Date

ROUTING AND TRANSMITTAL SLIP 11/1/

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. P. A. Birkel, LWR-2		
2. cc: Oconee File McGuire File		
3.		
4. THRU: T. Murphy, Leader		11/17/77
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

DRAFT SER -- SHIPMENT OCONEE FUEL TO MCGUIRE STATION

Attached markup of Section 4 to subject SER, per your request.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
J. Nehemias, RPS, RAB, DSE	P-712
	Phone No. 27955

5041-102
☆ U.S. G.P.O. 1977-241-530/3090

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

Memo

7912110597 P

ROUTING AND TRANSMITTAL SLIP

1 TO (Name, office symbol or location) V. Leung G. Chipman	INITIALS / DATE	ACTION / CIRCULATE / COORDINATION
2 F. Liederbach R. Van Niel	INITIALS / DATE	FILE / INFORMATION
3 C. Gaskin L. Gittleman	INITIALS / DATE	NOTE AND RETURN / PER CONVERSATION
4 K. Kniel J. Nehamias — spitalny 427.4205	INITIALS / DATE	SEE ME / SIGNATURE

REMARKS

RE: DRAFT SER - SHIPMENT OCONEE FUEL TO MCGUIRE STATION

Your assistance in briefly reviewing the attached section of the subject SER is requested to assure accuracy and compatibility with the McGuire FSAR-SER. Please return an annotated copy with your comments by October 23, 1978.

V. Leung	Sec. 2.0	F. Liederbach	Sec. 6.0
K. Kniel	Sec. 3.0	R. Van Niel	Sec. 7.1
J. Nehamias	Sec. 4.0	C. Gaskin	Sec. 7.2
G. Chipman	Sec. 5.0	L. Gittleman	Sec. 9.0

Do NOT use this form as a RECORD of approvals, concurrences, disapprovals, clearances, and similar actions

FROM (Name, office symbol or location) R. A. Birkel, LWR #2 — DATE 10/17/78 — PHONE 27701

OPTIONAL FORM 41 (AUGUST 1967) — 7540-01-317-5372 — 5041-101

DRAFT

9/18/78

4.0 RADIOLOGICAL IMPACT

EFFECT OF TRANSSHIPMENT ON CONSTRUCTION FORCE AND OTHER NON-OPERATIONS STATION PERSONNEL

4.1 Shipping Cask

DPC currently owns a truck shipping cask, an NAC-1, which will be used to transship the spent fuel from Oconee to McGuire. This cask, originally designated an NFS-4 and bearing NRC certificate of compliance number 6698, was designed to hold one PWR or two BWR fuel elements with burnup of about 30,000 MWD/MT and decay time of 120 days without exceeding the DOT specifications for dose rates in 43 CFR 173.393. This means that the dose rate at the outside surface of the package (including thermal shield) cannot exceed 200 mrem/hr and at six feet from the package cannot exceed 10 mrem/hr.

Since the fuel to be shipped here will not be design basis fuel (lower burnup, 270 days minimum cooling time), the dose rates outside the cask will be significantly lower. In connection with some fuel transfers at Oconee, DPC measured actual dose rates outside the cask containing fuel with approximately 20,000 MWD/MT and decay times of 170 to 410 days. The contact readings were made without the thermal shield in place so they are not particularly useful. None exceeded 60 mrem/hr gamma, however. The six-foot readings averaged about 5 mrem/hr gamma; ~~Neutron dose rates would not be expected to be significant.~~ None exceeded 10 mrem/hr. Expected neutron dose rates would be less by a factor of ten or more.

We conclude based on the increased decay time and the DPC measurements

that 5 mrem/hr ~~at a foot from the cask~~ dose rate is a reasonable value to assume ~~for consideration of this rate~~ at six feet from the cask. Dose rates from fuel handling and storage in the pool will be negligible due to the water shielding.

Transshipment Routing and Schedules

The distance from Oconee to McGuire is approximately 170 miles. Thus, transshipment would be accomplished without stops in about four hours. Arrival of the cask could be expected at any hour of the day or night but the projected schedule of one receipt per day at a particular time could be achieved after a routine is established and two casks are placed into use. Although the most likely time of arrival is during the evening (2nd shift), we will assume that arrival will be during the day when the bulk of the approximately 2000 person construction force and station personnel are on site. Undoubtedly, some shipments will arrive during this time regardless of ideal scheduling.

At the McGuire site, the shipment will enter the DPC road off of N.C. Route 73, traveling 0.3 miles, then pass through the split parking lot and stop at the Security Gate to gain admission to the Station protected area. The shipment would then move directly north past the warehouse, turbine building, four trailers used as temporary offices, then turning east to the north end of the auxiliary building where the spent fuel storage pool is located. See Figure 4-1.

Initial checks for surface contamination will be made in the yard and a cask wash down facility is located just outside the entrance to the pool. After wash down, the cask will be moved into the building where subsequent operations will be performed by station personnel. The cask with truck can be stored in the receiving bay of the building if desired.

4-2 Personnel Locations and Barriers

Administration Building - About 100 employees work in the Administration Building, a corner of which is 325 feet from the nearest passage of the shipment as it enters the station. It is conceivable that some employees could be in the parking lot as the truck passes through some 30 feet away.

Security Gate - Two or more guards will be located at the Security Gate where the shipment and drivers will be ch[illegible] before being permitted to enter the Protected Area. This is estimated to take about 10 minutes, during which time the guards could remain in the vicinity of the cask.

Temporary Offices - Four trailers serving as temporary offices for about 60 Station personnel are located as near as 20 feet from the route of the cask as it heads toward the spent fuel storage area.

Turbine Building - The nearest side of the Turbine Building where construction activities will be essentially complete is 65 feet from the route of the cask.

Yard - DPC has indicated no other offices, trailers or other occupied structures that will be located in the vicinity of the cask where it will be stopped, examined, cleaned or stored in the yard outside the spent fuel storage pool.

Construction Areas - Construction will be continuing during the transshipment activities, but essentially only in Unit 2. A system of security fences and gates, existing walls and temporary barriers will be used to prevent unauthorized access of the construction force into operating areas, including the spent fuel storage pool area and yard. The nearest point of unshielded access to the parked cask is at the East Security Gate, about 200 feet away. Other points may be equidistant but shielded by concrete walls and/or earthern berm. DPC has indicated that any construction/vendor personnel who must gain access to any area where there would be exposure to them above background doses will be under the direct supervision of the McGuire Health Physicist.

The temporary barrier system described by DPC appears complex. It is not easy to determine from the drawings ~~if~~ how difficult it will be ~~difficult~~ to bypass. Its penetrability should be judged after it has been completed. However, even if a construction worker should bypass it for some reason, it is unlikely that he would choose to go to the spent fuel storage area in the far corner of the Auxiliary Building. That area is not on a route to anywhere.

4.4 Radiation Dose

DPC has concluded that the total doses to construction or vendor personnel due to spent fuel shipping, handling and storage at McGuire will be negligible. Based upon our review of the transshipment schedule and routing within the station areas, the low dose rates measured and expected, the exclusion distances provided and controls that will be exerted, we agree with this conclusion. Doses received by the drivers of the trucks are not addressed herein, but have been included in the Environmental Statement. ~~There is one item worthy of note however.~~ Guards who work at the South Security Gate ~~and may~~ will be in the vicinity of the cask for several minutes while a shipment is being checked. ~~could receive measurable doses.~~ While these guards are not part of the construction force or even company employees, their potential exposure should be considered. We estimate that a guard who was present at the time of each shipment could receive a maximum dose of about 200 mrem per year. ~~if DPC were present at the time of each receipt. What with~~ Considering rotating shifts and transshipment schedules, a more likely ~~the~~ maximum would be about 70 mrem per year. ~~is more likely planned to provide these guards with personnel dosimetry, we recommend that they do so.~~ ~~If DPC is not~~ We believe it would be prudent for DPC to place thermoluminescent dosimeters at appropriate points near the South Security Gate guard station, to provide assurance that actual doses to such guards are not likely to be a significant fraction of regulatory limits.

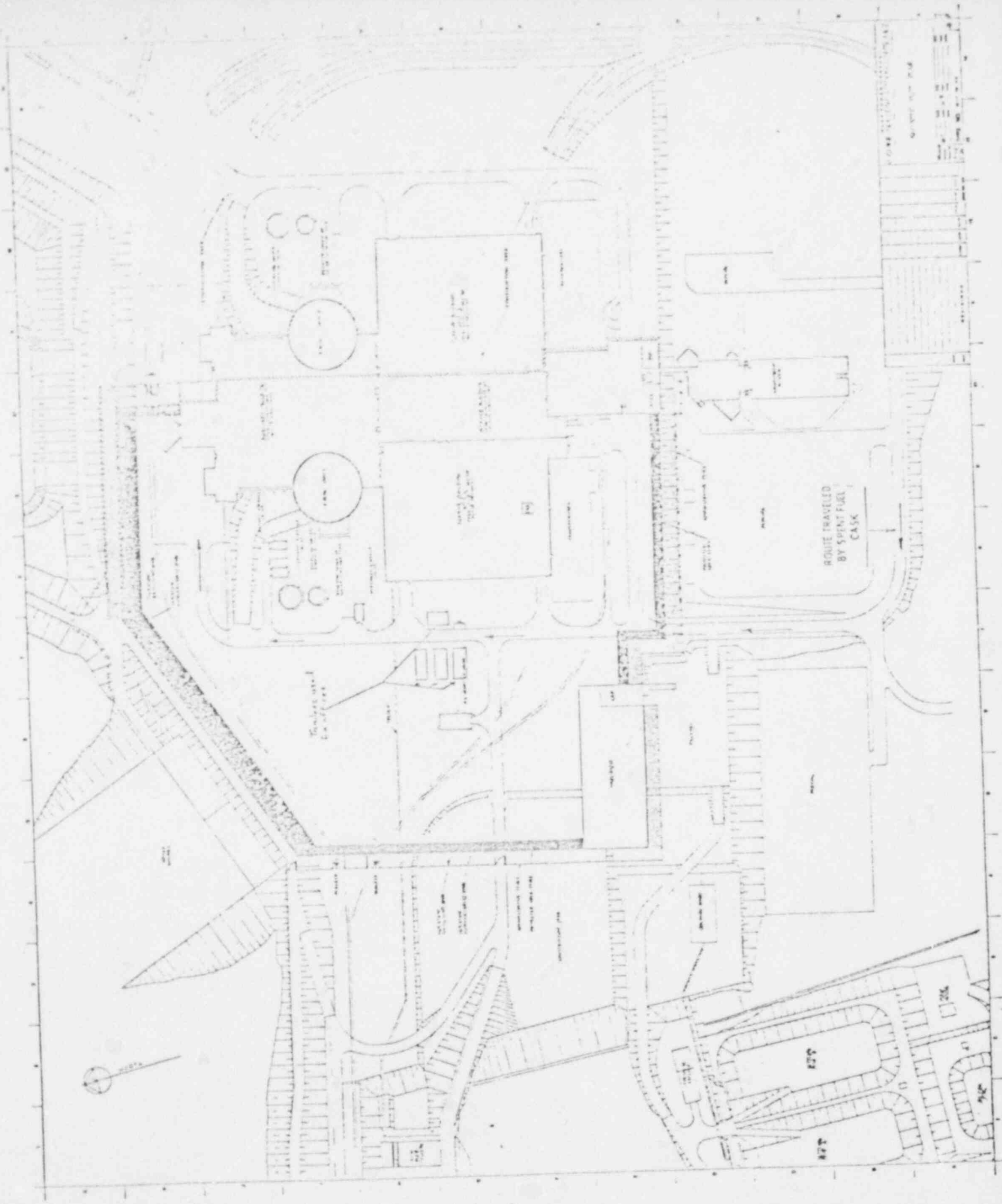

FIG 4-1