

JAN 16 1990

The purpose of this letter is to provide information concerning the Generic Fundamentals Examination Section (GFES) of the operator licensing written examination to be administered on February 7, 1990. The PWR GFES and BWR GFES will be administered at the times and the location specified in enclosure 1. Included with this letter are:

- ° a map of the area including the time and location where the examinations will be administered; (Enclosure 1)
- ° a list of lodging in the immediate area; (Enclosure 1)
- ° the name of the regional contacts and telephone numbers; (Enclosure 1)
- ° preliminary instructions for those taking the examination; (Enclosure 2)
- ° Equation Sheet; (Enclosure 3)

Please ensure that all participants receive a copy of the instructions.

We are pleased with your response in support of this effort. The results of the examination should be available within three weeks following completion of the examination. A master copy of each version of the examination with answers, a table showing the scores of each candidate and a copy of the answer sheet for each participant will be sent to the facility training department.

Sincerely,

ORIGINAL SIGNED BY GEOFFREY C. WRIGHT

Geoffrey C. Wright, Chief
Operations Branch

Enclosures:

1. Map of exam administration area
2. Preliminary instructions to participants
3. Equation Sheet

See Attached Distribution

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PDR ADOCK 05000266
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R111
KMS
Shembarger/cg
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Distribution and concurrence for letter to facilities RE: Information
concerning the February 1990 Generic Fundamentals Examination dated _____.

DISTRIBUTION

TRAINING MANAGERS AT THE FOLLOWING FACILITIES:

Byron, Docket Nos. 50-454/50-455

D. C. Cook, Docket Nos. 50-315/50-316

Duane Arnold Docket No. 50-331

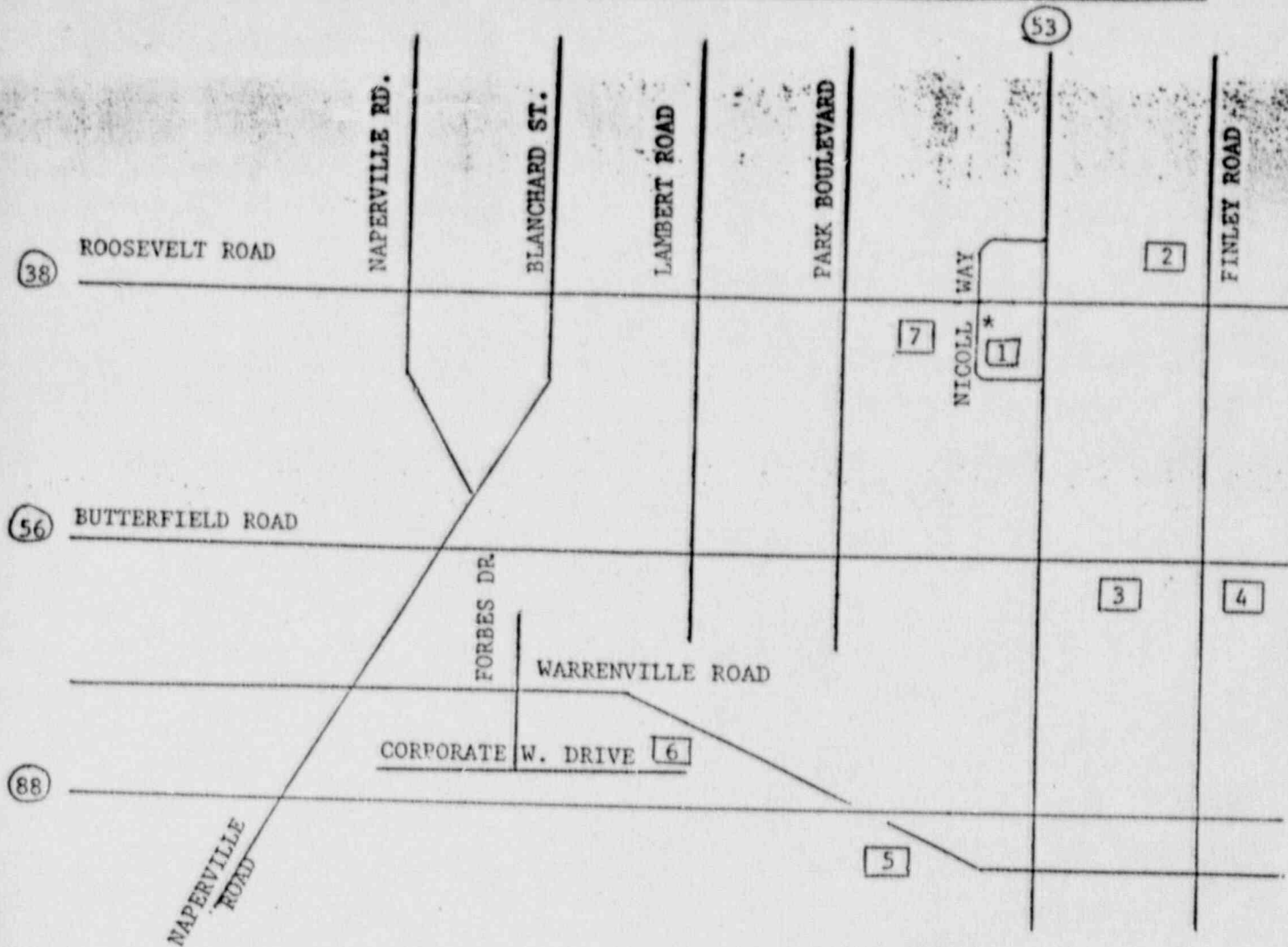
Perry Docket No. 50-440

Point Beach, Nos. 50-266/50-301

Zion Docket Nos. 50-295/50-304

KEPerkins
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R111 Files
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TMBurdick
MJJordan
KShembarger
MABies

U. S. NRC REGION III GENERIC FUNDAMENTALS EXAMINATION ADMINISTRATION



*EXAMINATION SITE

PWR: Arrive by 8:30 A.M.
 BWR: Arrive by 12:30 P. M.
 1. U. S. NRC, Region III
 799 Roosevelt Road
 Building 4, Glen Hill
 Office Park
 Glen Ellyn, Illinois

EXAMINATION DATE/TIME

February 7, 1989
 PWR: 9:00 A.M.
 BWR: 1:00 P.M.

REGION III CONTACT

Kris Shembarger
 708/790-5771
 Mike Bielby
 708/790-5586

AREA LODGING

2. Holiday Inn
 Glen Ellyn-Lombard
 1250 Roosevelt Road
 Glen Ellyn, IL
 312/629-6000

4. Dillon Inn
 3031 Finley Road
 Downers Grove, IL
 312/810-9500

6. Hilton Inn
 3003 Corporate West Dr.
 Lisle, IL
 312/369-0900

3. Radisson Hotel
 2100 Butterfield Road
 Downers Grove, IL
 312/971-2000

5. Hyatt Hotel
 1400 Corporetum Drive
 Lisle, IL
 312/852-1234

7. Four Seasons Hotel
 Best Western
 656 Taft
 312/469-8500

Pre-Examination Instructions for the Generic Fundamentals Examination Section of the Written Examination - October 1989

The following instructions apply for the Generic Fundamentals Examination Section (GFES) of the Written Operator Licensing Examination to be administered February 7, 1990.

- A. Identification - All participants must present photo identification (i.e. facility photo-badge, state driver's license, etc.) and sign a roster sheet prior to receiving an examination.
- B. Information provided with the Examination - Each examination package will include an examination, a copy of the steam tables, an 'Equations and Constants' Sheet a 'machine gradable' answer sheet and instructions on filling out the answer sheet. All material must be turned in at the completion of the examination.
- C. Use of Calculators - Use of personal non-programmable pocket calculators and/or slide rules will be permitted during the examination. NRC will not supply calculators, so the participant should ensure that batteries are new or have been recently charged. No other examination aids will be permitted.
- D. Examination Administration - The examination will be administered using the criteria contained in ES-201 of NUREG 1021 "Operator Licensing Examiner Standards" as modified by instructions provided at the time the examination is administered.
- E. Decision to Withdraw - If for any reason a participant decides to not take the examination please inform one of the NRC Regional Contacts as listed on Enclosure 1.
- F. Examination Duration - The time designated to complete the examination is two and one half hours. All participants will be required to hand-in their examinations two and one half hours after the proctor designated initial start.

EQUATION SHEET

$$\dot{Q} = \dot{m} c_p \Delta T$$

$$\dot{Q} = \dot{m} \Delta h$$

$$\dot{Q} = UA \Delta T$$

$$SUR = 26.06/\tau$$

$$SUR = \frac{26.06 (\lambda_{eff} \rho)}{(\bar{\beta} - \rho)}$$

$$P = P_0 10^{SUR(t)}$$

$$P = P_0 e^{(t/\tau)}$$

$$\tau = (l^*/\rho) + [(\bar{\beta} - \rho)/\lambda_{eff}\rho]$$

$$\rho = (K_{eff} - 1)/K_{eff}$$

$$\rho = \Delta K_{eff}/K_{eff}$$

$$\text{Cycle Efficiency} = \frac{\text{Net Work (out)}}{\text{Energy (in)}}$$

$$SCR = S/(1 - K_{eff})$$

$$CR_1 (1 - K_{eff})_1 = CR_2 (1 - K_{eff})_2$$

$$M = 1/(1 - K_{eff}) = CR_1/CR_0$$

$$M = \frac{(1 - K_{eff})_0}{(1 - K_{eff})_1}$$

$$SDM = (1 - K_{eff})/K_{eff}$$

$$Pwr = W_f \dot{m}$$

$$\tau = l^*/(\rho - \bar{\beta})$$

$$l^* = 1 \times 10^{-5} \text{ seconds}$$

$$\lambda_{eff} = 0.1 \text{ seconds}^{-1}$$

$$1 \text{ Curie} = 3.7 \times 10^{10} \text{ dps}$$

$$1 \text{ hp} = 2.54 \times 10^3 \text{ BTU/hr}$$

$$1 \text{ BTU} = 778 \text{ ft-lbf}$$

$$^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32)$$

$$1 \text{ kg} = 2.21 \text{ lbm}$$

$$1 \text{ Mw} = 3.41 \times 10^6 \text{ BTU/hr}$$

$$^{\circ}\text{F} = 9/5 ^{\circ}\text{C} + 32$$