70-7001

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December 23, 1996

Dr. Carl J. Paperiello
Director, Office of Nuclear Material
Safety and Safeguards
Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SERIAL: GDP 96-0199

Paducah Gaseous Diffusion Plant (PGDP)
Docket No. 70-7001
Certificate Amendment Request-Autoclave Containment Valves Pressure Decay Testing

Dear Dr. Paperiello:

In accordance with 10 CFR 76.45, the United States Enrichment Corporation (USEC or Corporation) hereby submits a request for amendment to the certificate of compliance for the Paducah, Kentucky Gaseous Diffusion Plant (GDP). This certificate amendment request revises surveillance requirements for the autoclave pressure decay test specified in Technical Safety Requirement (TSR) 2.1.3.1 and 2.2.3.1 associated with the Autoclave High Pressure Isolation System for the C-360 and C-333A/C-337A facilities, respectively. These revised surveillance requirements reflect the ability to independently test inboard and outboard autoclave isolation valves.

Issue 3 of the Plan For Achieving Compliance with NRC Regulations for the Paducah Gaseous Diffusion Plant, requires, in part, that modifications be performed to allow pressure decay testing separately for the inner and outer containment valves and to assure that backpressure does not mask leaks during the testing for all autoclaves within the C-333A, C-337A and C-360 facilities. In addition, Compliance Plan Issue 3 requires, in part, that a revised TSR be provided to reflect the new configuration. Revisions to TSRs 2.1.3.1 and 2.2.3.1, Autoclave High Pressure Isolation System for the C-360 and C-333A/C-337A facilities, respectively, are provided as enclosures to this letter. In addition, the revised Safety Analysis Report pages are also enclosed.

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Enclosure 1 to this letter provides a detailed description and justification for the proposed changes. Enclosure 2 is a copy of the revised TSR pages. Enclosure 3 contains the basis for USEC's determination that the proposed changes associated with this certificate amendment request are not significant.

Since this proposed certificate amendment request is not required to support continued operation, USEC requests NRC review and approval at your earliest convenience. The amendment should become effective 60 days from issuance.

Any questions related to this subject should be directed to Mr. Robert L. Woolley at (301) 564-3413 or Mr. Mark Smith at (301) 564-3210.

Sincerely,

James H. Miller
Vice President, Production

Enclosures: As Stated

cc: NRC Region III Office
NRC Resident Inspector - PGDP
NRC Resident Inspector - PORTS
Mr. J. Dale Jackson (DOE)

United States Enrichment Corporation (USEC)
Proposed Certificate Amendment Request
Autoclave Containment Testing
Detailed Description of Change

The PGDP feed autoclaves in C-333A and C-337A and the sampling and transfer autoclaves in C-360 provide a containment function in the event of a cylinder leak or pigtail rupture. The containment function is in part demonstrated by the periodic pressure decay test of the autoclaves as delineated in Technical Safety Requirements. However, at the time of Certification, the configuration of piping and valves of some autoclave penetrations precluded the performance of independent tests of both the inner and outer isolation valves. The Surveillance Requirements of TSR 2.1.3.1 and TSR 2.2.3.1 currently contain a list of barriers that are exposed to the autoclave test volume, but are not configured to permit practical control or monitoring of the outboard pressure. These existing Surveillance Requirements read, in part, as follows:

SR 2.1.3.1-3 (C-360)		SR 2.2.3.1-3 (C-333A/C-337A)	
The following barriers shall be exposed to the autoclave test volume but are not configured to permit practical control or monitoring of the outboard pressure:		The following barriers shall be exposed to the autoclave test volume but are not configured to permit practical control or monitoring of the outboard pressure:	
Inner Barrier	Outer Barrier	Inner Barrier	Outer Barrier
	XV-*50		PV-520-*
	XV-*49	XV-503-*	CV-511-*
	XV-*48		CV-504-*
	PSE-*13		CV-510-*
	FV-*05		XV-505 *
XV-511A-*	CKV-511-*		

Compliance Plan Issue 3 for PGDP requires modifications to allow a pressure decay test to be performed separately for the inner and outer containment valves, and assurance that backpressure does not mask leaks. The modifications will install a vent path on the autoclave penetration piping to relieve the downstream pressure on the second isolation valve of the air purge line, UF_6 relief line, and steam supply line for each feed autoclave. For the sampling and transfer autoclaves, a vent path will be installed to relieve the pressure downstream of both isolation valves on the air buffer line to the tilting mechanism gear box. As shown on attached SAR Figure 3.6-3, one of the vent valves (TP-511-*) on the air buffer line to the tilting mechanism gear box has been added between the inner and outer isolation barrier. This valve now constitutes an outer barrier for this air buffer line and has been added to SR 2.1.3.1-3.

OATH AND AFFIRMATION

I, James H. Miller, swear and affirm that I am Vice President, Production, of the United States Enrichment Corporation (USEC), that I am authorized by USEC to sign and file with the Nuclear Regulatory Commission this Certificate Amendment Request for the Paducah Gaseous Diffusion Plant, that I am familiar with the contents thereof, and that the statements made and matters set forth therein are true and correct to the best of my knowledge, information, and belief.

James H. Miller

Subscribed to before me on this 23 day of DECEMBER, 1996.

Notary Public

CATHERINE E. KEEL
NOTARY PUBLIC, STATE OF MARYLAND
My Commission Expires February 4, 1997

Compliance Plan Issue 3 also requires revised TSRs to reflect this modified configuration. In accordance with the Compliance Plan, the proposed changes to the Surveillance Requirements of TSR 2.1.3.1 and TSR 2.2.3.1 which reflect the autoclave hardware modifications have been made to the TSRs and are included as Enclosure 2. These TSRs have been revised to delete the surveillance requirement statement which noted that certain barriers were not configured to permit practical control and monitoring of the outboard pressure. In addition, these barriers have been regrouped such that the inner and outer barriers are listed together.

In conjunction with these changes, the piping configuration of the sampling and transfer autoclaves (C-360)is being modified. The UF_6 relief piping connection to the UF_6 sample line, has been moved to the outboard side of the UF_6 sample line outboard isolation valve (XV-*48). The rupture disk in the UF_6 relief line (PSE-*13), which acted as an isolation barrier in the previous configuration, will no longer perform this function. Figure 3.6-3 of the SAR has been modified to reflect this change and is included in Enclosure 2.

These modifications, coupled with test methodology enhancements, permit full differential pressure testing of the valves listed as "exceptions" in the TSRs other than the UF_6 relief line rupture disk (PSE-*13) of the sampling and transfer autoclaves which no longer performs this function.

SR 2.1.3.1-3 and SR 2.2.3.1-3 currently contain the lists of valves that are exposed to the autoclave test volume but are not configured to permit practical control or monitoring of the outboard pressure. The UF_6 relief line rupture disk (PSE-*13) of the sampling and transfer autoclaves rupture disk is included in this list of testing exceptions. The proposed changes remove the rupture disk from the list and move the remaining valves to the preceding list of tested valves.

These changes assure that each penetration isolation valve will support the autoclave containment function. The hardware modifications described above are currently in progress and will be completed in accordance with the Plan of Action and Schedule for Compliance Plan, Issue 3, Action 10..

Enclosure 2
GDP96-0199
3 Pages

Proposed Certificate Amendment Request Paducah Gaseous Diffusion Plant Letter GDP96-0199 Removal/Insertion Instructions	
Remove Pages	**Insert Pages**
VOLUME 1	
Section 3.2	**Section 3.2**
3.2-9/3.2-10 and 3.2-13/3.2-14	3.2-9/3.2-10 and 3.2-13/3.2-14
Section 3.6	**Section 3.6**
3.6-5/3.6-6, 3.6-11/3.6-12 and 3.6-15/3.6-16	3.6-5/3.6-6, 3.6-11/3.6-12 and 3.6-15/3.6-16
VOLUME 4	
Section 2.1.3 2.1-7	**Section 2.1.3** 2.1-7
Section 2.2.3 2.2-6	**Section 2.2.3** 2.2-6

3.2.5.1 Conductivity Monitoring

Each autoclave is provided with redundant conductivity cells to monitor the atmosphere within the autoclave to detect the presence of any HF that would result from UF_6 that might leak from a cylinder. The conductivity cell constantly withdraws a portion of the steam vapor, condenses it, and measures the electrical conductivity of the condensate. UF_6 leakage into the autoclave will form HF, which results in high conductivity, which in turn operates an interlock system to isolate the autoclave by closing the redundant inlet steam valves, evacuation valves, feed line valves, vent valves, condensate drain valves, and conductivity valves to contain any UF_6 release products within the autoclave. Procedural controls dictate that at least one of the conductivity cells must be in operation at all times to detect any small leaks of UF_6.

3.2.5.2 Water Inventory Control

As mentioned in Section 3.2.3, the maximum pressure generated in an autoclave from an accidental UF_6 release and subsequent reaction with the available water is best controlled by limiting the water in the autoclave shell. Redundant condensate level probes, LE-527-**A and LE-527-**B, are mounted in the 3-in. drain pipe slightly below the autoclave. These probes are referred to as the primary condensate probes. If the ultrasonic probes detect high water levels, the steam supply isolation valves close to limit the total water in the autoclave. To prevent false alarms, a time delay feature requires the system to be in the alarm state for five seconds before the alarm will initiate steam valve and thermovent line block valve closure. This system has been designated a system required to be included in the technical safety requirements (TSR) (see Figure 3.2-2). A secondary condensate probe, located lower in the condensate drain line provides an alarm before the condensate level reaches the primary probes. The secondary system is not a TSR system.

3.2.5.3 Autoclave Steam Pressure Control

The autoclave steam pressure control system is required to be included in the TSR and is used to stop the steam flow to the autoclave while heating a cylinder prior to reaching temperatures that could result in reaching its maximum allowable working pressure. If the autoclave pressure reaches 8 psig, the steam pressure control system closes the steam isolation valves and the thermovent line block valve and sounds an alarm. The components of this system are the pressure transmitters PT-514 and PT-515, pressure switches PSH-514 and PSH-515, steam supply isolation valves PV-520 and XV-524, and associated relays, solenoids and switches (see Figures 3.2-2 and 3.2-4). The thermovent line block valve is not covered by a TSR since the isolation function is accomplished by closing the steam isolation system.

3.2.5.4 Autoclave High Pressure Isolation System

The autoclave high pressure isolation system causes the autoclave to go into the containment mode and sound an alarm if the internal pressure of the autoclave reaches 15 psig. In addition, the system disables the hydraulic system required to open the autoclave shell preventing the autoclave from opening until the alarm condition has been cleared. This system is identified as a system required to be included in the TSR. The components of this system include the autoclave shell, head, and locking ring, pressure transmitters PT-514 and PT-515, pressure switches PSHH-514 and PSHH-515, containment block valves XV-503, CV-504, XV-505, CV-510, CV-511, XV-516, PSV-517, PSE-518, PV-520, XV-524, PV-525, XV-528, FV-529, XV-532, CV-533, and XV-565, and associated relays and switches, see Figures 3.2-2 and 3.2-4. All containment valves/pressure boundary devices are capable of being leak tested with a full differential pressure.

3.2.5.5 Autoclave Relief System

The autoclave relief system consists of the autoclave rupture disc PSE-518 and relief valve PSV-513, which vents pressure in excess of 200 psig (MAWP of the autoclave) to the atmosphere through a vent line through the roof (see Figure 3.2-2). The relief valve closes when the autoclave pressure drops below the MAWP to limit the amount of any release. This system is required to be included in the TSR.

3.2.5.6 UF_6 Detection System

Although the autoclaves are designed to contain a UF_6 release, UF_6 detection heads are installed above the autoclave head ring, the heated housing at the autoclave head, above the jet station piping, and in the piping trench. These systems consist of one detector each and will detect any leakage from the autoclave seal, the heated housing piping, the jet station piping, or the piping trench. If a leak is detected, an alarm is sounded locally at each autoclave and on the UF_6 detector alarm panel. The UF_6 detection systems located for the heated housings, jet station, and piping trench are designated as a system required to be included in the TSR (see Figures 3.2-5 and 3.2-6).

3.2.5.7 Autoclave Manual Isolation System

The autoclave manual isolation system contains three manual push buttons, one at the Operations Monitoring Room door, one at the crane bay exit near the local cylinder yard, and one in the ACR. When one of these buttons is pressed, each facility autoclave is placed into containment (at least one isolation valve on each isolable autoclave penetration closed). The buttons are used upon confirmed UF_6 outleakage to mitigate the release.

3.2.5.8 Operational Systems

The following operational systems are intended to prevent challenges to the safety systems. Although these systems are not relied upon to provide safety functions, they do provide diversity while performing their intended function of improving autoclave operations.

- The low cylinder pressure system closes the steam isolation valves and the thermovent line block valve and sounds an alarm if the cylinder pressure fails to reach 24 psia in 1 3/4 hours. The components of this system are the timer (internal to the programmable logic controller), pressure transmitter PT-502, pressure switch PSL-502, steam supply isolation valves PV-520, XV-524, and thermovent line block valve XV-565, and associated relays, solenoids, and switches.

- The high cylinder pressure system closes the steam isolation valves and sounds an alarm if cylinder pressure exceeds 90 psia. The components of this system are the pressure transmitter PT-502, pressure switch PSH-502, steam supply isolation valves PV-520, XV-524, and thermovent line block valve XV-565, and associated relays, solenoids, and switches.

- The cylinder pressure relief system relieves pressures in excess of 100 psig (lowest MAWP of the cylinders heated) from the feed cylinder and closes the steam isolation valves and the thermovent line block valve. The components of this system are the 100 psig relief discs, PSE-506 and PSE-508,

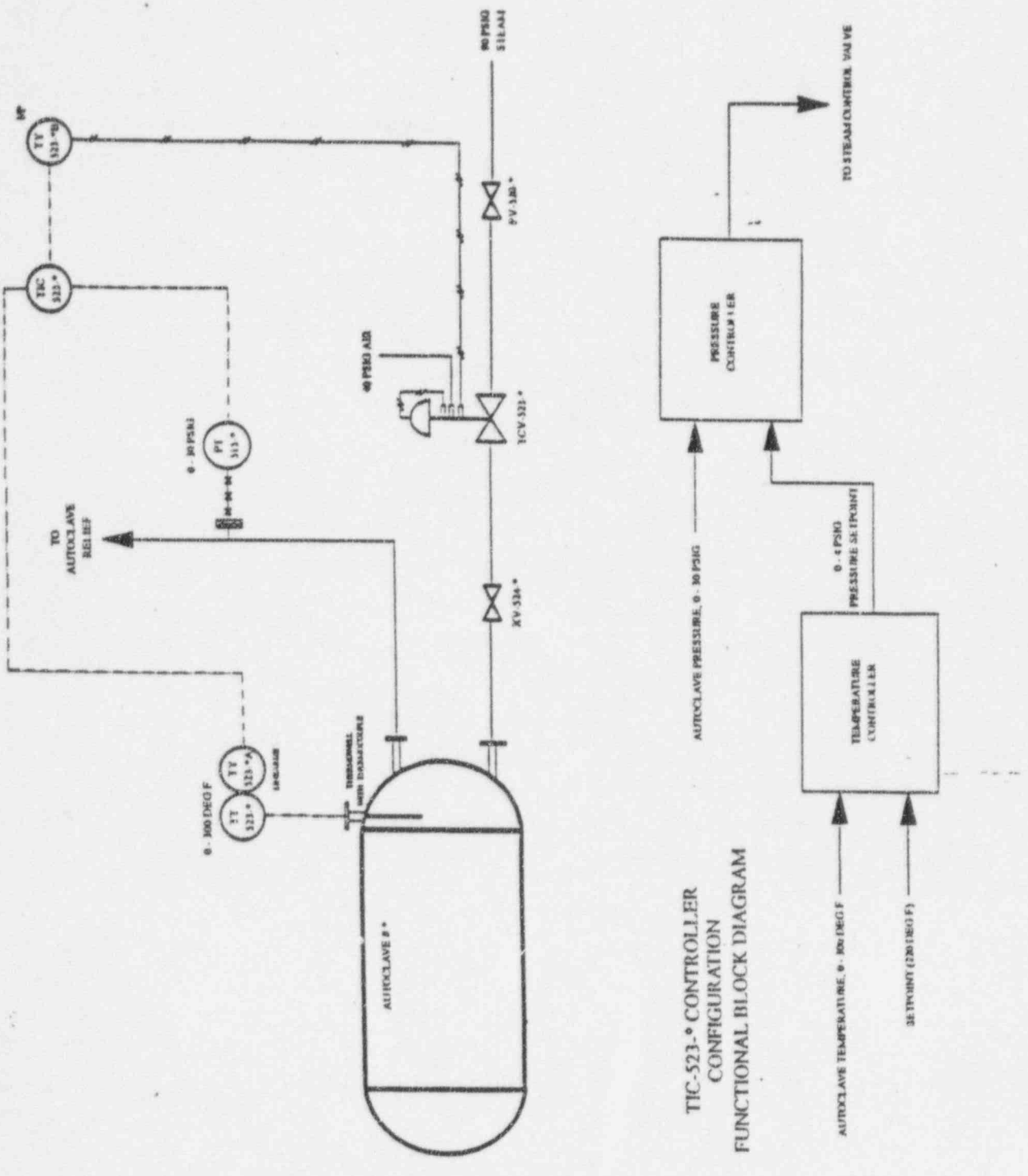

Figure 3.2-1. Autoclave temperature control.

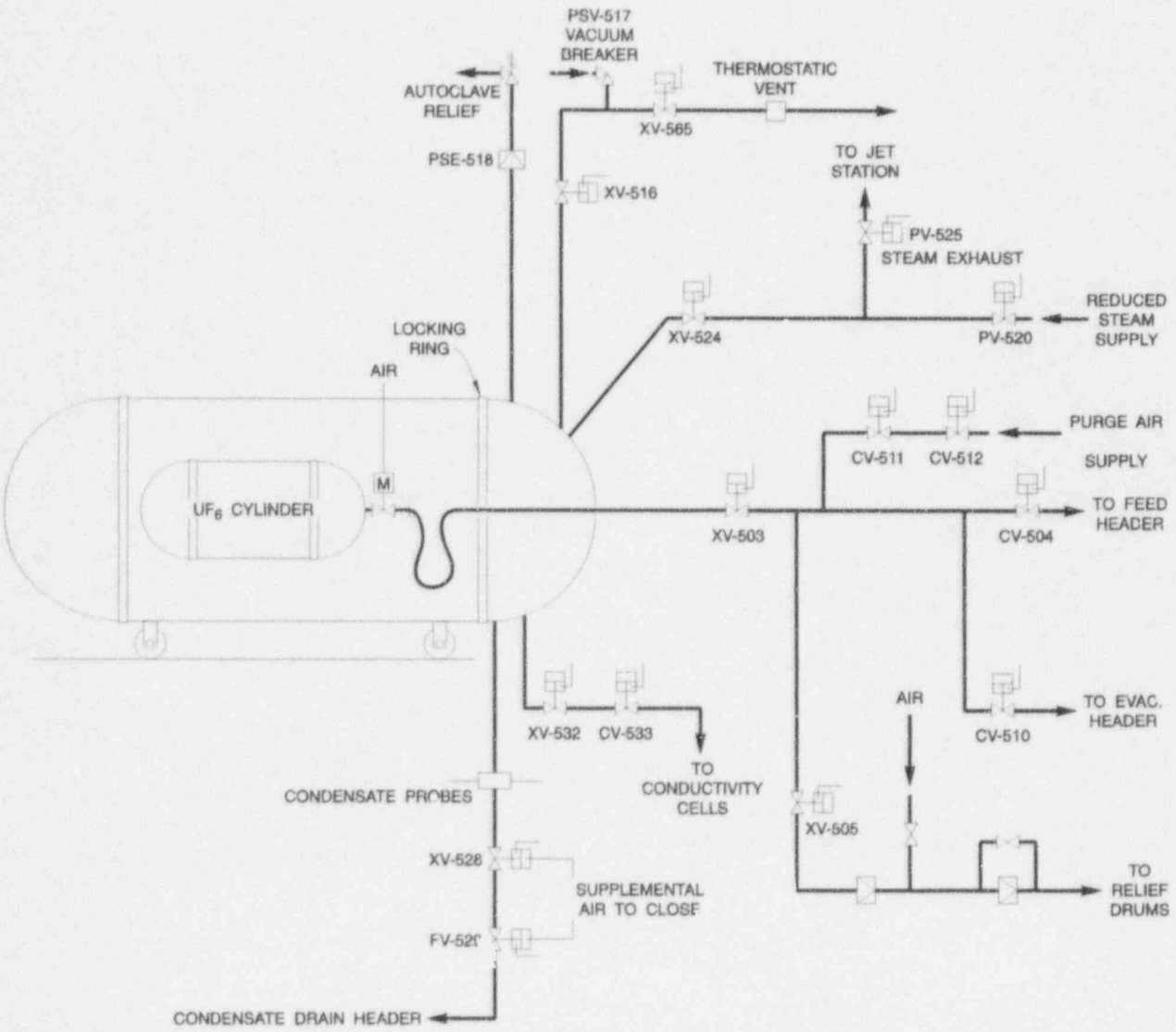

Figure 3.2-2. Simplified schematic of feed facility autoclave and associated piping.

The building is constructed of structural steel with build-up roof, cement-asbestos, and metal siding and has concrete floor slabs and foundations. Seismic design consideration is in accordance with Energy Research and Development Agency (ERDA) Criteria Appendix 6301 and Universal Building Code (UBC) Zone 3.

Ventilation for the general work area in C-360 is provided by one 50,000 cfm supply fan and eight 50,000 cfm exhaust fans. The supply fan is in operation prior to draining UF_6 to the transfer station at the basement level. The fan and UF_6 drain valve are interlocked to ensure ventilation in this area. Louvers provided in the building siding aid ventilation. Each autoclave is connected to a small 1,500 cfm exhaust system that provide local ventilation for occasional small releases of UF_6 exhaust that may occur when making or breaking pigtail connections. Operation of the exhaust system is actuated by a manually operated switch located between autoclaves 2 and 3, and the exhaust effluent is passed through a high efficiency particulate filter for removal of any uranium particles prior to venting to the atmosphere. There is an exhaust hood over the transfer filling station. The effluent from this hood is also passed through high efficiency particulate filters prior to release to the atmosphere.

3.6.3 Autoclaves

C-360 has four containment-type autoclaves used to heat cylinders for sampling and transferring UF_6. Each autoclave is a steam-heated pressure vessel with an MAWP of 150 psig and with the necessary instrumentation for the sensing and containment of UF_6 releases that might occur when a cylinder containing UF_6 is being heated, sampled, or transferred. These units are approximately 23 ft long with an internal diameter of 8 ft and are mounted with their long axis horizontal. One section of the autoclave (head) is permanently fixed in position, while the remainder of the vessel (shell) is movable to permit the introduction and removal of UF_6 cylinders. The cylindrical autoclave is parted normal to its axis about 3½ ft from one head. The shell section is mounted on a wheel and track system, which allows opening and closing of the autoclave by translation down its main axis. This motion is provided by a hydraulic ram. When in the closed position, the shell is secured to the head by a hydraulically operated locking ring and a captured O-ring seal. To protect personnel from potential steam burns, an interlock prevents opening the autoclave shell if pressure in the autoclave exceeds 1.25 psig. Travel time to fully open the autoclave is approximately one minute.

In the open position, each autoclave has an extended length of about 39 ft and an opening 15 ft long through which a cylinder is placed on the horizontal support chain inside the autoclave. The overhead crane is used to position the cylinder. The support chain is power-driven to permit the cylinders to be rotated for sampling and transfer operations. When the autoclave is in the open position, a tilting mechanism can be used to elevate the plugend of the cylinder a distance of about 18 in. to enhance liquid transfer from the cylinder inside the autoclave to the receiving cylinder positioned at the withdrawal station. An air buffer flow to the actuator motor and cylinder roll motor is maintained to keep steam out of the electrical circuits and aid in cooling the motors and circuits. A roll interlock system prevents rotation of the cylinder. The pigtail is pressurized by monitoring the UF_6 manifold pressure.

Service lines that penetrate the autoclave are controlled by redundant isolation valves which close automatically when the autoclave goes into containment to prevent the escape of reaction products in the event of a release inside the autoclaves. Penetrations through the head include the steam supply line, UF_6

sample transfer line, condensate drain line, buffer air line, vent line, UF_6 drain line, valve closer, autoclave temperature thermowell, and electrical connection to roll and tilt. Figure 3.6-3 provides a simplified schematic of a C-360 autoclave and the associated piping.

The following valves/barriers isolate service lines:

- Steam supply line — valves XV-*53, FV-*05, and FV-*24.
- Conductivity cell sample line — valves FV-*00 and FV-*10.
- UF sample transfer line — valves XV-*48, XV-*51, and PL-*33.
- Condensate drain line — valves FV-*03 and FV-*46.
- Buffer air line — valves XV-511-*A, XV-511-*B, XV-511-*C, TP-511-* and check valve CKV-511-*.
- Vent line — valves FV-*00 and XV-*34 vacuum breaker valve PSV-*20 and PSE-*32.
- UF_6 drain line — valves XV-*50, XV-*52, FV-*47, and PL-*35.
- Drain line to sample cabinet valves XV-*49 and XV-*52.

Each autoclave is designed to withstand the pressure developed by the exothermic reaction of UF_6 with the steam vapor and the condensate present. The pressures generated in an autoclave are a function of the autoclave free-volume and total water inventory (see Section 4.2.3).

The C-360 sample-transfer autoclaves have a 1,100 ft^3 volume and are designed for a 150 psig maximum allowable working pressure at 235°F. To ensure the maximum allowable water inventory the autoclave is maintained below the amount necessary to overpressurize the autoclave in the event of a UF_6 release. Redundant condensate high level probes, LE-*07 and LE-*08, are mounted at the same elevation in the condensate drain slightly below the autoclave floor. Any abnormal accumulation of condensate in the drain line reaching the level of these probes automatically shuts the steam isolation valves, XV-*53 and FV-*05, and the thermovent line block valve FV-*34, and prevents the addition of more water.

As a protection against catastrophic overpressure, each autoclave is provided with a rupture disc in series with a pressure relief valve set at 150 psig. In the event of a UF_6 release in which a failure of the condensate level system had allowed the autoclave to accumulate an excessive water inventory, the resulting overpressure would be relieved to the atmosphere by a vent line above the C-360 roof. The autoclave would then contain all reaction products remaining at a pressure below the set point of the relief valve.

Steam is introduced into the autoclave as a heating medium and to maintain cylinder temperature. In the event of a UF_6 release, reaction products of UF_6 and water are detected by redundant conductivity cells which constantly monitor a sample of the autoclave atmosphere. The conductivity cells are intended to detect small releases of UF_6 that do not generate a significant pressure rise within the autoclave. The cell is extremely sensitive to the HF component of the UF_6 reaction with water and detects concentrations of only a few parts per million. When triggered, this cell initiates an autoclave containment signal that closes the steam supply line, vent line, UF_6 sample transfer line, condensate drain line, and buffer air line isolation valves. If the conductivity cell detects reaction products in the steam condensate, the condensate drain line valve automatically closes. Operator action is required to switch the discharge path from the storm sewer to two condensate holding tanks. Tests of this cell by controlled release of HF into an operating autoclave have shown the response time to be in the order of 30 to 60 seconds.

containment block valves XV-*53, FV-*05, FV-*24, FV-*00, FV-*10, XV-*48, XV-*51, FV-*03, FV-*46, XV-511-*A, TP-511-*, XV-511-*B, XV-511-*C, XV-*34, XV-*50, XV-*52, XV-*49, and FV-*47, and associated relays, solenoids and switches, see Figures 3.6-3 and 3.6-4. All containment valves/pressure boundary devices are capable of being leak tested with a full differential pressure.

3.6.7.6 Autoclave Relief System

The autoclave relief system consists of the autoclave rupture disc PSE-*32 and relief valve PSV-*32 and vents the pressure in excess of 150 psig to atmosphere through a vent line through the roof (see Figure 3.6-3).

3.6.7.7 Operational Systems

The following operational systems are intended to prevent challenges to the TSR-required systems. Although these systems are not relied upon to provide safety functions, they do provide diversity while performing their intended function of improving autoclave operations.

- The low cylinder pressure system closes the steam supply isolation valves and sounds an alarm if the cylinder pressure fails to reach the required pressure of 24 psia within the prescribed time (not greater than 1 3/4 hours). The components of this system are the timer, pressure transmitter PT-*12, current to pressure transmitter PY-*12C, pressure switch PSL-*12, steam supply isolation valves XV-*53 and FV-*05, and associated relays, solenoids and switches.

- The high cylinder pressure system closes the steam supply isolation valves and the thermovent line block valve and sounds alarms if the cylinder pressure reaches or exceeds 90 psia. The components of this system are the pressure transmitter PT-*12, current to pressure transmitter PY-*12C, pressure switch PSH-*12A, steam supply isolation valves XV-*53 and FV-*05, thermovent line block valve FV-*34, and associated relays, solenoids and switches.

- The cylinder pressure relief system relieves pressures in excess of 100 psig from the feed cylinder to the cylinder relief tanks, and closes the steam supply isolation valves and the thermovent line block valve. The components are the 100 psig relief discs PSE-*13 and PSE-*16 on the sample manifold, pressure transmitter PT-*14, pressure switches PSH-*14 and PSL-*14, and steam supply isolation valves XV-*53 and FV-*05, thermovent line block valve FV-*34, and associated relays, solenoids and switches. The pressure between the rupture discs is maintained between 9.5 and 19.5 psia.

- The autoclave opening prevention system is used to prevent the opening of an autoclave when the internal pressure exceeds 1.25 psig and gives a visual indication. System components are the pressure transmitter PT-*15, pressure switch PSL-*15, and associated relays, solenoids and switches.

- The cylinder roll interlock prevents the rolling of a cylinder while the pigtail is pressurized. This system is intended to supplement administrative controls which prohibit rolling or tilting a cylinder while it is connected to the manifold. The components of this system consist of the pressure transmitters, pressure switches, and associated relays, solenoids and interlocks.

3.6.8 Liquid Drain Station Enclosure

The greatest potential for a liquid UF_6 release in the basement area occurs at the liquid transfer station. In the event of this low probability accident involving the gross failure of the pigtail connection to a daughter cylinder, the closest path of egress from the drain station is by the stairways east and north of the transfer station.

A sheet metal enclosure around the transfer station confines releases to a smaller area, thus making it safer for emergency evacuation of personnel. A release will still exit the area due to the open elevator shaft along the east side of the room. A double door to the north is equipped with panic hardware and has automatic door closers held in the open position. Activation of the UF_6 release detection system at the drain position will release the doors.

3.6.9 Cylinder Handling

The movement of cylinders containing liquid UF_6 is minimized to reduce the potential for a loss of containment. Cylinder handling equipment and facilities are discussed in the following sections.

3.6.9.1 Scales, Scale Carts, Hydraulic Lift and Elevator

The cylinder weighing system includes two scales with maximum capacity of 40,000 lb each, graduated to read and print in 1 lb increments. One scale, referred to as the accountability scale, is used exclusively for weighing incoming and outgoing cylinders. The other scale provides continuous weighing of the contents of a cylinder being filled with UF_6 at the liquid transfer drain station. The transfer scale also serves as a backup for the accountability scale. A complete electronic system is integrated with the mechanical weighing system on the transfer scale to provide electronic readout by means of a load cell arrangement read on a digital indicator. A high weight limit on the transfer scale will automatically close a block valve on the UF_6 transfer line and sound alarms in the C-360 supervisor's office and at the control panel in the C-360 laboratory when a predetermined setting is reached.

Both scales have steel-decked platforms with recessed rails to allow a 40,000-lb capacity scale cart containing the UF_6 cylinder to be moved on and off the scale for weighing without removing the cylinder from the scale cart.

UF_6 cylinders are moved from the storage yard into the building by overhead crane and placed on a scale cart at the autoclave work level where the cart is moved onto the scales and weighed. The weighed cylinder can then be placed in one of the four autoclaves by using the overhead crane, or moved back to the storage yard by reversing the steps mentioned above. A hydraulic lift ("levelator") is used to lower cylinders containing liquid UF_6 from the autoclave work level to the ground level where the scale cart is moved outside to the storage area. The hydraulic lift has a net travel of 4 ft and a net lifting capacity of 40,000 lb. Automatic rail chocks are provided on the outboard side of the platform to prevent rolling of the scale cart during movement of the platform.

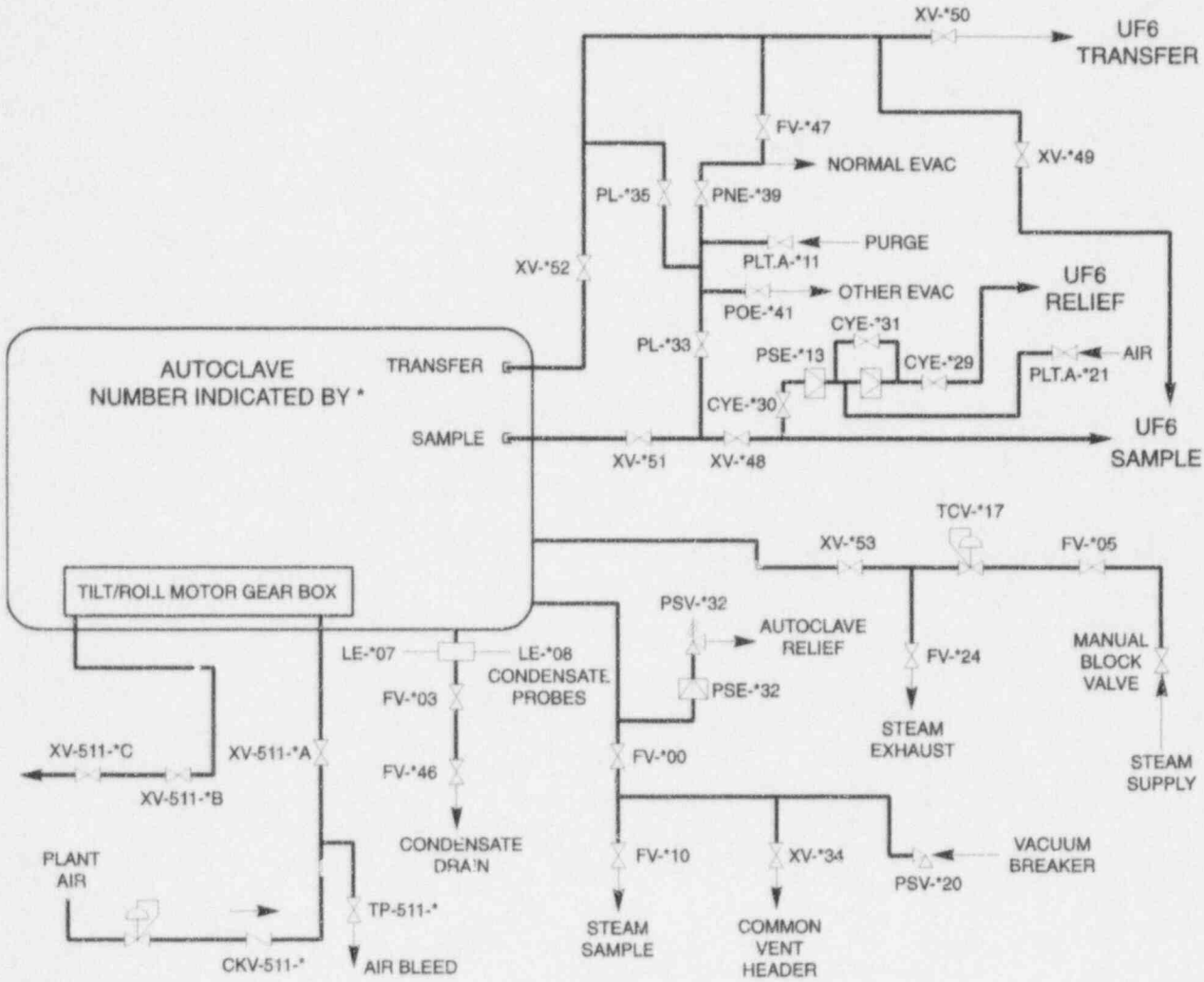

Figure 3.6-3. Simplified schematic of the C-360 autoclave and associated piping and valves.

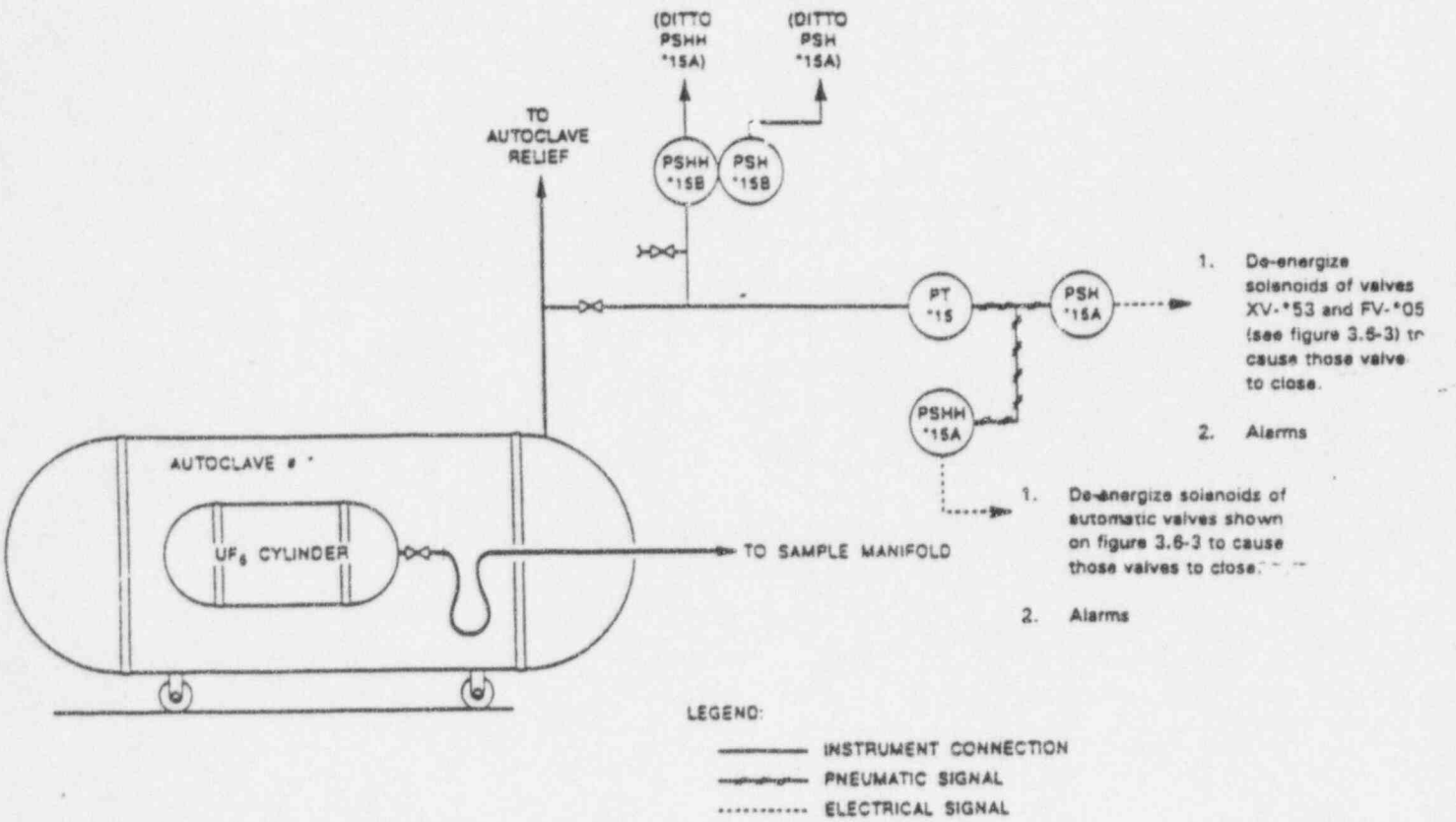

Figure 3.6-4. Simplified schematic of the C-360 autoclave high-pressure isolation and steam pressure control systems.

SECTION 2.1 SPECIFIC TSRs FOR TOLL TRANSFER AND SAMPLING FACILITY (C-360)

2.1.3 LIMITING CONTROL SETTINGS, LIMITING CONDITIONS FOR OPERATION, SURVEILLANCES

2.1.3.1 AUTOCLAVE HIGH PRESSURE ISOLATION SYSTEM (continued)

SURVEILLANCE REQUIREMENTS:

Surveillance		Frequency
SR 2.1.3.1-1	Visually inspect the autoclave head to shell locking ring for steam leakage.	Upon initial entry to mode 5 for each operating cycle.
SR 2.1.3.1-2	Functional test of each detection/initiation channel. System must actuate at or below 15 psig. Containment valves must close within 10 seconds of pressure switch actuation.	Quarterly
SR 2.1.3.1-3	Autoclave pressure decay test. Starting with an autoclave pressurized with air to a minimum of 90 psig, the maximum acceptable pressure drop is 10 psi in 1 hour. **OR** Autoclave leakrate test. The maximum acceptable leakage shall not exceed 12 scfm at a minimum test pressure of 90 psig. The pressure decay test or the leakrate test shall be conducted twice, with valve positions selected to test the following isolation barriers. The following barriers shall be exposed to the autoclave volume with outboard pressures that are controlled and/or monitored: Inner Barrier / Outer Barrier XV-*52 / PL-*35, FV-*47, XV-*50, XV-*49 XV-*51 / PL-*33, XV-*48 XV-*53 / FV-*24, FV-*05 PSE-*32, FV-*00 / FV-*10, XV-*34, PSV-*20 FV-*03 / FV-*46 XV-511B-* / XV-511C-* XV-511A-* / CKV-511-*, TP-511-*	Quarterly
SR 2.1.3.1-4	Calibration of each detection/initiation channel.	Annually
SR 2.1.3.1-5	Visual inspection of autoclave shell and head.	Annually
SR 2.1.3.1-6	Functional test of the interlock preventing autoclave opening on high pressure.	Quarterly

SECTION 2.2 SPECIFIC TSRs FOR UF_6 FEED FACILITIES (C-333-A AND C-337-A)

2.2.3 LIMITING CONTROL SETTINGS, LIMITING CONDITIONS FOR OPERATION, SURVEILLANCES

2.2.3.1 AUTOCLAVE HIGH PRESSURE ISOLATION SYSTEM (continued)

SURVEILLANCE REQUIREMENTS:

Surveillance		Frequency
SR 2.2.3.1-1	Visually inspect the autoclave head to shell locking ring for steam leakage.	Upon initial entry to mode 5 for each operating cycle.
SR 2.2.3.1-2	Functional test of each detection/initiation channel. System must actuate at or below 15 psig. Containment valves must close within 10 seconds of pressure switch actuation.	Quarterly
SR 2.2.3.1-3	Autoclave pressure decay test. Starting with an autoclave pressurized with air to a minimum of 90 psig, the maximum acceptable pressure drop is 10 psi in 1 hour. **OR** Autoclave leakrate test. The maximum acceptable leakage shall not exceed 12 scfm at a minimum pressure of 90 psig. The pressure decay test or the leakrate test shall be conducted twice, with valve positions selected to test the following isolation barriers. The following barriers shall be exposed to the autoclave volume with outboard pressures that are controlled and/or monitored: Inner Barrier / Outer Barrier PSE-518-* / XV-516-* / PSV-517-* / XV-565-* XV-524-* / PV-525-* / PV-520-* XV-532-* / CV-533-* XV-528-* / FV-529-* XV-503-* / CV-511-* / CV-504-* / CV-510-* / XV-505-*	Quarterly
SR 2.2.3.1-4	Calibration of each detection/initiation channel.	Annually
SR 2.2.3.1-5	Visual inspection of autoclave shell and head.	Annually
SR 2.2.3.1-6	Functional test of the interlock preventing autoclave opening on high pressure.	Quarterly

United States Enrichment Corporation (USEC)
Proposed Certificate Amendment Request
Autoclave Containment Testing
Significance Determination

The United States Enrichment Corporation (USEC) has reviewed the proposed changes associated with this certificate amendment request and provides the following Significance Determination for consideration.

1. No Significant Decrease in the Effectiveness of the Plant's Safety, Safeguards or Security Programs

   The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The changes affect no other equipment functions or administrative requirements. The testing of the autoclave containment function is not addressed in plant safety, safeguards or security programs contained in the Application for United States Nuclear Regulatory Commission Certification for the Paducah Gaseous Diffusion Plant. Therefore, the effectiveness of these programs is unaffected by these changes.

2. No Significant Change to Any Conditions to the Certificate of Compliance

   The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The changes affect no other equipment functions or administrative requirements. None of the Conditions to the Certificate of Compliance for Operation of Gaseous Diffusion Plants (GDP-1) specifically address the testing of the autoclave containment function. Thus, the proposed changes have no impact on any of the Conditions to the Certificate of Compliance.

3. No Significant Change to Any Condition of the Approved Compliance Plan

   The Plan of Action and Schedule for Issue 3 of the Plan for Achieving Compliance with NRC Regulations at Paducah Gaseous Diffusion Plant, requires the submittal of Technical Safety Requirement changes reflecting the autoclave penetration configuration modifications. The proposed changes are submitted in accordance with the Compliance Plan and create no significant changes to the Compliance Plan nor to any conditions of the Compliance Plan.

4. No Significant Increase in the Probability of Occurrence or Consequences of Previously Evaluated Accidents

The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The changes affect no other equipment functions. The testing of the autoclave containment function is not involved in any precursor to an evaluated accident; therefore, the probability of occurrence of an evaluated event is unaffected. The autoclave containment function is credited for the mitigation of the consequences of a release of UF_6 inside the autoclave as described in the accident analyses. Since the proposed changes provide enhanced assurance that the function will be available if required, the consequences of previously evaluated accidents are not increased.

5. No New or Different Type of Accident

The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The changes affect no other equipment functions. The changes affect only the testing of autoclave isolation valves and create no new operating conditions or new plant configurations that could lead to a new or different type of accident.

6. No Significant Reduction in Margins of Safety

The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The proposed changes enhance the availability of the autoclave containment function, consequently, the proposed changes cause no reductions in the margins of safety.

7. No Significant Decrease in the Effectiveness of any Programs or Plans Contained in the Certificate Application

The proposed TSR changes reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. The changes affect no other equipment functions or administrative requirements. The testing of the autoclave containment function is not mentioned in any program or plan contained in the Certification Application. Therefore, the proposed changes have no impact on the effectiveness of these programs or plans.

8. The proposed changes do not result in undue risk to 1) public health and safety, 2) common defense and security, and 3) the environment.

The proposed changes to the Surveillance Requirements of TSR 2.1.3.1 and TSR 2.2.3.1 reflect the autoclave piping configuration modifications that simplify the isolation boundary of the sampling and transfer autoclaves and permit independent testing of the remaining inner and outer penetration isolation valves. Testing of these valves demonstrates the ability to establish containment in the event of UF_6 leakage from the cylinder into the autoclave. As such, these changes do not represent an undue risk to public health and safety. In addition, these revisions have no impact on plant effluents or on the programs and plans in place to implement physical security. Consequently, these proposed changes only enhance safety and pose no undue risk to the environment or the common defense and security.