

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSIONBEFORE THE PRESIDING OFFICER

In the Matter of

CFC LOGISTICS, INC.

(Materials License)

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Docket No. 30-36239-ML

ASLBP No. 03-814-01-ML

NRC STAFF ANSWER TO PRESIDING OFFICER'S QUESTION  
ON WHETHER FACILITY CONSTITUTES A SIGNIFICANT SOURCE  
WITH OBVIOUS POTENTIAL FOR OFF-SITE CONSEQUENCESINTRODUCTION

During the transcribed status call on September 2, 2003, the Presiding Officer asked the NRC Staff ("Staff") to supplement the "NRC Staff Brief on Standing and Areas of Concern" (August 27, 2003) with a discussion of whether the licensed irradiator that is the subject of this proceeding constitutes "a significant source with obvious potential for off-site consequences." See *Florida Power & Light Company* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329-330 (1989).

DISCUSSION

The first concept to be addressed is whether the irradiator is a "significant source." The amount of radioactivity for which the Licensee is authorized is 1,000,000 Curies from Cobalt-60. In a previous case, a lesser source in an irradiator (320,000 Curies) was considered to be a "large source of radioactive material." *Armed Forces Radiobiology Research Institute* (Cobalt-60 Storage Facility), ALAB-682, 16 NRC 150 (1982). The CFC Logistics source is at least as significant in that it could have serious impacts on workers, should they be exposed to the source. Members of the public could also be seriously impacted, should they be exposed to the source. This potential for significant impact is reflected in the Commission's promulgation of a separate Part (10 C.F.R.

Part 36) for irradiators with dose rates above five grays (500 rads) per hour at one meter from the radioactive sealed source. 10 C.F.R. § 36.1(b). Accordingly, the Staff considers this facility to contain a “significant” source.

The second concept to be addressed is whether the licensed irradiator produces an “obvious potential for off-site consequences.” Tr. of August 7, 2003, p. 33. The CFC Logistics irradiator uses principally passive protective systems, including the double encapsulation of the sealed sources, the strong plenum, and the robust pool, to assure both that the radioactive material remains in the sources and that radiation levels in unrestricted areas remain below the requirements of 10 C.F.R. Part 20. The passive nature of these systems makes them generally more reliable than active systems.

The CFC Logistics irradiator does have some active systems, such as the water purification system, monitoring of the pool water level, and the radiation alarms. However, the facility can operate without these systems for a significant time. The water purification system maintains the water quality such that it reduces the potential for corrosion of the sources. However, in this design, the sources are not in continuous contact with the water because the plenum is sealed and filled with air. In addition, if the purification system were to fail, water quality would deteriorate slowly, over a period of weeks or months. While deteriorating water quality (increased conductivity) could affect corrosion rate, failure of the sources due to this process will take years.

Pool water level is monitored by operator observation and maintained by opening water lines to add water. It is unlikely that this system would fail for a significant time. The radiation alarms are intended to detect leaking sources or increased radiation levels. Although alarms are placed on the outside of the pool and of the building, based upon the operational history of irradiators operating under Part 36, off-site consequences are not anticipated. The failure of any

one active system, by itself, is not expected to cause exposures to workers, let alone to other members of the public off-site. After any failure, there would be adequate time to restore the faulty system.

#### CONCLUSION

For the reasons discussed above, the Staff's response to the Presiding Officer's question is that the licensed irradiator is a significant source. However, the licensed irradiator does not present an obvious potential for off-site consequences.

Respectfully submitted,

**/RA/**

Stephen H. Lewis  
Counsel for NRC Staff

Dated at Rockville, Maryland  
this 3<sup>rd</sup> day of September, 2003

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE PRESIDING OFFICER

In the matter	)	
	)	Docket No. 302-362339-ML
CFC LOGISTICS, INC.	)	
	)	ASLBP No. 03-814-01-ML
(Materials License)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF ANSWER TO PRESIDING OFFICER'S QUESTION ON WHETHER FACILITY CONSTITUTES A SIGNIFICANT SOURCE WITH OBVIOUS POTENTIAL FOR OFF-SITE CONSEQUENCES" have been served upon the persons listed below by 1<sup>st</sup> class U.S. mail, or through deposit in the Nuclear Regulatory Commission's internal mail system, as indicated with an asterisk, and by electronic mail, as indicated with a double asterisk, this 3<sup>rd</sup> day of September, 2003.

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