

Subject: PRIMARY FLUORINATION TOWER OPERATION

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1.0 INTRODUCTION

1.1 Purpose

To establish the procedure for startup, normal operation, emergency shutdown, and normal shutdown of the primary fluorination reactors.

1.2 Background

The primary fluorination reactors, or towers as they are more commonly called, are designed to react uranium tetrafluoride (UF_4) powder with fluorine gas (F_2) to form uranium hexafluoride (UF_6) gas. The fluorine is not completely consumed in this stage and the off gas is fed into the secondary, or cleanup, reactor system after passing through a primary cold trap. Refer to Operating Procedure N-270-7 for cleanup reactor operations.

2.0 SAFETY PRECAUTIONS

Procedure Users must read and understand the following Safety Precautions which address areas of potential risk to life, limb and/or property.

The operating conditions, temperature, pressure, flow rates, etc. included in the body of the procedure are guidelines only.

The specific operating parameters as listed on the Process Parameter Sheet are to be followed.

2.1 Access to Ash Receiver (AR) Enclosure

WARNING

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Not sufficient!

The ash receiver enclosure is a high radiation area and must be kept locked except when personnel are working in the area. ~~Do not~~ not leave the doors unlocked and ~~attended~~. Access to the enclosure will be controlled by Supervision and Health Physics.

- 2.1.1 The operator, prior to changing an AR, will obtain the necessary safety equipment as described in N-270-8, section 4.3.1. In addition, the operator will obtain a dosimeter from HP. The dosimeter must be worn while in the enclosure.

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- 2.1.2 The operator will obtain the appropriate key from the UF₆ supervisor. The supervisor will log the date, time and operator who checked out the key.
- 2.1.3 The operator will prepare for entry into the enclosure and will notify HP when he is ready to enter the enclosure. HP will log the time the operator enters the enclosure.
- 2.1.4 Upon completion of work, the operator will notify HP that he has left the enclosure and locked the doors. HP will log the time the operator exits the enclosure. The operator will subsequently return the dosimeter to HP and the key to the UF₆ supervisor.
- 2.1.5 The UF₆ supervisor will log the time and date that the key was returned.

WARNING
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Supplied air mask, rain suit, chemical resistant gloves, and Anti-C hood, or equivalent head covering, must be worn when removing or cleaning Ash Receivers.

WARNING
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Obtain a full face respirator prior to pinpointing possible leaks in the tower area. UF₆ is highly soluble and readily absorbed into the body. Investigation of a possible leak may result in ingestion of uranium unless proper respiratory protection is used.

WARNING
=====

It is very important not to ingest nor in any other way become contaminated with fluorination ash. This is particularly true with the cyclone and filter ash. This ash contains an accumulation of uranium daughter products resulting from the normal radiological decay of natural uranium.

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2.2 Protective gloves must be worn while making any repairs in this area or changing ash receivers.

2.3 Refer to Operating Instructions G-160, "Health and Safety Precautions and Requirements."

3.0 REFERENCES

3.1 Operating Procedure N-270-2, "Primary Refrigeration Operation"

3.2 Operating Procedure N-270-4, "Primary Cold Trap Operation"

3.3 Operating Procedure N-270-3, "Secondary Cold Trap Operation"

3.4 Operating Procedure N-270-5, "Emergency Dump Tank"

3.5 Operating Procedure N-270-6, "Clean-Up Reactor Cold Trap Operation"

3.6 Operating Procedure N-270-7, "Clean-Up Reactor Operation"

3.7 Operating Procedure N-400-9, "Mist Filtering and Compressor Operation"

3.8 Operating Procedure N-400-4, "Routine Cell Room Operation"

3.9 Operating Procedure N-170-1, "H₂-F₂ Burner and Scrubber Operation"

3.10 Emergency Procedure E-302, "Steam System Failure"

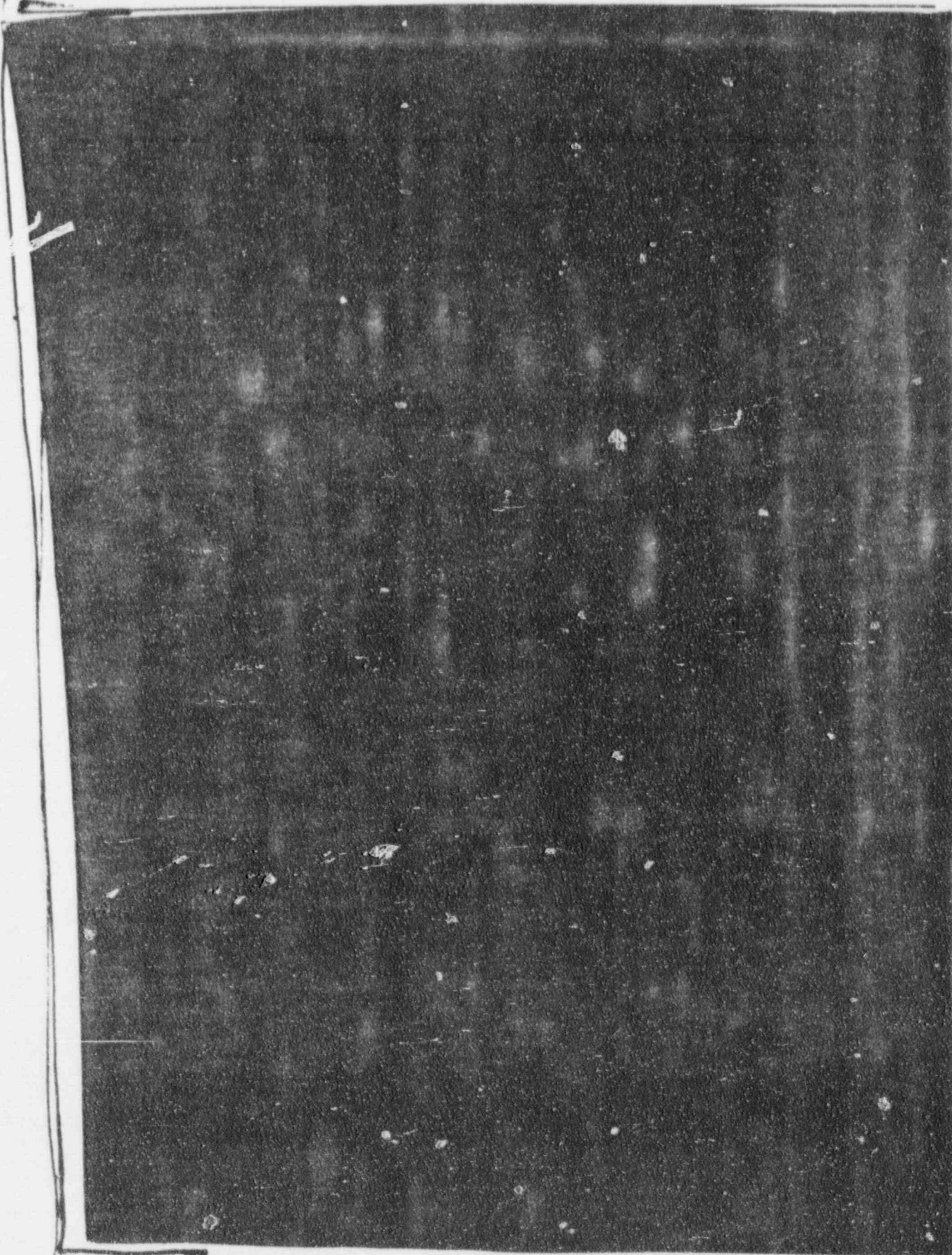
3.11 Operating Procedure N-260-4, "UO₃, UO₂, UF₄ Conveying Operation"

3.12 Operating Procedure G-160, "Health and Safety Precautions and Requirements"

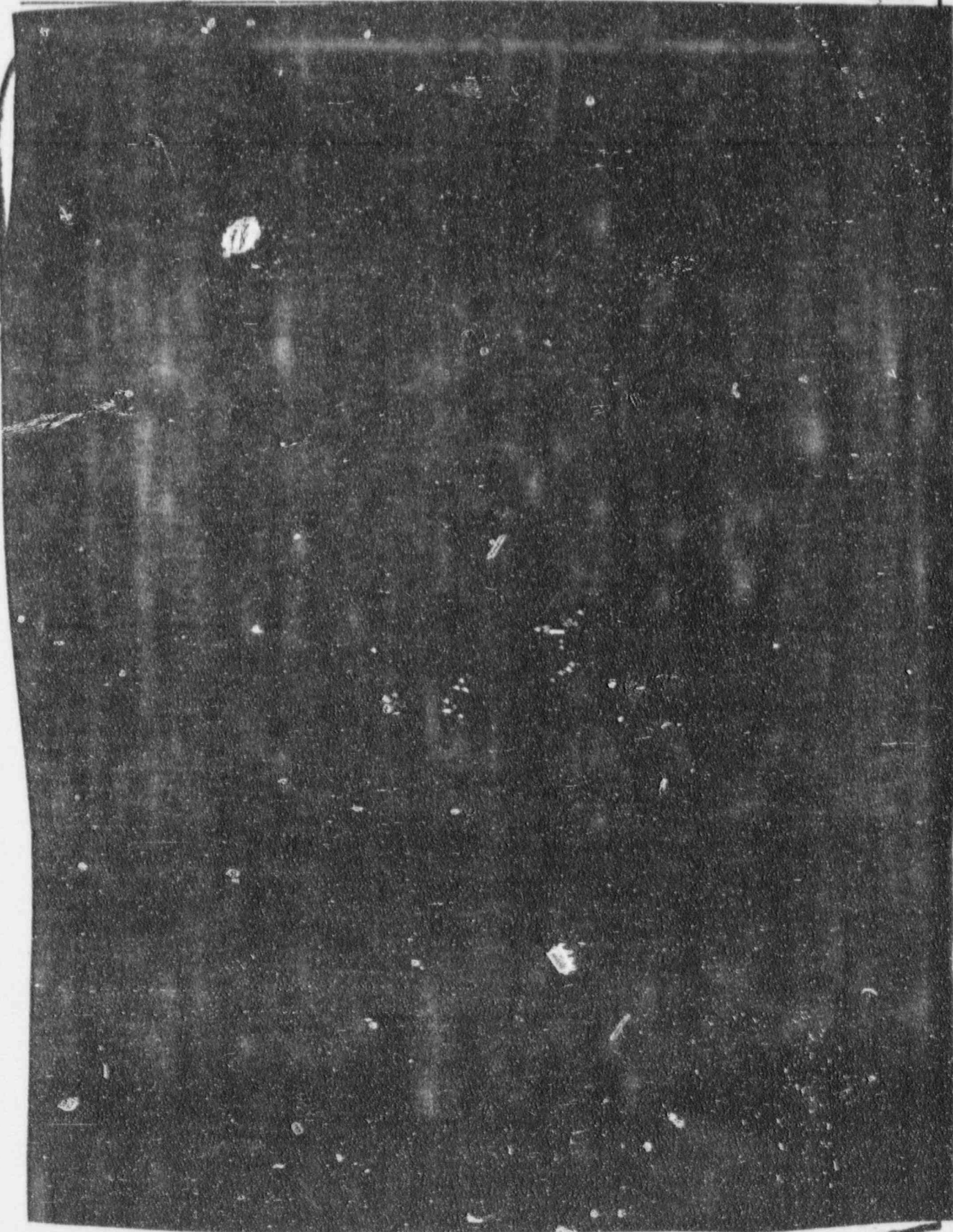
3.13 MSDS, Fluorine

3.14 MSDS, Uranium hexafluoride

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SEQUOYAH FACILITY OPERATING PROCEDURE

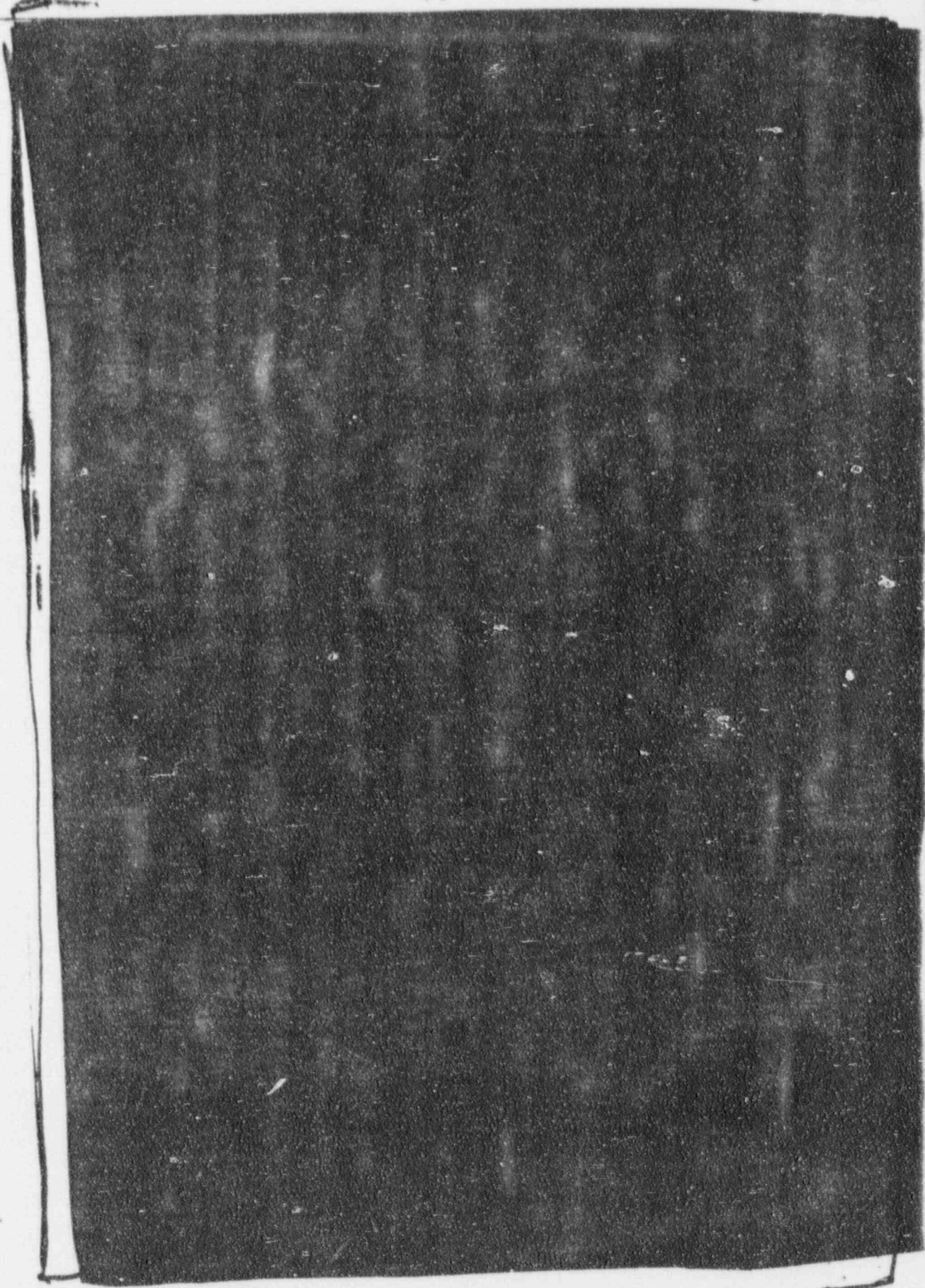
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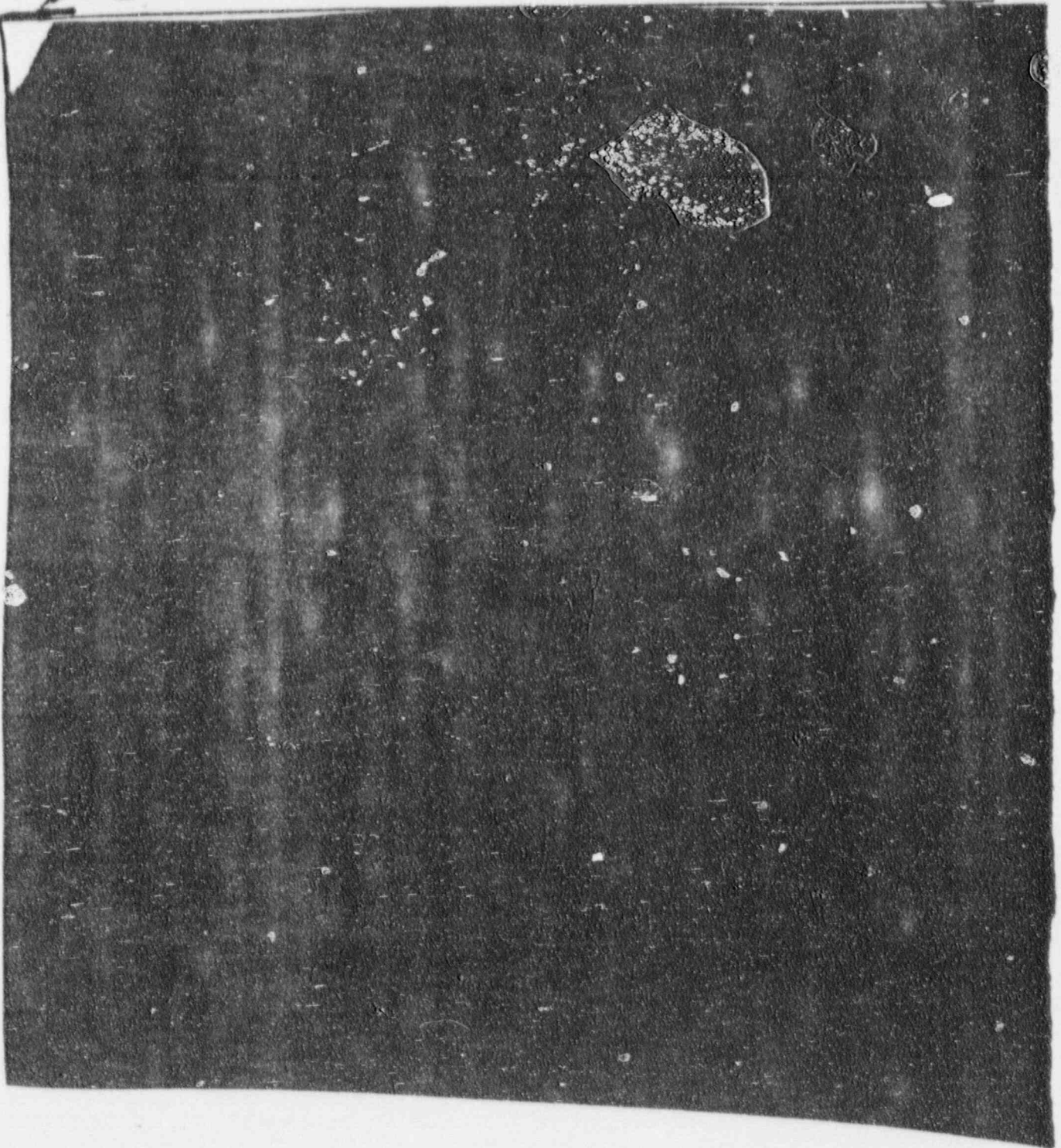


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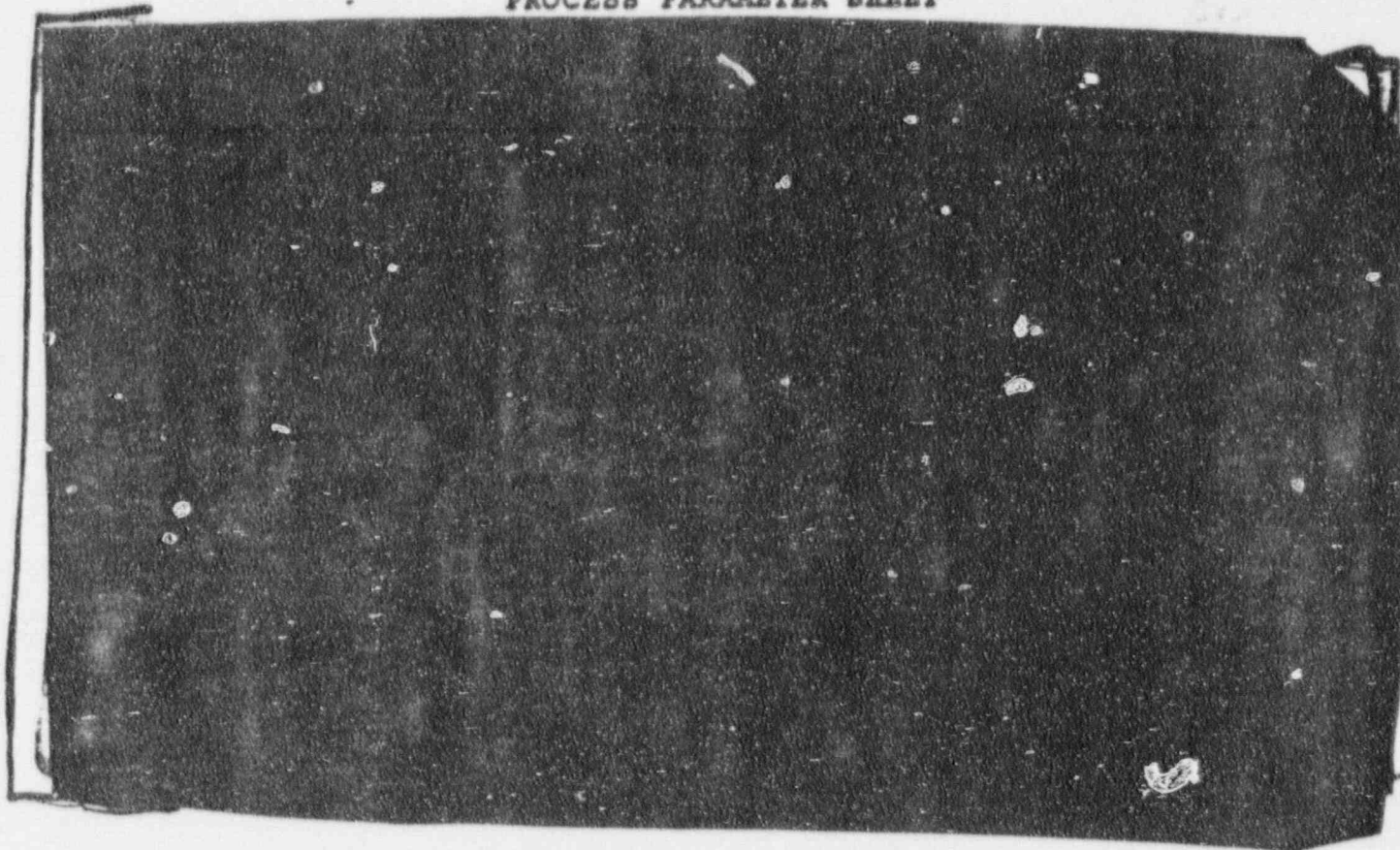


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PROCESS PARAMETER SHEET



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1-10-91
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1-10-91
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This procedure is effective 01/1/91

TRAINING/IMPLEMENTATION TABLE

The following implementation action is required:

Department	Action Level				
	0	1	2	3	4
Engineering	✓				
Laboratory	✓				
Maintenance	✓				
Operations		✓	Supervisors Lf ₆ , Tower Operators		
Health & Safety		✓	ALL		
Security	✓				
Administration	✓				
Other	✓				