U. S. NUCLEAR REGULATORY COMMISSION REGION I
OPERATOR LICENSING EXAMINATION REPORT

EXAMINATION REPORT NO. 05-054/85-01 (OL)

FACILITY DOCKET NO. 50-054

LICENSEE: Union Carbide Corporation
Tuxedo, New York 10987

FACILITY: Union Carbide Corporation

EXAMINATION DATES: January 31 - February 1, 1985

CHIEF EXAMINER: Original Signed By: _____ MAR 11 1985
Noel Dudley — Date
Lead Reactor Engineer (Examiner)

REVIEWED BY: Original Signed By: _____ MAR 12 1985
Chief, Project Section 1C — Date

APPROVED BY: Original Signed By: _____ MAR 15 1985
Chief, Project Branch No. 1 — Date

SUMMARY: Three candidates were examined and two licenses were issued. As a result of problems encountered during the examination review and the oral examination, the adequacy of present procedures and guidelines was questioned. The practice of smoking around the open pool was questioned, but not resolved.

REPORT DETAILS

TYPE OF EXAMS: Replacement X

EXAM RESULTS:

	RO Pass/Fail	SRO Pass/Fail
Written Exam	1/0	1/1
Oral Exam	/	0/1
Simulator Exam	/	/
Overall	1/0	1/1

1. CHIEF EXAMINER AT SITE:

   Noel Dudley

2. PERSONS EXAMINED

   Kroun, Ira J.
   Franzen, Jeffrey A.
   Clark, Stephen

3. Summary of generic strengths or deficiencies noted from grading of written exam.

   - The facility does not understand nor attempt to teach reactor physics specific to their core. See "H2-How Fast Flux Varies With Core Life" of attachment.

   - Facility issued written comments on the examination only after initial results were available. Written comments only covered the area identified as a failure.

4. Comments on interface effectiveness with plant training staff and plant operations staff during exam period.

   - The facility questioned the appropriateness of some questions on the examination which were taken directly from questions provided by the facility.

   - The facility reviewers had difficulty reaching a consensus on some answers such as what indications should be used to verify natural circulation or how to identify a leaking valve to the storage tank.

   - The facility had difficulty making decisions as to what actions should be taken in situations such as loss of pool water into the hold up tank room and what experiments could be inserted into the core.

   - There is a perceived weakness in facility training or procedures which has resulted in an inconsistent understanding of proper plant operations. (50-054/85-01-01)

5. Personnel Present at Exit Interview:

   NRC Personnel

   Noel Dudley, Lead Reactor Engineer (Examiner)

   Facility Personnel

   William Ruzicka, Manager Nuclear Operations
   Robert A. Strack, Reactor Supervisor

6. Summary of NRC Comments made at exit interview:

   The oral examination was not a clear pass.

   The NRC questioned why smoking was allowed around the open pool where eating is not allowed. (50-054/85-01-02)

   The NRC stated a concern about the lack of administrative controls during operations. This concern arose from the lack of control of the maintenance on the secondary pump, the oral candidate's failure to use any procedure while starting up the reactor, and the difficulty in preparing examination questions from material supplied by licensee.

7. Summary of facility comments and commitments made at exit interview:

Smoking is allowed in the pool area because the State of New York has issued a smoking permit for that area.

The lack of procedures is not a problem because every situation requires individual judgement.

8. CHANGES MADE TO WRITTEN EXAM DURING EXAMINATION REVIEW:

Answer No.	Change	Reason
C.01	Change to a. "PH 5-7.5 b. 5 gpm c. EXIT ACTIVITY <2000 cpm/ml"	Corrects limits taken from incorrect reference.
C.01 reference	Add, "RS-10-1"	Supplies correct plant reference.
C.02 and J.03	Delete "Increasing radiation level at the bridge monitor" and add "pressure reading in pump room, check valve shuts, pump cavitates. [any 4 @ 0.5 each]"	Reflects actual plant indications.
C.03	Change ".5 MW" to "100 KW".	2% power level is used as heat range.
C.03 reference	Add "RM-04-20, RS-14"	Supplies references which define heat range.
C.04a and J.04a	Change to read "P = Po e(t) 1MW = 1.25E-4 e(t/50) ln [8E3] = ln [e(t/50)] t = 449 sec or 7.48.	Corrects math errors.

Answer No.	Change	Reason
C.04b and J.04b	Change to "Power coefficient would lengthen period and would eventually stabalize power (2-2.5MW) [1.5] (If power reached 7.5 MW the reactor would scram)".	Reflects the fact that MTC has very little effect on the core and is incorporated into power coefficient.
C.05	Change "Reactor will shutdown" to "Reactor power will decrease".	Power coefficient will add positive reactivity to balance reactivity added by the increase in pool temperature.
C.06a and J.09a	Change to "Safety rods move" and change "OUT" to "IN" and "IN" to "OUT".	The reactivity added by Xenon will require movement of safety rods. Change rod motion direction to accommodate Xenon transient.
C.06b and J.09b	Change "Linear N" to "power" and delete "servo".	Modifies answer to facility nomenclature.
G.05	Add "(Beam tube exhaust fan starts)".	Provides additional information.
G.06a and I.07a	Add efficiency factor to Beta rate calculation.	Efficiency factor required due to sensitivity of meter.
G.06b and I.07b	Change "1.8" to "3.5" and "4.17" to "21.4".	The gamma dose rate should be used in place of beta dose rate.
G.06c	Add "(75 rem)" and "(25 rem)".	Provides additional information.
J.06 Question	Change "isolated" to "initiated".	Clarifies question.
H.01	Change "[CAF]" to "flux mapping".	Explains how peak to average flux is measured.

Answer No.	Change	Reason
H.02a	Change to "Fast flux changes [0.4] depending on fission products, rod position, fast fission factor changes, fission rate changes to maintain constant power, changes in resonance absorbers, and changes in buckling. [0.6]"	Change answer to reflect licensee's understanding of core flux.
H.05a	Change "insert" to "withdraw".	Corrects rod motion for a lower power reading.
H.09	Reweight partial credit.	Recognizes relative importance of factors in repositioning fission chamber.
I.08b	Delete "GM".	GM tubes are not used in stack monitor.
J.02b	Change to "Pool temp, Flapper open, Heat swirls on surface, [any 2 @ 0.5 each]".	Replaces requirements with indications.
J.05b	Change "manually" to "automatically".	Electrical generator secures automatically on return of offsite power.
J.07	Add "units of range scale" to CIC indications and change units of UIC indications to "% power".	Corrects indication scales on nuclear instruments.
J.08a	Add "Activity".	Activity is also used for water purity measurement.
K.04a	Change "CAF" to "control element-extends above core, has control rod opening, no fuel plate, guide tube; Standard element fuel plate, lifting bar".	Provides physical differences between fuel and control elements.

Answer No.	Change	Reason
K.04c	Add "if on special tool [0.5]. Under SRO instruction [0.5]".	Expands answer to include other items needed to use crane.
K.07	Change to read: "Water sampling near suspected component. Reactor restarts. Bubbles from the core. Visual inspection. Isolate Component CAMs and ½ life measurement [any 4 @ 0.75 each]	Incorporates facility provided method for locating source of fission product release.
L.04	Change a. to "No" and reweight partial credit.	No physical way of bypassing UIC scram.
L.06a	Change "No" to "Yes" and "greater" to "less".	Corrects answer to correspond to Technical Specification requirements.
L.06b	Add "(boiling considerations)".	Provides additional information.
L.08	Change "rod drive system" to "safety system".	Exceeding amperage on rod drives affects the safety system.