DCTR

Document Control Transmittal Receipt

70-7001

Lockheed Martin Utility Services, Inc.

Transmittal Number: 9076
Site: PGDP

Date: 10/25/1996

Copyholder No: 567
Copyholder Name: DIRECTOR NRC-NMSS(COPY 1)
Address: % DR. CARL J. PAPERIELLO
OFFICE OF NMSS,USNRC
MAIL STOP-T-8-A23
WASHINGTON, DC 20555-0001

Building:
Mail Stop:
Phone: 301-415-7800

Special Instructions:

Document No	Sheet No	Revision	Status	Media	Qty
TSRC-96C001	0	0000	A	A	1
SEE ATTACHED INSTRUCTION SHEET FROM DOCUMENT CONTROL FOR CORRECT PLACEMENT					
USEC-01-1	0	0006	A	A	1
PAGE REPLACEMENT FOR SECTION 2.4-15 IN VOL. IV OF USEC-01 ATTACHED					

Comments:

Due Date: 11/08/96

Please follow the transmittal instructions, sign, date and return by the above due date to Document Control (at PGDP: C-100, 2nd Floor, fax: ext. 5749; at PORTS: X-100, MS 1208, fax: ext. 2155). If you have any questions or you have changed location, phone number or no longer need these documents, notify Document Control (at PGDP: ext. 5957; at PORTS ext. 3496).

Signature

Date

PGDP
DOCUMENT CONTROL
FAX NUMBER
(502) 441-5749

Add: NMSS/FCUB/T8H33
Delete: LA

Ltr encl
0 1

NF04
0/20

INSTRUCTION SHEET FOR ATTACHED
CONTROLLED TSR CLARIFICATION
INSTRUCTED FROM NRA, WHICH MAY BE
DESTROYED WHEN ADDITION IS COMPLETED.

Attached contents of document #TSRC-96C001, Rev. 0, should be added to the back of Volume IV of USEC-01, Rev. 6, Application for NRC Certification.

Should you have question, contact Document Control, x6261.

Approved Technical Safety Requirement Clarification (TSRC) Index

TSRC Number	Revision Number	Affected TSR	Approved Date
96C001	0	TSR 2.4.4.1	*To reflect date TSRC is approved*

TECHNICAL SAFETY REQUIREMENT CLARIFICATION (TSRC) REQUEST FORM (Sheet 1)

PART I — INITIATION

TSRC NUMBER: 96C001 Revision: 0 PORTS ☐ PGDP ☒

Technical Safety Requirements Reference: 2.4.1.1 BASIS ; CONDITIONS C+D

Subject: UF6 RELEASE DETECTION SYSTEM - DEFINITIONS OF CELL + UNIT BYPASS SECTIONS

Description of Request: CLARIFY WHICH HEADS ARE REQUIRED TO PROTECT CELL AND UNIT BYPASS PIPING.

☒ Continued

Date of Clarification Required: 10/15/96 Existing TSRC Number:

Requestor: [signature] (Signature) X5912 Date: 10/7/96 Organization: ENGINEERING

Function Organization Manager: [signature] (Signature) Date: 10/7/96

FORWARD TO NUCLEAR REGULATORY AFFAIRS

PART II — NUCLEAR REGULATORY AFFAIRS-ASSESSMENT OF TSRC

☒ Technical Safety Requirement Clarification Required

☐ Technical Safety Requirement Clarification Not Required

Explain: Clarification of which UF_6 detector heads are required to detect UF_6 out leakage from cell and unit bypass piping

☐ Continued

Prepared By: [signature] (Signature) Date: 10/15/96

Technical Safety Requirement Change Required: ____ yes / NO no If Yes, RAC#: NA

NRA Manager Approval: [signature] Date: 10/15/96

TECHNICAL SAFETY REQUIREMENT
CLARIFICATION (TSRC) REQUEST FORM (Sheet 2)

PART III — APPROVAL

TSRC Number: 96C001 Revision: 0

Functional Organization Manager: [signature] Date: 10/16/96

NRA Manager: W.E Sykes Date: 10/16/96

NRAP Manager: RW Woolley by FAX See attached Fax Date: 10/18/96

PORC: [signature] Date: 10/22/96

General Manager: [signature] Date: 10/22/96

PART IV — CLARIFICATION CANCELLATION

Reason For Cancellation: _____

NRA Manager Approval: _____ Date: _____

Functional Organization Manager: _____ Date: _____

NRAP Manager: _____ Date: _____

PORC: _____ Date: _____

General Manager: _____ Date: _____

TECHNICAL SAFETY REQUIREMENT CLARIFICATION

Paducah Gaseous Diffusion Plant

TSR Section: **2.4.4.1**

TSR Title: **UF_6 Release Detection System**

Clarification Subject: **UF_6 Release Detection System - Definition of Cell and Unit Bypass Sections**

I. Statement of Requested Clarification

Clarify which UF6 detector heads are required to detect UF6 cut leakage from cell bypass piping and clarify the definition of unit bypass centerline.

II. Background Information

For cell bypass, a section is defined as "that portion of the cell bypass housing between any pair of opposite cells. Opposite cells are defined as 1 and 2, 3 and 4, 5 and 6, etc." The intent of this statement was that "opposite cells" are defined as two cells, making a pair of "opposite cells" equal to four cells. The other possible interpretation is that three heads must be operable between opposite cells. This is obviously not the intent because there are not three heads installed between opposite cells in '000' buildings. Clarifying the definition of which sections are specifically addressed is desirable. Clarification of the definition for unit bypass section and centerline is also needed.

III. Clarification

For '000' cell bypasses the sections should be defined as follows: the first section is defined as that section between the unit bypass and the long wing bypass between cells 3 and 5 (4 and 6); the second section is defined as that section between the long wing bypass between cells 3 and 5 (4 and 6) and the long wing bypass between cells 7 and 9 (8 and 10); the third section encompasses the area from the long wing bypass between cell 7 and 9 (8 and 10) and the end of the cell bypass housing. 3 of 4 detectors are required to be operable in section 3 rather than 3 of 6 for the other sections.

For '00' cell bypasses, the sections are defined similarly. Since '00' units have no long wing bypasses, the dividing points are the section of housing between cells that connects the cell housing to the cell bypass housing. Typically this division happens between detectors YE-19 and YE-20 that are located near this dividing point.

TECHNICAL SAFETY REQUIREMENT CLARIFICATION

Paducah Gaseous Diffusion Plant

TSR Section: **2.4.4.1**

TSR Title: **UF_6 Release Detection System**

Clarification Subject: **UF_6 Release Detection System - Definition of Cell and Unit Bypass Sections**

Unit bypass sections are defined as "that portion of the unit bypass between centerlines of adjacent units or from the centerline of the first or the last unit to the end of the housing." The centerline of a unit is the center of the cell bypass where it ties into the unit bypass. This divides the unit bypass into 5 sections in '00' buildings and 4 sections in '000' buildings.

The following 2 tables provide definition of the cell bypass detector heads in each section. These heads are verified installed in the C-333 cell bypasses. The heads defined will be verified installed in C-337, C-331, and C-335 prior to steady state operation above atmospheric pressure.

Cell Bypass Section Definitions for C-333 and C-337 - '000' Buildings		
Three detectors in each of the following sections must be operable or LCO action steps shall be taken:		
Section 1	Section 2	Section3
U-2-YE-16	U-6-YE-16	U-9-YE-16
U-2-YE-17	U-6-YE-17	U-9-YE-17
U-3-YE-16	U-7-YE-16	U-10-YE-16
U-3-YE-17	U-7-YE-17	U-1(-YE-17
U-4-YE-16	U-8-YE-16	
U-4-YE-17	U-8-YE-17	
U-C-YE-XX - 'U' indicates unit number; 'C' indicates cell number; 'XX' indicates head designation		

TECHNICAL SAFETY REQUIREMENT CLARIFICATION

Paducah Gaseous Diffusion Plant

TSR Section: **2.4.4.1**

TSR Title: **UF_6 Release Detection System**

Clarification Subject: **UF_6 Release Detection System - Definition of Cell and Unit Bypass Sections**

Cell Bypass Section Definitions for C-331 and C-335 - '00' Buildings		
Three detectors in each of the following sections must be operable or LCO action steps shall be taken:		
Section 1	Section 2	Section3
U-1A-YE-18	U-5-YE-18	U-9-YE-18
U-1A-YE-19	U-5-YE-19	U-9-YE-20
U-1A-YE-20	U-7-YE-18	U-9-YE-22
U-1A-YE-21	U-7-YE-19	U-9-YE-23
U-3-YE-18	U-7-YE-20	
U-3-YE-19	U-7-YE-21	
U-3-YE-20	U-7-YE-22	
U-3-YE-21	U-7-YE-23	
U-5-YE-20	U-9-YE-19	
U-5-YE-21	U-9-YE-21	
U-C-YE-XX - 'U' indicates unit number; 'C' indicates cell number; 'XX' indicates head designation		

TECHNICAL SAFETY REQUIREMENT CLARIFICATION

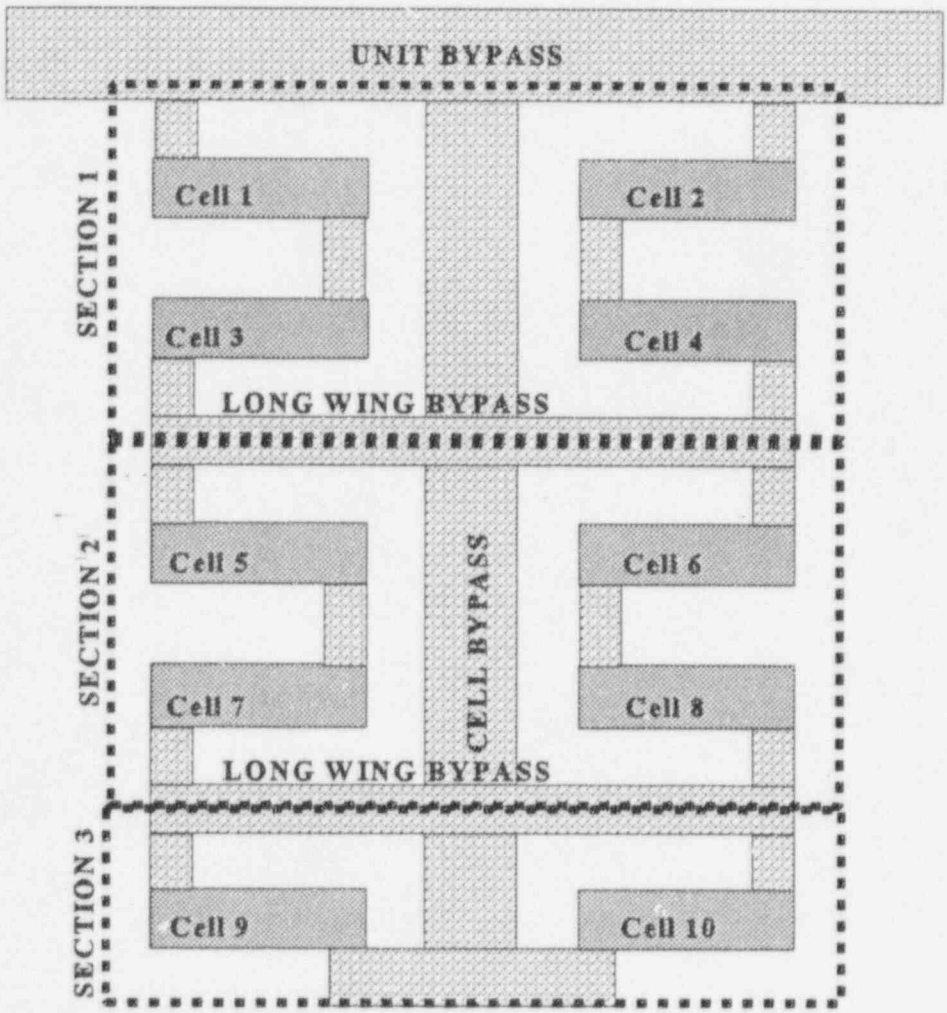
Paducah Gaseous Diffusion Plant

TSR Section: 2.4.4.1

TSR Title: UF_6 Release Detection System

Clarification Subject: UF_6 Release Detection System - Definition of Cell and Unit Bypass Sections

Figure 1 - C-333 and C-337 Cell Bypass Section Definition - '000' Buildings



TECHNICAL SAFETY REQUIREMENT CLARIFICATION

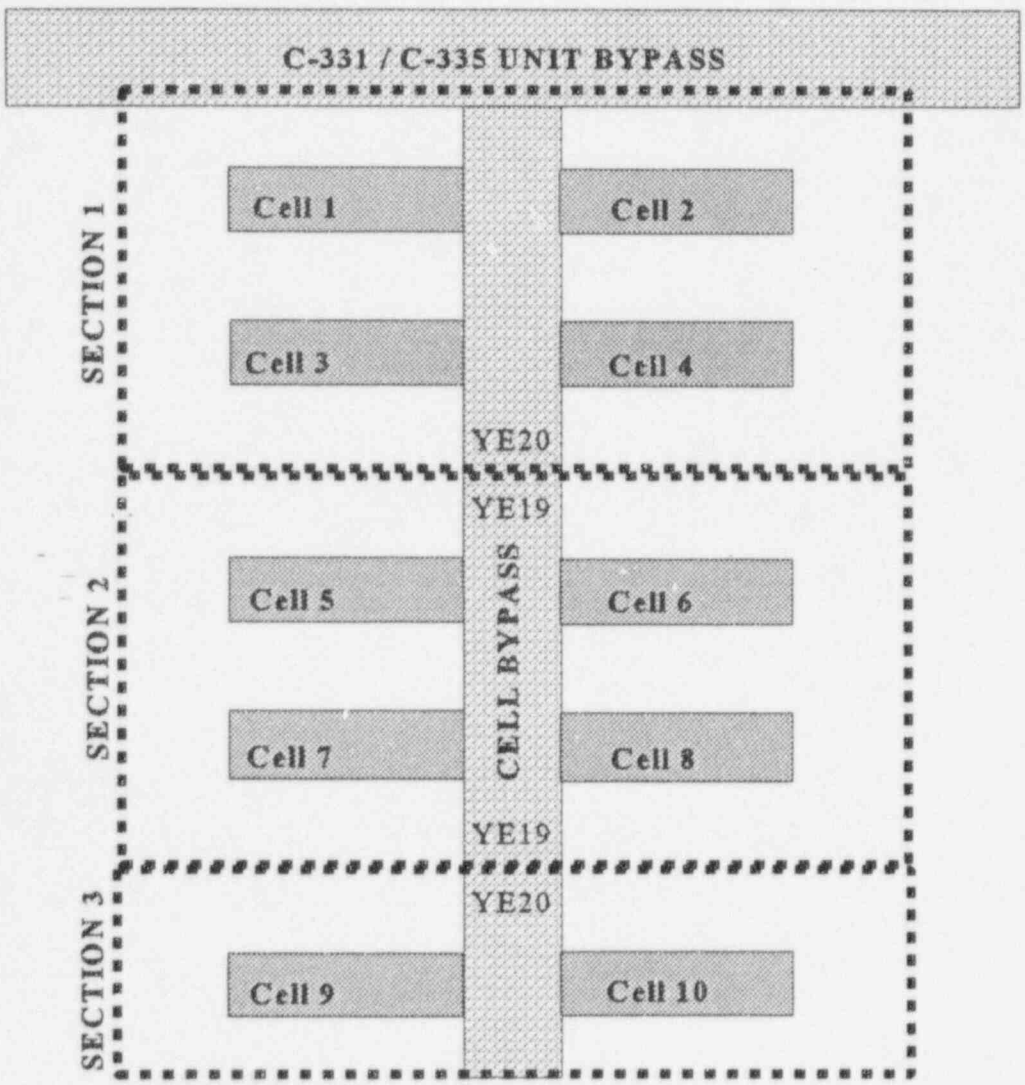
Paducah Gaseous Diffusion Plant

TSR Section: **2.4.4.1**

TSR Title: **UF_6 Release Detection System**

Clarification Subject: **UF_6 Release Detection System - Definition of Cell and Unit Bypass Sections**

Figure 2 - C-331 and C-335 Cell Bypass Section Definition - '00' Buildings



SECTION 2.4 SPECIFIC TSRS FOR ENRICHMENT CASCADE FACILITIES

2.4.4.1 UF_6 RELEASE DETECTION SYSTEM

2.4.4.1 UF_6 RELEASE DETECTION SYSTEM (continued)

SURVEILLANCE REQUIREMENTS:

Surveillance	Frequency
SR 2.4.4.1-1 "Test fire" the UF_6 release detection system heads.	Twice each shift.
SR 2.4.4.1-2 Physically actuate ("smoke test") the UF_6 release detector heads to verify alarms.	Annually

BASIS:

The reaction of UF_6 and water (free atmospheric humidity) in the case of a UF_6 release produces uranyl fluoride (UO_2F_2) as particulates and hydrogen fluoride (HF) as a gas which will hydrate. The UO_2F_2 and $HF*x(H_2O)$ are highly visible as "smoke." This system detects the presence of this "smoke" and sounds alarms in the ACR.

In the event of a failure of the UF_6 release detection system, the stationing of an operator at the affected equipment would assure monitoring of the system to determine if any outleakage of UF_6 occurs and would provide the surveillance capability until the system could be repaired or the UF_6 process equipment brought below atmospheric pressure. [SAR Section 3.3.5.9.4] The real safety hazard is when UF_6 is released into the area inhabited by plant personnel. UF_6 released inside the heated housing is not of significant safety concern unless it leaks from the (non-air-tight) housing. Thus, a smoke watch posted outside the housing, watching for "smoke" escaping the heated housing into the occupied spaces, is capable of providing an adequate level of safety.

Firing the heads at least once in an eight-hour interval will maintain sensitivity of the heads in elevated temperatures such as that found in the cell housings. [SAR Section 3.3.5.9.4] Detector heads are fired by supplying voltage to the head until it alarms. This can be done by suppling voltage sufficient to fire the detector head. The firing of the heads will be recorded; this action discovers heads which are failed.

Normal operational pressure transients may temporarily take the local process pressure to a value consistent with mode Cascade 2 values. These pressure transients typically work their way through those portions of the cascade that, by the optimized gradient, operate at mode Cascade 1 pressures quickly. This LCO is not intended to require UF_6 release detection operability to accommodate these transients. Instead, this LCO is intended to require system operability prior to intentionally increasing cascade pressure to mode Cascade 2 values.

The cell bypass is perpendicular to cells and traverses the length of the individual unit. "Defined section" means that portion of the cell bypass housing between any pair of opposite cells. Opposite cells are defined as 1 and 2, 3 and 4, 5 and 6, etc.