UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

October 28, 2015

EN 51024

Mr. David Precht
Vice President, Columbia Fuel Operations and
Manager, Columbia Plant
Westinghouse Electric Company
5801 Bluff Road
Hopkins, SC 29061

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY – NUCLEAR REGULATORY COMMISSION INSPECTION REPORT 70-1151/2015-004

Dear Mr. Precht:

The Nuclear Regulatory Commission (NRC) conducted announced inspections during the third quarter in calendar year 2015 (July 1 - September 30, 2015), at the Westinghouse Columbia Fuel Fabrication Facility in Hopkins, SC. The purpose of these inspections was to review implementation of programs and procedures for operational safety, nuclear criticality safety, maintenance and surveillance, and plant modifications. The reviews were conducted to determine whether licensed activities were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of these inspections. At the conclusion of these inspections, the results were discussed with you and members of your staff at exit meetings on July 23 and September 3, 2015.

During the inspections, the staff examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspections consisted of facility walk-downs; selective examinations of relevant procedures and records; interviews with plant personnel; and plant observations. Throughout the inspections, observations were discussed with your managers and staff.

Based on the results of these inspections, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of NRC's "Rules of Practice and Procedure," a copy of this letter and enclosure will be made available electronically for public inspection in the NRC Public Document Room, or from the NRC's Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions, please call me at (404) 997-4555.

Sincerely,

/RA/

Eric C. Michel, Chief
Projects Branch 2
Division of Fuel Facility Inspection

Docket No. 70-1151
License No. SNM-1107

Enclosure:
NRC Inspection Report 70-1151/2015-004
w/Supplemental Information

cc: (See page 3)

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U. S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No.:	70-1151
License No.:	SNM-1107
Report No.:	70-1151/2015-004
Licensee:	Westinghouse Electric Company
Facility:	Columbia Fuel Fabrication Facility
Location:	Hopkins, SC 29061
Dates:	July 1 through September 30, 2015
Inspectors:	M. Crespo, Senior Fuel Facility Inspector (Section B.1, C.1) P. Glenn Fuel Facility Inspector (Section A.2) G. Goff, Fuel Facility Inspector (Section A.1) K. Kirchbaum, Fuel Facility Inspector (Section B.2) N. Pitoniak, Fuel Facility Inspector (Section B.2)
Accompanying Personnel:	N. Hansing, Fuel Facility Inspector (in-Training) R. Stone, General Engineer (Trainee) M. Ruffin, Student Engineer
Approved by:	E. Michel, Chief Projects Branch 2 Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

Westinghouse Electric Company
Columbia Fuel Fabrication Facility
NRC Integrated Inspection Report 70-1151/2015-004
July 1 through September 30, 2015

Inspections were conducted by Nuclear Regulatory Commission (NRC) regional inspectors during normal shifts. During the inspection period, normal production activities were ongoing. The announced inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with licensee personnel. No safety significant findings were identified.

Operational Safety

- The licensee adequately maintained the operational safety program in accordance with the license application and regulatory requirements. (Paragraph A.1)

Nuclear Criticality Safety

- The licensee adequately implemented the Nuclear Criticality Safety (NCS) program, conducted audits and investigations, reviewed events and maintained and implemented appropriate NCS controls. (Paragraph A.2)

Maintenance and Surveillance

- The Maintenance and Surveillance of Safety Controls program was implemented in accordance with the license application and regulatory requirements. (Paragraph B.1)

Plant Modifications

- The licensee adequately implemented the facility change control process per license requirements. (Paragraph B.2)

Special Topics

- A non-cited, Severity Level IV violation was identified for the failure to demonstrate compliance with the performance requirements following the failure of a spring loaded valve designated as an item relied on for safety (IROFS). (Paragraph C.1)

Attachment:
Key Points of Contact
List of Items Opened, Closed, and Discussed
Inspection Procedures Used
Documents Reviewed

REPORT DETAILS

Summary of Plant Status

The Westinghouse Facility converts uranium hexafluoride (UF_6) into uranium dioxide using a wet conversion process and fabricates fuel assemblies for use in commercial nuclear power reactors. During the inspection period, normal production activities were ongoing.

A. Safety Operations

1. Plant Operations (Inspection Procedure (IP) 88020)

a. Inspection Scope and Observations

The inspectors interviewed staff and reviewed documentation associated with the operational aspects of the Ammonium Di-Urinate (ADU) Fuel Rod Area, Pellet System, the Uranium Recovery and Recycle Services (URRS) Cylinder Wash System, and URRS Solvent Extraction (SOLX) System. The inspectors observed pre-selected active engineered, passive engineered, and administrative items relied on for safety (IROFS) in process areas above. Inspectors verified the availability and reliability of the following IROFS: ADUROD-129, ADUROD-136, ADUROD-155, PELGRIND-103, PELPREP-913, SOLX-108, SOLX-109, SOLX-115, WASH-103, WASH-106, and WASH-116.

Specifically, the inspectors witnessed the functional tests for PELGRIND-103, PELPREP-913, and WASH-116 (all active engineered IROFS). The inspectors also witnessed the successful periodic testing of an exit pilot light (a non-IROFS, safety significant component (SSC)). The inspectors observed pre-jobs briefs and work orders for these four activities and determined all were adequate. The inspectors verified that the technicians adhered to applicable procedures and were knowledgeable about the assigned system. The inspectors also noted that the test packages adequately tested the required safety function of each IROFS and the SSC.

Inspectors also walked-down the IROFS that were passive engineered controls (ADUROD-155, SOLX-108, SOLX-109, and SOLX-115) and confirmed that the physical dimensions and condition of these IROFS were capable of performing the intended safety function. The administrative IROFS (WASH-103, WASH-106, and ADUROD-136) were verified to be adequately implemented. The inspectors confirmed that all the aforementioned IROFS were properly communicated as described in potential accident scenarios in the Integrated Safety Analysis (ISA).

During plant tours, the inspectors observed operators/technicians, general plant conditions, equipment conditions, operational status, and housekeeping. The inspectors noted that operators/technicians were focused on their job duties and maintained good housekeeping of their work areas as required by procedure.

The inspectors reviewed procedures applicable to the above IROFS and determined that required actions, as identified in the ISA Summary, were correctly transcribed into these operating procedures. The inspectors evaluated the procedure contents with respect to operating limits, set points and operator responses for upset conditions and verified that limits and actions needed to assure safety were adequately described.

Inspectors observed shift turnover meetings and noted that communications were adequate and that all personnel were attentive. The inspectors also observed an operational safety training class and reviewed the training material and found the subject matter to be adequately covered.

The inspectors reviewed audits and assessments of the operational safety program for various plant areas. The inspectors determined the audits and assessments were adequate. Any findings were confirmed to have been entered into the corrective action program (CAP).

The inspectors reviewed the corrective action program entries for the past 12 months for IROFS and audit/assessment findings and determined that deviations from procedures and unforeseen process changes affecting nuclear criticality, chemical, radiological, or fire safety were captured, adequately documented, investigated promptly, and entered into the CAP.

b. Conclusion

No violations of NRC requirements were identified.

2. Nuclear Criticality Safety (IP 88015)

a. Inspection Scope and Observations

The inspectors evaluated the adequacy of the licensee's Nuclear Criticality Safety (NCS) program and analyses to assure the safety of fissile material operations through compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) 70 and the license application. The inspectors reviewed selected NCS documents to determine whether criticality safety of risk-significant operations was assured through engineered and administrative controls with adequate safety margin, preparation, and review by qualified staff. The NCS analyses demonstrated adequate identification and control of NCS hazards to assure operations within subcritical levels through appropriate limits on controlled parameters. NCS analysis reviewed included those related to the Ammonium Diuranate (ADU) conversion system. The inspectors interviewed the licensee criticality engineer responsible for the ADU process, a manager, and multiple operators regarding operations, equipment, and controls. The inspectors reviewed aspects of selected NCS-related IROFS, including ADU-VAP-101, ADU-VAP-110, ADU-VAP-904, ADU-VAP-909, ADU-VAP-128, ADU-VAP-114, ADU-VAP-153, and ADV-VAP-154. The inspectors verified that the performance requirements were met for selected accident sequences.

The inspectors reviewed the commitments for audits and walk-downs, and ensured that the licensee was meeting the commitments. The inspectors also reviewed the results of the most recent NCS audits and walk-downs to assure that appropriate issues were identified and resolved. The inspectors reviewed the recorded walk-downs that were completed since the last NCS inspection (Facility Walkthrough Assessments for 2nd Quarter 2015). The inspectors verified that the licensee's NCS audits were conducted in accordance with written procedures. The inspectors noted that the walk-downs were performed by NCS engineers who reviewed the adequacy of control implementation; reviewed plant operations for compliance with license requirements, procedures and postings; and interacted with operators during their walk-downs. The inspectors confirmed that deficiencies identified during audits were entered into the licensee's CAP, and had been or were being addressed as required.

The inspectors conducted multiple walk-downs in the ADU area and verified that associated risk-significant, fissile material operations were being conducted safely and in accordance with regulatory requirements. The inspectors interviewed operations staff and NCS engineers before and during walk-downs. The inspectors verified that controls identified in NCS analyses were adequately installed or functionally tested to ensure safety. The inspectors also verified that safety was being maintained for observed facility operations. The cognizant NCS engineers were knowledgeable and interacted regularly with operators on the process floors.

The inspectors reviewed the licensee's response to a selection of recent internally-reported events. The inspectors reviewed the progress of investigations and interviewed licensee staff regarding the events and the associated corrective actions. The inspectors noted that the events were investigated in accordance with procedures and corrective actions were assigned and tracked as required.

b. Conclusion

No findings of significance were identified.

B. Facility Support

1. Maintenance and Surveillance of Safety Controls (IP 88025)

a. Inspection Scope and Observations

The inspectors interviewed two managers and two supervisors to verify that the maintenance and surveillance program organization structure aligned with the license application. The inspectors noted no significant changes in the licensee's organizational structure and that personnel in the management position met the requirements in the license application. The inspectors verified that IROFS and other safety controls were adequate to assure that IROFS and safety controls were maintained available and reliable to perform their safety function when needed. In additional, the inspectors observed testing of the sintering furnace flame sensor and the calibration of the instrumentation for cylinder recertification. The inspectors found the licensee conducted the activities according to procedure as required by the license application.

The inspectors verified that the licensee's work control program had provisions to ensure the adequate pre-job planning and preparation of work packages to support maintenance and surveillance activities. The inspectors also observed a work planning meeting and maintenance shift turnover meeting to verify compliance with the provisions of the work control program. The inspectors reviewed maintenance and surveillance work packages for accuracy and to ensure that test packages challenged and verified operability of IROFS and safety controls. The inspectors also verified that the operator conducting the cylinder recertification task was fully qualified to perform the activity.

The inspectors observed maintenance work activities on selected systems and processes and determined that work activities are conducted in accordance with licensee requirements and approved procedures. Effective corrective actions are taken when a safety control fails or has degraded. The inspectors verified that post-maintenance testing and calibrations, as specified by the licensee requirements were adequately performed prior to restoring equipment to operational status. The inspectors reviewed twenty three completed work packages to verify they were adequately

reviewed prior to returning equipment to service. The inspectors also verified that work packages were signature approved by the safety organization and supervisors prior to implementing the work.

The inspectors reviewed the licensee problem identification and resolution program to verify that performance issues relating to the maintenance and surveillance of IROFS and safety controls were entered into the CAP and evaluated the adequacy of corrective actions taken. The inspectors also reviewed the Environmental, Health and Safety audit that encompasses maintenance activities and verified that it met license requirements.

b. Conclusion

No violations of NRC requirements were identified.

2. Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors interviewed managers, supervisors, and staff to verify that the licensee had established an effective configuration management system to evaluate, implement, and track plant modifications that could affect safety. The inspectors evaluated configuration control procedure changes since the last plant modifications inspection to verify that the changes were consistent with license requirements, including specific requirements related to configuration management. The inspectors verified that the licensee's work control program had provisions to ensure the adequate pre-job planning and preparation of plant modification design packages. The configuration management system had adequate provisions to ensure that plant modifications did not degrade the performance capabilities of IROFS or other safety controls that are part of the safety design basis.

The inspectors verified that the licensee addressed the impacts of modifications to the ISA Summary, and other safety program information developed in accordance with 10 CFR 70.62. The inspectors also verified that the reviewed plant modifications were in compliance with the requirements of 10 CFR 70.72.

The inspectors reviewed modification design packages since the last plant modifications inspection to ensure the as-built design installations were in conformance with the design drawings. The inspectors conducted walk downs to verify that field installations matched as-built design drawings. The inspector verified that applicable post installation testing and personnel training requirements were adequately identified and performed. Completed modifications were adequately reviewed prior to implementation and before returning affected equipment to service. Projects inspected included the calciner burner and scrubber upgrades, including modification of IROFS and completed procedure changes, and the Sintering Furnace upgrades and testing of safety related components. The inspectors reviewed modification acceptance tests and observed IROFS testing for sintering furnace modifications associated with saturation tank level switch deionized water valve isolation. Installation of various backflow preventers as part of the Nuclear Criticality Safety Improvement Plan (NCSIP II), and physical modifications to URRS tanks to prevent backflow of special nuclear material into deionized water supply to improve criticality safety were also evaluated to verify changes were implemented per procedure TA-500, Revision 28, Columbia Manufacturing Plant Configuration Control.

The inspectors verified that the modifications involving IROFS were adequately designed and implemented, and that assumptions were validated with the actual configuration and operation of the modified processes. The inspectors also verified that the licensee had implemented management measures such as procedures, configuration management, audits and assessments, and training to assure that modified IROFS were available and reliable to perform their intended safety function when needed.

b. Conclusion

No violations of NRC requirements were identified.

C. Special Topics

1. Event Follow-up

a. (Closed) Licensee Event Report (LER) 2015-001, Event Number (EN) 51024, "Failure of Spring Loaded Valve"

Introduction: A non-cited, licensee identified, Severity Level IV violation of 10 CFR 70.62(a) was identified for the failure to demonstrate compliance with the performance requirements of 10 CFR 70.61(b) following the failure of a spring loaded valve designated as an IROFS.

Description: On April 30, 2015, Westinghouse personnel identified a spring loaded valve designated as an IROFS (ADUSCRA-102) that would not spring to close as required. The purpose of ADUSCRA-102 and a three way valve (ADUSCRA-153) was to prevent the back flow of low concentration SNM bearing solution into the deionized (DI) water utility lines. The inspectors spoke with the operator that discovered the valve was not springing to close and noted that the valve was found in a failed state. The DI water line leads back to an unfavorable geometry 10,000 gallon water feed tank (T-1365) that remains approximately 75% full. With ADUSCRA-102 in a failed state, only ADUSCRA-153 remained as an available IROFS for the high consequence accident sequence. However, the initiating condition, loss of utility water pressure had not occurred. Subsequently, the licensee reported the condition to the NRC as a failure to meet the performance requirements of 10 CFR 70.61(b).

The inspectors reviewed the configuration of the equipment with the licensee's NCS engineer. The accident sequence involved the pump out of multiple batches of SNM bearing solution following the loss of DI water pressure, which is a situation that causes the plant to stop operations. The inspectors noted that the piping leading back to T-1365 had several defense in depth controls in the form of check valves throughout the system. The inspectors also noted that the unfavorable geometry 10,000 gallon water tank was elevated and would apply constant pressure that the process pump would have to overcome to trigger backflow. The licensee informed the inspectors that 1) assuming the special nuclear material (SNM) bearing solution is not properly filtered from the filter press and 2) the loss of water utility pressure, the concentrated solution would require more than 60 pump outs over the course of five days to reach a concentration in T-1365 to be of concern.

Analysis: The licensee failed to demonstrate compliance with the performance requirements of 10 CFR 70.61(b) as required by 10 CFR 70.62(a) following the failure of IROFS ADUSCRA-102. The violation was deemed more than minor as the noncompliance resulted in a change in risk such that the licensee failed to meet the performance requirements as documented in the ISA. The licensee's ISA requires high consequence accident sequences to be 10^{-4} to be highly unlikely. With the loss of ADUSCRA-102, the accident sequence was at 10^{-3}, or unlikely. The condition did not result in any actual safety significance as the initiating condition for the sequence (loss of water pressure) never occurred. The potential safety significance was also low due to several conditions the licensee can credit to increase the initiating event frequency of the sequence such that the sequence will be 10^{-4}, highly unlikely. Specifically, the fact that the plant would not operate if the water utility was lost, the number of high concentration batches that would need to be pumped over five days to reach a concentration of concern, and the head pressure that the T-1365 has due to the normal level of water in the tank. These conditions, along with IROFS ADUSCRA-153, would maintain the accident sequence at highly unlikely.

Enforcement: On April 30, 2015, contrary to the requirements of 10 CFR 70.62(a), the licensee failed to demonstrate compliance with the performance requirements of 10 CFR 70.61(b) following the failure of IROFS ADUSCRA-102. The violation resulted in no actual safety significance and the potential safety significance was low due to the uncredited conditions present involving the process. The inspectors walked down the spring loaded valve that failed with the NCS engineer and reviewed the corrective actions. The inspectors reviewed the re-routed piping that added additional IROFS check valves systems (ADUSCRA-147 and ADUSCRA-118) to prevent back flow into the utility lines. These check valve systems replaced the failed spring loaded valve (ADUSCRA-102), which is no longer an IROFS, in the accident sequence in the ISA. The inspectors determined that the licensee's corrective actions increased the robustness of the safety systems and returned the system into compliance. The inspectors also reviewed the apparent cause analysis for the event and the licensee's extent of condition review. The licensee identified no other failed spring loaded valves; however, the licensee initiated modifications to strengthen the robustness of valves in other areas. The inspectors also verified that the licensee modified applicable procedures to include language to ensure the operators are aware of the expected actions of the spring loaded valves and to report any issues related to them. This violation is being treated as a non-cited violation (NCV), consistent with Section 2.2.2 of the "NRC Enforcement Policy." The violation was entered into the licensee's CAP as #68460. (NCV 70-1151/2015-004, "Failure of Spring Loaded Valve") This item and violation are considered closed.

D. Exit Meeting

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized on July 23 and September 3, 2015, to David Precht and staff. The inspectors received no dissenting comments from the licensee. Proprietary and security related information were discussed but not included in the report.

SUPPLEMENTAL INFORMATION

1. KEY POINTS OF CONTACT

Name	Title
S. Adams	Licensing Engineer
C. Amick	IFBA Operations Manager
S. Armstrong	Technical Services Manager
K. Barber	Electrical Lead, Engineering
G. Byrd	Licensing Engineer
B. Craig	Area Engineer
T. Gregg	URRS Manager
J. Howell	EH&S Manager
V. Lowe	Project Engineer
G. McGehee	Criticality Safety Programs
N. Parr	Licensing Manager
A. Pearson	EH&S Operations Manager
B. Phillips	Chemical Operations Manager
R. Rivers	Floor Trainer
R. Rossiter	Chief Operator
E. Sapp	Pellet Operations Manager
W. Sepitko	Mechanical Operations Manager
C. Snyder	NCS Manager
R. Stutts	Drafting and Design Lead, Engineering

Other licensee employees contacted included engineers, technicians, production staff, and office personnel.

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened & Closed

70-1151/2015-004	NCV	Failure of Spring Loaded Valve (Paragraph C.1)
70-1151/2015-001	LER	Failure of Spring loaded Valve

3. INSPECTION PROCEDURE USED

88015	Nuclear Criticality Safety
88020	Operational Safety
88025	Maintenance and Surveillance
88070	Plant Modifications

4. DOCUMENTS REVIEWED

Records:

2015 Semi-Annual Assessment of Public Dose from Liquid and Gaseous Effluents, August 21, 2015CSE-2-A, Uranyl Nitrate Bulk Storage and HF Spiking Station, Revision (Rev.) 6

CSE-3-G, UF6 Cylinder Vaporization and Condensate System, Rev. 6, Sept. 2014

CSE-3-L, Storage of Legacy 8A Cylinders, Rev. 5, July 2013

EHS-Audit-12-7, Nuclear Criticality Safety Program Audit, July 2012
EHS-Audit-15-2, Formal Compliance Audit Plan, dated February 4, 2015
EHS-Audit-15-2, Formal Compliance Audit Report, dated March 19, 2015
Facility Walkthrough Assessments for 2nd Quarter 2015
Formal Compliance Audit Plan, dated February 4, 2015
Formal Compliance Audit Report, dated March 19, 2015
LTR-EHS-15-1, 2015 EH&S Program Supplier and Formal Complince Audit Schedule, dated January 8, 2015
OM85056, SI-SAFETY, Cylinder Wash Weight Interlock - Annual OM
OM85252, SI-SAFETY, Primary and Redundant Vent Verification -Annual OM
OM82000, SI-Safety, Safety Significant Controls Check, Pellet Lines – Annual OM
PM81001, SI-SAFETY - Siletta Feeder - Annual PM
Program, Formal Compliance, and Supplier Audits, RAF-106-1, February-March 2015

Procedures:
CA-007 Corrective and Preventative Action, Rev. 30, dated February 5, 2015
CF-82-069, Pellet Area: Safety significant Control Verification Form, Rev. 14
COP-810097, UF6 Bay Handling of UF6 Cylinders, Revision 23, 07-24-2014
COP-814529, Weigh Scale Measurement Control – CSR Area, Rev. 29, dated March 1-2012
COP-814750, Bulk Blending Equipment Cleanout, Rev. 32, dated November 14, 2013
COP-814760, Functional Verification of Safety Significant Controls- ADU Dump Hood, Rev. 3.
COP-829013, Functional Verification of Safety Significant Controls Pellet Area, Rev. 52, dated July 9, 2015
COP-829013, Functional Verification of Safety Significant Controls Pellet Area, Rev. 53
COP-829013-1, Pellet Area Safety Significant Controls, Rev 56
COP-833010, Cylinder Cleaning System, Rev. 45, dated December 16, 2014
COP-830524, Operation of F-1168 – Warm Caustic Waterglass Cake Dissolution and Filtration, Rev. 6, dated March 19, 2015
MCP-203312, Verification of Interlock ADUCAL-906; Calciner OT Trip, Rev. 12
MCP-203321, Verification of Interlock ADUCAL-907; Loss of Flame, Rev. 11
MCP-203332, Verification of Interlock ADUSCR-902; V-x12 Low Low Level, Rev. 8
MCP-203334, Verification of Interlock ADUCAL-403; Calciner Rotation, Rev. 11
MCP-203340, Verification of Interlock ADUCAL-905; Burner Hi. Natural Gas Press, Rev. 13
MCP-203341, Verification of Interlock ADUCAL-908; Lo Combustion Air Pressure Trip, Rev. 11
MCP-203343, Verification of Interlock ADUSCR-401; V-x12 Low Level, Rev. 7
MCP-203381, Verification of Interlock ADUCAL-402; Calciner Pilot Ignition Interlock, Rev. 5
MOP-750287, Fuel Tube and Rod Handling, Rev. 38, dated May 12, 2015
NCS-017, Categorizing Potential Criticality Scenarios and Criticality Safety Significant Controls, Rev. 4, dated March 18, 2015
PM81804, SI-Safety – Discharge Seal Maintenance
RA-121, Redbook Internal Reporting System
RA-107, Corrective Action Process for Regulatory Events
RA-125, Indoctrination, Training, and Qualification of EH&S Personnel, Rev. 19, dated March 21, 2013
RA-303, Control of Moderating Materials for Nuclear Criticality Safety, Rev. 18, dated November 14, 2013
RA-304, Criticality Accident Alarm System, Rev. 16, dated January 19, 2012

RA-316, NCS Facility Walkthrough Assessments, Rev. 8, dated February 26, 2015
RA-134 Columbia Plant Safety Event Response Guidelines, dated January 8, 2015
TA-500, Columbia Manufacturing Plant Configuration Control, Rev. 28

Condition Reports Review:
68274, 68275, 68267, 68281, 68284, 68287, 68304, 68307, 68309, 68348, 68383, 68411, 68412, 68419, 68454, 68455, 68470, 68478, 68497, 68499, 68507, 68525, 68526, 68541, 68543, 68568, 68583, 68637, 68639, 68670, 68674, 68704, 68729, 68730, 68737, 68809, 68820, 68851, 68852, 68872, 68876, 68901, 69052, 69100, 69075, 69085, 69076, 100061293, 100066554, 100267824, 100306211, 100054666

Other Documents:
Work Orders: 670400, 679537, 674949, 680151, 687233, 687313, 691245, 691717, 693257, 693972, 694571, 694592, 694593, 694594, 694595, 694596, 695972, 696237, 697225, 697273, 698116, 694594, 694595, 694596, 694592, 694593, 691717 (CF-83-210), 697273, 694571, 687313, 687233, 674949, 679537, 693972, 691245, 695972 (CF-82-069), 696237, 670400, 697225, 680151, 699587 (CFF 15143), 700366, 701295, 697226, 702570

CCF 11520, Schuf Valve Rebuild on V502
CCF 12220, Furnace 3A Saturator 2nd SSC
CCF 12221, Furnace 3B Saturator 2nd SSC
CCF 12452 - 12466, Furnace XX Saturator 2nd SSC
CCF 12736, ADU Line 1 Dryer Fire Detection System Phase I
CCF 13144, Line 5 Calciner Burner Mechanical Upgrades
CCF 13244, Line 2 Calciner Upgrades
CCF 13674, Modify Spiking Stations for Implementation of CSE-2A
CCF 14031, ADU Furnace Saturators 2nd SSC for NCSIP II
CCF 14088, Remove Ammonium Hydroxide Connection to V-701
CCF 14089, V707A DI Water backflow Preventer
CCF 14397, Add backflow Prevention Mechanism to Line from Solvent Drums to SOLX and Remove Pump on Aluminum Nitrate Line to V-1075
CCF 14401, Reconfigure SOLX Nitric Acid Header
CCF 15115, Hot Water Flush for V-1170A/B Transfer Line

Sketch 929104, Safety Significant Controls- Rod Area, Rev. 11, dated March 5, 2015

2014 Redbook Failure Evaluation Report