

ILLINOIS POWER COMPANY



U-0534
M40-82(08-25)-6

500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525

August 25, 1982

Mr. J. H. Williams, Project Manager
Standardization and Projects Branch
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Williams:

Subject: Clinton Power Station Containment Purge

Reference: Letter, J. H. Williams to Harold Bernard
dated July 26, 1982, "Meeting with Illinois
Power Company on Containment Purge"

The referenced letter summarized conclusions which were reached in our recent meeting with the Staff. The purpose of that meeting was to establish a basis for disposition of SER Outstanding Issue #10A-Containment Purge.

With regard to the conclusions summarized in the referenced letter, we have the following comments:

1. Containment purge effects on radiation doses are significant factors of the total containment environment. In addition to radiation (ALARA), we also must consider humidity, oil vapors, temperature, odors, and other potentially significant factors which contribute to overall habitability of the containment. Consequently, the Staff should consider these matters in formulating definitive purge criteria as data become available from Mark III plant operation.
2. Attached is a list of information which has been developed to anticipate containment entry requirements. This material is necessarily tentative until operating experience is available from Grand Gulf and Clinton.

As stated in the referenced letter, Illinois Power Company will consider the approach taken by Grand Gulf on Mark III containment purging (during normal plant operation). Therefore, we are evaluating alternative designs for application to the Clinton Power Station. Our preliminary evaluation should be complete by late September. We

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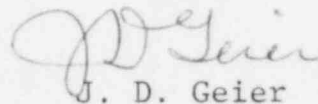
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suggest a meeting with the Staff thereafter to discuss possible design modifications to the CPS containment Vent/Purge System. We hope to have this issue closed out with the Staff by November 1, 1982, to support a timely design and equipment procurement schedule. If you have any further comments in this regard, please bring them to my attention at your earliest convenience.

Sincerely,



J. D. Geier
Manager
Nuclear Station Engineering

JDG:d1

attach.

cc: L. J. Koch, B-25
J. S. Spencer, T-29
E. W. Kant
G. E. Wuller
H. H. Livermore

Containment Normal Occupancy Levels

Illinois Power Co. (IPC) has performed a preliminary evaluation of the occupancy levels necessary to conduct routine maintenance, surveillance, and operational checks of vital equipment inside the Clinton Power Station (CPS) Mark III containment. This evaluation was performed as part of IPC's effort to resolve Outstanding Issue #10A of the CPS Safety Evaluation Report (SER), NUREG-0853, Supplement No. 1. The evaluation was prepared by comparing CPS anticipated containment entry requirements with the occupancy levels discussed in General Electric's Mark III Containment Dose Reduction Study" (GE Document 22A5718, dated Dec. 5, 1977).

The CPS Containment Occupancy Levels during normal plant operations were discussed at the July 20, 1982 meeting in Bethesda, Maryland, between IPC and the NRC. Since that meeting, discussions with General Electric and CPS plant staff have resulted in a reevaluation of the applicability of the GE study to CPS. The results of this reevaluation indicate that occupancy requirements stated in Table 4-7 of the GE study are the best estimates available for MK III containments at this time. The attached Table 1 (page 1) shows those work stations where maintenance/surveillance activities will be performed during normal operations at CPS. The column labeled "Total" shows the numbers taken from Table 4-7 of the GE study. These containment entry requirements are indicative of activities to be performed during operational Modes 1, 2, and 3

and as such are maximum expected yearly occupancies. Also attached as pages 2-12 is a description of what activities will be performed during Modes 1, 2, & 3 at each equipment location and a breakdown of the number of hours for each such activity.

TLR/ja

TABLE 1

CONTAINMENT NORMAL OCCUPANCY LEVELS

<u>STATION</u>	<u>TOTAL</u>
Sampling	1250
RWCU	850
CRD	1590
Refuel	236
SLC	497
Sumps	274
RR Flow Cont.	314
Cntmt Cool	618
Tip	159
C&I Panels	1013
Eccs/Process Equip.	1092
Unidentified	480
	<u>8374</u> $\frac{\text{man-hrs}}{\text{yr}}$

$$8374 \frac{\text{man-hrs}}{\text{yr}} \Rightarrow 27.9 \frac{\text{man-hrs}}{\text{day}} \left\{ \begin{array}{l} \text{during operation} \\ \text{in 300 day/yr} \end{array} \right.$$

Assumptions:

- * 2 mo/yr is outage time
- * Evaluated existing surveillance activities

1. Sample Station 1250 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine maintenance	187.5	15%
Special/Corrective maintenance	62.5	5%
Routine Ops	875.0	70%
Training/Abnormal Events	125.0	10%
	<u>1250.0</u>	

Routine Maintenance: cal checks on PH, conductivity and O₂ analyzers.

Special/Corrective Maintenance: calibration and troubleshooting of sampling equipment.

Routine Ops: all routine daily samples and others as necessary, i.e. RWCU F/D backwash and precoat samples.

Training/Abnormal Events: out of spec chemistry events.

2. RWCU 850 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	212.5	25%
Special/Corrective Maintenance	42.5	5%
Routine Ops	510.0	60%
Training/Abnormal Events	85.0	10%
	<u>850.0</u>	

Routine Maintenance: Valve and pump testing during ops IAW, IWV, and IWP requirements. RWCU System isolation channel calibrating.

Special/Corrective Maintenance: Calibration and troubleshooting of equipment, repair of valve and pump components.

Routine Ops: RWCU F/D backwash/precoat ops, inspections

Training/Abnormal Events: Operator training isolation events, leaks (high area temps and radiation).

3. CRD 1590 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Undervessel/Other</u>	
Routine Maintenance	318/318	20/20%
Special/Corrective Maintenance	79.5/79.5	5/5%
Routine Ops	636	40%
Training/Abnormal Events	159	10%
	<hr/>	
	1590.0	

Routine Maintenance: a) Undervessel; removal of CRD mechanisms for inspections/overhaul and installation of same, CRD Housing Support visual inspections. b) other; routine maintenance, and C&I checks on HCU's, SDV, and associated instrumentation.

Special/Corrective Maintenance: a) Undervessel; filter removal replacement (done in areas other than undervessel but requires removal (installation) -basically removal/installation for work to be done elsewhere). b) other; troubleshooting HCU and SDV, U.T. of SDV.

Routine Ops: Inspections, valving HCU's in and out of service, verifying drain valves on SDV open.

Training/Abnormal Events: Scrams

4. Refueling 236 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	47.2	20%
Special/Corrective Maintenance	11.8	5%
Routine Ops	153.4	65%
Training/Abnormal Events	23.6	10%
	<u>236.0</u>	

Routine Maintenance: PM's on fuel handling equipment.

Special/Corrective Maintenance: Troubleshooting.

Routine Ops: Transfer fuel from Ct storage pool to fuel bld. pools.

Training/Abnormal Events: Training of personnel in refueling ops.

5. SLC 497 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	99.4	20%
Special/Corrective Maintenance	24.85	5%
Routine Ops	323.05	65%
Training/Abnormal Events	49.7	10%
	<u>497.0</u>	

Routine Maintenance: Cleaning and inspecting pumps and valves. Flow testing of pumps using demin water.

Special/Correct Maintenance: Repair of valves/pumps due to build-up of Sodium Pentaborate. Troubleshooting, instrumentation, and heat tracing problems.

Routine Ops: Level and temp checks, heat tracing operability checks, chemical concentration verifications.

Training/Abnormal Events: High/low level and/or concentrations.

6. Sumps 274 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	54.8	20%
Special/Corrective Maintenance	13.7	5%
Routine Ops	191.8	70%
Training/Abnormal Events	13.7	5%
	<u>274.0</u>	

Routine Maintenance: Sump pump greasing, inspection for debris and operability.

Special/Corrective Maintenance: Troubleshooting and repair of pump and/or motor cleaning of sump of debris.

Routine Ops: Inspection of sumps and seal water supply pressure.

Training/Abnormal Events: Flooding of sumps due to pump trips/loss of power or inability to keep up with input to sumps.

7. RR FLOW CONTROL

314 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	62.8	20%
Special/Corrective Maintenance	15.7	5%
Routine Ops	204.1	65%
Training/Abncrmal Events	31.4	10%
	<u>314.0</u>	

Routine Maintenance: Preventive maintenance on individual sub-loops of each HPU, calibration of jet pump flow instr.

Special/Corrective Maintenance: Troubleshooting/overhaul of components/instrumentation.

Routine Ops: Visual inspection of HPU's and instrument racks.

Training/Abnormal Events: Oil reservoir low level or high temp, oil filter trouble.

8. Containment Ventillation 618 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	123.6	20%
Special/Corrective Maintenance	30.9	5%
Routine Ops	401.7	65%
Training/Abnormal Events	61.8	10%
	<u>618.0</u>	

Routine Maintenance: Damper inspections, testing of damper auto isolation features.

Special/Corrective Maintenance: Troubleshooting

Routine Ops: Inspections to insure proper ventillation in all spaces.

Training/Abnormal Events: Isolation events, ventillation system trips

9. TIP 159 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	31.8	20%
Special/Corrective Maintenance	7.95	5%
Routine Ops	103.35	65%
Training/Abnormal Events	15.9	10%
	<u>159.0</u>	

Routine Maintenance: Grease and lubricating of indexes.

Special/Correcting Maintenance: Troublshooting.

Routine Ops: Inspections and purge air checks.

Training/Abnormal Events: Training, stuck detectors.

10. C&I Instrument Panels 1013 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	607.8	60%
Special/Corrective Maintenance	202.6	20%
Routine Ops	152.0	15%
Training/Abnormal Events	50.6	5%
	<u>1013.0</u>	

Routine Maintenance: Calibrations and checks.

Special/Corrective Maintenance: Troubleshooting.

Routine Ops: Cleaning, general inspections.

Training/Abnormal Events: Maintenance training

11. ECCS/Process Equipment 1092 $\frac{\text{man-hrs}}{\text{yr}}$

	<u>Total</u>	
Routine Maintenance	655.2	60%
Special/Corrective Maintenance	218.4	20%
Routine Ops	109.2	10%
Training/Abnormal Events	109.2	10%
	<u>1092.0</u>	

Routine Maintenance: Snubber, piping support inspections (during outage).

Special/Corrective Maintenance: Repairs

Routine Ops: Inspections for piping integrity during OPS

Training/Abnormal Events: Tracing of critical systems for training and investigation of suspected inoperabilities.