

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

REPORT OF CHANGES, TESTS, AND EXPERIMENTS  
NOT REQUIRING PRIOR COMMISSION APPROVAL PURSUANT  
TO 10CFR50.59(a)

January 1, 1982, through December 31, 1982

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## INTRODUCTION

This report is submitted to comply with the requirements of Part 50.59(b) of Title 10, Code of Federal Regulations as they apply to Fort St. Vrain Nuclear Generating Station, Unit No. 1. It includes the period of January 1, 1982, through December 31, 1982.

Some definitions of major terms used in this report which may be helpful:

Change Notice - Modification work proposed and installed by Public Service Company of Colorado.

"T" Tests - Tests proposed and conducted by Public Service Company of Colorado.

In this report, the safety evaluation for the changes, tests, and experiments is summarized. The terminology used in these summaries is defined as follows:

### Safety Related Items

Those plant systems, structures, equipment, and components which are identified in the FSAR, and as detailed and supplemented by applicable piping and instrument (P & I) diagrams, documents SR-6-1 and SR-6-2, to include the following:

- a) Class 1 per the updated FSAR, Table 1.4-1.
- b) Safe shutdown components per the updated FSAR, Table 1.4-2.

### Safety Significant Change

Changes to the facility, systems, components, or structures as described in the FSAR that may do any one of the following:

- a) Affect their capability to prevent or mitigate the consequences of accidents described in the FSAR.
- b) Could result in exposures to plant personnel in excess of occupational limits.

Changes in the safety related systems which involve the addition, deletion, or repair of components, structures, equipment, or systems such that the original design intent is changed (i.e., changes in redundancy, performance characteristics, separation, circuitry logic, control, margins of safety, safe shutdown, accident analysis, or any change that would result in an unreviewed safety question or require a Technical Specification change).

Unreviewed Safety Question

Any plant modification or activity that is deemed to involve an unreviewed safety question as defined in 10CFR50.59.

- a) The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSAR may be increased.
- b) The possibility of an accident or malfunction of a different type than any evaluated previously in the FSAR may be created.
- c) The margin of safety as defined in the basis for any Technical Specification is reduced.

To reduce the size of this report, many repetitive terms have been abbreviated. The reader is referred to Section 4.0 for an index of the abbreviations used. Certain systems are identified by their generic Fort St. Vrain system numbers; Section 5.0 contains a list of system number identifications used.

One term utilized throughout this report is "loop split modification." Fort St. Vrain underwent a system modification in late 1981 and early 1982 that split the circulator buffer helium auxiliaries into two distinct operating loops. This process involved providing loop independent buffer helium dryer units and control systems. The intent of the loop split is to mitigate the consequences of a system upset to one loop. This modification was the result of a NRC commitment.

## 1.0 PUBLIC SERVICE COMPANY CHANGE NOTICES

All CN's will be listed in the following order:

First - CN number.

Second - system/component number.

Third - description of the change.

Fourth - summary of safety evaluation.

### CN-844

#### FSAR

This CN presents FSAR revisions required as a result of facility or document modifications made under authority of approved CN's. Public Service Company of Colorado will, in the future, make an annual update of the Fort St. Vrain FSAR (particulars of this CN will be discussed in Section 3.0).

Since this CN is only a formal mechanism for updating the FSAR, it does not involve an unreviewed safety question, nor is it a safety significant issue.

### CN-1076

#### System 24/PCV-2499

This change added a pressure control valve (PCV-2499) in the helium purge line to the regeneration section of the helium purification system.

Purging the regeneration section of the helium purification system is mentioned in the FSAR. The addition of the pressure regulator does not increase the probability of an accident or malfunction of equipment. In fact, as stated in Section 9.4.4 of the FSAR, the presence of devices such as the regulator, controls flow through the purification system in lines to users of purge helium. This CN does not involve an unreviewed safety question, nor is it safety significant.

CN-1270

System 22

This change installed valves on Loop 1 reheat drain lines for assisting in steam generator leak detection procedures.

The process of utilizing the reheat drains for steam generator leak detection was not previously discussed in the FSAR; however, the addition does not increase the probability of any accidents analyzed in the FSAR. This CN is not safety significant and does not involve an unreviewed safety question.

CN-1283

Various Systems/Seismic Qualifications

This CN provided for qualification of 8" and under piping systems for seismic restraint capability.

All 8" and under piping is analyzed via "simplified dynamic analysis" per the Piping Design Analytical Procedure, Appendix H of the updated FSAR. This procedure reviews and repairs (as necessary) all Class 1 supports; therefore, the probability of occurrence of an accident or malfunction has not been increased. This CN does not involve an unreviewed safety question, nor is it safety significant.

CN-1305

System 21/T-2104 and T-2105

This change installed additional relief valves for overpressure protection of the bearing water surge tanks.

Installation of additional pressure relief valves on the bearing water surge tanks met ASME, Section III overpressure protection requirements. As the addition of added overpressure protection reduces the consequences of an accident or malfunction, this change does not involve an unreviewed safety question, nor is it safety significant.

CN-1313

Systems 21/92/93/Radiation Detection Instrumentation

This change added gamma radiation detectors to the high pressure separator buffer helium outlet headers.

This change did not alter the design or operation of the existing helium circulator auxiliary systems. The installation of five new gamma detectors will aid the plant operators by alerting of possible problems within the circulator systems. The added detectors perform no safety related function, but add indications of primary coolant presence in the circulator auxiliary system. As this additional information leads to safer plant operation, this change does not involve an unreviewed safety question, nor is it safety significant.

CN-1314

Systems 21/46/73/82/92/93

This was the primary CN involving the loop split modification. It provided two separate and independent buffer helium auxiliary loops, with each loop serving the two helium circulators in each primary coolant loop.

A separate safety analysis for the entire loop split modification was included with the change (e.g., the FSAR for the System 21 modification program, dated April 24, 1981). The conclusion of this analysis was that the original design intent of System 21 remained unchanged and an accident or malfunction not previously discussed in the FSAR was improbable due to the improved equipment and controls added. Therefore, the change is not safety significant and does not involve an unreviewed safety question.

CN-1315

Systems 23/24/82/92/93

This CN provided for the loop split modification of the helium purification system/buffer helium system interface.

The original design intent of the interface remained unchanged, and the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSAR was not increased. Therefore, this change is not safety significant and does not represent an unreviewed safety question.

CN-1316

Systems 21/93

This change provided better pressure control on the buffer helium systems by automatically starting the standby helium recirculator on low pressure differential across the operating recirculator instead of low discharge flow rate.

As this change did not affect the capability to prevent or mitigate the consequences of accidents described in the FSAR, this change is not safety significant. As the possibility of buffer helium upsets has been discussed in the FSAR, the change did not involve an unreviewed safety question.

CN-1318

Systems 21/62/92/93

This change installed a bypass line for the steam/water drains at the inlet of the low pressure separator to the turbine water drain tank.

As the installation of the bypass line is to facilitate maintenance of the low pressure separator without requiring system shutdown (i.e., circulator shutdown), this change did not affect any accident analysis previously performed, nor did it increase the probability of an accident or malfunction previously described in the FSAR. This change is not safety significant, nor is it an unreviewed safety question.

CN-1319

Systems 21/93/HV-21572-2 and HV-21574-2

This CN provided a modification to maintain the pressure boundary integrity between the bearing water surge tanks.

Since this modification enhances the original design intent to maintain pressure boundary integrity, this change is not safety significant. As the change did not increase the probability of an accident or malfunction previously discussed in the FSAR, the change does not involve an unreviewed safety question.

CN-1320

Systems 21/93

This CN provided for simplification of the low pressure separator instrumentation.

As this change did not change the basic functions of the low pressure separator instrumentation but rather facilitated the operation of the units and provided for simplified calibration, the modification did not create any new failure modes nor reduce any capabilities to deal with those existing. Therefore, this change is not safety significant and does not involve an unreviewed safety question.

CN-1321

System 21/Loop 1 Buffer Helium Dryer Installation

This CN provided for the relocation of existing equipment and stairway and the installation of a new Loop 1 buffer helium dryer unit in their place.

As the function and operation of the equipment moved was not changed from the existing design, the change did not involve new safety considerations. The environmental qualifications were reviewed for each piece of equipment relocated. The relocation did not involve an unreviewed safety question. This change was not safety significant.

CN-1322

Systems 21/93

This CN provided for the installation of new electrical ducts and associated wiring for loop split modification.

This loop split modification involved segregating the loop controls, electrically. This change did not affect the electrical circuitry design or control logic. It did give each loop a different electrical bus supply, thus limiting the probability of a migrating electrical fault. As the design and operation of the components did not change, this CN was not safety significant. As the segregation of the electrical supplies reduced the probability of an accident or malfunction, the change does not involve an unreviewed safety question.

CN-1323

Systems 12/21/23/32/93

This change added new components to the main control board in the Control Room to facilitate operation of the equipment added in the loop split.

As the operation of the new equipment was separately discussed within the individual CN's, this change did not increase the probability of an accident or malfunction. This change did not alter the overall operation of the plant; therefore, it does not involve an unreviewed safety question, nor is it safety significant.

CN-1324

Systems 21/92/93

This change installed two process control cabinets in the Auxiliary Electric Room for control wiring of the loop split modification.

The activity of operation of control cabinets is not directly addressed in the FSAR or Technical Specifications. However, as these cabinets are being added onto the non-interruptible buses, the effects on essential circuits interfacing with safety equipment were analyzed and found not to increase the probability of an accident or malfunction. This change is not safety significant, nor does it involve unreviewed safety question.

CN-1325

Systems 21/92/93

This change revised the bus assignments for loop split controls.

Revising the electrical supplies for segregation purposes does not increase the probability of an accident. As the electrical supplies are isolated according to primary loops, the probability of an escalating accident is reduced. This change is not safety significant, nor does it involve an unreviewed safety question.

CN-1326

System 93/Meteorological Equipment

This change upgraded the meteorological indicating and recording equipment.

The upgrading of the meteorological monitoring system does not effect plant operations. It does, however, increase reliability of the system per the intent of NUREG-0654. As the probability of an accident or malfunction previously discussed in the FSAR is not increased, this change does not involve an unreviewed safety question, nor is it safety significant.

CN-1404

System 21/Steam/Water Drain Controls

This CN provided for a modification to the controlling circuit for the steam/water drains on the helium circulators.

The equipment and circuitry involved with this change is not part of the basis for any defined margin of safety. The steam/water drain controls are not required to operate when the circulators are operated on firewater. Therefore, modifications to this control system do not increase or compromise equipment critical to safe shutdown and core cooling. This change is not safety significant, nor does it involve an unreviewed safety question.

CN-1418

Radiological Waste Compactor

This CN installed a new low level solid waste compactor to consolidate low level wastes in 55 gallon drums for removal from site.

As the existing system has not been changed, except for installing a compacting mechanism, the margin of safety or probability of an accident or malfunction is not increased. This modification is not safety significant, nor does it involve an unreviewed safety question.

CN-1433

System 62/HV-62249

This CN provided for the installation of a control valve in the discharge line from the radioactive liquid waste system.

Except for cables routed in safety related trays, this modification does not affect equipment or systems important to safety. The change is an improvement in the system's ability to terminate liquid waste releases as required by Technical Specification 4.8.3.d. This change is not safety significant and does not involve an unreviewed safety question.

CN-1487

System 11/Region Peaking Factor (RPF) Calculations

This CN provides for the installation of a computer system which provides an alternate means for performing calculations involving RPF's to determine the outlet temperatures of regions with impaired temperature monitoring capabilities.

Core thermal and fluid flow characteristics are addressed in the FSAR, Section 3.6. The core nuclear characteristics are discussed in Section 3.5. The accident or failure of core temperature monitoring has been analyzed and discussed in Amendment No. 17 to the FSAR. The installation of an alternate computer system to facilitate calculations is not safety significant and does not involve an unreviewed safety question.

CN-1496

System 46/Tube F4T21

This CN provided for the isolation of a leaking PCRV cooling tube and the capping of the same.

The possibility of a leaking tube within the core components cooling system has been addressed in the FSAR. As this tube is located within the PCRV core support floor, the ends were capped, provided with individual interspaces, and aligned to the interspace pressurization system. This change is safety significant as System 46 is addressed in the safe shutdown system as a backup method of cooling the core. The problem of a leaking tube has been addressed; therefore, the change does not involve an unreviewed safety question.

CN-1596

System 22/Steam Generators

This CN provided for the location and isolation of a steam generator tube leak in Loop 2, module B-2-3.

The process of location and isolation of a leaking steam generator tube has been addressed in the FSAR. This change is not safety significant, nor does it involve an unreviewed safety question.

## 2.0 PUBLIC SERVICE COMPANY TESTS

### T-147

Systems 11/22

Calculates steam generator penetration leakage using a more accurate measurement and calculating method.

The test did not affect plant safety or operation. It did not involve any equipment needed for safe shutdown. This test is not considered safety significant, nor does it involve an unreviewed safety question.

### T-169

System 78/Security

Determine if Omni Spectra perimeter microwave link No. 10 is affecting the operation of the Raycon unit.

The security system is not necessary for safe shutdown of the reactor systems; therefore, it is not safety significant. The probability of an accident or malfunction previously discussed in the FSAR is not increased. This test does not involve unreviewed safety question.

### T-184

Systems 31/45

Evaluates the effects on various buses and loads of the electrical system when starting the electric boiler feedwater pump and the electric firewater pump.

This test measures the effectiveness of the electrical system's ability to compensate for the starting of large loads. The individual pumps tested are addressed in the FSAR, but since the test is not a check of their operability, it is not safety significant and does not involve an unreviewed safety question.

T-200

System 11/Control Rods

This test checked the possibility of a control failure during reactor maintenance proceedings.

The failure modes of a control rod have been discussed throughout the FSAR, including spline or cable failure. This test was not safety significant, as multiple negative reactivity systems are available. Therefore, this test does not involve an unreviewed safety question.

T-201

System 92/Station Battery

This test determines the acceptability of individual replacement cells to meet the requirements for the "station and PPS battery check" in accordance with station surveillance requirements.

This test and the required facilities are separate from the plant operating systems and/or components, which precludes this test from having any plant impact. The batteries (cells) being tested by this test will be utilized in Class 1 safety related service on an as-required basis. This test will not degrade or alter the acceptability of these cells for use in Class 1 service. This test is not safety significant, nor does it involve an unreviewed safety question.

### 3.0 UPDATED FINAL SAFETY ANALYSIS REPORT

Commencing in 1982, Public Service Company has committed to update the Fort St. Vrain FSAR on a regular basis. As the first of the annual updates was completed during this report period, there were numerous CN's which contributed to the update. Although many of the following CN's were not considered reportable per 10CFR50.59, they are being listed here due to having impact to the updated FSAR. The CN's which are not listed in this section, but affected the FSAR update, have been listed in Section 1.0 of this report, were reported in previous years, or were strictly document updates involving changes made by other CN's.

The CN's listed below will be reported as in Section 1.0, with the CN number first, system/component number second, description third, and finally, the summary of the safety evaluation.

#### CN-57

##### System 92/Station Batteries

Install battery test equipment to load test the station batteries.

As this system did not involve any safety related components, except the cable run from the station batteries to and including the station battery selector switch, it did not prove to be safety significant. As the process of verifying the readiness of the station batteries reduces the probability of mitigating an accident or malfunction analyzed in the FSAR, this CN does not involve an unreviewed safety question.

CN-58

System 41/Circulating Water Blowdown

This CN provided for the addition of a 6" line from the circulating water makeup system to the effluent discharge line.

The addition of the 6" line was to allow for using circulating water makeup supply instead of direct circulating water. This change was initiated to help conserve the costs of chemically treating the circulating water system. The initial design resulted in the "waste" of 1100 gpm of chemically treated water. The use of circulating water makeup allows keeping the chemical treatment within the circulating water system longer. This change did affect Class 1 components; however, the addition did not affect the accident analyses in the FSAR. The addition of the different blowdown supply does not pose any accidents or malfunctions not previously discussed in the FSAR. This change does not involve an unreviewed safety question, or is it safety significant.

CN-86

Systems 41/42

This change cross-connected the service water blowdown to the circulating water tower basin.

On the recommendation of the Nalco Chemical Company, the service water blowdown was cross-connected to the circulating water tower basin to allow use of the service water corrosion control system for the circulating water system. This modification did not affect any safety related or Class 1 equipment, and did not increase the probability of any accident or malfunction previously discussed in the FSAR. This change is not safety significant and does not involve an unreviewed safety question.

CN-109

System 21/Buffer Helium Chillers

This change provided for the installation of an expansion tank on the suction side of the cooling water pumps.

The expansion tank for the system was too small and was located on the discharge side of the pump. The expansion tank was redesigned and placed on the suction side of the pumps to facilitate better system control. This change did not affect any safety related equipment or components, nor increase the probability of an accident or malfunction discussed in the FSAR. Therefore, this change was not safety significant, nor does it involve an unreviewed safety question.

CN-115

System 29/Gas Charging Facility

This CN provided for the installation of an on-site gas charging facility to reduce the plant's reliability on outside services for recharging.

This change did not affect any plant operating systems; however, it did affect the site plot plan. The addition of a gas charging facility on-site reduced the need for the plant to rely on outside services. This change was not safety significant, nor did it involve an unreviewed safety question.

CN-226

System 93/C-9301

This CN provided for the installation of a larger pump within the primary coolant sampling system to increase the available flow from the pump down-line when the reactor is in a refueling condition.

This change allowed sampling the system more efficiently with the reactor in a sub-atmospheric condition. This change is not safety significant, nor does it involve an unreviewed safety question.

CN-267

System 78/Security System

This CN provided for the installation of a Search and Identification Building.

A Search and Identification Building was constructed to meet new regulations which required increased security. This change did not affect safety related equipment and was not safety significant, nor does it involve an unreviewed safety question.

GN-302

System 45/Halon Fire Extinguishing System

This CN provided for the installation of a Halon fire extinguishing system in the vicinity of the Control Room, Auxiliary Equipment Room, and the 480 Volt Room (three-room complex).

As the installation of an additional fire protection system reduces the probability of an accident or malfunction, this change did not involve an unreviewed safety question. This addition did affect safety related areas; however, it did not affect their capability to reduce or mitigate an accident described in the FSAR. This change is not safety significant.

CN-362

System 70

This CN provided for the construction of Class 1 cable storage.

The construction of a Class 1 cable storage area does not affect the operation of the plant. The change did not affect any accidents or malfunctions discussed in the FSAR; therefore, this change is not safety significant, nor does it involve an unreviewed safety question.

CN-383

System 78/Guard Station Heating

This change provided permanent heating system to the guard station.

This change did not affect any accident analyses performed in the FSAR nor create any new failure modes. Therefore, it was not safety significant and did not involve an unreviewed safety question.

CN-384

System 73

This CN provided for the substitution of the standard high efficiency particulate air filters in the reactor plant exhaust system with new improved high efficiency particulate air filters.

The reactor plant exhaust system is thoroughly discussed in the FSAR. This change did not increase the probability of an accident or malfunction. It did help to increase the dust-loading capacity of the filters and reduced the flow resistance. The change helped to improve the reliability of the filtering system, and therefore, was not safety significant, and did not involve an unreviewed safety question.

CN-405

System 45/Breathing Air

This CN provided for the installation of a breathing air system to supply air to personnel within the three room complex during an emergency.

The change did not affect any safety related systems, nor did it increase the probability of an accident or malfunction analyzed in the FSAR. The addition of a breathing air system did allow personnel to remain in the controlling areas for a longer period of time in emergency situations. This change was not safety significant, nor did it involve an unreviewed safety question.

CN-410

System 78/Security

This CN provided for the modification of the Security fencing.

This change improved and relocated the Security fencing around the plant. This change was per updated NRC requirements. It did not affect the operation of the plant or the FSAR accident analyses. This change was not safety significant, and did not involve an unreviewed safety question.

CN-414

System 45/Fire Suppression

This system provided for the installation of sample lines to the three room complex for sampling the Halon concentration during a fire.

The installation of sample lines involved penetrating the three room complex barriers; however, it did not affect the accidents or malfunctions analyzed in the FSAR. The addition was to allow sampling the Halon concentration from outside the affected area during a fire situation. This change was not safety significant, nor does it involve an unreviewed safety question.

CN-423

System 78/Security

This CN provided for the installation of TV monitoring, intrusion alarms, vital door mimics, security lighting, and new security consoles in the lobby and Search and Identification Building.

Installation of these various security surveillance systems to meet federal requirements does not affect plant operations. Therefore, the change was not safety significant, nor did it involve an unreviewed safety question.

CN-424

System 78/83

This change extended communication system links to the Search and Identification Building.

As the change does not affect plant operations, it is not safety significant, and does not involve an unreviewed safety question.

CN-435

Systems 78/92

This CN provided for the installation of a supply transformer for the Search and Identification Building.

This change does not affect the operation of the plant and is not safety significant. The addition does not increase the probability of an accident or malfunction, and does not involve an unreviewed safety question.

CN-441

System 73

This CN provided for the installation of a stack monitoring system.

This change did not affect the present filtering system and was not safety significant. It did not increase the probability of an accident or malfunction discussed in the FSAR, and therefore, did not involve an unreviewed safety question.

CN-477

System 33/Reverse Osmosis Units

This CN provide permanent installation of the reverse osmosis units.

The change made permanent the reverse osmosis units being used for condensate purity. The change does not affect safety related equipment or systems and is not safety significant. The installation of a permanent water purification system aids in the operation of the plant. The change did not increase the probability of an accident or malfunction previously discussed in the FSAR, and therefore, does not involve an unreviewed safety question.

CN-505

System 62

This CN provided a means for sampling the effluent of the liquid waste system demineralizers.

This change allows for better control of the effluent demineralizers to reduce the probability of resin breakdown. The addition does not affect any accident or malfunction previously discussed in the FSAR and is not safety significant. The probability of an accident or malfunction previously discussed in the FSAR is not increased, and therefore, the change does not involve an unreviewed safety question.

CN-548

System 45

This CN provided for the installation of a fixed water spray system within the Auxiliary Electric Equipment Room, 480 Volt Room, and "G" and "J" walls.

These installations were part of the Phase III fire protection commitment to the NRC. The installation of the fixed water spray system does not affect plant operation, but provides protection to the safety related equipment within these areas. The probability of an accident or malfunction has not been increased. This change does not involve an unreviewed safety question and is not safety significant.

CN-626

System 70

This CN made modifications to the Control Room.

This CN relocated the Shift Supervisor's office and provided security grade entrances for the Control Room. These activities did not affect the operation of the plant and were not safety significant. As the probability of an accident or malfunction to the plant is not affected by this change, this modification does not involve an unreviewed safety question.

CN-633

System 92

This CN installed new 230 KV lines in the switchyard.

The installation of new 230 KV lines in the switchyard did not affect the direct operation of the plant. The addition of new lines does not increase the probability of an accident or malfunction, and does not involve an unreviewed safety question. As the switchyard is not part of the Fort St. Vrain safety related equipment, the change was not safety significant.

CN-723

System 45

This CN provided for the installation of an annunciator system for the fixed water spray fire protection system.

The fire protection modification was a commitment to the NRC. It does not affect operation of the plant, but provides a higher level of safety in plant protection. This change is not safety significant, and does not involve an unreviewed safety question.

CN-724

System 45

This CN provided for the installation of a local graphic annunciator system for the fire detection system.

As operation of the plant is not affected and a higher level of protection to vital equipment is provided, this change is not safety significant and does not involve an unreviewed safety question.

CN-741

System 13/H-1301

This CN provided for the placement of limit switches and indicating lights to indicate alignment of the Reactor Building crane pick-up device in the lifting socket of the fuel handling machine.

The addition of indicating systems for proper crane engagement is not safety significant. The change allows better control and operation of the equipment necessary for fuel movement. The probability of an accident or malfunction discussed in the FSAR has not been increased, and no new failure modes have been created. Therefore, the change is not safety significant and does not involve an unreviewed safety question.

CN-751

System 92

This CN provided for the installation of new 230 KV breaker controls and indications in the Control Room.

The installation of new 230 KV breaker controls does not affect safe operation of the reactor plant. The addition was classified as safety related due to the cabling running in safety related cable trays. The probability of an accident or malfunction discussed in the FSAR has not been increased. This change is not safety significant, nor does it involve an unreviewed safety question.

CN-810

System 73/RT-73437-1 and 2

This CN provided for the installation of iodine/particulate monitors in the exhaust stack with a type which will not be affected by noble gases.

The installation of exhaust stack monitors which discriminate between iodine and noble gases gives the operators better indication of accident severity. The change does not increase the probability of an accident or malfunction discussed in the FSAR. This modification is not safety significant, and does not involve an unreviewed safety question.

CN-827

System 71

This CN provided for the construction of a receiving warehouse.

In order to meet requirements for specialized storage and material receiving, a separate warehouse was constructed outside the protected area. This warehouse increases the efficiency of receiving and categorizing material. This change does not involve an unreviewed safety question, nor is it safety significant.

CN-846

System 45/Fire Detection

This CN installed fire detection systems near several safe shutdown and safety related components/systems.

The addition of fire detection systems provides early warning to plant operators. The probability of an accident or malfunction discussed in the FSAR is not increased. This change is not safety significant, nor does it involve an unreviewed safety question.

CN-856

System 70/Site Structures.

This CN constructed a workshop facility and warehouse for site CN work.

The provision of a site controlled workshop and storage area for plant CN work increases the efficiency of work performed. The addition of the structure does not affect plant operations and is not safety significant. The change does not involve an unreviewed safety question.

CN-904

System 48

This CN incorporated the System 48 description and design criteria into the plant documentation system.

As the plant made the change from the interim alternate cooling method (IACM) system to the present ACM system, the design and description criteria needed to be added to the plant documentation system. The ACM system is required for safe shutdown, as was the IACM system. Therefore, this change does not increase the probability of an accident or malfunction. This change is not safety significant and does not involve an unreviewed safety question.

CN-923

System 92

This CN provided the interconnection of the 230 KV electrical switchyard with the new line from the Pawnee Station.

The addition of another switchyard interconnection does not affect the operation of Fort St. Vrain. As the associated breaker controls were added to the Control Room, this change was issued per the Fort St. Vrain CN system. This change is not safety significant and does not involve an unreviewed safety question.

CN-940

System 33/Reverse Osmosis Unit Inlet Heater

This CN provided an inlet heater on the domestic supply to the reverse osmosis units to increase capacity.

The addition of an inlet heater does not affect overall plant performance. It does increase the capacity of the water treatment system. The change did not involve any safety related equipment, and is not safety significant. This modification did not involve an unreviewed safety question.

CN-948

System 45/Carbon Dioxide System

This CN extended the carbon dioxide system to provide two 100 foot hose reel stations at the north end of the Turbine Building.

This action was required as a result of the fire hazards analysis performed at the request of the NRC. This change was not safety significant and did not affect any accident or malfunction analyzed in the FSAR. Therefore, it did not involve an unreviewed safety question.

CN-957

System 11

This CN provided additional shielding on the reactor top head access penetration.

The addition of more shielding around the reactor top head access penetration will help reduce the amount of neutron streaming during power operation. This change will help reduce the exposure to personnel. This change was not safety significant and does not involve an unreviewed safety question.

CN-999

System 41/Storage Ponds

This CN provided for the installation of 13 brass cap survey markers around the outside perimeter of the storage ponds.

The storage ponds, with a design capacity of over 22,000,000 gallons, provide emergency cooling water for safe shutdown of the reactor following a "safe shutdown earthquake" or "maximum tornado" as described in the FSAR. The survey markers facilitate an annual surveillance to confirm the structural integrity of the ponds. This change was to conform to Regulatory Guide 1.127. This change is not safety significant and does not involve an unreviewed safety question.

CN-1044

System 99/Miscellaneous

This CN provided for the construction of an NRC site inspector field office.

The construction of the office area for a permanent on-site NRC inspector was required per the NRC. This change is not safety significant and does not involve an unreviewed safety question.

CN-1060

Systems 21/23/46/72/73/82/92/93

This CN provided for early modifications associated with the loop split.

This CN is the initial implementing change for the loop split modification. The majority of the work was completed per CN's in the 1300 series. The overall modification did not increase the probability of an accident or malfunction, and as the original design intent of affected systems remained unchanged, the change was not safety significant and did not involve an unreviewed safety question.

CN-1066

Systems 93/22

This CN provided for the installation of a delay on the Loop 1 steam/water dump circuit to prevent simultaneous dumping of both secondary coolant loops.

As the dumping of both loops simultaneously would prohibit adequate cooling of the reactor core, this change was safety significant. The probability of an accident or malfunction previously discussed within the FSAR was not increased. The interlock feature will help mitigate an accident to core cooling. This change does not involve an unreviewed safety question.

CN-1084

System 84

This CN provided for the permanent installation of the number two (outside) auxiliary boiler.

The outside boiler was brought in temporarily by CN-929. This change makes it a permanent addition to the auxiliary steam supply system. This change does not involve safety related equipment or safe shutdown components. This addition is not safety significant and does not involve an unreviewed safety question.

CN-1096

System 21/P-2101, P-2102S, P-2102, and P-2102S

This CN provided for the replacement of the bearing water pump impeller/bowl shaft assemblies.

The replacement of the impeller/bowl shaft assemblies was necessary due to the fact that the initial assemblies did not meet pump head requirements. The replacement involves safety related and safe shutdown equipment, but does not increase the probability of an accident or malfunction. This change does not involve an unreviewed safety question. As the replacement satisfies the original intent of the pumps, this change is not safety significant.

CN-1117

System 93/I-9325 and I-9375

This CN provided for the installation of a Hewlett Packard gas chromatograph.

As the installation of a new chromatograph does not affect plant operation, this change is not safety significant. As no new accident or malfunction arises due to this change, it does not involve an unreviewed safety question.

CN-1180

System 79/Technical Support Building

This CN provided for the construction of a Technical Support Building per NUREG-0578.

The construction of a Technical Support Building does not affect the direct operation of the reactor plant. It does allow for a controlled meeting area in the case of a major plant accident. The building also houses a new radiochemistry section and associated office space. The additional building is not safety significant and does not involve an unreviewed safety question.

CN-1278

System 52/M-5202

This CN replaced the line blind flange (M-5205) with a straight section of pipe.

Replacing the line blind flange located just upstream of the bypass flash tank with a straight section of pipe reduced the possibility of unintentional isolation of the flash tank. As the intent of the change is to reduce the probability of an accident or malfunction, this change was not safety significant and did not involve an unreviewed safety question.

CN-1286

System 82/C-8205 and C-8206

This CN provided a permanent tie-in the Chicago pneumatic air compressor header to the plant's service air header.

The Chicago pneumatic air compressors were originally installed for construction air purposes. As the construction phase was completed, the compressors were used occasionally as a backup for plant service air through a temporary tie-in. A permanent cross-over was deemed desirable. The service air system does not involve safety related or safe shutdown equipment. This change is, therefore, not safety significant and does not involve an unreviewed safety question.

CN-1289

Gas Sample Drop Tube

This CN installed a drop tube from level 7 in the Reactor Building to the outside near the Radiochemistry Laboratory.

The installation of a 4" drop tube from level 7 by the primary sampling station to outside the Reactor Building near the Radiochemistry Department aids in quicker delivery of primary system samples. The change did not involve any safety related equipment, but did penetrate the Reactor Building wall. The addition did not increase the probability of an accident or malfunction, and the change is not safety significant. The addition of a drop tube does not involve an unreviewed safety question.

CN-1308

System 12/Hot Service Facility

This CN modified the hot service facility and immediate structures to facilitate control rod shock absorber change-out tool installation and operation.

As the plant will be changing the shock absorbers on the control rods at convenient outages, the tooling required was manufactured and shipped to the plant. This modification allows installation and operation of the tooling required to perform this work in the plant's hot service facility. The change does not involve any safety related or safe shutdown equipment, and does not involve an unreviewed safety question. This change is not safety significant.

CN-1359

System 18

This CN provided for the update of specification 18-R-22 to include information regarding the Cf-252 startup neutron sources for fuel cycle 3.

Since this change only updates documentation, it is not safety significant, nor does it involve an unreviewed safety question.

CN-1366

Specification 18-R-24

This CN provided for the update of Specification 18-R-24, Fort St. Vrain Reactor Core General Assembly, to include fuel cycle 3 information.

Evaluation of reload 2 (cycle 3) has shown that it will have no adverse impact on core performance or plant safety. The worst case conditions previously defined for accident analysis and found acceptable during FSAR review are not exceeded as a result of this reload. This update change does not involve an unreviewed safety question, nor is it safety significant.

CN-1371

Systems 78/92

This CN provided a power source from the non-interruptible security power supply to the telephone system equipment room.

Therefore, this change did not involve an unreviewed safety question and was not safety significant. The change provided a more reliable power source to the main communication system (telephone). The security power system was not adversely affected by the change.

#### 4.0 TABLE OF ABBREVIATIONS

ACM	Alternate Cooling Method
ANSI	American National Standards Institute
ASCO	Automatic Switch Company
ASTM	American Society for Testing and Materials
C	Compressor
CFM	Cubic Feet/Minute
CN	Change Notice (Public Service Company)
CO <sub>2</sub>	Carbon Dioxide
E	Exchange (Heat)
F	Filter
FCN	Field Change Notice (Non-Public Service Company Initiated Change)
FE	Flow Element
FIS	Flow Indicator/Switch
FSAR	Final Safety Analysis Report
GAC	General Atomic Company
HSV	Hand Solenoid Valve
HV	Hand Valve
HVAC	Heating, Ventilating, and Air Conditioning
K	Engine (Diesel or Gasoline)
L	Line
LCV	Level Control Valve
N <sub>2</sub>	Nitrogen (Gas)
NRC	Nuclear Regulatory Commission
P	Pump

PCRV	Prestressed Concrete Reactor Vessel
PDIS	Pressure Differential Indicating Switch
PDT	Pressure Differential Transmitter
PDV	Pressure Differential Valve
PPS	Plant Protective System
PS	Pressure Switch
PSC	Public Service Company of Colorado
PSI	Pounds/Square Inch
PV	Pressure Valve
R	Refueling Region (When Followed By a Number)
RIS	Radiation Indicator/Switch
RT	Request for Test (General Atomic Company)
S & L	Sargent and Lundy
T	Tank, Special Test (Public Service Company)
TIG	Tungsten Inert Gas
TT	Temperature Transmitter
V	Valve

5.0 SYSTEM NUMBER IDENTIFICATION TABLE

2	Plant Site
11	Reactor Vessel and Internal Components
12	Control Rods and Drives
13	Fuel Handling Equipment
14	Fuel Storage
15	Fuel Shipping Equipment
16	Auxiliary Equipment
17	Reflector
18	Fuel
21	Primary Coolant System (Helium Circulators and Auxiliaries)
22	Secondary Cooling System (Steam Generators)
23	Helium Purification System
24	Helium Storage System
25	Liquid Nitrogen System
29	Gas Charging Facility
31	Feedwater and Condensate
32	Feedwater Heater Vents and Drains
33	Water Treatment
41	Circulating Water System
42	Service Water System
44	Domestic Water System
45	Fire Protection System
46	Reactor Plant Cooling Water System
47	Purification Cooling Water System

48	Alternate Cooling Method
51	Turbine Generator and Auxiliaries
52	Turbine Steam
53	Extraction Steam
54	Turbine Lube Oil Purification
55	Turbine Vents and Drains
61	Decontamination System
62	Radioactive Liquid Waste System
63	Radioactive Gas Waste System
70	Structures - General
72	Reactor Building (Vents and Drains)
73	Reactor Plant Ventilation System
75	Turbine Building (Vents and Drains, HVAC)
78	Security System
79	Technical Support Building
82	Instrument and Service Air
83	Communication System
84	Auxiliary Boiler and Heating System
91	Hydraulic Power
92	Electrical Power
93	Controls and Instrumentation
98	Hydraulic Piping Snubbers
99	Miscellaneous