safety Evaluation be performed and documented for each CN by the NED. The safety evaluation is performed utilizing the Safety Evaluation Form (Attachment Q-3B).

4.1.6 Safety Related CNs are presented to PORC to determine if the change is safety significant or involves an Unreviewed Safety Question.

4.1.7 CN's determined to be safety significant or involve an Unreviewed Safety Question are presented by the Manager, Nuclear Production to the NFSC for review and verification of whether or not the CN involves an Unreviewed Safety Question.

4.1.8 CN's involving an Unreviewed Safety Question are submitted by the NED to the NRC for concurrence prior to implementation.

4.1.9 The CN packages detail design activities and documents the results of technical evaluations by Engineering to justify the safety and correctness of the modification.

4.1.10 Appropriate test requirements are provided where required to prove or verify the CN design or function.

4.1.11 All controlled design documents affected by a CN are identified in the CN package and that configuration of the affected documents controlled by the NED are identified.

4.1.12 Deviations from approved CN's/CWP's are documented, controlled and approved by Engineering and Quality Assurance on CWP Deviation Report Forms as described by paragraph 4.4.

4.1.13 CN changes are documented and controlled using Change Notice Reissue Forms (Attachment Q-3C).

4.1.14 NED will conduct as-built verifications of installations and as the result of a final design review, determine additional document update requirements, if any, and initiate CN close-out.

4.2 CN PROCESSING

4.2.1 Upon receipt of authorization to proceed with the CN and detail design, the CN is processed as described by ENG series procedures.

4.2.2 Required control of CN processing is asssured by assignment of a CN coordinator to follow the progress of each CN in accordance with ENG procedures.

4.2.3 On completion of design activities, interface verfications, and obtaining departmental approvals; the CN is forwarded to Technical Services.

4.2.4 Technical Services reviews and obtains production department approval and forwards CN to NED-Site.

4.2.5 NED-Site assigns CWP number (if required), determines distribution requirements and forwards CN to QA.

4.2.6 The Superintendent, QA Services (SQAS) reviews/approves the CN and forwards CN to Design Document Clerk - Site for distribution.

4.2.7 The Design Document Clerk - Site reproduces and distributes the CN as required by the Distribution Handbook.

4.3 CN REISSUE REQUIRED

4.3.1 Changes in the design or installation requirements that exceed the limitations for CWP-DR's requests as defined by paragraph 4.4, and which are required before further work can proceed, may be processed utilizing an Action Request (AR) for CN reissue. (See Procedure G-3)

4.3.2 On receipt of the AR, (if applicable), NED initiates the CN reissue as described by ENG-1.

4.3.3 The NED approved CN reissue is processed as described by paragraphs 4.2.3 through 4.2.7.

4.4 CN DEVIATION REQUIRED

If during CN implementation, it is determined that a deviation from the design or installation instructions is required, a deviation request may be processed in accordance with G-9 using a CWP-DR provided that:

4.4.1 The materials and components as specified in the CN are not compromised. Materials and components may be substituted if the substitutions meet or exceed the requirements set forth in the CN.

4.4.2 The design intent, process flows, and/or the safety evaluation as specified in the CN is not altered.

4.4.3 The following applicable precautions are not compromised:

a) The effects of the activity on nearby equipment, structures, materials, components, cabling or piping with particular emphasis on the safety-related aspects of these items has been identified.

b) Critical pieces of equipment have been identified.

c) The work has been planned to avoid damage to nearby plant equipment.

d) The use of combustible materials is avoided or closely controlled in accordance with the requirements of Procedure P-8.

e) Precautions, to avoid damage to adjacent areas by welding or other hazardous operations have been taken in accordance with the requirements of Procedure P-8.

f) The integrity of cable fire stops, seals, and wall penetrations have been maintained and that measures have been established to ensure they are returned to their original design intent.

g) Adequate ventilation has been ensured.

4.5 CN INSTALLATION NONCONFORMANCES

If on inspection of a CN installation, departure(s) from specified requirements are encountered, a Nonconformance Report (NCR) is initiated by QC and processed as described by Procedure Q-15.

4.6 CN UPDATE AFTER INSTALLATION

4.6.1 On task completion, a listing of any AR's deviations, or NCRs dispositioned "use-as-is" or "repair", is forwarded to the NED by QA/QC.

4.6.2 The NED reviews the AR deviations and NCRs and determines the need for any document revisions.

4.6.3 The department responsible for the installation of nonsafety-related modifications requiring only Plant management approvals initiates a DC-AR as described by Procedure G-3 and attaching a copy of the completed CWP. (See paragraph 4.1.2.).

5.0 REFERENCE DOCUMENTS

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"
5.2 ENG Procedures Manual
5.3 Regulatory Guide No. 164, "Quality Assurance Requirements for the Design of Nuclear Power Plants
5.4 Procedure G-3, "Action Request - Preparation and Processing"
5.5 Procedure Q-4, "Procurement Document Control"
5.6 Procedure Q-7, "Control of Procured Items"
5.7 Procedure Q-15,"Control of Nonconforming Items"
5.8 Procedure P-6 (or G-9), "Controlled Work Procedures"
5.9 Procedure P-8, "Fire Prevention and Fighting"

6.0 ATTACHMENTS

Q-3A Change Notice Form
Q-3B Safety Evaluation Form
Q-3C Change Notice Reissue Form

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

CHANGE NOTICE

CN. NO. _____
PAGE _____
DATE: _____
BY: _____
JO # ACCT #

DESCRIPTION

DESCRIPTION: _____

GENERATED IN RESPONSE TO (COMMITMENT JOB NO., DCAR, I & E BULLETIN, ETC.): _____

SYST. NO: _____

EQUIP. NO: _____

SPEC. NO: _____

SAFETY EVALUATION: SEE DETAILED SAFETY EVALUATION

☐ SAFETY RELATED ☐ MODIFICATION
☐ NONSAFETY RELATED ☐ DOCUMENT CHANGE ONLY

REMARKS _____

PAGE SCHEDULE NUMBER ON COVER PAGES SEQUENTIALLY: 1, 2, 3, etc.

APPROVALS

NUCLEAR ENGINEERING _____ (SIGNATURE) _____ (DATE)

PROD. _____ (SIGNATURE) _____ (DATE)

QA _____ (SIGNATURE) _____ (DATE)

PORC REVIEW: REQUIRED ONLY IF CHANGE IS SAFETY RELATED
SAFETY SIGNIFICANT ☐ YES ☐ NO UNREVIEWED SAFETY QUESTION ☐ YES ☐ NO

_____ (SIGNATURE) _____ (MTG NO. / DATE)

NREC REVIEW: REQUIRED ONLY IF PORC DETERMINES CHANGE TO BE EITHER SAFETY SIGNIFICANT OR AN UNREVIEWED SAFETY QUESTION.
UNREVIEWED SAFETY QUESTION ☐ YES ☐ NO

_____ (SIGNATURE) _____ (MTG NO. / DATE)

NRC REVIEW: REQUIRED ONLY IF NREC CONCURS THAT THE CHANGE IS AN UNREVIEWED SAFETY QUESTION*

NRC REVIEW COMPLETED _____ (NRC SIGNATURE - DATE) _____ (CONFIRMING DOC.)

*NRC REVIEW REQUIRED PRIOR TO IMPLEMENTATION

CLOSE OUT TO BE COMPLETED BY QA / QC

DOCUMENT REVISION COMPLETED _____ (SIGNATURE) _____ (DATE)

CHANGE NOTICE CANCELLED _____ (SIGNATURE) _____ (DATE)

FORM (A) 370-80-0380

FORM 372 - 22 - 3643

SAFETY EVALUATION FORM INSTRUCTIONS

The numbers below correspond to those in the sample Safety Evaluation Form shown on Page 4 of this attachment.

RESPONSIBILITY	ACTION
INITIATOR	1. Circles initials that identify document being evaluated.
	2. Enters number of the appropriate document. Obtain numbers for: a. CN's from NED Computer Technician b. TCR's from Shift Supervisor c. SCR's from Technical Clerk and Recorder d. PC's from QA Computer Specialist e. TR's from QA Computer Specialist f. OTHER as required
	3. Enter page number that the Safety Evaluation will appear in the document package.
	4. Identify with an "X" each type that applies to the change.
	5. Indicate "YES" and "NO" for each classification listed. Criteria for each is identified below: a. Class I - Specification Number SR-6-1 (Safety Related Marked Drawings), SR-6-2 (Safety Related Component List) and FSAR Table 4-2 b. Safe Shutdown - Specification Number SR-6-1 (Safety Related Marked Drawings), SR-6-2 (Safety Related Component List) and FSAR Table 4-2. c. Safety Related - FSV Administrative Procedure Attachment G-1A. d. Engineered Safeguard - FSAR Section 2.2.5, FSAR Section 6 and Questions

RESPONSIBILITY		ACTION
		and Answers to the FSAR, Question 7.7
		e. Plant Protective System - FSAR Section 7.1 and the following drawings: E, E-1203, IB, IC and P&I
		f. Security System - Security Manual and/or Security Drawings
INITIATOR	6.	A review must be done for <u>all</u> sections of the FSAR and/or Technical Specifications that may relate to the change or test in progress. All sections reviewed that were found to be applicable shall be listed together with a statement summarizing the results of the review. (Refer to STAIRS Licensing Data Base for FSAR and Tech Spec Review as described in the Nuclear Records Management Manual). NOTE: Identify sections reviewed for <u>both</u> the FSAR and Tech Specs.
	7.	The effect of the change or test upon the FSAR and the Technical Specifications must be considered. This requires that a review be made of all relevant sections of these documents for possible impact. If it is determined that the proposed change or test does have an impact on the FSAR or Technical Specifications, and that the impact is sufficient to justify making changes to these documents, then the affected sections of these documents shall be listed. Suggested revisions, deletions or additions shall be initiated per FSV Administrative Procedure G-2. NOTE: Address <u>both</u> the FSAR and Tech Spec

RESPONSIBILITY	ACTION
	8, 9, & 10. As described in 10CFR50.59, these questions are used to identify an unreviewed safety question. Answer each question and provide a clear, concise basis for each.
INITIATOR	11. If section 3(A), 3(B) or 3(C) is checked "YES", answer this question "YES"; if not, answer this question "NO".
	12. Answer this question based on the definition of "Safety Significant Change" given in FSV Administrative Procedure, G-1
	13. Upon completion of Action 11 and 12, enter signature and date. Forward to the appropriate individual for approval as identified below: CN - Nuclear Licensing Department TCR - Initiator's Supervisor SCR - Initiator's Supervisor PC - Initiator's Supervisor TR - Initiator's Supervisor OTHER - Initiator's Supervisor
APPROVING SUPERVISOR	14. Sign and date approval

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

SAFETY EVALUATION

(1) CN / TCR / SCR / PC / TR NO. (2)
PAGE (3)

CATEGORY

TYPE:

(4) ☐ CN OVERALL ☐ CN SUBMITTAL ☐ SETPOINT CHANGE REPORT ☐ TEST REQUEST
☐ TEMPORARY CONFIGURATION REPORT ☐ PROCEDURE CHANGE (FSAR) ☐ OTHER

CLASSIFICATION: ARE THE SYSTEMS/ EQUIPMENT OR STRUCTURES INVOLVED, OR DOES THE ACTIVITY AFFECT:

(5)

CLASS I	☐ YES	☐ NO	ENGINEERED SAFEGUARD	☐ YES	☐ NO
SAFE SHUTDOWN	☐ YES	☐ NO	PLANT PROTECTIVE SYSTEM	☐ YES	☐ NO
SAFETY RELATED	☐ YES	☐ NO	SECURITY SYSTEM	☐ YES	☐ NO

REMARKS:

EVALUATION: USE ADDITIONAL SHEETS IF REQUIRED.

1 IS THE ACTIVITY IDENTIFIED IN THE FSAR OR TECH SPEC? ☐ YES ☐ NO
LIST THE APPLICABLE SECTIONS REVIEWED.

(6)

2 DOES THE ACTIVITY REQUIRE THAT CHANGE(S) BE MADE TO THE FSAR OR TECH SPEC? ☐ YES ☐ NO
LIST SECTIONS TO BE CHANGED AND THE CHANGES TO BE MADE.

(7)

3 DETERMINE WHETHER OR NOT THE ACTIVITY INVOLVED IS AN UNREVIEWED SAFETY QUESTION UTILIZING THE FOLLOWING GUIDELINES.

(8) (A) HAS THE PROBABILITY OF OCCURRENCE OR THE CONSEQUENCES OF AN ACCIDENT OR MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFETY PREVIOUSLY EVALUATED IN THE FSAR BEEN INCREASED?
☐ YES ☐ NO STATE BASIS:

(9) (B) HAS THE POSSIBILITY OF AN ACCIDENT OR MALFUNCTION OF A DIFFERENT TYPE THAN ANY EVALUATED PREVIOUSLY IN THE FSAR BEEN CREATED? ☐ YES ☐ NO STATE BASIS:

(10) (C) HAS THE MARGIN OF SAFETY, AS DEFINED IN THE BASIS FOR ANY TECHNICAL SPECIFICATION OR IN THE FSAR BEEN REDUCED? ☐ YES ☐ NO STATE BASIS:

DOES THE ACTIVITY APPEAR TO (11) INVOLVE AN UNREVIEWED SAFETY QUESTION ☐ YES ☐ NO
(12) BE SAFETY SIGNIFICANT ☐ YES ☐ NO

BY (13) (SIGNATURE) (DATE) *APPROVED (14) (SIGNATURE) (DATE)
**REQUIRED ONLY FOR CHANGE NOTICE

FORM (A) 372-03-3282

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

CHANGE NOTICE REISSUE

CN NO. _____
DATE _____
BY _____
J/O#/ACCT.# _____

SYSTEM NO. _____ REISSUE # _____

SUBJECT OF ORIGINAL CN _____

DESCRIPTION OF REISSUE _____

THIS CN REISSUE INVOLVES:

	YES	NO	
1	☐	☐	CHANGE TO THE SAFETY EVALUATION (ATTACH EFFECTIVE SAFETY EVALUATION)
2	☐	☐	CHANGE IN THE SAFETY RELATED CLASSIFICATION
3	☐	☐	CHANGE IN DESIGN INTENT
4	☐	☐	CHANGE IN SCOPE
5	☐	☐	CHANGE IN INSTALLATION/ PROCUREMENT RESPONSIBILITIES
6	☐	☐	CHANGE TO THE DESIGN BACKGROUND INFORMATION PACKAGE
7	☐	☐	CHANGE TO THE INSTALLATION/ PROCUREMENT PACKAGE
8	☐	☐	CHANGE TO THE DOCUMENT UPDATE PACKAGE
9	☐	☐	CHANGE NOTICE CANCELLATION

ATTACHMENTS:

CHANGE NOTICE REISSUE COORDINATION SHEET: EFFECTIVE DATE _____

SAFETY EVALUATION: OVERALL EFFECTIVE DATE _____

REVIEWS, APPROVALS:

NUCLEAR ENGINEERING _____ _____
(SIGNATURE) (DATE)

PROD. _____ _____
(SIGNATURE) (DATE)

*PORC MTG. # AND DATE _____ SAFETY SIGNIFICANT ☐ YES ☐ NO

UNREVIEWED SAFETY QUESTION ☐ YES ☐ NO

QA _____ _____
(SIGNATURE) (DATE)

* REQUIRED FOR SAFETY RELATED CHANGE NOTICES.

FORM (5) 372 - 30 - 3381

FORM 372 - 22 - 3643

TITLE: PROCUREMENT DOCUMENT CONTROL

ISSUANCE AUTHORIZED BY	J.W. Gahm 5-4-83	D.W. Warembourg 5-6-83	Lawrence Brey 5/11/83
PORC REVIEW	PORC 520 JUN 6-1983		EFFECTIVE DATE 6-13-83

1.0 PURPOSE

This procedure describes controls employed to assure that documents authorizing procurement of quality-related items/services satisfy applicable requirements.

2.0 APPLICABILITY

This procedure applies to activities involved in the preparation, review and approval of documents authorizing procurement of safety-related items/services for the FSV Generating Station.

3.0 GENERAL REQUIREMENTS

3.1 In addition to Procedure P-5 requirements, procurement documents for safety-related fuels, spares, supplies, equipment and modification materials are required to:

a) Specify, by reference or inclusion, applicable regulatory requirements, design bases and other requirements necessary to clearly define the physical and functional specifics for the item to be procured.

b) Establish requirements for quality assurance measures that will assure delivery of items conforming to procurement document specifications.

3.2 Non-quality related items are procured in accordance with Procedure P-5.

4.0 PROCEDURE

4.1 MATERIAL REQUESTS (MR)

The individual other than NED personnel identifying the need for procurement of an item or service is required to obtain and fill out a Material Request Form (Attachment Q-4A). The initiator determines and indicates, by reference to the Quality Related Item List (Attachment Q-4B), whether the item is "quality-related". He obtains his supervisor's approval signature and forwards the MR to the Plant Storekeeper.

4.2 PURCHASE REQUISITIONS (PR)

A PR or Special Recurring Requisition (SRR) (and Request for Quotation, when used) (Attachment Q-4C and Q-4D), as appropriate, is prepared by NED, when responsible for initiating procurement action for CN items; or by the Storekeeper on receipt of an approved MR. The PR or SRR and supporting documents comprising the procurement package must include:

a) A concise description of the item to be procured including specification(s), drawing(s) or catalog identification number(s). (Stock Code Book descriptions are not adequate).

b) Potential supplier/contractor, if known.

c) A "S&FS ITEM" notation on the face of the PR/SRR if the procurement is associated with Security or Fuel Storage facilities.

d) A "FS ITEM" notation on the face of the procurement is associated with the fire protection system or its associated controls.

e) Applicable code, regulatory and quality program requirements; including, as applicable, the items listed under paragraph 4.3.

On completion of the above, the PR/SRR is forwarded to NED-Site for review.

4.3 NED-SITE REVIEW

NED-Site reviews the PR/SRR, using the PR Review Record and the PR Review Record Instruction (Attachment Q-4F) as a guide and record document.

4.3.1 Appropriate comments are recorded by the reviewer in spaces provided on the PR Review Record Form including actions required, if any, to permit approval of the PR/SRR.

NOTE: NED-Site does not fill in the PR Review Record supplemental receiving inspection requirement or supplier qualification blocks. This block is filled in by the QA reviewer as described in 4.4.2..

4.3.2 When the PR review discloses the need to add an unspecified requirement, the identification number(s) of the appropriate Standard Quality PO Clause(s) as denoted in Attachment Q-4G are identified on Attachment Q-4D and included with the PR. The appropriate Standard Quality PO Clauses are subsequently transferred to the PO by the Purchasing Department. Standard packaging, shipping, receiving, storage and handling enclosure(s) numbers (see FSV-STD-1) shall be attached to the PR. The Purchasing Department shall subsequently attach the applicable forms to the PO.

4.3.3 If requirements applicable to a specific order are not included in the clause listing, the requirement is detailed and attached to the PR/SRR.

NOTE: Quality and Documentation requirement additions are not provided for Blanket PO Releases unless changes have been made altering provisions of the original PO.

4.3.4 On completion of the above the PR or SRR along with the PR Review Record and any other documentation shall be forwarded to Superintendent, QA Services (SQAS) for review.

4.4 QA REVIEW

4.4.1 On receipt, the PR/SRR is logged on the QR Purchasing Activities Log (Attachment Q-4E) for tracking purposes. The QA review serves to verify, as applicable, that:

a) The "quality-related" classification is correct and is so noted if the item might possibly be used in such an application.

b) Existing seismic and/or environmental qualification documentation is applicable. If not, that the required documentation is provided.

c) The description of the item is adequate to assure delivery of the required item.

d) Requirements, as applicable, are specified for:

1) Codes, specifications, standards and quality program requirements

2) Documentation submittals and/or retentions by the supplier

3) Special process controls

4) Inspections, tests or hold points

5) Traceability

6) Handling, packaging, shipping and storage utilizing FSV-STD-1 guidance

e) The potential supplier, if identified, is qualified to perform to specified quality requirements.

f) If the item required is an "identical replacement", that the identified supplier is capable of providing it.

g) Comments resulting from the QA Review will be resolved with NED-Site prior to QA approval.

4.4.2 The QA reviewer determines if specific source/receiving inspections or inspection instructions are required for the procurement. If required, the reviewer is responsible for developing or providing and specifying the appropriate checklist and/or instructions. These checklists or instructions are referenced on the PR Review Record in the supplemental receiving inspection block and are attached to the PR package. If no supplemental inspections are required, "NA" is noted in the block.

4.4.3 On completion of the review, the reviewer applies his signature and date to the QA review block on the front of the PR or on the SRR as applicable.

Requisitions routed for pricing, coding or vendor selection only are not approved by QA until such requisitions are routed for approval and a complete review is performed.

4.4.4 The original of the PR Review Record and one copy of all other information is retained for the QA file. The PR or SRR and copies of enclosures are forwarded to NED-Site for appropriate PR/SRR approval prior to forwarding to purchasing.

4.5 PURCHASE ORDERS (PO)

On receipt of reviewed and approved PR's, Purchasing prepares the PO on standard purchase order forms (Attachment Q-4J) in accordance with standard company practices including;

a) Adding a "N-" prefix to Quality-Related PO numbers.

b) Identification of all PO enclosures with the PO number.

c) Distributing PO copies in accordance with Attachment Q-4I.

d) Assuring that Quality Related Confirming POs are processed through QA review.

e) Assuring Blanket Purchase Orders (BPO) (See Stores Department Handbook) include Seller Instructions (Attachment Q-4K) and use of Attachment Q-4L by PR initiators to authorize and control BPO releases.

4.6 PO REVIEW

PO's are reviewed by QA to verify that quality provisions specified by previously reviewed and approved PRs have been correctly transferred to the PO. Approval of the PO is indicated by applying the QA approver's initials and date to the lower left hand corner of the PO.

4.7 PR/PO REVISIONS

Changes to PR's/PO's require the same review and approvals as the original document.

5.0 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"

5.2 Stores Department Handbook

5.3 FSV-STD-1, "Cleanness, Packaging, Shipping, Receiving, Storage and Handling Associated with Quality Related Procurement"

5.4 Procedure P-5, "Material Control"

5.5 MPRM-10, "Modification and Procurement Review Manual"

6.0 ATTACHMENTS

Q-4A Material Request Form
Q-4B Quality-Related Materials and Services
Q-4C Purchase Requisition Form
Q-4D Special Recurring Requisition Form
Q-4E QR Purchasing Activity Status Form
Q-4F PR Review Record and Instruction
Q-4G Standard Quality PO Clauses
Q-4H 10CFR21 Reporting Requirements
Q-4I PO Distribution Chart
Q-4J Purchase Order Form
Q-4K Blanket PO Seller Instructions
Q-4L Material Received Report

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

FORM (A) 372-54-3023

FT. ST. VRAIN / MATERIAL REQUEST

00018

REQUISITION NO.	DAY	YR	NAME	DISTRIBUTION CODE	CHARGE	RESULT	SUBC	OTHER	ACCOUNT NUMBER	P.T.R. #
										DATE REQUIRED

EQUIPMENT NO. / SPECIFICATION NO. / DESCRIPTION:

P.R. # | P.O. # | QUALITY RELATED: ☐ YES ☐ NO | STOCK = MIN./MAX.

ITEM STORE CODE	MIN. / MAX.	DESCRIPTION OF MATERIAL ORDERED	UNIT PRICE	AMOUNT

QUOTE BY
COMPANY
ADDRESS
CITY, STATE
PHONE NO.

SUPERVISOR APPROVAL

MANAGER APPROVAL

1st Copy - White (Original) 2nd Copy - Blue (Originator's Copy) 3rd Copy - Green (PTR Copy) 4th Copy - Yellow (Stores Dept. Copy)

FORM 372 - 22 - 3643

FSV Quality Related (QR)
Material & Services

Part I - Included Items

1. Safety Related:
   a) Components (Equipment items)
   b) Component spare parts except as excluded in Part II
   c) Calibration services
   d) Testing services
   e) Construction services
   f) Architect & engineering services
   g) Technical analysis services
   h) Laboratory analysis services
   i) Repair services
   j) Decontamination services
   k) Waste disposal services
   l) In-services inspection services

2. Piping Material to Specifically Include (when covered by Code or specification):
   a) Pipe
   b) Pipe fittings
   c) Tube
   d) Tube fittings
   e) Valves
   f) Valve operators

3. Electrical Materials to Specifically Include:
   a) Cable
   b) Fire-stop materials

4. Electronic Parts - To Specifically Include:
   a) Parts specially designed and built for Fort St. Vrain where the design and quality requirements cannot be specified soley by commerical standards.

5. Fuel
   a) Graphic Dowel
   b) Fuel Element Graphite Block
   c) Fuel and Poison Hole Plugs
   d) Fuel Stack/Fuel Rod
   e) Burnable Poison Rods

6. Hose Products (When covered by Code or specification)

7. Fasteners
   a) Bolts (A193-Gr. B7)
   b) THD rod (A193-GR. B7)
   c) Hex Nuts (A194-GR. 2H)

8. Metals - Mild & Alloy Steel (inc. stainless)
   a) Plate - 1/2" thickness & over
   b) Squares/bars/hex - 1/2" & over

9. Bearings

10. Seals

Part II - Excluded Safety Related Items

1. Noncritical; Instrumentation Spare Parts to Include:

   a) Chart paper
   b) Ink
   c) Glass
   d) Pointers

2. Electrical Materials to Include:

   a) Conduit
   b) Conduit fittings
   c) Wire terminals
   d) Wire terminal blocks

3. Consumables to Include:

   a) Lubricants
   b) Filter cartridges
   c) Dessicants
   d) Demineralizer/filter resins

4. Belts to Include:

   a) Drive
   b) Vee
   c) Fan

5. Metals - Non-Ferrous

   a) All

   Metals - Mild & Alloy Steel (inc. stainless)

   a) Sheet and plate - up to 1/2" thickness
   b) Rounds - less than 1/2" diameter
   c) Squares/bars/hex - less than 1/2"
   d) Shapes (angles, channel, etc.) - all

6. Fasteners (when not covered by Code or specification)

7. Fuel Oil

   a) Standby Emergency Diesel Generator Fuel
   b) Emergency Diesel Firewater Pump Fuel

8. Electronic Parts

   a) Parts that can be purchased to commericial standards and are not specially designed for Fort St. Vrain. See Part I, Item 4.

SEE INSTRUCTIONS ON BACK OF PINK AND YELLOW COPIES

FORM 372-54-3642

QUALITY RELATED PURCHASE REQUISITION

Y-4514

N-

PUBLIC SERVICE COMPANY OF COLORADO

OR SUBSIDIARY COMPANY

86

SHIP TO STOREKEEPER, FORT ST.VRAIN: PLATTEVILLE, COLORADO 80651

1. ☐SP/PA
2. ☐COLLECT

ITEM NUMBER OR STORES CODE NO.	QUANTITY	DESCRIPTION OF MATERIAL OR SERVICES	ESTIMATED UNIT PRICE	ACTUAL UNIT PRICE	AMOUNT

SEE ATTACHED SHEET FOR QUALITY AND DOCUMENTATION REQUIREMENTS.

SPEC. NO. _____ EQUIP. NO. _____

QUALIFIED SOURCE REQUIRED: ☐ MANUFACTURER ☐ SUPPLIER ☐ SERVICES

QA REVIEW _____

TOTAL

ACCOUNTS TO BE CHARGED

INDICATE ITEM NUMBER FROM ABOVE WHEN MORE THAN ONE ACCOUNT NUMBER IS USED

CORRESPONDING ITEM NUMBER AND/OR S.	PRO	ACCT	SUB	ACCOUNT NUMBER	ACCOUNT DESCRIPTION (USE ONE PER ACCOUNT)

FOR WHICH MATERIAL WILL BE USED: LOCATION OF USE: FORT ST. VRAIN

MODIFICATION NUMBER

APPROVED CAPITAL BUDGET ITEM? ☐ YES ☐ NO

NOTE: PURCHASES REQUISITIONS MUST NOT BE MADE UNLESS IT HAS BEEN DETERMINED THAT SUPPLIES WANTED ARE NOT IN STOCK AT WAREHOUSE. THIS REQUISITION MUST BE SIGNED BY THE PERSON AUTHORIZED IN ACCORDANCE WITH SUBJECT

ACCOUNT | POST ENGINEERING | STORES | TRAFFIC

REQUESTED BY | APPROVED BY | EXECUTIVE APPROVAL

QA/QC COPY

ORIGINATOR: RETAIN THIS COPY FOR YOUR FILE

FORM 372-52-3643

FORM 372-22-3643

Form (R) 372-54-2843

QUALITY RELATED – SRR

STOCK CODE NUMBER _____ OR

LINE NO	SELLER	SELLER NO.	SHIP. PT.	SHIP VIA	INSP. CAT #	PURCHASING APPR	PURCHASING BUYER	PURCHASE ORDER NO	DATE RECD
1			SP/FA COLL						
2			SP/FA COLL						
3			SP/FA COLL						
4			SP/FA COLL						
5			SP/FA COLL						
6			SP/FA COLL						
7			SP/FA COLL						
8			SP/FA COLL						
9			SP/FA COLL						

STOREROOM NO. 666 DELIVER TO STOREKEEPER At: FT. ST. VRAIN: PLATTEVILLE, CO. 80651

STOCK CODE NUMBER _____ OR

STOCK UNIT | PURCH UNIT

ORDERING DESCRIPTION

(Note: See Reverse Side for Complete Purchasing Description, if Applicable)

	MANUFACTURER AND CATALOG NUMBER	STD PKG
1		
2		
3		
4		
5		
6		
7		
8		

SEE REVERSE SIDE FOR QUALITY AND DOCUMENTATION REQUIREMENTS

SPEC: EQUIP. NO.

QUALIFIED SOURCE REQUIRED

☐ Manufacturer ☐ Supplier ☐ Contractor/Services

APPROVALS – ROUTE TO STORES GENERAL OFFICE WHEN COMPLETED

Line No	PURCH. UNIT QUANTITY	DATE WANTED	PRICE PER UNIT	EXTENDED PRICE	TERMS	ORIGINATOR (Return To) Date	STORES GO DATE	UNIT/SECTION Approval Date	DEPARTMENT Approval Date	DIVISION Approval Date	EXECUTIVE Approval Date	ACCT APPR	PSC – QA REVIEW
1													
2													
3													
4													
5													
6													
7													
8													
9													

MATERIAL TO BE USED FOR:

QUALITY & DOCUMENTATION REQUIREMENTS
STANDARD STATEMENT LISTING

Q A Rev. 8-79

The following standard quality statements are applicable to the material on this purchase requisition.

☐	1. PAYMENT	☐	16. DELTA FERRITE +	☐	31.
☐	2. SUBSTITUTIONS	☐	17. CHEM. & PHYS.	☐	32.
☐	3. SELLER ACCESS	☐	18. NONCONFORMANCES (10CFR21)	☐	33.
☐	4. RECORD RETENTION	☐	19. NONCONFORMANCES	☐	34.
☐	5. RECORDS	☐	20.	☐	35.
☐	6. FABRICATION	☐	21.	☐	36.
☐	7. MANUFACTURER APPROVAL	☐	22.	☐	37.
☐	8. MFG QA PROG-SECT III	☐	23.	☐	38.
☐	9. MFG QA PROG-10CFR50	☐	24.	☐	39.
☐	10. MARKING	☐	25.	☐	40.
☐	11. WELDING	☐	26.	☐	41.
☐	12. MYLARD TESTS	☐	27.	☐	42.
☐	13. C of C-IND SPEC	☐	28.	☐	43.
☐	14. CHEMICAL ANAL	☐	29.	☐	44.
☐	15. C of C & CHEM ANAL	☐	30.	☐	45.

The following information contains additional Quality & Documentation Requirements applicable to the material on this purchase requisition.

Only those ANSI N45.2.2 standard packaging, shipping, receiving, storage and handling requirements included in Enclosure(s) N- shall apply to items on this purchase order.

STATUS OF QA/QC QUALITY RELATED PURCHASING ACTIVITIES

PR NO.	SUPPLIERS	MATERIAL	STATUS/REMARKS	PR DATE	PR RELEASED DATE
PO NO.				MAIL RECVD DATE	INSP COMPL DATE

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

PROCUREMENT REQUISITION REVIEW RECORD

VENDOR	MFGR.	P.O. NO.
MATERIAL	REQ. NO.	DATE

	REVIEW ITEM	YES	NO	N/A	COMMENT NUMBER
1	ITEM TO BE PURCHASED IS ☐ CLASS I ☐ SAFE SHUTDOWN ☐ N/A				
2	IS THE REQUISITION SCOPE ADEQUATELY DEFINED/MATERIAL DESCRIPTION CLEAR AND CORRECT?	☐	☐	☐	
3	IS APPROPRIATE QUALITY PROGRAM REQUIREMENT SPECIFIED?	☐	☐	☐	
4	ARE EXISTING SEISMIC AND ENVIRONMENTAL QUALIFICATIONS APPLICABLE?	☐	☐	☐	
5	HAVE APPLICABLE CODES/SPECIFICATIONS BEEN IDENTIFIED AND APPROPRIATE REQUIREMENTS BEEN INCLUDED?	☐	☐	☐	
6	HAVE REQUIREMENTS FOR SUPPLIER RETENTION/DISPOSITION OF DOCUMENTS BEEN INCLUDED?	☐	☐	☐	
7	HAVE REQUIREMENTS FOR SUPPLIER FURNISHED PROCEDURES AND DOCUMENTATION BEEN INCLUDED FOR SPECIAL PROCESSES?	☐	☐	☐	
8	HAVE REQUIREMENTS FOR SPECIAL TESTS/INSPECTIONS SUCH AS HELIUM LEAK, PERFORMANCE AND HYDRO BEEN INCLUDED?	☐	☐	☐	
9	HAVE CERTIFICATION/DOCUMENTATION REQUIREMENTS BEEN INCLUDED?	☐	☐	☐	
10	HAVE CLEANLINESS, HANDLING, PACKAGING, SHIPPING, ITEM IDENTIFICATION AND MARKING REQUIREMENTS BEEN SPECIFIED?	☐	☐	☐	
11	HAVE REQUIREMENTS FOR MANUFACTURING HOLD POINTS BEEN SPECIFIED?	☐	☐	☐	
12	HAVE REQUIREMENTS FOR REPORTING OF NONCONFORMANCES BEEN INCLUDED?	☐	☐	☐	
13	HAVE SPECS AND DRAWINGS BEEN "RELEASED"?	☐	☐	☐	
14	HAVE REQUIREMENTS FOR O&M MANUALS, DRAWINGS AND SPARE PARTS LISTS BEEN INCLUDED?	☐	☐	☐	
15	ARE THE REQUIREMENTS OF 10CFR50, APP. B TO BE APPLIED TO THE SUPPLIER OR SUBTIER SUPPLIERS?	☐	☐	☐	
16	IS THE DESIGNATED SUPPLIER ON THE QUALIFIED SUPPLIERS LIST? HAVE SUPPLIER SPECIAL QUALIFICATION REQUIREMENTS BEEN INCLUDED?	☐	☐	☐	
17	IS THE ITEM AN "IDENTICAL REPLACEMENT" ITEM?	☐	☐	☐	

SUPPLIER QUALIFICATION

- ☐ SOLE SOURCE SUPPLIER
- ☐ MANUFACTURER'S REP ONLY
- ☐ OFF-THE-SHELF ITEM
- ☐ NONSAFETY RELATED APPLICATION
- ☐ QUALITY RELATED ITEM - STOCK
- ☐ SAFETY RELATED ITEM
- ☐ QA SUPPLEMENTAL SURVEILLANCE REQUIRED

QUALIFIED SERVICES	☐ REQUIRED	☐ NOT REQ'D
QUALIFIED SUPPLIER	☐ REQUIRED	☐ NOT REQ'D
QUALIFIED MANUFACTURER	☐ REQUIRED	☐ NOT REQ'D

THE FOLLOWING SUPPLEMENTAL RECEIVING INSPECTIONS ARE REQUIRED FOR PROPER RECEIPT OF THE MATERIALS ON THIS PURCHASE ORDER. _____

THE FOLLOWING QUALITY GUIDELINES AND / OR SPECIFICATIONS WERE UTILIZED FOR THE DEVELOPMENT OF THE QUALITY REQUIREMENTS FOR THIS REQUISITION.

QG#_____ SPEC#_____ OTHER_____

COMMENTS: _____

BY _____ (SIGNATURE) _____ (DATE)

FORM (A) 373-33-3387

FORM 372 - 22 - 3643

PRRR FORM INSTRUCTION

All Quality Related Purchase Requisitions (PR & SRR) shall be reviewed utilizing the guidelines listed below. The guideline statements are keyed to appropriate review items on the PR Review Record Form. A 'No' answer to any review item requires comment on the PRRR form.

1) Utilizing the Safety Related Lists and Drawings (SR-6-1, SR-6-2, SR-6-8) determine whether the part or parent component is safety-related. (Not applicable to Services.) Stock materials such as pipe, fittings, etc. shall be considered quality-related if they have potential for use in safety-related application.

2) Review the requisition to ensure that the scope of work/material description contains adequate information that is clear, concise, correct and sufficient to ensure receipt of proper material/services.

3) Determine whether the material must be supplied under a supplier's quality program. (See also items 15 and 16). If a supplier's quality program is to be specified on the requistion, verify that the program specified is adequately identified and is acceptable to ensure appropriate control of the items by the supplier.

4) For safety-related components, verify that existing seismic and/or environmental qualification documentation is applicable. For items requiring additional qualification documentation, appropriate requirements shall be included in the requisition.

5) Verify that applicable codes/specifications/ standards/etc. have been identified and that applicable requirements contained therein have been included in the requisition.

6) Certain manufacturers may wish to retain some documentation in their files for a period of time, such as radiographs of a code vessel. In cases such as these, it will be necessary to include instructions in the requisition for retention period and ultimate disposition of the records. Generally, a retention period is agreed upon between PSCo QA and the manufacturer at the end of which the manufacturer is requested to forward the records to PSCo QA for permanent storage.

7) Verify that requirements for supplier procedures and documentation have been included for special processes including NDE, welding, heat treatment, nitriding, etc. The measures shall include provisions for approved procedures, procedure qualifications, personnel qualifications, weld rod and stainless steel ferrite control, equipment qualification/calibration/ certification.

8) Verify that requirements for special inspections and tests, including acceptance criteria, have been included when applicable. These tests shall include hydrostatic/pneumatic pressure tests, helium leak tests, performance tests, proof tests, megger tests, destructive tests, etc.

9) Verify that requirements for material/component documentation and/or certification, including traceability, have been included, when applicable.

10) Verify that appropriate cleanness/identification/handling/ packaging/storage/shipping instructions have been incorporated into the requisition utilizing the guidance presented in FSV-STD-1.

11) Verify that hold or witness points in the manufacturing process have been identified in the requisition and that arrangements have been made for purchaser access to supplier facilities.

12) Verify that instructions have been provided for notification and handling of nonconformances identified by the manufacturer. Review PSC policies for incorporation of 10 CFR 21 reporting requirements as described in Attachment Q-4H . Either the standard non- conformance statement or the 10 CFR 21 nonconformance statement should be included on all material orders.

13) Verify that applicable specifications/drawings/ controlled documents have been "Released for Purchase/Fabrication," when applicable.

14) Verify that requirements specifying the submission of Operation and Maintenance manuals, drawings and spare parts lists have been included, when applicable.

15) Determine whether the requirements of 10 CFR 50, Appendix B are to be applied to the supplier and/or sub-tier suppliers. This requirement will generally include a requirement for a PSC reviewed and approved Quality Assurance Program which would include such things as a supplier qualification program.

16) Verify that the designated supplier is listed on the Approved Supplier's List. If not, determine whether he must be evaluated/approved prior to release of the requisition. Determine whether supplier special requirements listed in QG-21 or in the vendor qualification survey must be incorporated into the requisition.

17) Determine whether the component is an "identical replacement" item. This step is applicable to spare parts only and generally leads to a "sole source supplier" method of vendor qualification. The documentation used to make this determination (i.e., O&M Manuals, Foreign Prints, Drawing Numbers, Parts Lists, etc.) shall be noted under the comment section of the PR Review Record.

18) Complete, sign and date the PR Review Record.

STANDARD QUALITY PO CLAUSES

The standardized clauses included herein are used, whenever possible, to specify Quality/Documentation requirements for inclusion in purchase orders when the necessary requirement has not been included in the Purchase Requisition (PR) or its enclosures.

Appropriate clauses are identified during QA review of the PR. The need for addition of the clause(s) to the PO requirements by Purchasing is communicated by checking Clause Numbers to be added on the reverse side of the SRR or onto a similar sheet which is attached to the PR.

When it becomes necessary to identify procedures and/or other documents that are to be supplied by the vendor, the applicable protions of the following listings should be manually entered on the reverse side of the SRR or an attachment sheet to the PR.

"Procedure and Certifications"

Two (2) copies of the following procedures/documents shall be furnished for:

( ) Review
( ) Comment
( ) Approval

( ) Prior to start of work
( ) Prior to start of fabrication
( ) Prior to shipment

a. ( ) Cleaning procedures
b. ( ) Packaging procedures
c. ( ) Handling & shipping procedures
d. ( ) Storage procedures
e. ( ) Identification & marking procedures
f. ( ) Weld procedures
g. ( ) Weld procedure qualifications
h. ( ) Weld electrode control procedures
i. ( ) Welder qualifications
j. ( ) NDE procedures
k. ( ) NDE equipment qualifications/certifications
l. ( ) NDE personnel qualifications/certifications.
m. ( ) QC procedures
n. ( ) Fabrication procedures
o. ( ) Material control procedures
p. ( ) Design information (specify)_____
q. ( ) Other_____

STANDARD QUALITY PO CLAUSES

01. "Purchase Order Number (PO No.)"

All invoices, shipping papers and quality documents must show the PSCo PO No.

"Payment"

No payment shall be made nor shall any discount period begin, for any full or partial shipment, until services have been performed and/or material "and" required quality records or documentation as specified on this PO have been received and accepted by PSCo.

02. "Substitutions"

The manufacturer, model number or material specified on this PO may not be substituted without the prior approval of PSCo.

03. "Seller Access"

Upon request the seller shall arrange for a PSCo representative to have access to those facilities and documents concerned with the fabrication, supply, assembly or testing of the materials on this PO. The reporesentative shall be permitted access, at all times, which work is in progress on the materials, to all parts of the seller's shop that concern the fabrication, assembly or testing of the materials. WHen mandatory PSCO witness and/or hold points are specified, the seller shall inform PSCo QA/QC Department at least five (5) working days prior to the scheduled witness/hold point.

04. "Record Rentention & Disposition"

Fabrication records and documents for which the seller intends to retain custody shall be identified in writing to PSCo as soon after receipt of the PO as practicable. This notification shall include the anticipated retention period and the proposed method of storage and shall be agreed upon in writing by PSCo.

At the completion of the specified retention period the seller shall transmit all retained documents to PSCo.

05. "Records"

Two (2) (microfilm quality) copies of all required certifications and documentation specified by this PO shall be supplied as follows:

One (1) copy shall be included with the material when shipped.

One (1) copy shall be mailed to the QA/QC Supervisor, Public Service Company of Colorado, 16805 Road 19 1/2, Platteville, Colorado 80651.

06. "Fabrication C of C"

A Certification of Conformance shall be furnished which indicates that the material on this purchase order has been fabricated, manufactured, tested, inspected and supplied in full conformance to the requirements specified by this PO.

07. "Manufacturer Approval"

Material supplied on this PO must be supplied from a manufacturer which has been approved by the PSCo Quality Assurance Department.

08. "Manufacturer QA Program"

Material supplied on this PO must be produced in accordance with the material manufacturer's quality assurance program which conforms to the applicable requirements of ASME Code, Section III.

09. "Manufacturer QA Program"

Material supplied on this PO must be produced in accordance with the material manufacturer's Quality Assurance program which conforms to the requirements of 10CFR50, Appendix B, and ANSI N45.2, latest issue.

10. "Marking-Material Specification"

Materials supplied on this PO shall be legibly marked in accordance with the requirements specified in the indicated material specification.

11. "Welding"

Welding shall be performed in accordance with the requirements of the indicated code/specification/ standard.

12. "Hydrostatic Tests"

Hydrostatic test records shall be furnished for the material supplied.

13. "Material Documentation"

A manufacturer's certificate of conformance to the indicated specification is required for the material supplied.

14. "Material Documentation"

A test report of actual chemical analysis is required for the material supplied.

15. "Material Documentation"

A test report of actual chemical analysis and a manufacturer's certificate of conformance to the indicated specification is required for the material supplied.

16. "Material Documentation"

A test report of actual chemical analysis for elements C, CR, MO, NI, MN, SI, P, S, V, CB+TA, TI & CU and a manufacturer's certificate of conformance to the indicated specification and to the Delta-Ferrite range specified are required for the material supplied.

17. "Material Documentation"

A test report of actual chemical analysis and physical test referencing the applicable material specification is required for the material supplied.

18. "Reporting Defects, Nonconformances or Deviations"

The item(s) or service to be furnished under this purchase order will be utilized in a nuclear generating station; it has the potential of being utilized in nuclear safety applications whose failure could result in substantially reducing safety margins. In furnishing item(s) or services hereunder, the seller is obligated to comply with the provisions of the Code of Federal Regulations, Title 10, Part 21 (10CFR21) and Section 206 of the Energy Reorganization Act of 1974 as amended.

Under the reporting provisions of 10CFR21 any defects, nonconformances or deviations from PO requirements, codes, standards or regulations which are identified and remain uncorrected prior to shipment or any such defects, nonconformances or deviations that are identified at any time after shipment may require a report to the Nuclear Regulatory Commission.

Since specific application of the item(s) or services to be furnished hereunder may vary, it may not be possible for the seller to perform an evaluation or determine reporting requirements. The seller shall immediately report to PSCo in writing any nonconformances which are identified in the item(s) or services furnished and remain uncorrected upon shipment or any nonconformances which are identified at any time after shipment.

An evaluation of reporting requirements for nonconforming items under the provisions of 10CFR21 will be performed by PSCo upon seller's notification. The results of this evaluation will be forwarded to the seller with PSCo's disposition. Under the evaluation PSCo assumes no responsibility for errors, omissions or negligence on the part of the seller.

Items for which uncorrected nonconformances have been identified prior to shipment shall not be shipped by the seller or turned over to the purchaser until authorization is obtained from PSCo.

19. "Nonconformances"

The seller shall report to PSCo, in writing (include any dispositioned nonconformance reports), any nonconformances which have been dispositioned "Repair" "Rework", or "Accept-As-Is" written against material/equipment on this PO. Such material/equipment shall not be shipped until written approval/disposition is obtained from PSCo. All nonconformance reports and written approval to ship shall be included as part of the "Quality Records" package.

20. "Marking - Part No"

All items supplied on this PO shall be legibly marked or tagged with this PSCo PO number and the part number or catalog number as shown on the PO for positive identification of the item(s). The marking method must not be deleterious to the item(s).

21. "Code/Specification Edition"

Unless otherwise noted on the PO all codes and specifications listed shall be the current edition, including addenda/revisions, in effect at the date of purchase.

22. "Fire Protection System Items"

Items supplied shall conform to the applicable National Fire Protection Association (NFPA) requirements. Equipment and materials utilized shall confirm to applicable UL requirements.

10CFR21 REPORTING REQUIREMENTS

10CFR21 reporting requirements shall be included on all purchase orders associated with the following two areas:

1. Materials and specially fabricated components whose use is unique to the nuclear industry.

   This definition shall be applied to the following items:

   a. All mechanical components associated with the control rod and orificing assemblies, including the control rods and shock absorbers.

   b. The steam generators inclusive of the inlet ring header and the outlet ring header.

   c. The helium circulators and the secondary module inclusive of the first circumferential piping weld.

   d. All graphite used inside the reactor vessel such as: reflector blocks, fuel blocks, core support floor, RSD boron balls, etc.

   e. All fertile and fissile fuel particles.

   f. All structural steel components used inside the reactor vessel.

   g. The PCRV liner.

   h. System 46 cooling tubes contained within the PCRV concrete.

   i. System 23 vessels which are: HTFA, LTA, Dryer, and H Getter, Gas-to-Gas Exchanger, and the Helium Purification Cooler.

2. Functional assemblies which are fabricated from "commercial grade" components whose use is unique to the nuclear industry.

   This definition shall be applied to the following items:

   a. All electrical assemblies associated with control and indication of the control rod and orificing assemblies.

   b. Any component/equipment contained with the PCRV concrete internal boundary (1).

c. The PCRV including concrete, tendons, cover plates, primary seals, secondary seals, penetrations, etc. (2).

d. The System 11 moisture monitor sensors and electronics (3).

e. All in-core nuclear monitors and electronics.

f. All Plant Protective System modules.

g. All parts designated as a pressure boundary on the Fuel Handling Machine, Reactor Isolation Valve, and the Auxiliary Transfer Cask.

Implementation of the Public Service Company of Colorado policy on 10CFR21 reporting requirements is expressed in the letter of notification to NRC, P-78142, and interdepartment memoranda LMM:HLB:44:78 on implementation of 10CFR Part 21.

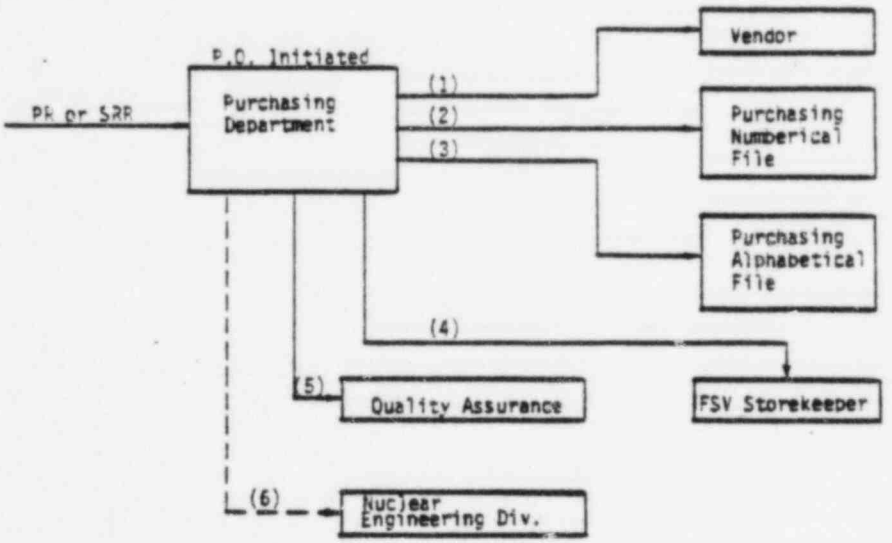
3. Clarification notes.

a. The words "...the PCRV concrete internal boundary" can be clarified as the PCRV liner.

b. Standard piping components used as primary pressure boundaries and not covered by other sections of this attachment are not included as requiring vendor compliance to Part 21.

c. The words "...sensors and electronics" can be defined as all assemblies required to maintain the function of the moisture monitors except for standard piping components. If a standard piping component is modified, then just this modification requires vendor compliance to Part 21.

P. O. DISTRIBUTION DIAGRAM



(1) Original of P.O. with one copy of enclosures.

(2) Goldenrod copy of P.O.

(3) Pink copy of P.O. with one copy of enclosures.

(4) Yellow, green and white copy of P.O. + pink (or Xerox) copy of P.O. or original of SRR with one copy of any enclosures.

(5) Copy of P.O. and one copy of any enclosures.

(6) Pink copy of P.R. and copy of P.O. when initiated by Nuclear Engineering Division and one copy of any enclosures.

FORM (A) 276-54-2651

IMPORTANT

PURCHASE ORDER

Show this No. on all Packages, Packing Lists, Shipping Papers and Invoices.

NO.

DENVER, COLORADO *SHIP TO ADDRESS SHOWN BELOW

COMMUNICATIONS RE THIS P.O. SHOULD BE DIRECTED TO

STRN

ATTN

*SHIP TO

ATTENTION

DATE WANTED

NOTE: DETAILED PACKING LIST MUST BE SUPPLIED WITH EACH DELIVERY.

ATTENTION PLEASE: WE RESERVE THE RIGHT TO CANCEL ALL OR ANY PART OF THIS ORDER IF SAME CANNOT BE FILLED IMMEDIATELY. RENDER SEPARATE INVOICE IN DUPLICATE FOR EACH ORDER AND MAIL TO PURCHASING DEPARTMENT IMMEDIATELY ON SHIPMENT OF GOODS. MAIL ORIGINAL BILL OF LADING, EXPRESS RECEIPT AND SHIPPING NOTICE TO TRAFFIC DEPARTMENT, AND COPIES TO DESTINATION.

FORWARD INVOICE IN DUPLICATE TO:
PURCHASING DEPARTMENT - P.O. BOX 840
DENVER, COLORADO 80201

BLANKET PO
SELLER INSTRUCTIONS

This Blanket Purchase Order is limited to the period _____ through _____.

Releases against this order will be administered only by:_____ or _____.

Normal Release - The PSCo administrator will forward the Purchase Order release directly to the Seller.

Confirming Release - The PSCo administrator will inform the Seller by phone that immediate service is required. The Purchase Order release will then be immediately forwarded to the Seller.

The Purchase Order number and release number must be shown on all invoices, shipping papers and quality documentation.

e.g. N-1097-001

PO # Release #

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

SEE INSTRUCTIONS ON BACK OF YELLOW AND GREEN COPIES

FORM (Q) 276-54-1350

MATERIAL RECEIVED REPORT

PURCHASE ORDER NUMBER | RELEASE

SHEET NO.

☐ Public Service Company of Colorado
☐ Cheyenne Light, Fuel and Power Company
☐ Western Slope Gas Company
☐ Home Light and Power Company

SELLER:

ADDRESS:

RECEIVED FROM (SHIPPER)

RECEIVED AT

SHIPPED FROM (SHIPPING POINT)

REC'D NUMBER OR SHIPPER'S ORDER NO.	QUANTITY RECEIVED: PRICE UNITS (POUNDS, GAL.)	QUANTITY RECEIVED: PACKAGING UNITS	UNIT PRICE	DESCRIPTION	PRICE

RECEIVING DEPARTMENT COPY

FREIGHT | GOOD | DAMAGED | BAR INITIALS & NO. OF PKT. SHIP NO. | PKT. SHIP DATE | PKT. SHIP AMOUNT

COLLECT | LOCAL

RECEIVED BY | DATE RECEIVED | OTHER P.O.'S | DATE TO STORES

REC'D NO.	DEPT. ACCOUNTS TO BE CHARGED: ACCT.	SUB	UNIT	GROSS WEIGHT	MCS REPORT DESCRIPTION (USE ONE LINE PER ACCOUNT)	QUAN.

PERIOD	VOUCHER NO.	TRANSPORTATION	POST. ACCT. NO.

TAX	TAX $ AMOUNT	AMOUNT

ENTER PURCHASE ORDER NUMBER

MATERIAL REC'D - TO STORES G.O.

FORM 372 - 22 - 3643

TITLE: CONTROL OF PROCURED MATERIALS AND SERVICES

ISSUANCE AUTHORIZED BY	L.W. Singleton 9/8/83 for J.W. Gahm	D.W. Warembourg 8/11/83	Lawrence Brey 8/19/83
PORC REVIEW	PORC 583 SEP 8- 1983		EFFECTIVE DATE 9-13-83

1.0 PURPOSE

This procedure describes the practices employed to assure the control of procured quality-related items.

2.0 APPLICABILITY

This procedure applies to all activities involved in supplier selection, supplier monitoring, item verification, receiving and controlling of quality-related procurements.

3.0 GENERAL REQUIREMENTS

Procurement practices, except as otherwise described herein, conform to PSCo General Instructions and Stores Department Handbook requirements and are required to assure that:

3.1 Adequate controls are employed, including as appropriate; supplier evaluation and selection, supplier furnished objective evidence of quality, source inspection and examination of delivered items to assure that such items conform to procurement document requirements.

3.2 Documented evidence of items conformance to procurement requirement is available prior to installation or use and is retained at the site.

3.3 Effectiveness of supplier/contractor controls are assessed at periodic intervals consistent with the importance/complexity of the item.

4.0 PROCEDURE

4.1 SUPPLIER SELECTION

4.1.1 Potential suppliers of safety-related items are evaluated by QA to verify the supplier's capability of performing to the potential procurement requirements. Attachment Q-7A is employed by QA as a guide in determining the most appropriate approach for approving potential suppliers for use by PSCo.

4.1.2 Prospective suppliers may be selected by any department. This selection, however, will be subject to the QA Department's determination as to whether or not the prospective supplier requires qualification and if so, whether or not the vendor meets the qualification requirements.

Should the prospective supplier fail to meet the qualification requirements, the initiator will be notified immediately.

4.1.3 Selection of suppliers for the following services may require coordination with Nuclear Engineering and Production organizations in addition to approval by QA:

Architect-Engineers	Contractor
Calibration Services	Repair Services
Nondestructive Examination	Technical Analysis
Decontamination Services	Testing Services
In-Service Inspections	Laboratory Analysis

4.2 SUPPLIER EVALUATION

4.2.1 When an on-site survey of a potential supplier is required, the extent of the survey required for item to be procured is determined by QA using Attachment Q-7B as a guide. Surveys are performed only to the extent required to detemine the suppliers capability of conforming to requirements of the potential PO.

4.2.2 When on-site surveys are determined to be necessary, the surveys are conducted by the QA Department under the direction of a certified lead auditor using the Attachment Q-7C Checklist, as applicable, for quality capability determinations.

4.2.3 An Approved Supplier List for Quality-Related Procurements is maintained by the Superintendent of QA Services (SQAS) which is made available to Nuclear Engineering Division (NED), Nuclear Production Division, Stores, Purchasing, and the Storekeeper.

4.3 SUPPLIER QA SURVEILLANCE

4.3.1 The SQAS assures that source inspections, hold point or witness point inspections/verifications are performed by QA at the supplier facilities, or contractor work locations in accordance with PO provisions.

4.3.2 QA Audits may be scheduled by the SQAS during periods of supplier/contractor performance as necessary to verify conformance to PO requirements when:

a) Duration of supplier/contractor performance exceeds six months and no source or hold point inspections have been scheduled; or

b) Indications surface concerning existence of quality problems or delays in meeting PO requirements; or

c) Changes in the supplier's address, ownership or QA management have occurred; or

d) Requested by Purchasing, Production or NED.

4.4 MATERIAL RECEIVING

All receiving activities will be performed at the Receiving Warehouse except when an item's physical characteristics cause such actions to be impractical.

4.5 GENERAL RECEIVING

The Storekeeper or his authorized delegate;

4.5.1 Informs QA/QC of material receipt to allow for inspection prior to and during opening of the packaging if specific packaging requirements are specified in the Purchase Order.

4.5.2 Examines received material for damage, correct quantity, and item identification in accordance with FSV-STD-2.

NOTE: Minor quantity differences in the case of items such as random lengths, over/under shipment of small items, fixed lot shipment, etc., may be processed in accordance with Stores Department procedures without issuance of a Supplemental PO.

4.5.3 Informs QA/QC of receipt of damaged material. QA/QC inspects material and tags damaged material with "Reject" tags. Storekeeper places rejected material in a segregated area and dispositions damaged material in accordance with Stores Department Handbook practices.

4.5.4 Tags remaining material with the ID tags (Attachment Q-7D), notes the ID tag number on the material acknowledgement form and places the items in a segregated area for the QA receiving inspection.

4.5.5 Prepares a material acknowledgement (yellow copy of the PO) if shipped complete or a Material Received Report (Attachment Q-7G) when partial shipments are received in accordance with Company practices and retains it until the completed Receiving Inspection Report (RIR) (Attachment Q-7E) is received.

4.5.6 Implements the disposition of Nonconformance Reports issued for nonconforming items (Refer to Section 4.6 of this procedure) and returns the material to the vendor and/or reorders new material or scraps the material as appropriate.

4.6 QA/QC RECEIVING INSPECTION

A general receiving inspection is performed by QA/QC utilizing a copy of the P.O. and appropriate procedures or checklists, when required to verify that PO requirements have been satisfied.

In instances when certain material or items may require special inspection procedures or the assistance of qualified plant or NED personnel to adequately perform an inspection, the QA/QC Supervisor is responsible for obtaining such assistance. All inspections are documented on the RIR.

4.6.1 For items found to be acceptable; the Inspector,

a) Completes, signs and dates the RIR.

b) Signs and dates the ID Tag.

c) Forwards a copy of the RIR to the Storekeeper.

4.6.2 For items lacking required documentation; the Inspector:

a) Documents details of problem on RIR.

b) Initiates action required to solve the problem.

c) Leaves ID Tag whole and unsigned indicating that there is a problem with item.

d) Enters the item on the "QA/QC Receipt Inspection Material Hold Status" log.

e) On receipt of required documentation; completes, dates and signs RIR and IR Tag and removes item from the "QA/QC Receipt Inspection Material Hold Status" log.

4.6.3 For Non-conforming items, the Inspector:

a) Documents details of problem of RIR.

b) Initiates an NCR per Procedure Q-15.

c) Issues a "hold" tag (Attach. Q-7F) detailing problem.

d) If item is determined to be unusable per disposition on NCR, tag with "Reject" Tag (Attach. Q-7F) and notifies the Storekeeper of Non-conformance specifics.

e) On completion of evaluation actions, completes, dates and signs the RIR and ID tag.

4.6.4 Emergency disbursement of inspected but uncertified material shall be issued per the requirements of P-5 and documented on a NCR per the requirements of Q-15.

4.6.5 QA Services shall issue the "QA/QC Receipt Inspection Material Hold Status" log, containing all items on hold, a minimum of once a month. The log shall document all problems with "on hold" items, referencing appropriate CN's, NCR's and responsibilities.

4.6.6 On release of acceptable items, the Inspector accumulates the QA P.O. record file as described in the Material Receipt Inspection Manual and forwards it to the Records Center for retention.

5.0 REFERENCE

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"
5.2 ENG-1, "Control of Changes and Modifications"
5.3 FSV-STD-2, "Receiving, Storage, Handling and Cleanness During Warehouse Activities at Fort St. Vrain"
5.4 Stores Department Handbook
5.5 Procedure Q-15, "Control of Nonconforming Item"
5.6 "Material Receipt Inspection Manual" (MRIM)
5.7 Procedure P-5, "Material Control"

6.0 ATTACHMENTS

Q-7A Supplier Approval Logic Chart
Q-7B Survey Elements Applicability Chart
Q-7C Supplier QA System Evaluation Form
Q-7D Material ID Tag
Q-7E Receiving Inspection
Q-7F QA Hold and Reject Tags
Q-7G Material Received Report

SUPPLIER APPROVAL LOGIC CHART

1. Requirement for procurement established.

2. QA: Analyze potential PO quality requirements and identify supplier capabilities required.

   a. Is this a safety-related item?

      NO
      YES

   b. Can conformance be verified adequately by inspection on receipt?

      NO
      YES

   c. Is potential supplier approved for this item?

      NO
      YES

   d. Is potential supplier approved by NRC, CASE or ASME for this item?

      NO
      YES

   e. Is recent objective evidence of acceptable supplier performance available for this type of item?

      NO
      YES

   f. Perform or obtain on-site survey of supplier capability. Does problem exist?

      NO
      YES

   g. Can problem be resolved by use of specific PO provision(s)?

      NO
      YES

   h. Notify PR initiator procurement requires use of alternate approved source or negotiation of required corrective action controls.

3. Use of supplier approved.

FORM 372-22-3643

SUPPLIER SURVEY ELEMENTS APPLICABILITY CHART

SURVEY ELEMENTS
Applicable to Various Suppliers

10 CFR 50 Appen. B Criterion No.	DISTRIBUTOR OR WAREHOUSE	MATERIAL MFR.	FOUNDRY OR FORGE	MACHINE SHOP	COMPONENT MANUFACTURER/ CONSTRUCTOR/ FABRICATOR "N" STAMP	TEST LAB/ NDE	ENGINEERING SERVICES	ELECTRONIC MFR.s OF		
								COMPO-NENT	EQUIP-MENT	SYSTEM
1	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X
3			P		X		P	P	X	X
4	P		P	P	X	P			P	P
5	X	X	X	X	X	X	P	X	X	X
6	P	X	X	X	X	X	P	P	X	X
7	X		P	P	X			P	P	X
8	X	X	X	X	X	X		X	X	X
9	P	X	X	P	X	X	P	P	P	X
10	X	X	X	X	X	X	X	X	X	X
11					X		P	X	X	X
12	P	X	X	X	X	X	P	X	X	X
13	X	X	P	X	X	X		X	X	X
14				X	X	X		X	X	X
15	X	X	X	X	X	X		X	X	X
16	P	X	X	X	X	X			P	X
17	X	X	X	X	X	X	X	X	X	X
18	P	X	P	P	X	X	X	X		P
NCA-1000	X	X	X		X					

P=POSSIBLY APPLIES - DEPENDENT UPON PRODUCT CRITICALITY OR COMPLEXITY.

PUBLIC SERVICE COMPANY OF COLORADO

SUPPLIER SURVEY CHECKLIST

☐ FACILITY SURVEY
☐ QA MANUAL REVIEW ONLY

SUPPLIER DATA:	SURVEY DATA:
NAME:	DATES:
FACILITY ADDRESS:	SURVEY BY:
CITY & STATE:	STATED SYSTEM LEVEL:
ZIP CODE:	EVALUATED SYSTEM LEVEL:
PHONE NO:	QA SYSTEM MEETS REQTS:

FACILITY INFORMATION:

PRINCIPAL PRODUCT OR SERVICE: _____

WORK DISTRIBUTION:

NUCLEAR ___ % NONNUCLEAR ___ %

CIVIL ___ % ELECTRICAL ___ % MECHANICAL ___ % I&C ___ %

UTILITIES ___ % GOVERNMENT ___ % OTHER ___ %

CODE STAMPS AND AUTHORIZATIONS: _____

NO OF INSPECTORS (I) _____ NO OF PRODUCTION WORKERS (P) _____ RATIO (I/P) _____

TOTAL NO OF PERSONNEL IN QUALITY ASSURANCE (INSPECTORS INCLUDED) _____

TOTAL NO OF PERSONNEL AT FACILITY INCLUDING QA _____

KEY SUPPLIER PERSONNEL:

SENIOR COMPANY OFFICIAL: _____	
SENIOR QA DEPT OFFICIAL: _____	
OTHER KEY COMPANY PERSONNEL: _____	
_____	
_____	

SURVEY TEAM INFORMATION:

	NAME	TITLE	DISCIPLINE
TEAM LEADER:			
TEAM MEMBER:			

REV. 0 2/15/74

SHEET 1 OF 2

FORM 372 - 22 - 3643

SUPPLIER QUALITY ASSURANCE

SYSTEM EVALUATION

EVALUATION SUMMARY

SECT NO	SYSTEM ELEMENT	LEVEL & ADEQUACY B	LEVEL & ADEQUACY N	COMMENTS
A	General			
1	Organization			
2	Quality Assurance Program			
3	Design Control			
4	Procurement Document Control			
5	Instructions, Procedures and Drawings			
6	Document Control			
7	Control of Purchased Material, Equipment and Services			
8	Identification and Control of Materials, Parts and Components			
9	Control of Special Processes			
10	Inspection			
11	Test Control			
12	Calibration of Measuring and Test Equipment			
13	Handling, Storage, Shipping and Preservation			
14	Inspection, Test and Operating Status			
15	Nonconforming Materials, Parts or Components			
16	Corrective Action			
17	Quality Assurance Records			
18	Audits			
19	Other			

SUMMARY COMMENTS OF EVALUATOR:

KEY TO SPECIFICATION LEVEL:

B – ASC 10 CFR [illegible]

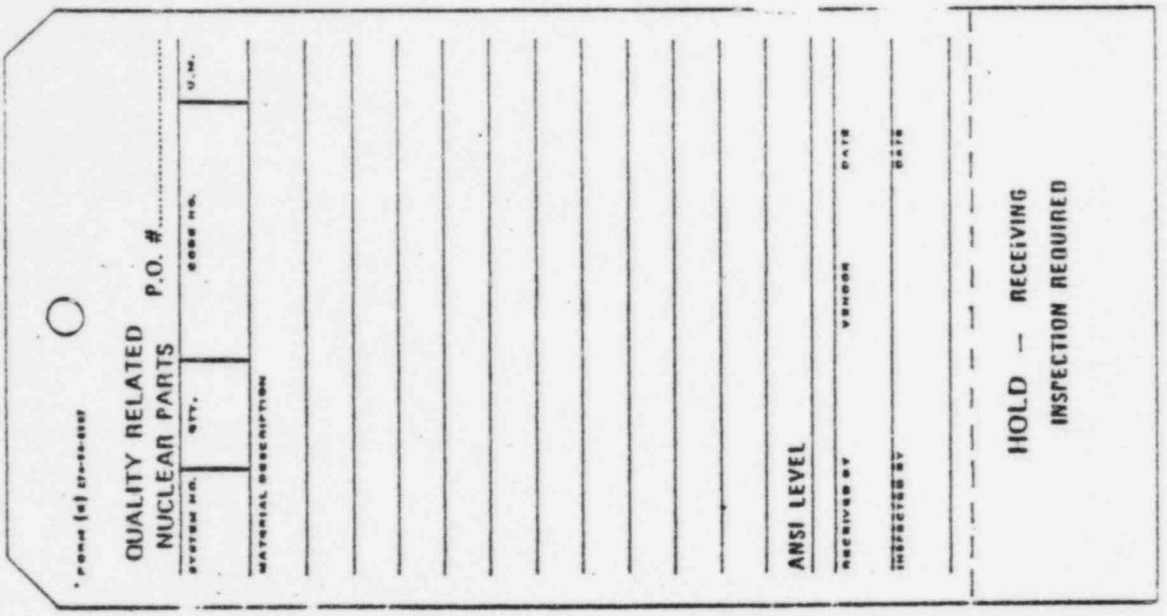
N – ANSI N45.2

EVALUATOR'S SIGNATURE AND DATE

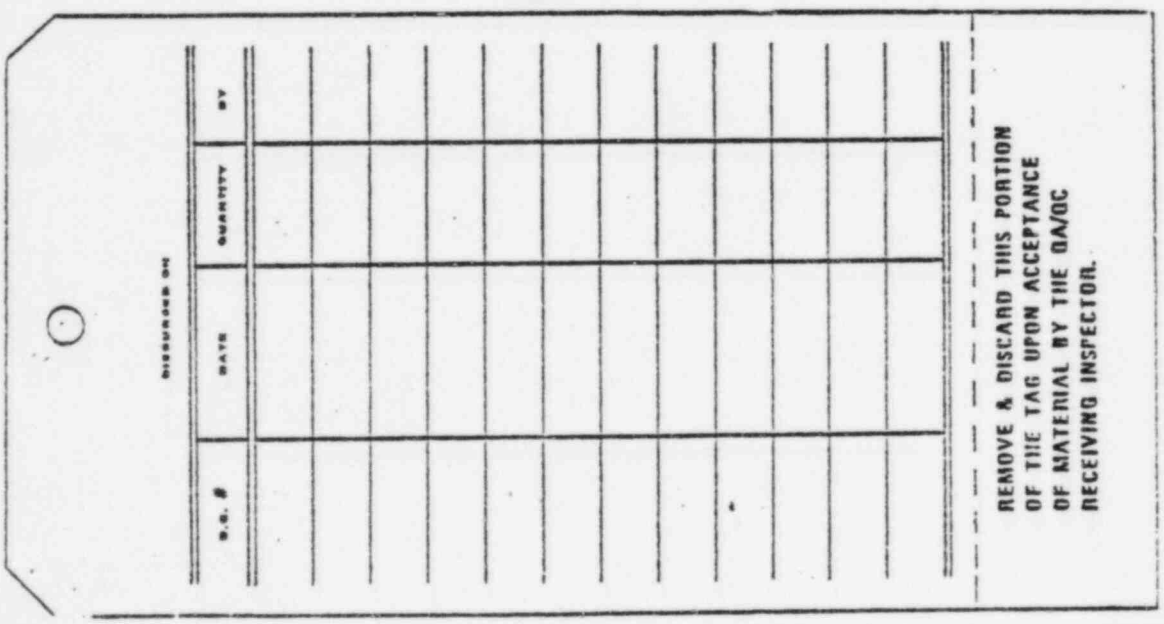
SHEET 2 OF 2

FORM 372 - 22 - 3643

FRONT



BACK



FORM 372 - 22 - 3643

FORM (B) 372 - 84 - 2707

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION
RECEIVING INSPECTION REPORT

MAT'L. REC'D. DATE	P.O. NO.
SUPPLIER	MFGR.
MATERIAL	

INSPECTION POINT	A	R	NR	COMMENT #
1) PHYSICAL DAMAGE INCLUDING FIRE, EXCESSIVE EXPOSURE, ROUGH HANDLING, TIE DOWN FAILURE, ETC.				
2) CORRECT IDENTIFICATION AND MARKING				
3) ACCEPTABLE CLEANLINESS LEVEL				
4) ADEQUATE PROTECTIVE COVERS, SEALS, PRESERVATIVES & COATINGS				
5) CORRECT PART NUMBERS				
6) CORRECT PHYSICAL PROPERTIES				
7) ACCEPTABLE DIMENSIONS				
8) ACCEPTABLE WORKMANSHIP				
9) ACCEPTABLE DOCUMENTATION				
10) CORRECT CONFIGURATION				
11) ACCEPTABLE TEST RESULTS				
12) SUPPLIER PERFORMANCE				
13) QUALIFIED SUPPLIER VERIFIED				
14) PACKAGING, SHIPPING & HANDLING				
15)				

COMMENTS: _____

☐ ACCEPT - PS/PO COMPLETE
☐ HOLD - SEE COMMENT # _____
☐ HOLD - SEE NCR # _____
☐ REJECT - RETURN TO SUPPLIER
HOLD TAG # _____
REJECT TAG # _____

QA/QC INSPECTOR _____ (SIGNATURE) _____ (DATE)

P.O. CLEARED: _____

_____ (SIGNATURE) _____ (DATE)

FORM 372 - 22 - 3643

FORM 372-22-3643

HOLD Nº 00007

P.O. Number _____

Material Description _____

Remarks _____

By _____ DATE _____

Reference _____

Disposition _____

Disposition Completed

by _____ DATE _____

Verified

by _____ QA/QC _____ DATE _____

RETURN TAG TO QA/QC DEPARTMENT
PSCO - QA DEPARTMENT
FORT ST. VRAIN STATION
FORM 372-30-3199

QA HOLD TAG

REJECT Nº 00007

P.O. Number _____

Material Description _____

Disposition

☐ Return to Supplier
☐ Scrap
☐ Other _____

Disposition Completed

by _____ DATE _____

Verified

by _____ QA/QC _____ DATE _____

RETURN TAG TO QA/QC DEPARTMENT
PSCO - QA DEPARTMENT
FORT ST. VRAIN STATION
FORM 372-30-3199

QA REJECT TAG

QA HOLD AND REJECT TAGS

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

Attach. Q-7F
Issue 5
Page 1 of 1

SEE INSTRUCTIONS ON BACK OF YELLOW AND GREEN COPIES

FORM IP 276-84 1380

MATERIAL RECEIVED REPORT

PURCHASE ORDER NUMBER

PAGE NO.

Public Service Company of Colorado
Cheyenne Light, Fuel and Power Company
Western Slope Gas Company
Home Light and Power Company

SELLER

ADDRESS

RECEIVED FROM

RECEIVED BY

CHARGE TO (SHIPPING POINT)

ITEM NUMBER OF PURCHASE ORDER NO.	QUANTITY RECEIVED SHIPPED UNITS (STORES UNITS)	PURCHASE UNITS	UNIT PRICE	DESCRIPTION	PRICE

ITEM NO.	ACCOUNT	MCS REPORT DESCRIPTION	TAX	TAX CODE	AMOUNT

ENTER PURCHASE ORDER NUMBER

MATERIAL RECD - TO STORES G.O.

FORM 372 - 22 - 3642

TITLE: IDENTIFICATION AND CONTROL OF MATERIALS PARTS AND COMPONENTS

ISSUANCE AUTHORIZED BY	11-20-80	12/3/80	12/5/80
PORC REVIEW	PORC 391 DEC 16 1980		EFFECTIVE DATE

1.0 PURPOSE

This procedure describes the FSV practices for assuring required identification and control of quality-related items.

2.0 APPLICABILITY

This procedure applies to all activities involved in designing, modifying, procuring, stocking, maintaining, repairing, replacing or inspecting quality-related items.

3.0 GENERAL REQUIREMENTS

Practices employed are required to assure that:

a) All quality-related items, including partially fabricated assemblies, are uniquely identified and controlled either by markings on the item or by records traceable to the item.

b) The use of incorrect or defective materials, parts or components will not occur.

4.0 PROCEDURE

4.1 PROCURED ITEMS AND SERVICES

PO instructions provided per Procedure Q-4 specify requirements for identifying purchased items, including procurements by contractors. Conformance to the requirements are verified on receipt at FSV by the Storekeeper and QA/QC.

4.2 STOCK ITEMS

Items forwarded to stock are identified with QA/QC approved ID tags (Attachment Q-7D) prior to release to controlled stock areas. The Storekeeper is required to maintain records assuring traceability of stock materials to respective POs and associated documentation until the records are subsequently transferred to the Records Center.

4.3 NON STOCK ITEMS

Items not intended for stock are ID tagged by the Storekeeper, and the tags approved by QA/QC after receiving acceptance. The items are disbursed by the Storekeeper as described by Procedure P-5.

4.4 DISBURSED STOCK ITEMS

Stock items are disbursed as described by Procedure P-5.

4.5 RETURN OF ITEMS TO STOCK

New material (temporarily removed from stock), used, rebuilt, and any other previously nonstocked material may be placed in stock as follows:

a) The person returning material is responsible for:

1) Informing QA/QC of the intent to place materials in stock.

2) Assuring completion of any required tests or special inspections.

3) Returning the material, along with required documentation and the white copy of the DC, when available, to the Storekeeper.

b) The QA/QC Representative is responsible for:

1) Advising the person returning the material of any required tests or special inspections necessary to verify conformance to applicable specification requirements.

2) Documenting the evaluation which established the required tests and inspections on the Quality-Related Material Checklist.

3) Performing or arranging for necessary receiving inspections.

4) Establishing cleanness, packaging, shipping, receiving, storage, and handling requirements using Standard FSV-STD-1.

5) Forwarding the completed documentation to the Plant Storekeeper.

c) The Storekeeper is responsible for:

1) Upon receipt of "temporarily disbursed" NEW material, attaching the original copy of the "Hold" DC, marked "Returned" to the completed QA documentation package and filing it with the PO records.

2) Upon the receipt of USED, REBUILT or NONSTOCK material;

i) Processing the "Material Returned to Stores" Form;

ii) Assigning a (N-) PO number from the block of special numbers, i.e. N-10000 to N-19999;

iii) Completing the storekeeper's receiving activities and notifying QA/QC for final disposition.

4.6 UNUSED MATERIALS

Unused items which cannot qualify for return to stock under paragraph 4.5 are treated as nonconforming items, destroyed or disposed of in accordance with applicable requirements.

4.7 OBSOLETE MATERIALS

Obsolete materials must be removed from stock and either destroyed, defaced, tagged or removed from the site to prevent use in quality related service. Traceability of such materials shall be maintained by including a copy of the disposition form (DC, Request for Depreciation, etc.) with the completed ID tag prior to transmittal to the Records Center in accordance with the requirements of procedure P-5.

5.1 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"
5.2 FSV-STD-1, "Cleanness, Packaging, Shipping, Receiving, Storage and Handling Associated with Quality-Related Procurement"
5.3 Procedure Q-4, "Procurement Document Control"

6.0 ATTACHMENTS

NONE

TITLE: CONTROL OF SPECIAL PROCESSES

ISSUANCE AUTHORIZED BY	J W Gahm 5-16-83	Don Warembourg 5-27-83	D. L. Bray by 6-7-83 M J Holmes
PORC REVIEW	PORC 523 JUL 1 1983		EFFECTIVE DATE 7-8-83

1.0 PURPOSE

This procedure describes the practices employed to assure control of safety-related special processes.

2.0 APPLICABILITY

This procedure applies to all activities involving design, procurement, modification, maintenance, rework, repair, fabrication, testing and inspection involving welding and NDE processes.

3.0 GENERAL REQUIREMENTS

Practices employed are required to assure that special processes are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria or other special requirements.

4.0 PROCEDURE

4.1 WELDING CONTROL

All welding of Code or safety-related items is performed to the FSV Welding Manual (WM) developed by QA Services. The WM is approved by both the SQAS and the Station Manager. Issuance of the WM is in accordance with Procedure G-2.

4.1.1 The WM procedures preparation and qualification require that:

a) The WM conforms to the format indicated by Attachment G-2B.

b) The procedure for each application conforms to the requirements of applicable codes, specifications and standards; and if established, to proven welding practices.

c) Essential and nonessential welding variables, as defined by the ASME Code, Section IX are identified.

d) Welding of test coupons is witnessed by a QA representative.

e) The qualification test for each procedure is conducted in accordance with ASME Codes .

f) When appropriate test coupons are radiographically examined and tested in accordance with ASME Codes.

g) Not until satisfactory completion of the required qualification tests, may the WM procedure be approved and distributed.

4.1.2 Welder Performance Qualifications

Welder qualifications are conducted in accordance with the WM. Qualification specimens are radiologically, physically and/or metallurgically tested in accordance with the governing code(s). Upon satisfactory completion of the required tests, a completed Welder's Qualification Record is approved and distributed along with the updated welder's qualification log.

4.1.3 Weld records generated are maintained in the Records Center.

4.2 CONTROL OF NONDESTRUCTIVE EXAMINATION PROCESSES

4.2.1 Certification Requirements

QA/QC personnel involved in nondestructive examination of safety-related activities shall be qualified to the requirements of QCIM-4

4.2.2 Preparation and Review of NDE Procedures

The SQAS assures that:

a) All NDE procedures required for work performed on site are prepared by PSCo or contractor personnel.

b) The PSC Level III Examiner or a Level III outside source is responsible for review and approval of all site PSC NDE procedures.

c) Vendor NDE procedures are reviewed and approved by PSCo Quality Assurance when such reviews are specified in the procurement documents. PSC QA personnel are to be certified to a minimum Level II for the applicable method.

4.3 OTHER SPECIAL PROCESSES

If future maintenance or modification activities should invoke the use of additional special processes affecting safety-related items, the Nuclear Engineering Division (NED) will be required to identify and specify the appropriate specification to assure quality of the work performed.

5.0 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"
5.2 ASME Code, Section VIII Division I, "Pressure Vessels"
5.3 ASME Code, Section IX, "Welding and Brazing Qualification"
5.4 SNT-TC-1A, "American Society for Nondestructive Testing Recommended Practice"
5.5 FSV Specification 1-M-2, "Piping System"

6.0 ATTACHMENTS

NONE

TITLE: INSTRUCTION

ISSUANCE AUTHORIZED BY	J.W. Gahm 4/1/83	Don Warembourg 4-19-83	Lawrence Brey 4/29/83
PORC REVIEW	PORC 520 JUN 6-1983		EFFECTIVE DATE 6-13-83

1.0 PURPOSE

This procedure describes the inspection program and practices for FSV safety-related items.

2.0 APPLICABILITY

This procedure applies to organizations and supporting activities including contractors, who are required to identify, verify conformance to requirements, or determine the status of safety-related items. This procedure does not apply to Technical Specification surveillance activities.

3.0 GENERAL REQUIREMENTS

3.1 Inspection practices employed are required to assure that:

| 3.1.1 A continuing program is maintained and employed for inspection of work affecting quality.

| 3.1.2 The inspections ascertain conformance of work to governing documented procedures, instructions or drawings.

| 3.1.3 Inspections are performed by individuals other than those who perform the work being inspected.

| 3.1.4 Examinations, measurements or tests are performed for each work operation as necessary to verify conformance.

| 3.1.5 Required inspections are planned and scheduled in applicable work control documents.

| 3.1.6 If inspection of processed material or items is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel are provided. Both inspection and process monitoring are provided when control is inadequate without both.

4.0 PROCEDURE

The inspection program applies emphasis to areas and activities commensurate with the importance to safety and operational reliability. The Superintendent of QA Services (SQAS) is responsible for the adequacy and effectiveness of that portion of the inspection program that relates to procurement, contracted activities, modification welding and non-destructive examination work. The Maintenance QC (MQC) Supervisor is responsible for the adequacy and effectiveness of that portion of the inspection program that relates to maintenance activities.

4.1 PROCUREMENT INSPECTION

4.1.1 Procurement document reviews by QA in accordance with Procedure Q-4 assures that appropriate inspection requirements are identified and specified in PO's for procured items and services.

4.1.2 Evaluations of potential suppliers' or contractors' capability to satisfy specified inspection requirements are required by Procedure Q-7.

4.1.3 Procurement document reviews by QA require that any appropriate source inspection requirements or monitoring of contractor activities including inspection hold points or witnessing of operations be identified and specified in the PO.

4.1.4 Required source or on-site inspections are performed by inspectors qualified to the Functional Capability Level specified by the source inspection instruction. Inspections are conducted and documented in accordance with source inspection instructions.

4.1.5 Received items are inspected by inspectors qualified to Functional Capability Level II (unless otherwise specified by the receiving inspection instruction) as required by Procedure Q-7.

4.1.6 Functional Capability Levels are described by Procedure G-7, Attachment G-7B.

4.2 MODIFICATION AND NONROUTINE MAINTENANCE INSPECTION

4.2.1 All safety-related modification and selected nonroutine maintenance work performed is prescribed by Controlled Work Procedures (CWP).

4.2.2 Prior to issue, CWP's are reviewed by QA/QC to ensure the inclusion of requirements for the performance of any appropriate inspections or witnessing of events for items requiring conformance verification. The reviewer specifies the organization and Functional Capability Level, if other than Level II, responsible for performing the verifications, and assures provisions for documentation of the verification results for record purposes. The reviewer signs and dates the CWP to indicate approval of quality provisions.

4.2.3 Completed CWPs are reviewed by QA/QC to verify that required inspections/observations have been performed and that documenation thereof is satisfactory.

4.3 MAINTENANCE INSPECTION

4.3.1 Scheduled Routine Maintenance, Results Engineering and Surveillance Testing activities are performed in accordance with established procedures as authorized by Procedure G-2, Attachment G-2A.

4.3.2 Unscheduled Routine Maintenance is performed as described by Procedure P-7 and is authorized by Plant Trouble Reports (PTR) or Maintenance Procedure Control Forms which, based on complexity of maintenance to be performed, may require that:

a) Work and inspections be performed to an existing established procedure, or

b) A CWP or regular maintenance procedure be developed to prescribe work and inspections, or

c) If repair of a nonconforming item is involved, the work may be authorized and performed to Nonconformance Report instructions per Procedure Q-15.

4.3.3 PTR's and new/revised maintenance procedures except those for welding are reviewed by MQC to identify and specify required inspections and to assure provisions for documentation of inspection results.

4.3.4 Required inspections except for welding are performed by MQC inspectors qualified to Functional Capability Level I as appropriate for the inspections to be performed.

4.3.5 Completed documents are reviewed by MQC to verify that required inspections/observations have been performed and that documentation thereof is satisfactory.

4.3.6 Welding QC coverage is assigned to QA/QC.

4.4 CONTRACTOR INSPECTIONS

4.4.1 Procurement document reviews by QA in accordance with Procedure Q-4 assure that appropriate:

a) Requirements for inspection by the contractor are specified, and that,

b) Provisions for inspection hold points and surveillance requirements by PSCo are included, if appropriate.

4.4.2 QA/QC monitoring and required PSCo inspections are performed by QC personnel qualified to the Functional Capability Levels required for the activity.

4.5 QUALIFICATION OF INSPECTORS

Qualification of QA/QC/MQC personnel is prescribed by Procedure G-7, Attachment G-7B.

4.6 INSPECTION STAMPS

4.6.1 Inspection stamps may be used in lieu of an Inspector's signature or initials.

4.6.2 Control Inspection stamps shall be defined in Level II procedures.

4.6.3 Logs or lists showing stamp numbers and the corresponding inspector's signatures and initials shall be maintained.

4.6.4 Inspectors are responsible for the control of inspection stamps that are in their possession.

5.0 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation."
5.2 Q-4, "Procurement Document Control"
5.3 Q-7, "Control of Procured Items"
5.4 Q-15, "Control of Nonconforming Items"
5.5 G-7, "FSV Project Personnel Training and Qualification Programs."

6.0 ATTACHMENTS

None

TITLE: TEST CONTROL

ISSUANCE AUTHORIZED BY	12-2-81	12-5-81	12/14/81
PORC REVIEW	PORC 444 DEC 22 1981		EFFECTIVE DATE 12-29-81

1.0 PURPOSE

This procedure describes the testing program and practices employed at the FSV Nuclear Generating Station for safety-related items.

2.0 APPLICABILITY

This procedure applies to all activities involved in the designing, prescribing, scheduling, performing and verifying of tests required to demonstrate the conformance of safety-related items to specified requirements.

3.0 GENERAL REQUIREMENTS

Testing practices employed on safety-related items are required to assure that:

a) All structures, systems and components; whether maintained, modified, repaired, reworked or replaced; perform in accordance with expected requirements.

b) All testing is performed in accordance with written procedures incorporating requirements, and acceptance limits specified by design or other appropriate documents.

c) The program provides for, as appropriate, proof tests, pre-operational tests, and operational tests.

d) Test procedures provide for assuring that all testing prerequisites for a given test have been met, that adequate test instrumentation is used and that the test is performed under suitable environmental conditions.

e) Test results are documented and evaluated to assure test requirements have been satisfied.

4.0 PROCEDURE

4.1 SURVEILLANCE TESTING PROGRAM

A surveillance testing program, as specified by the Technical Specifications, is performed in accordance with approved Surveillance Test Procedures.

4.2 TESTS REQUIRED BY MODIFICATIONS OR NONROUTINE MAINTENANCE

4.2.1 The need for Cold Checkout Tests (CCT's) and Functional Tests (FT's), relating to CN installation via CWP's, is identified by Technical Services and verified by the Work Review Committee. Technical Services coordinates the preparation of CCT's and FT's with appropriate organizations.

4.2.2 Tests required as a consequence of modifications are identified and specified by NED in Change Notice (CN) documents.

4.2.3 CN's are reviewed by QA Services to verify incorporation of appropriate testing requirements.

4.2.4 Controlled Work Procedures, (CWP) developed to facilitate implementation of the CN, or perform selected nonroutine maintenance, are reviewed by QA Services to identify and specify any appropriate test witnessing or data verification requirements.

4.2.5 Completed CN documentation reviews by QA/QC verify performance and acceptance of all required tests.

4.3 ROUTINE MAINTENANCE TESTS

Tests, as appropriate, are performed by maintenance organizations during the course of normal maintenance. Such tests are prescribed in maintenance or surveillance procedures or are scheduled as described by Procedure P-6.

4.4 NONROUTINE OR SPECIAL TEST

Tests not covered by paragraphs 4.1, 4.2 and 4.3 are occassionally determined to be necessary. Such tests may be appropriate to verify equipment or component conformance to requirements following rework/repair, to

perform a failure analysis to determine cause of a failure, or to determine the extent of performance deterioration of in-service equipment or components. Such tests are requested and authorized as follows:

RESPONSIBILITY	ACTION
TEST REQUESTOR	1. If other than the department responsible for performing the test, prepares an Action Request (AR) as described by Procedure G-3. A "Request for Test" Attachment Q-11A form is prepared and attached to the AR.
RESPONSIBLE DEPARTMENT	2. On receipt of AR, and subsequent to review by Technical Services; or an identification of a requirement for a test, initiates action to develop or obtain the required test procedure using Attachment Q-11A.
DEPARTMENT RESPONSIBLE FOR PROCEDURE PREPARATION	3. Develops required procedure in the format and headings, as appropriate, as described by Procedure G-2, Attachment G-2B.
	4. Obtains approvals as required by Procedure G-2, is appropriate.
PLANT CLERICAL	5. Sends approved procedure copy to responsible department.
RESPONSIBLE DEPARTMENT	6. Assigns Test Conductor.
TEST CONDUCTOR	7. Obtains Test Procedure.
	8. Reviews Procedure including Data Sheets with persons involved in the test.
	9. Obtains Clearance (Procedure P-2) and/or Radiation Work Permit (Procedure P-1) if required.
	10. Obtains Department and Shift Supervisor's signatures documenting permission to initiate the test. The Shift Supervisors' signature verifies that:
	a) Plant conditions necessary for

performance of the test have been met.

b) Required Operations personnel are on duty and have been informed the test is to be performed.

c) Performance of the test will not result in violation of the Technical Specifications.

d) Appropriate clearance/ Radiation Work Permits have been provided, if required.

11. Assembles required test equipment, special tools and items specified by the test procedure.

12. Conducts test in accordance with the procedure requirements. Assures that all procedure spaces or data sheet blanks are properly checked or explained and required signatures, initials, dates and data are obtained for each page of the procedure.

13. Promptly informs Shift Supervisor and Department Supervisor of any deficiencies found during the test.

14. Prepares a Plant Trouble Report in accordance with Procedure P-7, as appropriate for any deficiencies.

15. Conducts retest after repair of any deficiencies, if required.

16. Compares test results with specified acceptance criteria and determines acceptability of tested item.

17. Prepares Test Report, if required.

18. Submits test Data Sheets Report to department representative and to the department supervisor for review, evaluation and approval.

DEPARTMENT REPRESENTATIVE/SUPERVISOR

19. Reviews Data Sheets and evaluates the results, any reported deficien-

cies/malfunctions and Test Conductor's conclusions.

20. Assures that any "Procedure Changes" Sheet entries are submitted for PORC review within 14 days of their approval.

21. Resolves any questions with Test Conductor and approves Data Sheets. The approval signature verifies acknowledgement of the deficiencies and that any required actions have been taken and logged as appropriate.

22. Forwards to Shift Supervisor.

SHIFT SUPERVISOR

23. Takes appropriate action, whenever required by reported deficiencies or malfunctions. Signs Test Report and forward to responsible supervisor.

RESPONSIBLE SUPERVISOR

24. Forwards to Superintendent, Operations for review and approval.

SUPERINTENDENT, OPERATIONS

25. Routes to Station Manager for review and approval, if deficiencies are documented; otherwise procedures are routed to Technical Services.

STATION MANAGER

26. Reviews and signs Data Sheets/Test Report with documented deficiencies or malfunctions. Indicates if the nature of the deficiencies required reporting to NRC and specifies the type of report to be filed. Routes procedures to Technical Services Supervisor.

TECHNICAL SERVICES

27. Completes Technical Services actions and forwards to Records Center.

5.0 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation"
5.2 Technical Specification, Section 5, "Surveillance Requirements"
5.3 Procedure G-2, "FSV Procedure Systems"

5.4 Procedure G-3, "Action Request-Preparation and Processing"
5.5 Procedure P-1, "Plant Operations"
5.6 Procedure P-2, "Equipment Clearances and Operations Deviations"
5.7 Procedure P-7, "Work Control - Maintenance"

6.0 ATTACHMENTS

Q-11A Request for Test Form

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TEST

TEST REF. NO. _____
SYST. REF. NO. _____
PAGE 1 OF _____

PREPARED BY: _____ _____ (DATE)

REVIEWED BY: _____ _____ (DATE)

CONCUR WITH SAR: ☐ YES ☐ NO _____ (TECHNICAL SERVICES) _____ (DATE)

ISSUE 1 REVIEWED, PORC # _____ _____ (DATE)

APPROVED & ISSUED: _____ (SIGNATURE) _____ (DATE)

SAFETY SIGNIFICANT: ☐ YES ☐ NO NFSC REVIEW: _____

RECORD AND CONTROL OF ISSUE

ISSUE NO.	PREPARED BY	PORC APPROVAL	APPROVED AND ISSUED EFFECTIVE DATE OF REVISION
2			
3			
4			
5			
6			
7			
8			

COMPLETED TEST REVIEWED: _____ (OPERATIONS MANAGER (OR DESIGNEE) SIGNATURE) _____ (DATE)

FORM 372 - 22 - 3396

FORM 372 - 22 - 3643

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TEST

TEST REF. NO. _____
SYST. REF. NO. _____
PAGE 2 OF _____

1 PURPOSE OF TEST _____

2 TEST OBJECTIVES _____

3 DESCRIPTION OF TEST (Use attached sheets if necessary) _____

4 DATA REQUIRED (Include applicable data sheets and integrate with procedure if possible) - Include room for "Remarks":

FORM 372 - 22 - 3399

FORM 372 - 22 - 3643

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TEST

TEST REF. NO. _____
SYST. REF. NO. _____
PAGE 3 OF _____

5 ANTICIPATED RESULTS: _____

6 ACCEPTANCE CRITERIA: _____

NOTE: UPON COMPLETION OF THE TEST, DATA SHALL BE APPROPRIATELY ANALYZED AND TEST RESULTS AND RECOMMENDATION AND/OR EVALUATION SHALL BE SUMMARIZED AND PRESENTED TO THE SUPERINTENDENT OF OPERATIONS FOR FINAL APPROVAL AND FURTHER REVIEW BY PORC AND THE NFSC AND/OR FURTHER REPORT AND DOCUMENTATION REQUIREMENTS.

FORM 372-22-3400

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TES

TEST REF. NO._____
SYST. REF. NO._____
PAGE 4 OF_____

7 PRECAUTIONS, LIMITATIONS, AND SPECIAL ASSISTANCE (INCLUDE PROVISIONS TO VERIFY THAT LIMITATIONS ARE NOT EXCEEDED):

8 STANDARD OPERATING PROCEDURES

9 SAFETY EVALUATION

FORM 372-22-3401

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TEST

TEST REF. NO. _____
SYST. REF. NO. _____
PAGE 5 OF _____

10 TEST EQUIPMENT (IF REQUIRED)

NAME	IDENTIFICATION NUMBER	LAST CALIBRATION DATE

11 TEST CONDUCTOR (INCLUDE ALL ASSISTANTS)

PERMISSION TO INITIATE TEST _____ (SHIFT SUPERVISOR - SIGNATURE) _____ (DATE)

12 PROCEDURE (SEE ATTACHED PAGES)

FORM 372-22-3402

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

REQUEST FOR TEST

TEST REF. NO. _____
SYST. REF. NO. _____
PAGE OF _____

13 VERIFY THAT THE SYSTEM HAS BEEN RETURNED TO NORMAL:

_____ _____
(SHIFT SUPERVISOR - SIGNATURE) (DATE)

14 TECHNICAL SERVICES ACTION:

10 CFR 50.59 REPORT REQUIRED ☐ YES ☐ NO

TECH SPEC REPORT REQUIRED ☐ YES ☐ NO

REVIEWED BY _____ _____
(SIGNATURE) (DATE)

FORM 372-22-3403

TITLE: CONTROL OF MEASURING AND TEST EQUIPMENT

ISSUANCE AUTHORIZED BY	2-2-82	2/8/82	2-17-82
PORC REVIEW	PORC 455 MAR 10 1982		EFFECTIVE DATE 3-17-82

1.0 PURPOSE

This procedure describes the controls employed to assure required accuracy of measuring, test and control equipment used on FSV safety-related items and systems.

2.0 APPLICABILITY

This procedure applies to activities responsible for providing, using, adjusting, maintaining, calibrating and verifying required accuracy of measuring and test equipment used on safety-related items.

3.0 GENERAL REQUIREMENTS

Practices employed are required to provide and maintain a system that assures that tools, gauges, instruments, control equipment and other measuring and testing devices are controlled, calibrated and adjusted at specified times to maintain accuracies within necessary limits.

4.0 PROCEDURE

4.1 ITEMS REQUIRING CALIBRATION

4.1.1 The Technical Specification, Section 5.4 identifies instrumentation and controls requiring calibration and specifies the calibration requirements and frequencies.

4.1.2 Periodic calibration, recalibration, adjustment and routine maintenance is required for:

a) Safety-related instruments that are required to operate during or after a seismic event, surveillance test instruments, and instruments calibrated as a result of NRC commitments.

b) Safety-related process and control equipment, including safety-related valves, that are required to function during or after a seismic event.

c) Instruments that are used to verify LCO's.

d) Standards, tools, gauges, instruments or other devices used in the performance of:

1) Maintenance, repair or calibration of instrumentation and other electronic equipment related to nuclear instrumentation or safety.

2) Maintenance or repair of safety-related systems, equipment and structures;

3) Maintenance QC inspections;

e) Portable HP radiation monitoring instruments.

f) Laboratory equipment.

g) Any measuring device prior to its use, if there is evidence that it may have been abused or in way damaged.

4.2 CALIBRATION PROCEDURES

Calibration procedures are required for all calibrations whether performed by PSCo or outside contractor. The procedures are included in Surveillance, Results, Maintenance, and Health Physics procedures as authorized by Procedure G-2, Attachment G-2A. Requirements for outside contractor procedures are specified by Purchase Order for calibration services. The procedures are required to provide:

a) Step by step instructions for performing the calibration.

b) Identification of the equipment and standards required for the calibration.

c) Specific allowable tolerances.

d) Calibration intervals for each item.

e) Requirements for documenting, as a minimum,

1) Initials or signatures of individuals performing the calibrations, tests or adjustments.

2) Identification of the specific standards employed and their latest calibration dates.

3) Pertinent data and measured values.

4) "As found" deficient conditions.

5) "As found" and "as left" data.

6) Multi-point calibrations, as applicable, on installed equipment items.

7) Details of any adjustments or maintenance performed. (Not required for standards or testing instruments.)

8) Date of calibration test or adjustment.

f) Provisions for QA/QC or MQC witnessing or verification of calibrations.

1) MQC, in accordance with established procedures, shall make provisions in Maintenance Procedures for witnessing or verification of calibration activities.

2) QA/QC, in accordance with established procedures, shall make provisions as appropriate in controlled work procedures (CWP) for witnessing or verification of calibration activities.

g) Signatures of individuals reviewing and approving each procedure.

4.3 CALIBRATIONS/PROGRAM REQUIREMENTS

The supervisor/foreman of the organization responsible for performing calibrations is required to assure that:

a) Required calibrations or functional tests for which the organization is responsible, including secondary and transfer standards, are scheduled and performed as required.

b) Required listings are maintained that identify:

1) Each item for which the organization has calibration or functional test responsibility by its unique identification number indicating calibration or test intervals or occasions.

2) Those items, if any, for which calibration or functional tests may be waived on the basis of supervisory decisions. The basis for authorizing such, waivers must be documented on Procedure Deviation Report (PDR).

3) For each standard or test instrument, the items it was used to calibrate or measure.

c) Calibrations are performed in accordance with approved procedures by qualified personnel.

d) Standards are as specified by the procedure with valid calibrations traceable to recognized national standards.

e) Calibration which are based on other than national standards are fully documented.

f) As found "out of tolerance" conditions are documented and reported to the affected supervisor in a timely manner.

g) Where size and conditions permit, secondary standards are identified by red "secondary" labels and transfer standards are identified by black "transfer" labels.

h) Calibration and maintenance of secondary and transfer standards are preformed according to the manufacturer's recommended procedures and tolerances or where required by procedures developed within the department by the appropriate department supervisors.

i) An evaluation is performed and documented by qualified personnel of the effects on any previously recorded data or measurements involving calibrating devices thare are found to exceed the limits of applicable calibration tolerances.

j) Requirements of any applicable Limiting Conditions for Operation specification are satisfied before authorizing the removal of any process affecting instrument or control for calibration.

k) On removal of installed instruments or controls for calibration, any required status tags are hung and associated notices given by use of the TCR as described by Procedure P-1.

l) Permanently installed indicating and process control instruments do not require calibration labels.

m) Nonconforming devices are documented and processed in accordance with Procedure P-7 or Q-15 as appropriate .

n) Required inspection verifications are performed and documented.

o) Individual equipment/item departmental calibration cards, logs and files are updated and maintained as required including any rework, repair authorizations, history and required approval signatures.

p) Calibration labels displaying the date calibrated, date due for recalibration and the initials of the person performing the calibration are affixed, where size permits, to the following:

1) Standards, tools, guages, instruments or other devices used in the performance of:

i) Maintenance, repair or calibration of instrumentation and other electronic equipment related to nuclear instrumentation or safety.

ii) Maintenance or repair of safety-related systems equipment and structures.

iii) Maintenance QC inspections;

2) Portable HP radiation monitoring instruments.

3) Laboratory equipment.

5.0 REFERENCES

5.1 FSAR Appendix B, "Quality Assurance Program for Plant Operation"
5.2 FSV Instrument Calibration Scheduling Procedure No. K54502
5.3 MP-102, "Procedure for the Calibration of Mechanical Maintenance Tools and Equipment."
5.4 Procedure Q-15, "Control of Nonconforming Items"
5.5 Technical Specification, Section 5, "Surveillance Requirements"

6.0 ATTACHMENTS

None

TITLE: HANDLING, STORAGE, AND SHIPPING

ISSUANCE AUTHORIZED BY	4-15-81	4-13-81	4/20/81
PORC PEVIEW	PORC 409 APR 24 1981		EFFECTIVE DATE 4-30-81

1.0 PURPOSE

This procedure describes the controls employed at FSV to prevent deterioration of safety-related items as a result of handling, storage or shipping practices.

2.0 APPLICABILITY

This procedure applies to all activities concerned with identifying, prescribing, performing and verifying actions involving handling, storage or shipping of safety-related items.

3.0 GENERAL REQUIREMENTS

Practices employed are required to assure that:

a) A system is provided to control the handling, storage and shipping; including cleaning and preservation, of material and equipment, to prevent damage or deterioration.

b) Required work and inspections are performed in accordance with written procedures.

4.0 PROCEDURE

4.1 PROCURED ITEMS

Appropriate handling, shipping, and storage of procured items is assured by:

a) The inclusion of applicable requirements delineated by FSV-STD-1 into procurement documents which are verified by QA as required by Procedure Q-4.

b) Verification of conformance to the specified requirements on receipt of the items by QA/QC.

c) Storekeeper responsibilities to protect items in his custody in accordance with requirements specified by FSV-STD-2 requiring monthly inspections of storage and conditions.

d) Arrangement whereby aid is provided to the Scheduling, Maintenanace QC and Stores Supervisor in taking any required corrective actions to prevent deterioration of stored items, if beyond his capability, by the Maintenance Superintendent or the Shift Supervisor.

e) Performance of QA monitoring and audits to verify adequacy of and conformance to requirements of storage and preservation measures.

4.2 PLANT ITEMS

Proper handling, storage and housekeeping to prevent deterioratio of stored and installed facility items are assured by periodic inspections conducted in accordance with Preventive Maintenance (PM) procedures. Deficiencies are documented and corrective actions are authorized by issuance of Plant Trouble Reports (PTR) (Reference Procedure P-7).

4.3 LIFTING EQUIPMENT

The Maintenance Department is responsible for lifting and rigging equipment as required by the Manual of Safe practices and ANSI N45.2.2 using Attachment Q-13A or equivalent. Inspections & tests are verified by MQC. The results of the inspections are documented to record continuing conformance to applicable requirements. Any nonconforming items are handled as described by Procedure Q-15. Special visual/NDE/dynamic load tests are required, when appropriate, for large or sensitive equipment or handling equipment.

4.4 SHIPPING OF UNCONTAMINATED ITEMS

Items being returned to suppliers or labs for rework, repair, exchange or test must be labeled to indicate radioactive contamination status prior to release for shipment, when requested by the supplier or LAB.

5.0 REFERENCES

5.1 FSAR - Appendix B, Quality Assurance Program for Plant Operation"

5.2 FSV-STD-1, "Cleanness, Packaging, Shipping, Receiving, Storage and Handling Associated with Quality-Related Procurement"
5.3 FSV-STD-2, "Receiving, Storage, Handling and Cleanness During Warehousing Activities as Ft. St. Vrain"
5.4 Stores Department Handbook
5.5 ANSI N45.2.2, "Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants"
5.6 ANSI N45.2.2, "Packaging, Shipping, Receiving Storage and Handling of Items for Nuclear Power Plants"
5.7 ANSI N45.2.3, "Housekeeping During the Construction Phase of Nuclear Power Plants"
5.8 Procedure G-6, "Control of Special Nuclear Material"
5.9 Procedure Q-4, "Procurement Document Control"
5.10 Procedure Q-7, "Work Control - Maintenance"
5.11 Procedure Q-15, "Control of Nonconforming Items"
5.12 Manual or Safe Practices

6.0 ATTACHMENTS

Q-13A Crane Inspection Report

Q-13B Contamination Check Tag

CRANE INSPECTION REPORT

Date _____

To: _____ (Superintendent)

From: _____ (Operator or Inspector)

This will verify that I have inspected Crane No. _____ located at _____

All of the following have been checked and are in proper working order unless specifically mentioned in the lower portion of this report.

1. Limit Switches, stops and bumpers.
2. Leakage in lines, tanks, valves, pumps.
3. Hooks, chain, ropes.
4. Deformed, cracked or corroded members.
5. Loose bolts or rivets.
6. Cracked or worn sheaves or drums, pins, bearings, shafts, gears, rollers, locking or clamping devices.
7. Brake linings, pawls, ratchets and sprockets.
8. Contacts on controller, limit switches, pushbuttons.

*Travel, Breaking, Locking Devices.

Describe discrepancies or maladjustments below:

_____

_____

_____

_____

_____

_____

_____

_____

The type of Fire Extinguisher _____ Last done on tag _____

What is the rated load posted on each side of crane? _____

Can Circuit-breaker be operated from floor or ground? _____

overhead, is crane equipped with a dead-man control? _____

List indicators installed on this crane (such as load, boom angle, wind).

_____

PUBLIC SERVICE COMPANY OF COLORADO

16805 ROAD 19½
PLATTEVILLE, COLORADO 80651

FORT ST. VRAIN HEALTH PHYSICS RELEASE

DATE _____

This is to certify that all material contained herein is free from radioactive contamination.

SIGNATURE _____
HEALTH PHYSICS

FORM 372-02-3439

TITLE: CONTROL OF NONCONFORMING ITEMS

ISSUANCE AUTHORIZED BY	Lawrence Brey 5/27/82	M.H. Fahrer 6-11-82	Don Warembourg 6-14-82
PORC REVIEW	PORC 469 JUN 16 1982		EFFECTIVE DATE 6-23-82

1.0 PURPOSE

This procedure describes the practices employed by FSV to identify and control nonconforming items.

2.0 APPLICABILITY

This procedure applies to all activities involving the procurement, maintenance, modification, inspection, testing or use of FSV safety-related hardware items.

3.0 GENERAL REQIREMENTS

3.1 Practices employed are required to assure that:

3.1.1 Items which do not conform to specified requirements are identified and controlled to prevent inadvertent use or installation.

3.1.2 Procedures are provided and used to control identification, documentation, segregation, disposition and notification to affected organizations of nonconforming items.

4.0 PROCEDURES

4.1 Documenting nonconforming items

QA/QC/MQC assigned to the department or area in which a nonconforming hardware item is identified, is responsible for initiation of a Nonconformance Report (NCR) (Attachment Q-15A).

4.1.1 NCR's are initiated as guided by the NCR Form Initiation Guide, (Attachment Q-15B).

4.1.2 The NCR initiator completes the upper half of the form, applies his signature and forwards the form to the Superintendent of QA Services, (SQAS).

4.2 QA REVIEW OF NCR

4.2.1 The SQAS reviews the NCR to:

a) Confirm the adequacy and appropriateness of information provided by the initiator.

b) Determine if a review of the dispositioned nonconformance may be required by Technical Services for reportability, PORC or NFSC. If required, a copy of the NCR is forwarded to Technical Services.

c) Sign the "QA Review" block to denote accomplishment of the review.

d) Forward the NCR to the Computer Sepcialist.

4.3 NUMBER ASSIGNMENT AND TRACKING

4.3.1 The Computer Specialist assigns an NCR number and enters the NCR in the Fort St. Vrain status keeping system as described in procedure SKM-8.

4.3.2 The Computer Specialist makes a copy of the NCR and inserts it into the QA-NCR Follow-up file.

4.3.3 The Computer Specialist forwards the NCR to NED-Site for dispositioning.

4.4 NCR PROCESSING

4.4.1 Engineering (NED-Site) shall disposition the NCR.

4.4.2 If the disposition is:

a) Repair

1. The NED-Site approves a repair and/or provide any appropriate repair disposition details.

2. The NED-Site also provides, if appropriate, detailed work instructions either in the NCR disposition block (with attachment if required) or the attached Controlled Work Procedure (CWP).

3. The NED-Site coordinates and obtains any engineering approvals that may be required to authorize the repair.

4. NED determines the necessity for, and accomplishes any technical document update which may be appropriate as a consequence of the repair.

5. NED-Site, signs the appropriate block, and forwards the NCR to the Superintendent, QA Services (SQAS).

6. The SQAS determines and denotes on the NCR any appropriate inspections that may be required and the organization responsible for performing such inspections, and sign the appropriate block and forwards to the Computer Specialist.

7. The Computer Specialist updates the status of the NCR in the FSV Status Keeping System, makes a copy of the NCR with the approved dipsosition and enters it in the QA/NCR Follow-up file and shall forward the original NCR to the QA/QC Supervisor/MQC Supervisor (as applicable) for implementation.

8. On completion of the repair, NCR sign-offs are required by the responsible Supervisor and by the designated QC organization, if required. The QA/QC or MQC Supervisor shall then forward the completed NCR to the Computer Specialist.

9. The Computer Specialist shall update the FSV Status Keeping System, forward a copy of the NCR to PORC or NFSC, if required, and transmit the completed original NCR to the Record Center for retention.

b) Use-as-is:

1. The NED-Site provides, by consulting with affected engineering disciplines if necessary, appropriate comments, and justification for the "use-as-is" disposition and signs the appropriate block. The NCR is the forwarded to the SQAS.

2. The SQAS reviews and evaluates the NCR and signs the appropriate block, and forwards it to the Computer Specialist.

3. The Computer Specialist updates the Status Keeping System makes a copy of the NCR with the approved diposition, and enters it in the QA-NCR Follow-up file and shall forward the original NCR to the appropriate QC Supervisor for any required follow-up.

4. On completion of any required follow-up, NCR signatures are required by the responsible supervisor, if required, and the appropriate QC Supervisor. The completed NCR is then forwarded to the Computer Specialist.

5. The Computer Specialist shall update the FSV Status Keeping System, forward a copy to PORC or NFSC, if required, and transmit the completed NCR to the Record Center for retention.

c) Rework:

1. NED-Site determines the need for, and accomplishes any technical document update which may be appropriate as a consequence of the rework. NED-Site provides the required CWP if no applicable maintenance work procedure exists or provides work instructions on the NCR form and then signs the NED approval block and forwards it to the SQAS.

2. The SQAS determines and denotes any required QA actions in the disposition block and signs the QA Approval Block. He then forwards it to the Computer Specialist.

3. The Computer Specialist updates the FSV Status Keeping System, makes a copy of the NCR with the approved disposition, and enters it in the QA-NCR follow-up file and forwards the original NCR to the responsible QA/QC Supervisor, as appropriate for implementaiton.

4. On completion of the rework, NCR sign-offs are required by the responsible supervisor and by the designated QC Organization. The appropriate QC Supervisor shall then forward the completed NCR to the Computer Specialist.

5. The Computer Specialist shall update the FSV Status Keeping System, forward a copy to the PORC or NFSC, if required and transmit the completed NCR to the Center for retention.

d) Reject:

1. NED-Site specifies rejection and forwards the NCR to the SQAS after signing the NED Approval Block.

2. The SQAS approves the disposition by signing the "QA Approval" and forwards the NCR to the Computer Specialist.

3. The Computer Specialist shall update the FSV Status Keeping System, makes a copy of the NCR with the approved disposition, enters it in the QA-NCR Follow-up file and forwards the original NCR to the responsible QA Supervisor, as appropriate for implementation.

4. The Supervisor responsible for arranging disposal or destruction of the nonconforming item, after completing the required action, signs the NCR along with the responsible QA/QC Department. The NCR is then forwarded to the Computer Specialist.

5. The Computer Specialist shall update the FSV Status Keeping System, and transmit the completed NCR to the Record Center the retention.

e) Return to Vendor:

1. NED-Site specifies return to vendor and provides any appropriate comments, he signs the NED Approval Block and forwards the NCR to the SQAS.

2. The SQAS approves the disposition by signing the "QA Approval" block and forwards the NCR to the Computer Specialist.

3. The Computer Specialist shall update the FSV Status Keeping System, make a copy of the NCR for the QA-NCR Follow-up file and forward the NCR to the QA/QC Supervisor for implementation.

4. The responsible Supervisor shall sign the NCR when the part has been returned to the vendor. QA/QC will verify this and sign the NCR in the appropriate box. The QA/QC Supervisor shall then forward the NCR to the Computer Specialist.

5. The Computer Specialist shall update the FSV Status Keeping System, and transmit the completed NCR to the Record Center for retention.

4.5 EMERGENCY DISBURSEMENT

4.5.1 In the event that emergency disbursement of materials (as indicated in Procedures P-5) is necessary the following actions are required:

a) Plant personnel shall request QA/QC to initiate an NCR to allow the disbursement.

b) QA/QC personnel initiates an NCR (including obtaining a number and obtaining plant management authorization per Procedure P-5).

c) Copies of the NCR are provided to the person requesting the material for attachment onto the clearance holders clearance card and to the shift supervisor for incorporation into the System Abnormality book with the Clearance Points form to alert the clearance holder, shift supervisor and operator that the nonconforming item may be installed, but the clearance can be returned only for test and that the equipment item shall not be used for credit with respect to the Technical Specifications until such time as the nonconformance is resolved.

d) The original NCR is forwarded to the SQAS.

4.5.2 The SQAS reviews the NCR per step 4.2 of this procedure and forwards the NCR to the Computer Specialist.

4.5.3 The Computer Specialist performs those actions per step 4.3 of this procedure as necessary.

4.5.4 NED-Site shall disposition the NCR and provides, by consulting with affected engineering disciplines and /or plant personnel if necessary, appropriate comments and evaluation of the emergency disbursement. NED-Site signs the NED approval block and forwards the NCR to the SQAS.

4.5.5 The SQAS approves the disposition by signing the "QA Approval" and forwards the NCR to the Computer Specialist.

TITLE: CONTROL OF NONCONFORMING ITEMS

ISSUANCE AUTHORIZED BY / DATE	D. Warembourg 7-7-80	F. Ehrwart 7-7-80	Larry Brey 7/7/80
PORC REVIEW	PORC 372 AUG 4 1980		

1.0 PURPOSE

This procedure describes the practices employed by FSV to identify and control nonconforming items.

2.0 APPLICABILITY

This procedures applies to all activities involving the procurement, maintenance, modification, inspection, testing or use of FSV safety-related hardware items.

3.0 GENERAL REQUIREMENTS

Practices employed are required to assure that:

a) Items which do not conform to specified requirements are identified and controlled to prevent inadvertent use or installation.

b) Procedures are provided and used to control identification, documentation, segregation, disposition and notification to affected organizations of nonconforming items.

c) Nonconforming items are reviewed, accepted or rejected, repaired or reworked in accordance with documented procedures.

4.0 PROCEDURE

4.1 DOCUMENTING NONCONFORMING ITEMS

QA/QC/MQC assigned to the department or area in which a nonconforming safety-related hardware item is identified, is responsible for intiation of a Nonconformance Report (NCR) (Attachment Q-15A).

4.1.2 NCR's are intiated by Maintenance QC or members of the QA Department as guided by the NCR Form Intiation Guide (Attachment Q-15B).

6) The NPD-Site routes the dispositioned and approved NCR to the Superintendent QA Services (SQAS).

7) The SQAS determines and denotes on the NCR any appropriate inspections that may be required, and the organization responsible for performing such inspections. The green copy of the NCR is removed and inserted into the QA NCR follow-up file. The remaining NCR copies are returned to the foreman of the organization responsible for accomplishing the repair.

8) On completion of the repair, NCR sign-offs are required by the foreman responsible for accomplishing the repair and by the designated QA organization, if required. The white copy is forwarded to the SQAS. The yellow copy is attached to the PTR white copy, if a PTR is involved, or the job record package for Plant records files. The blue copy is retained by the foreman.

9) The SQAS reviews the white copy for completeness and record adequacy prior to insertion in the NCR file. The green follow-up copy is removed and discarded.

b) Use-as-is:

1) The responsible foreman/supervisor forwards the NCR to the NPD-Site.

2) The NPD-Site provides, by consulting with affected engineering disciplines if necessary, appropriate comments, and an approval signature on the NCR either approving or rejecting the proposed "use-as-is" disposition. When the comments indicate the "use-as-is" disposition is unacceptable, the required alternate action and any required work instructions are included.

3) If the "use-as-is" disposition is approved by the NPD-Site, the SQAS determines and denotes on the NCR any appropriate inspections or actions required by the alternate disposition. If no QA requirements are noted, the white copy is removed for NCR files and the green copy discarded. If QA requirements are applied, the green copy is

2) The foreman/supervisor responsible for arranging disposal or destruction of the nonconforming item, after completing the required action, signs the NCR and returns the white copy to the SQAS. Remaining copies may be discarded.

3) The SQAS replaces the NCR file green copy with the white copy and discards the green copy.

e) Return to Vendor:

1) The responsible foreman/supervisor forwards the NCR to the SQAS. The SQAS determines and initiates the need for any appropriate corrective action concerning the supplier and removes the white NCR copy for NCR files and discards the green copy. The yellow copy is attached to the nonconforming item and the blue copy is forwarded to the Storekeeper.

4.4 CORRECTIVE ACTION

Corrective actions which may be required to prevent repetition of the nonconformance is described by Procedure Q-16.

5.0 REFERENCES

5.1 FSAR - Appendix B, "Quality Assurance Program for Plant Operation
5.2 Technical Specification AC 7.1, "Administrative Controls"
5.3 Procedure Q-16, "Corrective Action System"

6.0 ATTACHMENTS

Q-15A NCR Form
Q-15B NCR Form Initiation Instruction

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

NONCONFORMANCE REPORT

NO. _____

DESCRIPTION

ITEM NAME			ITEM NO.
SYSTEM NO.	EQUIPMENT NO.	LOCATION	REF. DOC. NO.

DESCRIPTION OF NONCONFORMANCE:

WHAT CAUSED THE NONCONFORMANCE?

PROPOSED DISPOSITION: ☐ RET. TO VENDOR ☐ SCRAP ☐ REWORK ☐ REPAIR ☐ USE AS IS

INITIATED BY:	RESPONSIBLE SUPERVISOR:
(SIGNATURE) (DATE)	(SIGNATURE) (DATE)

DISPOSITION

INSTRUCTIONS:

DISPOSITION APPROVALS	DISPOSITION IMPLEMENTATION
NPD: (SIGNATURE) (DATE)	COMPLETED / FOREMAN: (SIGNATURE) (DATE)
QA: (SIGNATURE) (DATE)	VERIFIED BY QC: (SIGNATURE) (DATE)

FORM 372-30-7305

NCR FORM INITIATION GUIDE

If information block does not apply, write in "N/A"

Initiator:

1. Obtain NCR number from the FSV Record Center.
2. Print the Nonconforming Item's (NI) name.
3. Insert the NI part number
4. Insert the system number in which the NI is installed.
5. Insert the Equipment number, if affected.
6. Indicate where the NI is located.
7. Insert the drawing, specification or document to which the NI does not conform.
8. Print a clear description of the problem. Provide dimensions, sketches, or other document as attachment to the NCR, if appropriate. If attachments are required, identify them in this block.
9. Indicate what appears to have caused the problem. This is important! It identifies what must be done to eliminate the cause and prevent repetition. Example: An individual may make an error, resulting in an NI, but this is seldom the true problem. Determine what caused him to err, such as; the procedure not understood, proper tools not available, etc.
10. Check the block which indicates the most appropriate disposition for the NI.
11. Signature of the supervisor who will be responsible for performing any work required to restore the item to an acceptable state.
12. Initiator's signature and the date.

NPD-SITE

13. Provide disposition instructions. Denote any required attachments. If the Engineering disposition is other than that checked in Block 10, draw a line through the checked Disposition Block, and check the proper Disposition Block.
14. Apply signature and date indicating Engineering approval of the dispostion and instructions.

TITLE: TECHNICAL SPECIFICATIONS SURVEILLANCE TESTING PROGRAM

ISSUANCE AUTHORIZED BY	S.M. Brodsky JSP	
PORC REVIEW	PORC 526 JUL 20 1983	EFFECTIVE DATE 7-27-83

1.0 PURPOSE

The purpose of this procedure is to implement the Technical Specification requirements for Testing, Test Procedures, and Reporting Test Results as they apply to the Surveillance Program and to provide a systematic means for scheduling the program as required by the Technical Specifications Section 5.0.

2.0 APPLICABILITY

This procedure applies to all Surveillance Tests required by the Technical Specifications.

3.0 GENERAL REQUIREMENTS

Plant management has the overall responsibility for ensuring that the Surveillance Program is performed in accordance with the Technical Specifications.

4.0 PROCEDURE

4.1 RESPONSIBILITIES

4.1.1 The Station Manager is responsible for the overall Surveillance Program, and for assuring completion of all tests required by Technical Specifications. The Station Manager shall:

a) Approve Surveillance Tests, and any revisions thereto.

b) Review and sign the completed tests when an evaluation is requested by the Responsible Department Supervisor as noted in Step 9.3 (Attachment SMAP-1E). The Station Manager shall indicate in Step 9.4 (Attachment SMAP-1E) of the test whether the nature of the deficiency, or other events resulting from the performance of the test is such as to require a report to the NRC. If a report is required, (determination may be made by the Technical Services Department upon request), one of the following report categories shall be specified:

1) Reportable Occurrence, Notification-24 hours. Report-14 days; or

2) Reportable Occurrence Report-30 days.

c) Verify the Surveillance Testing Program is completed on schedule.

d) Designate departmental responsibility for specific Surveillance Tests.

4.1.2 The Department Supervisors are responsible for the following, with respect to the Surveillance Tests which have been assigned to their department:

a) Completion of tests issued by the Scheduling Technician in accordance with the schedule issued.

b) Assigning personnel to perform the test when scheduled and designating the person(s) to be Test Conductor(s).

c) Assigning personnel to review the test as Departmental Representatives.

d) Reviewing the completed test and evaluating the results, deficiencies or deviations reported, and the conclusions of the Test Conductor(s) regarding test acceptability.

e) Approving the test after performing d) above and resolving any differences with the Test Conductor(s) with respect to data recorded or conclusions regarding acceptance criteria.

f) Requesting the rescheduling of tests or portions of tests not performed and informing the Scheduling Technician of plant condition needed to perform the retest.

g) Evaluating compliance with applicable LCO's.

h) Stipulates departmental designees for purposes of implementing a) through g) above.

i) Ensures that a PDR/DCCF was initiated if Step 6.1 (Attachment SMAP-1E) is checked "YES" and agrees with the PDR/DCCF.

j) See Section 4.2.3.

4.1.3 In addition to his duties as Operation's Department Supervisor in Section 4.1.2 of this procedure, the Shift Supervisor on duty is responsible for:

a) Granting "permission" to start the Surveillance Tests and if required, issues Clearance Cards and Radiation Work Permits, recording the Clearance and/or RWP number in Steps 4.2 and 4.3, respectively, (Attachment SMAP-1C) of the test. If a clearance and/or RWP is not required, Steps 4.2 and/or 4.3 (Attachment SMAP-1C) shall be marked N/A.

b) Taking necessary action as required by the Technical Specifications and/or the Administrative Procedures Manual whenever the Department Supervisor with responsibility for performing the Surveillance Test reports deficiencies, deviations, or other safety considerations as a result of test performance.

c) Signing as Department Representative and/or Department Supervisor on all Surveillance Tests, where the Surveillance Test must be signed off and appropriate department personnel are not available prior to the expiration of the "late" date.

4.1.4 The person(s) assigned to conduct the Surveillance Test (Test Conductor(s)) is responsible for:

a) Obtaining the Surveillance Test to be performed, as assigned by his Department Supervisor.

b) Reviewing the Test Procedure, prior to performing the test (with all parties involved in the testing).

c) Obtaining permission from the Shift Supervisor on duty to initiate the test. Obtaining Clearance Card and/or RWP if required by the Test Procedure, and verifying the Clearance or RWP number(s) are entered in Section 4.0 of the test (Attachment SMAP-1C).

d) Assembling test equipment, special tools and other items specified by the Test Procedure, and identifying them in Section 3.0 (Attachment SMAP-1C) of the test, verifying each has been properly calibrated, if required.

e) Performing any preliminary checks listed in Section 5.1 of the procedure. Any data sheets involved in preliminary checks will be part of the procedure, all blanks filled in appropriately and each page signed and dated by a Test Conductor.

f) Performing the test, in a functionally sequential order, and filling in the appropriate blanks provided upon step completion.

g) Informing the Shift Supervisor and Department Supervisor promptly of any deficiences or deviations found during the performance of the test and noting them appropriately in the test report (Attachment SMAP-1E).

h) Tripping any instrument channel as required, at the request of the Shift Supervisor to comply with applicable Technical Specification LCO's and documenting them appropriately in the Test Report (Attachment SMAP-1E).

i) Preparing a Document Coordination and Concurrence Form (DCCF), per Administrative Procedures Manual section G-2, for any permanent corrections as noted in Step 6.1 (Attachment SMAP-1E) and ensuring that a copy of the DCCF is attached to the Surveillance Test.

j) Preparing a Procedure Deviation Report (PDR), per Administrative Procedures Manual section G-2, for any corrections as noted in Step 6.1 (Attachment SMAP-1E) and ensuring that a copy of the PDR is attached to the Surveillance Test.

k) Ensuring that the Procedure Deviation Reports are transmitted to PORC immediately after the required signatures are obtained.

l) Comparing the test results with the test acceptance criteria, where applicable in the test procedure, and determining the test acceptability.

m) Preparing a Plant Trouble Report which describes deficiencies found.

n) Retesting items found deficient after having been repaired or replaced.

o) Submitting the test after completion to his Supervisor for review, evaluation and approval.

4.1.5 The Scheduling Technician is responsible for:

a) Issuing the latest revision of the Surveillance Tests and a Test Schedule (Attachment SMAP-1B) each week.

b) Preparing a status report for the Station Manager each week, which lists scheduled tests for which the required completion date is imminent.

c) Assuring that all Technical Specification Surveillance Requirements are met with regard to recordkeeping.

d) Issuing the retest of any Surveillance Test, which could not be performed due to various plant conditions at such time as the conditions, which originally prevented the test from being performed, have been resolved.

e) Signing Section 10.0 (Attachment SMAP-1E), verifying that Section 9.0 (Attachment SMAP-1E) has been properly completed, verifying appropriate action has been taken if a retest has been noted in Step 7.5 (Attachment SMAP-1E) and verifying that the Procedure Deviation Report, if utilized, has been received by the Plant Operations Review Committee (PORC).

f) Updating the Surveillance Test records.

4.2 SURVEILLANCE PROCEDURE

4.2.1 The Surveillance Test Procedure shall generally conform to the format and content set forth in Attachment SMAP-1D and shall include as the last two pages Attachment SMAP-1E.

4.2.2 Each Surveillance Test shall be assigned permanent identification.

a) The Technical Specification section number or table number.

b) A subparagraph (if any) or a table item designation.

c) Letter(s) to designate the test frequency.

d) Examples of Test Numbers:

SR 5.2.7a-A (Annual Test)
SR 5.4.3b-M (Monthly Test)

4.2.3 Surveillance Test Retesting

a) If a Surveillance Test cannot be run, the Department Supervisor must indicate the reason why the test cannot be run on the cover sheet and also sign Step 9.3 (Attachment SMAP-1E) indicating that the Station Manager's evaluation is required. The Department Supervisor will request the test to be rescheduled by the Scheduling Department at such time as the conditions which originally prevented testing have been resolved.

b) Tests in which any portion(s) require a retest shall be the resonsibility of the appropriate department and will be identified in Section 7.0 (Attachment SMAP-1E).

4.2.4 Test Scheduling and Rescheduling

a) A weekly testing schedule (Attachment SMAP-1B) shall be issued by the Scheduling Technician to all Department Supervisors. The schedule will, as a minimum, indicate the "Scheduled Date" of completion and the "Late Date" which identifies the latest date which the test shall be completed. The schedule shall list tests by "Responsible Department", but will not include daily checks or calibrations.

b) Rescheduling tests not completed, as noted in Step 7.5 (Attachment SMAP-1E), shall be the responsibility of the Scheduling Technician. Completion date for rescheduled tests shall be two normal working days from the time the Scheduling Department notifies the appropriate Department Supervisor to complete those items listed in Step 7.6 (Attachment SMAP-1E) of the Surveillance Test.

c) The Scheduling Department is responsible for the issuing of the Surveillance Test for retest at such time as the conditions which originally prevented testing have been resolved. They will issue to the appropriate department a new Surveillance Test, a copy of the Evaluation Sheet (Attachment SMAP-1E), a copy of the Cover Sheet (Attachment SMAP-1A), and any other documents pertinent to providing necessary information to the retester. The department receiving this package will then complete the required retesting by processing the Retest Surveillance in the manner of any issued Surveillance Test but testing, as a minimum, only those portions noted in Step 7.6 of the attached Evaluation Sheet (Attachment SMAP-1E).

d) A Surveillance Test is considered complete for scheduling purposes when the Shift Supervisor signs and dates Step 9.2 (Attachment SMAP-1E).

4.2.5 Test Sections and Their Significance

All entries into Technical Specification Surveillance Tests shall be made in ball point pen. Any changes in these entries shall not be erased but lined through, initialed, dated, and the correct entry made.

The following is a sequential breakdown of the Surveillance Procedure format. For reference of numbered sections refer to Attachments SMAP-1C, SMAP-1D, and SMAP-1E.

a) Section 1.0 establishes the objective of the test.

b) Section 2.0 describes conditions that the Test Conductor(s) must comply with, and possible hazards to be aware of. The Test Conductor(s) shall be aware of items listed in Section 2.0 and comply with these instructions.

c) Section 3.0 lists any references.

d) Section 4.0 requires the signature of the Department Supervisor and the Shift Supervisor on duty for permission to initiate the test. The Shift Supervisor's signature is verification that:

1) Plant conditions necessary for the performance of the test have been met.

2) The appropriate operations personnel on duty have been notified that the test will be performed.

3) Proper performance of the test will not result in violation of the Technical Specifications.

4) The need for a Clearance Card or RWP has been considered, and they have been issued as required by current plant conditions.

e) Section 5.0 requires an entry by a Test Conductor in each step performed in the body of the procedure. On each test procedure page, whose steps involve more than one Test Conductor, each step or group of consecutive steps shall be initialed and dated by the Test Conductor who performed that/those step(s). In addition, each page of the procedure Section 5.0 shall be signed and dated by a Test Conductor at the bottom of each page.

A Test Conductor's initials or signature is verification that:

1) Each step so marked has been completed satisfactorily.

2) The page signed has been completed with all required data entered.

f) The following flow diagram is a step by step breakdown of the Test Report and Evaluation Sheet (Attachment SMAP-1E).

SECTION 6.0

(Step 6.1) If any changes must be made to the procedure, a Procedure Deviation Report shall be filled out. If the change is to be a permanent change, a DCCF must also be filled out. Changes to the procedure which do not change the intent of the original procedure may be made with the concurrence of two members of the Plant Management staff, at least one of whom holds a senior reactor operator license. Prior to running a revised test PORC must review each procedure deviation after it is completed and Section 6.1 (Attachment SMAP-1E) shall be checked "YES". If no changes are required, check "NO".

(Step 6.2) Were all steps in SR Completed satisfactorily (Check one). YES → (Step 6.2) Mark step "YES".

NO ↓

(Step 6.3) Notify Shift Supervisor and Department Supervisor and list conditions and/or PTR number. (Step 6.3) Mark step N/A or leave blank.

(Step 6.4) With items noted in 6.3, this step should be signed and dated by the Test Conductor. (Step 6.4) With no items noted in 6.3, this step should be signed and dated by the Test Conductor

(Step 6.5) With items noted in 6.3, this step should be signed and dated by the Department Representative. (Step 6.5) With no items noted in 6.3, this step should be signed and dated by the Department Representative.

SECTION 7.0

If step 6.2 is marked "YES" do not complete Section 7.0 and 8.0, go to Section 9.0

(Step 7.1) Indicate "YES" or "NO". N/A will be used for non Technical Specification SR's. (Check one).

NO ⟶ (Step 7.2) If "NO", go to Step 7.3.

YES ↓

(Step 7.2) Applicable LCO(s) should be typed in, if not initiate a DCCF. State what action is being taken or what limits are imposed.

↓

(Step 7.3) Indicate reason yes, no or N/A (Check one).

↓

(Step 7.4) If 7.3 is "YES" list PTR Number and/or conditions which are preventing the test from being completed.

↓

(Step 7.5) Indicate "YES" or "NO", N/A will be used for Non-Technical Specification SR's (Check one).

↓

(Step 7.6) If 7.5 if "YES" list sections or steps to be retested. If "NO" enter N/A.

Department Supervisor/Test Conductor's signature indicates he has reviewed Section 7.0 and assures proper action has been taken to comply with applicable LCO(s).

↓

SECTION 8.0

(Step 8.1) Signature and date in this section by the Test Conductor verifies satisfactory retest of items listed in Step 7.6

↓

(Step 8.2) Signature and date in this section by the Department Representative verifies that he has reviewed the sections of the test identified in Step 7.6 and concurs with the conclusions of the Test Conductor.

SECTION 9.0

(Step 9.1) Requires the signature of the Department Supervisor responsible for the performance of the test. His signature signifies that he has evaluated the test results, noted retest if required, approves the test as performed and recorded, prepared DCCF's for all PDR's whose deviations are determined to be permanent, and compliance with applicable LCO's confirmed.

(Step 9.2) Requires the signature of the Shift Supervisor. His signature verifies that he has been informed of the test results including any deficiencies noted, that he has taken all actions required by the Technical Specifications with respect to such deficiencies and that they have been noted in the Station Log Book and Technical Specification Compliance Log.

(Step 9.3) May require the signature of the Deparment Supervisor responsible for conducting the test. His signature signifies that deficiencies were noted in the test, which requires the evaluation of the Station Manager. If Step 9.3 is not signed, this certifies that no deficiencies were detected during the performance of this test.

(Step 9.4) The signature of the Station Manager in Step 9.4, is only required when the Department Supervisor has signed Step 9.3 indicating "Requires Station Manager's Evaluation". When required to sign the Test Report and Evaluation Sheet, the Station Manager is also required to check one of the following which are located below the signature line:

____ NRC Report Not Required

____ NRC Report Required

The Station Manager shall check one of the above categories. The Station Manager may contact Technical Services for information concerning NRC reportability. The Station Manager's signature signifies that he has reviewed and evaluated the test, and in the case where he has checked the first block, he has concluded that the deficiency reported is not significant or of a nature to require a report to the NRC. In the case where he has checked the second block, his signature signifies that he is aware that a report to the NRC is required, and that he will take action accordingly.

If a NRC Report is required, the Station Manager shall then circle one of the following, which is located below the "NRC Report Required" line indicating the maximum number of days allowable by which the NRC shall receive a written report:

30 day

14 day

SECTION 10

Section 10.0 requires that signature of the Scheduling Technician. This signature signifies that the Scheduling Technician has performed all the functions listed as responsibliites for handling completed Test Sheets in Section 4.1.5 of this procedure.

5.0 REFERENCES

Technical Specifications, Section 5.0.

6.0 ATTACHMENTS

SMAP-1A	Surveillance Test Cover Sheet (Procedure Cover Page)
SMAP-1B	Technical Specification Surveillance Schedule
SMAP-1C	Test Control Sheet
SMAP-1D	Procedure Body
SMAP-1E	Test Report and Evaluation Sheet

SURVEILLANCE COVER SHEET

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

Issue --
Page 1 of --

TITLE: ----

DEPARTMENT: ------

ISSUANCE AUTHORIZED BY			
PORC REVIEW			EFFECTIVE DATE

Scheduled Date _____ Week # _____

Late Date _____ Sch. Clerk

This procedure cannot be run in its entirety for the following reasons:

___ 1. This system is not operating.

___ 2. This system is not required to be operating and has a frequency of one month or less (reference Technical Specification, paragraph 2.18).

___ 3. Reactor is in "scrammed" condition.

___ 4. Loop I is in "Loop Shutdown" condition.

___ 5. Loop II is in "Loop Shutdown" condition.

___ 6. 1A Helium circulator is in "tripped condition".

___ 7. 1B Helium circulator is in "tripped condition".

___ 8. 1C Helium circulator is in "tripped condition".

___ 9. 1D Helium circulator is in "tripped condition".

___ 10. Other_____

_____

_____

___ 11. Reschedule test for_____

_____
Department Supervisor

FORM 372-22-3643

FORM 372-22-3643

TEST NUMBER	WEEK	RE-TEST REQUIRED	DEPARTMENT CODE	SCHEDULE CODE	TEST #	LAST DATE COMPLETED	SCHEDULED DATE DUE	LATEST DATE DUE
TEST DESCRIPTION			PLANT CONDITION			PLANT COND. CODE	COMMENTS	
SCHEDULING DEPARTMENT			WEEK 27			REPORT DATE 07/01/83		
AAAAAAAAAAAAAA	26		A	M	@	01-08-82	07-01-83	07-04-83
REPORT SCHEDULING DATE RECORD.					*			
ASP-0001-0	31		A	Q		05-24-83	08-04-83	08-26-83
ASP NO.1-SUP CONTROL-VITAL AREA ACCESS					*			
H & L 100	41		C	A		12-14-82	10-15-83	01-14-84
SPEC 100					*			
H & L 710	44		C	A		11-03-82	11-03-83	02-02-84
SPEC 710					*			
F-291	20		C	M		06-20-83	07-15-83	07-22-83
FISHER 291					*			
KCT	18		C	A		05-04-83	05-02-84	08-01-84
KESSLER CERTIFIED THERMOMETER					*			
LN-1	28		C	M		06-20-83	07-15-83	07-22-83
LEEDS & NORTHRUP CALIBRATION					*			
MAB	21		C	A		05-19-83	05-24-84	08-23-84
METTLER ANALYTIC BALANCE					*			
ORION 501	29		C	M		06-20-83	07-19-83	07-26-83
ORION 501 PH METER STANDARDIZATION					*			
SCI	12		C	A		03-04-83	03-24-84	06-23-84
SCIENTECH 3330					*			
SR-EL-1-SA	39		E	S		05-11-83	09-26-83	11-10-83
TEST RAT-NPT AND VAT INSULT. OIL FOR COMB GAS					*			
SR-EL-2-Q	36		E	Q		06-16-83	09-07-83	09-29-83
INSP OF PCB FILLED TRANSFORMERS CAPACITORS					*		SEND COMP COPY TO J. PARKO	
SR-EL-3-Q	35		E	Q		06-13-83	09-02-83	09-24-83
GEN INSP OF THE RX BUILDING CRANE ELEC EQUIP					*			
SR-EL-4-A	22		E	A		- -	06-01-83	08-31-83
RSB FIRE PROTECTION SYS INSP AND TEST					*			
SR-HE-2-A	9		H	A		02-28-83	02-28-84	05-29-84
OPERATIONAL CHK LIQUID NITROGEN STORAGE TANK					*			

FORM 372-22-3643

FORT SAINT VRAIN SURVEILLANCE TESTS - MASTER LIST

PUBLIC SERVICE COMPANY OF COLORADO

FORT ST. VRAIN NUCLEAR GENERATING STATION

Attach. SMAP-1B
Issue 1
Page 1 of 1

SURVEILLANCE SECOND SHEET

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

Issue --
Page 2 of --

1.0 PURPOSE

(Start entering purpose data here.)

2.0 PRECAUTIONS, LIMITATIONS, AND SPECIAL ASSISTANCE

(Start entering precautions here.)

3.0 PREREQUISITES

3.1 Test Equipment

Name	Identification No.	Last Calibration Date

3.2 References _____

_____

4.0 AUTHORIZATIONS

4.1 Departmental Approval _____ Dept. Supervisor Date

4.2 Mech/Elec Clearance Issued, if required: Number_____

4.3 Radiation Work Permit Issued, if required: Number_____

4.4 Permission to initiate test _____ Shift Supervisor Date

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FORM 372 - 22 - 3643

SURVEILLANCE PROCEDURE PAGE

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

5.0 PROCEDURE

5.1 PRELIMINARY CHECKS

5.1.1 None

5.2 TEST PROCEDURE - CALIBRATION OF V-21522

5.2.1 Remove valve from system piping. _____

5.2.2 Install a blind flange on system piping. _____

5.2.3 Connect a dead weight tester to the valve. _____

5.2.4 Using the dead weight tester, increase pressure until valve relieves. _____

5.2.5 Record the relief pressure "AS FOUND." _____

Acceptance Criteria (2980 - 3180 psig) _____ psig

NOTE: If data collected is not within the acceptance criteria, initate a PTR.

5.2.6 If valve does not meet the acceptance criteria, make mechanical adjustments to the relief valve pressure setting. _____

_____ _____
Test Conductor Signature Date

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6.0 TEST CONDUCTOR'S REPORT

6.1 Were any procedure changes or deviations made to the test and DCCF/PDR initiated? (Attach copies if applicable)
Yes____ No____

6.2 Were all steps successfully completed as stated in the test.
Yes____ No____

6.3 If the answer to 6.2 is NO, notify Shift Supervisor and list conditions and/or PTR number(s):

_____

6.4 Test completed except for items noted in 6.3

_____ _____
Test Conductor Date

6.5 Test sheets and data sheets reviewed and approved except for items noted in 6.3

_____ _____
Department Representative Date

7.0 DEPARTMENT SUPERVISOR/TEST CONDUCTOR'S REVIEW
(If the answer to 6.3 is YES, sections 7.0 and 8.0 are not applicable go to Section 9.0)

7.1 Does the failure described in 6.3 require any action or impose any limit to operation per the applicable LCO(s)?
Yes____ No____ N/A____

7.2 Applicable LCO(s)_____

Action or Limit_____

7.3 Is the reason test is not being completed at this time due to plant or equipment status?
Yes____ No____ N/A____

7.4 If the answer to 7.3 is YES, list condition(s) and/or PTR number(s):

_____

7.5 Is retest necessary for items listed in 6.4 and/or 7.4?
Yes____ No____ N/A____

7.6 If the answer to 7.5 is YES; list specific section(s) or step(s) to be retested.

_____

_____ _____
Department Supervisor/ Test Conductor — Date

8.0 RETEST SECTION
(If the answer to 7.5 is NO go to Section 9.0)

8.1 Verify satisfactory retest of section(s) or step(s) listed in 7.6

_____ _____
Retest Conductor — Date

8.2 Retest reviewed.

_____ _____
Department Representative — Date

9.0 APPROVALS

9.1 Test results approved. Satisfactory results confirm compliance with applicable LCO(s).

_____ _____
Department Supervisor — Date

9.2 Notification of satisfactory test results and test conclusion:

_____ _____
Shift Supervisor — Date

9.3 Requires Station Manager evaluation:

_____ _____
Department Supervisor — Date

9.4 _____ _____
Station Manager — Date

____ NRC Report Not Required
____ NRC Report Required (circle one)
14 day 30 day NRC Report Number_____

10.0 DATA SHEETS RECEIVED, VERIFIED SECTION 9.0 COMPLETE, AND SURVEILLANCE TEST RECORDS UPDATED.

_____ _____
Scheduling Technician — Date

TITLE: NON-TECHNICAL SPECIFICATIONS SURVEILLANCE TESTING PROGRAM

ISSUANCE AUTHORIZED BY	Milt McBride		
PORC REVIEW	PORC 518 MAY 23 1983		EFFECTIVE DATE 5-31-83

1.0 PURPOSE

The purpose of this procedure is to implement the requirements for Testing, Test Procedures, and Reporting Test Results as they apply to the Non-Technical Specifications Surveillance Testing Program and to provide a systematic means for scheduling the program.

2.0 APPLICABILITY

This procedure applies to all Non-Technical Specifications Surveillance Tests.

3.0 GENERAL REQUIREMENTS

Plant management has the overall responsibility for ensuring that the Non-Technical Specifications Surveillance Program is performed in accordance with this procedure.

4.0 PROCEDURE

4.1 RESPONSIBILITIES

4.1.1 The Station Manager is responsible for the overall Non-Technical Specifications Surveillance Program, and for assuring completion of all tests as required. The Station Manager shall:

a) Approve Non-Technical Specifications Surveillance Tests, and any revisions thereto.

b) Review and sign the completed tests when an evaluation is requested by the Responsible Department Supervisor in STEP 9.3.

c) Verify the Testing Program is completed on schedule.

d) Responsibility for specific Non-Technical Specifications Surveillance Tests shall be as designated by the Station Manager.

4.1.2 The Department Supervisors are responsible for the following, with respect to the Non-Technical Specifications Surveillance Tests which have been assigned to their department:

a) Completion of tests issued by the Scheduling Technician in accordance with the schedule issued.

b) Assigning personnel to perform the test when scheduled and designating the person(s) to be Test Conductor(s).

c) Reviewing the completed test and evaluating the results, deficiencies or deviations reported, and the conclusions of the Test Conductor(s) regarding test acceptability.

d) Approving the test after performing C) above and resolving any differences with the Test Conductor(s) with respect to data recorded or conclusions regarding acceptance criteria.

e) Request rescheduling of tests or portions of tests not performed, as required.

f) Evaluates compliance with applicable acceptance criteria.

g) Stipulates Departmental designees for purposes of implementing (a) through (f) above.

h) Ensures that a PDR/DCCF was initiated if Step 6.1 is checked "YES".

4.1.3 In addition to his duties as Operation's Department Supervisor in Section 4.1.2, the Shift Supervisor on duty is responsible for:

a) Granting permission to start the Non-Technical Specifications Surveillance Tests. If required by the Test Procedure, issues Clearance Cards and Radiation Work Permits.

b) Taking necessary action as required whenever the Department Supervisor with responsibility for performing the test reports deficiencies, deviations, or other safety considerations as a result of test performance.

c) In the absence of the appropriate Department Supervisor, the Shift Supervisor has the authority to sign as the Department Supervisor.

4.1.4 The person(s) assigned to conduct the Non-Technical Specifications Surveillance Test (Test Conductor(s)) are responsible for:

a) Obtaining the copy of the Test Procedure assigned to his Department Supervisor by the Scheduling Technician.

b) Reviewing the Test Procedure, prior to performing the test (with all parties involved in the testing).

c) Obtaining permission from the Shift Supervisor on duty to initiate the test. Obtaining Clearance Card and/or RWP if required by the Test Procedure, and records the Clearance and/or RWP number(s) in Section 4.0 of the test (Attachment C).

d) Assembling test equipment, special tools and other items specified by the Test Procedure, and identifying them in Section 3.0 (Attachment C) of the test, verifying each has been properly calibrated, if required.

e) Performing any Preliminary Checks listed in Section 5.1 of the procedure. Any data sheets involved in Preliminary Checks will be part of the procedure with all blanks filled in appropriately.

f) Performing the test, in a functionally sequential order, and filling in the appropriate blanks provided upon step completion.

g) Informing the Shift Supervisor and Department Supervisor promptly of any deficiencies or deviations found during the performance of the test and similarly noting them appropriately in the test.

h) Preparing a Document Coordination and Concurrence Form (DCCF-Attachment G) per Administrative Procedures Manual section G-2 for any permanent corrections as noted in Section 6.0, STEP 6.1.

i) If changes must be made to the procedure, a Procedure Deviation Report (Attachment D) must be filled out. Changes to the procedure, which do not change the intent of the original procedure, may be made with the concurrence of two members of the Plant Management Staff, at least one of whom holds a senior reactor operator license prior to running the revised test. PORC must review each procedure deviation after it is completed and Section 6.0, Step 6.1 (Attachment F) shall be checked "YES".

j) Ensures that the Procedure Deviation Reports are transmitted to PORC immediately after the required signatures are obtained. Ensures that a copy of the Procedure Deviation Report is attached to the test.

k) Analyzing the test results and determining the test acceptability.

l) Preparing a Plant Trouble Report which describes deficiencies found where applicable.

m) Retesting items found deficient after having been repaired or replaced.

n) Submitting the test after completion to his Supervisor for review, evaluation and approval.

4.1.5 The Scheduling Technician is responsible for:

a) Issuing the tests and a Test Schedule each week (Attachment B). The schedule will indicate the scheduled date and latest date for which the test may be completed.

b) Prepare a status report for the Station Manager each week, which lists scheduled tests for which the required completion date is imminent.

c) Assuring that all Non-Technical Specifications Surveillance Tests requirements are met with regard to recordkeeping.

d) Assuring each test issued is the latest revision.

e) Signing Section 10.0 (Attachment F) of the test, verifying that Section 9.0 (Attachment F) has been properly completed, and verifying that the Procedure Deviation Report (Attachment D) if utilized, has been received by the Plant Operations Review Committee (PORC).

f) Updating the Non-Technical Specifications Surveillance Test records.

g) Schedule surveillances for retest when deemed necessary by the Department Supervisor and could include all or just a portion of the test. The retest date will be based on plant conditions and information from the Department Supervisor.

4.2 SURVEILLANCE PROCEDURE

4.2.1 The Non-Technical Specifications Surveillance Test Procedure shall generally conform to the format and content set forth in Attachment E and shall include as the last two pages Attachment F.

4.2.2 Each Non-Technical Specifications Surveillance Test shall be assigned permanent identification.

a) Indicates the responsible department.

b) Numbers assigned by the Scheduling Technician for record purposes.

c) Letter(s) to designate the test frequency.

d) Example of a Test Number:

SR-OP-11-W (Operations Test - performed weekly)
SR-RE-3-M (Results Test - performed monthly)

4.2.3 Non-Technical Specifications Surveillance Test Retesting

a) If a Non-Technical Specifications Surveillance Test cannot be run, the Department Supervisor must indicate the reason why the test cannot be run on the cover sheet and also sign Step 9.3 (Attachment F) indicating that the Station Manager's evaluation is required. The Department Supervisor will request the test to be rescheduled by the Scheduling Department at such time as the conditions which originally prevented testing have been resolved.

b) If a Non-Technical Surveillance Test cannot be performed in its entirety the responsible Department Supervisor will indicate in STEP 7.6 when the retest (or its equivalent) is to be performed.

c) The Assigned Department is responsible for performing any applicable retest at such time as the conditions which originally prevented testing have been resolved.

4.2.4 Test Sections and Their Significance

The following is a sequential breakdown of the Surveillance Procedure format. For reference of numbered sections refer to Attachments C, E and F.

a) Section 1.0 establishes the objective of the test.

b) Section 2.0 describes specifications that the Test Conductor(s) must comply with, and possible hazards to be aware of. The Test Conductor(s) shall be aware of items listed in Section 2.0 and comply with these instructions.

c) Section 3.0 lists any references, prerequisites and special equipment.

d) Section 4.0 requires the signature of the Department Supervisor and the Shift Supervisor on duty for permission to initiate the test. The Shift Supervisor's signature is verification that:

1) Plant conditions necessary for the performance of the test have been met.

2) The appropriate Operations personnel on duty have been notified that the test will be performed.

3) Proper performance of the test will not result in violation of the Technical Specifications.

4) The need for a Clearance Card and/or RWP has been considered, and they have been issued as required by current plant conditions.

e) Section 5.0 requires an entry by a Test Conductor in each step performed in the body of the procedure. Each page of the procedure Section 5.0 shall be initialed or signed and dated by a Test Conductor.

A Test Conductor's initials or signature is verification that:

1) Each step with an entry by the Test Conductor has been completed satisfactorily.

2) The page has been completed with all required data entered except as noted in Section 6.3.

f) Step 6.4 requires the signature of a Test Conductor to signify that:

1) The test has been completed and the results have been reviewed and found acceptable, except as noted in STEP 6.3.

2) Test Sheets have been checked off, data recorded or verification made as required by the Test Procedure.

3) Typographical errors discovered during the performance of the test have been noted appropriately in the body of the text, in Section 6.1, and a DCCF has been initiated regarding the problem per the Administrative Procedure Manual Section G-2.

4) Deviations have been noted in STEP 6.1 of the Test Report. The Department Supervisor has been notified of the deficiencies and a Plant Trouble Report has been prepared as noted in STEP 6.3 as applicable.

g) STEP 6.5 requires the signature of a representative of the department responsible for the test other than a Test Conductor. His signature signifies that he has reviewed the test, verified conformance with documented instructions and procedures, and concurs with the conclusions of the Test Conductor(s).

h) STEP 7.6 requires the signature of a Test Conductor or Department Supervisor who has reviewed the test results and found them acceptable except as noted in STEP 6.3 and has completed STEPS 7.1 through 7.6.

i) STEP 8.1 requires the signature of the Retest Conductor to signify that satisfactory retest of Section(s) or Step(s) listed in 7.6 in accordance with the Test Procedure.

j) STEP 8.2 requires the signature of a representative of the department responsible for the test other than a Test Conductor. His signature signifies that he has reviewed the Retest, verified conformance with documented instructions and procedures, and concurs with the conclusions of the Retest Conductor(s).

k) Section 9.0, STEP 9.1 requires the signature of the Department Supervisor responsible for the performance of the test. His signature signifies that he has evaluated the test results, noted retest if required, approves the test as performed and recorded.

l) Section 9.0, STEP 9.2 requires the signature of the Shift Supervisor. His signature verifies that he has been informed of the test results including any deficiences noted, that he has taken all actions required.

m) Section 9.0, STEP 9.3, may require the signature of the Department Supervisor responsible for conducting the test. His signature signifies that deficiencies were noted in the test, which requires the evaluation of the Station Manager. If STEP 9.3 is not signed, this certifies that no deficiencies were detected during the performance of this test which warrants the Station Manager's evaluation.

n) The signature of the Station Manager in Section 9.0, STEP 9.4, is only required when the Department Supervisor has signed STEP 9.3 indicating "Requires Station Manager's Evaluation". The Station Manager's signature signifies that he has reviewed and evaluated the test.

o) Section 10.0 requires the signature of the Scheduling Technician. This signature signifies that the Scheduling Technician has performed all the functions listed as responsibilities for handling completed Test Sheets in Section 4.1.5 of this Test procedure.

4.2.5 Test Scheduling and Rescheduling

a) A weekly testing schedule (Attachment B) shall be issued by the Scheduling Technician to the responsible Department Supervisors. The schedule will indicate the scheduled date and mandatory latest date for which the test can be completed. The schedule shall list tests by "Responsible Department".

b) Rescheduling tests that were not completed in their entirety or as noted in Section 7.5 shall be the responsibility of the Scheduling Technician.

5.0 REFERENCES

None

6.0 ATTACHMENTS

| Attach. SMAP-2A Surveillance Test Cover Sheet (Procedure Cover Page)

| Attach. SMAP-2B Technical Specification Surveillance Schedule

| Attach. SMAP-2C Test Control Sheet

| Attach. SMAP-2D Procedure Deviation Report Form

| Attach. SMAP-2E Procedure Body

| Attach. SMAP-2F Test Report and Evaluation Sheet

| Attach. SMAP-2G Document Coordination and Concurrence Form

SURVEILLANCE TEST COVER SHEET

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST VRAIN NUCLEAR GENERATING STATION

Issue --
Page 1 of --

TITLE: ----

DEPARTMENT: ------

ISSUANCE AUTHORIZED BY			
PORC REVIEW			EFFECTIVE DATE

Do not start test before_____ Week # _____

and must be completed by_____ Sch. Clerk

This procedure cannot be run in its entirety for the following reasons:

___ 1. This system is not operating.

___ 2. This system is not required to be operating and has a frequency of one month or less (reference Technical Specification, paragraph 2.18).

___ 3. Reactor is in "scrammed" condition.

___ 4. Loop I is in "Loop Shutdown" condition.

___ 5. Loop II is in "Loop Shutdown" condition.

___ 6. 1A Helium circulator is in "tripped condition".

___ 7. 1B Helium circulator is in "tripped condition".

___ 8. 1C Helium circulator is in "tripped condition".

___ 9. 1D Helium circulator is in "tripped condition".

___ 10. Other_____

_____

_____

___ 11. Reschedule test for_____

_____
Department Supervisor

FORM 372-22-3643

TECHNICAL SPECIFICATION SURVEILLANCE SCHEDULE

FORM 372 - 22 - 3643

TEST CONTROL SHEET

1.0 PURPOSE

_____
_____
_____

2.0 PRECAUTIONS, LIMITATIONS, AND SPECIAL ASSISTANCE

_____
_____
_____

3.0 PREREQUISITES

3.1 Test Equipment

Name	Identification No.	Last Calibration Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3.2 References _____

_____

4.0 AUTHORIZATIONS

4.1 Departmental Approval _____
Dept. Supervisor Date

4.2 Mech/Elec Clearance Issued, if required: Number_____

4.3 Radiation Work Permit Issued, if required: Number_____

4.4 Permission to initiate test _____
Shift Supervisor Date

PROCEDURE DEVIATION REPORT FORM

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

PROCEDURE DEVIATION REPORT

PDR NO _____
PAGE _____ OF _____

PROCEDURE NO. _____ ISSUE _____

PROCEDURE TITLE _____

IS PORC *REVIEW REQUIRED? ☐ YES ☐ NO

DEVIATION CATEGORY: ☐ TEMPORARY ☐ PERMANENT – PROCEDURE REVISION REQ'D

PAGE NO./ PARA. NO.	CHANGED FROM	CHANGED TO	REASON FOR CHANGE

INITIATOR _____ (SIGNATURE) _____ (DATE) SUPERVISOR _____ (SIGNATURE) _____ (DATE)

APPROVALS

BY: _____ (PLANT MANAGEMENT STAFF) _____ (DATE) BY: _____ (PLANT MANAGEMENT STAFF - SENIOR LICENSE) _____ (DATE)

BY: _____ (PROCEDURE AUTHORIZER) _____ (DATE) BY: _____ (PROCEDURE AUTHORIZER) _____ (DATE)

BY: _____ (PROCEDURE AUTHORIZER) _____ (DATE) PORC: _____ (MEETING NUMBER) _____ (DATE)

NOTE

*IF PORC REVIEW IS REQUIRED, THE INITIATOR IS RESPONSIBLE TO ENSURE THAT THE PDR IS SUBMITTED FOR PORC REVIEW NO LATER THAN 14 DAYS FROM THE PDR IMPLEMENTATION DATE.

*FORM (S) 372-20-3326 INITIATOR – FORWARD PINK TO STATION CLERICAL AFTER APPROVAL.
– FORWARD WHITE TO STATION CLERICAL AFTER PORC APPROVAL.

FORM 372 - 22 - 3643

PROCEDURE BODY

5.6 TEST PROCEDURE - Acceptance Criteria

5.6.1 The results of this test are acceptable if they meet the following limits:

a) Subheader flow data recorded in Step 5.2.2 agree with expected values on the data sheet.

_____

b) Subheader flow data recorded in Step 5.3.3 and 5.4.3 agree with expected values on the data sheet.

_____

c) Subheader flow data recorded in Step 5.5.2 agree with expected values on the data sheet.

_____

NOTE: The indicated flow for each subheader maybe converted to GPM as follows:

a) For Subheaders: 1, 5, 6, 11, 12, 13, 14, 15, 19, 23, 24, 29, 30, 31, 35, and 36, multiply the reading by .03.

b) For Subheaders: 2, 3, 4, 7, 8, 9, 10, 16, 17, 18, 20, 21, 22, 25, 26, 27, 28, 32, 33, and 34, multiply the reading by .015.

_____ _____
Test Conductor Signature Date

6.0 TEST CONDUCTOR'S REPORT

6.1 Were any procedure changes or deviations made to the test and DCCF/PDR initiated? (Attach copies if applicable)
Yes____ No____

6.2 Were all steps successfully completed as stated in test.
Yes____ No____

6.3 If the answer to 6.2 is NO, notify Department Supervisor and list conditions and/or PTR number(s):

_____

6.4 Test completed except for items noted in 6.3

_____ _____
Test Conductor Date

6.5 Test sheets and data sheets reviewed and approved except for items noted in 6.3

_____ _____
Department Representative Date

7.0 DEPARTMENT SUPERVISOR'S/TEST CONDUCTOR'S REVIEW
(If the answer to 6.2 is YES, sections 7.0 and 8.0 are not applicable go to Section 9.0)

7.1 Does the failure described in 6.3 require any action or impose any limit to operation per the applicable LCO(s)?
Yes____ No____ N/A____

7.2 Applicable LCO(s)_____

Action or Limit_____

7.3 Is the reason test is not being completed at this time due to plant or equipment status?
Yes____ No____ N/A____

7.4 If the answer to 7.3 is YES, list condition(s) and/or PTR number(s):

_____

7.5 Is retest necessary for items listed in 6.3 and/or 7.4?
Yes____ No____ N/A____

7.6 If the answer to 7.5 is YES; list specific section(s) or step(s) to be retested.

_____

_____ _____
Dept. Supervisor/Test Conductor Date

8.0 RETEST SECTION
(If the answer to 7.5 is NO go to Section 9.0)

8.1 Verify satisfactory retest of section(s) or step(s) listed in 7.6

_____ _____
Retest Conductor Date

8.2 Retest reviewed.

_____ _____
Department Representative Date

9.0 APPROVALS

9.1 Test results approved. Satisfactory results confirm compliance with applicable LCO(s).

_____ _____
Department Supervisor Date

9.2 Notification of satisfactory test results and test conclusion:

_____ _____
Shift Supervisor Date

9.3 Requires Station Manager evaluation:

_____ _____
Department Supervisor Date

9.4 _____ _____
Station Manager Date

10.0 DATA SHEETS RECEIVED, VERIFIED SECTION 9.0 COMPLETE, AND SURVEILLANCE TEST RECORDS UPDATED.

_____ _____
Scheduling Technician Date

DOCUMENT COORDINATION AND CONCURRENCE FORM

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

DOCUMENT COORDINATION AND CONCURRENCE

ADDRESSEE

= _____ = _____ = _____

PROCEDURE NO | TITLE | ISSUE NO

DESCRIPTION

JUSTIFICATION

INITIATOR _____ (NAME) _____ (DATE) RETURN TO: _____ (NAME) BY: _____ (DATE)

ADDRESSEE POSITION

= DOCUMENT MAY BE ISSUED AS IS.
= THE FOLLOWING CHANGE, OR THOSE NOTED ON THE ATTACHED MARKUP, ARE MANDATORY

ADDRESSEE _____ (SIGNATURE) _____ (DATE)

REVIEWER

PROCEDURE/PROCEDURE CHANGE APPEARS TO BE COMPATIBLE WITH EXISTING PROCEDURES. = YES = NO

PORC REVIEW IS REQUIRED. = YES = NO BY _____ (SIGNATURE) _____ (DATE)

PORC _____ (MEETING NUMBER) _____ (DATE) ISSUED BY _____ (NAME) _____ DATE

FORM (A) 372 22 3373

INITIATOR - FORWARD ALL COPIES
ISSUER - TRANSMIT WHITE TO PSV RECORD CENTER - FORWARD PINK TO INITIATOR

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