



August 31, 2000

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Operating Licenses DPR-58 and DPR-74  
Docket Nos. 50-315 and 50-316

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following report is being submitted:

LER 315/2000-006-00, "Emergency Diesel Fuel Oil Technical Specification Surveillances Not Met Verbatim."

The following commitments were identified in this submittal:

- The affected diesel fuel oil Technical Specification surveillance procedures will be revised by September 30, 2000, to provide detailed steps that match the procedures outlined in the respective American Society for Testing and Materials (ASTM) standard.
- Training and qualification of Chemistry Technicians to perform the diesel fuel oil ASTM color analysis are in progress and will be completed by September 30, 2000.

Should you have any questions regarding this correspondence, please contact Mr. Wayne J. Kropp, Director Regulatory Affairs, at 616/697-5056.

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Bakken III', written over a horizontal line.

A. Christopher Bakken, III  
Site Vice President

/srd  
Attachment

c: J. E. Dyer, Region III  
D. Hahn  
B. A. McIntyre  
T. P. Noonan  
R. P. Powers  
R. Whale  
NRC Resident Inspector  
Records Center, INPO

IE 22

NRC Form 366 (6-1998)		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED BY OMB NO. 3150-0104    EXPIRES 06/30/2001  <small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503</small>					
<b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)											
FACILITY NAME (1)  Donald C. Cook Nuclear Plant Unit 1						DOCKET NUMBER (2)  05000-315		PAGE (3)  1 of 4			
TITLE (4)  Emergency Diesel Fuel Oil Technical Specification Surveillances Not Met Verbatim											
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
08	04	2000	2000	-- 006 --	00	08	31	2000	Cook Plant Unit 2	05000-316	
			FACILITY NAME								DOCKET NUMBER
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
--			20.2201 (b)				20.2203(a)(2)(v)		<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)			20.2203(a)(1)				20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
0			20.2203(a)(2)(i)				20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)				20.2203(a)(4)			50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)				50.36(c)(1)			50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)				50.36(c)(2)			50.73(a)(2)(vii)	
LICENSEE CONTACT FOR THIS LER (12)											
NAME  M. B. Depuydt, Regulatory Affairs								TELEPHONE NUMBER (Include Area Code)  616 / 465-5901, x1589			
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR
YES (If Yes, complete EXPECTED SUBMISSION DATE).						X NO					
<b>Abstract (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)</b> On August 4, 2000, during the revision process for a Technical Specification (TS) surveillance procedure, it was discovered that procedure 12 THP 6020.CHM.307, "Emergency Diesel Fuel Oil," did not meet the verbatim surveillance requirement of TS 4.8.1.1.2.c.3. The surveillance requires verification, "... in accordance with the test specified in ASTM D4176-82 and prior to adding new fuel to the storage tanks, that the sample has a clear and bright appearance with proper color." Contrary to the TS and the American Society for Testing and Materials (ASTM) standard, proper color has not been verified or documented during the performance of the clear and bright test for new fuel oil shipments since the TS surveillance was implemented in 1989. During the investigation of the condition, five other fuel oil TS surveillance procedures were determined to not meet TS requirements - kinematic viscosity, flash point, specific gravity, clear and bright, and particulate contamination. All five procedures lacked sufficient detail to ensure verbatim compliance with the appropriate ASTM, as required by TS. This LER is submitted in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by the plant's TS. The cause of the missed surveillance was the failure to recognize the phrase "with proper color" as a surveillance criteria. Caution tags were placed on the fill standpipes for both Emergency Diesel Generator (EDG) fuel oil tanks. Results from a sampling of fuel oil analyses were reviewed to verify acceptable results, including offsite analyses for water and sediment. New fuel oil will be purchased clear, not colored or dyed, and the ASTM color will be determined for all new fuel shipments prior to fuel offloading. The diesel fuel oil analysis procedures have been reviewed and are being revised as appropriate to ensure verbatim compliance with TS. Technician qualification for fuel oil color analysis is in progress. Based on the performance of other field and laboratory analyses and Technician training and qualification programs that ensure high quality fuel is used for the EDGs, there is minimal safety significance to the failure to verify proper color of new diesel fuel oil or provide explicitly detailed procedures for performance of ASTM requirements.											

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	2 of 4
		2000	--	006	--	
Donald C. Cook Nuclear Plant Unit 1	05000-315					

Donald C. Cook Nuclear Plant Unit 1

05000-315

2 of 4

**TEXT** (If more space is required, use additional copies of NRC Form (366A) (17))

**Conditions Prior to Event**

Unit 1 was defueled.

Unit 2 was in Mode 1, Power Operation, at 100% Rated Thermal Power.

**Description of Event**

On August 4, 2000, during the revision process for a Technical Specifications (TS) surveillance procedure, it was discovered that neither the current revision nor the draft revision of procedure 12 THP 6020.CHM.307, "Emergency Diesel Fuel Oil," met the verbatim surveillance requirement of TS 4.8.1.1.2.c.3. The TS surveillance for both units requires verifying, "... in accordance with the test specified in ASTM D4176-82 and prior to adding new fuel to the storage tanks, that the sample has a clear and bright appearance with proper color." Contrary to the TS and the American Society for Testing and Materials (ASTM) standard, proper color has not been verified or documented during the performance of the clear and bright test for new fuel oil shipments since the TS surveillance was implemented in 1989.

ASTM D4176-82, "Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Clear and Bright Pass/Fail Procedures)," provides both a field test and laboratory procedure for determining the presence of free water and solid particulate contamination in distillate fuels having an ASTM color of 5 or less. Donald C. Cook Nuclear Plant (CNP) uses the clear and bright field test procedure as one check of incoming fuel oil to ensure no contaminants are present. The ASTM color refers to a scale of tint and depth of color for undyed, refined fuel and the scale ranges from 0 (clear) to 8 (very dark). The clear and bright procedure requires an ASTM color of 5 or less to ensure that the presence of free water or particulate in the fuel oil sample are not obscured and missed by the viewer. Additionally, the presence of dye in a fuel oil sample masks the natural color of the fuel oil, making an objective ASTM color determination impossible. Prior to 1993, EDG fuel oil purchased by CNP was not dyed. In 1993, federal regulations required the addition of dye for tax-exempt diesel fuel, and CNP began purchasing dyed fuel oil. The dye, if present in high enough concentrations, could prevent the detection of water or particulate contamination.

During the investigation for the extent of the condition, five related conditions were identified where, contrary to the TS, diesel fuel oil surveillance requirements were not being met. The fuel oil procedures used to meet the analysis requirements for TS 4.8.1.1.2.c.1.a [kinematic viscosity], 4.8.1.1.2.c.1.b [flash point], 4.8.1.1.2.c.2 [specific gravity], 4.8.1.1.2.c.3 [clear and bright], and 4.8.1.1.2.d [particulate contamination], all lacked sufficient detail to meet the procedural requirements of the appropriate ASTM standard. For example, the ASTM standard procedure for the clear and bright analysis provides the exact dimensions for the analysis apparatus, but the plant procedure does not require the same apparatus. Another example is that the ASTM standard procedure for the kinematic viscosity analysis requires a calibrated timer, but the internal timer used for the plant procedure is not calibrated.

Failure to perform the required Emergency Diesel Generator (EDG) fuel oil TS surveillances is a violation of TS. This LER is submitted in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by the plant's TS.

**Cause of Event**

The cause of the missed surveillance was the failure to recognize the phrase "with proper color" and the ASTM procedure steps as surveillance criteria. The "proper color" criterion was assumed to have been met if the sample was clear enough to allow contaminants to be detected. The ASTM standard procedural steps were adhered to closely enough to meet their intent, but the CNP fuel oil analysis procedures did not include all the specific details of the ASTM to ensure compliance with the TS requirements.

**Analysis of Event**

The emergency diesel fuel oil system is designed to provide a reliable supply of fuel to operate the EDGs. The system includes two fuel oil storage tanks that are shared between the units, each tank holding approximately 60,000 gallons. The AB fuel oil storage tank supplies the AB EDGs for both units, and the CD fuel oil storage tank supplies the CD EDGs for

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		2000	--	006	--	
Donald C. Cook Nuclear Plant Unit 1	05000-315					3 of 4

**TEXT** (If more space is required, use additional copies of NRC Form (366A) (17))

both units. The fuel oil transfer system transfers the fuel oil from the storage tanks to the diesel fuel oil day tanks, which in turn supply fuel to the diesel engines. The EDG fuel oil must be clean and free of water and particulate to ensure proper operation of the EDGs during accident conditions.

CNP performs testing of new diesel fuel oil to ensure that the fuel is of the proper quality prior to unloading the shipment into the EDG fuel oil storage tanks. The clear and bright test is a pass/fail test based on a visual examination and a subjective evaluation of what is observed in the field; therefore, no statistical evaluations of the repeatability and reproducibility of the test have been determined. The field test procedure consists of obtaining a 500-milliliter sample of fuel oil in a clean glass liter jar, and observing the visual sediment or water drops below the vortex formed by swirling. The test is conducted immediately at the point of sampling and at ambient temperature conditions. The observer records the absence (pass) or presence (fail) of the water or sediment.

The clear and bright test is one of four analyses performed as required by TS prior to adding new diesel fuel oil to the storage tanks. The other three analyses, specific gravity, kinematic viscosity, and flash point, are quantitative and reflect a limited, but adequate, immediate multi-dimensional profile of fuel oil chemistry. Additionally, TS require that a sample of the new fuel oil be sent for laboratory analysis to validate the site analyses and verify that the fuel put into the storage tanks is of acceptable quality.

Failure to observe the "with proper color" criterion and to provide detailed test procedures for the TS required analyses had no impact on the quality of diesel fuel oil available in the storage tanks. A high quality grade of diesel fuel oil has consistently been used by CNP for the EDGs, as verified by laboratory analyses. The three other analyses performed on new fuel provide quantitative evaluation of the new fuel as compared with the subjective clear and bright analysis. Laboratory analysis of new fuel is also performed within 31 days following fuel loading to validate the results of the four tests performed prior to loading.

With regard to the lack of ASTM detail in the procedures, Chemistry Technicians are provided training on performance of each analysis, and are required to undergo an individual qualification program to perform the tests, thereby ensuring reasonable consistency in the analyses between Technicians. The analysis procedures in place at the time of discovery of the conditions described in this LER did meet the intent of the ASTM standard procedures on which each was based, but did not include all the specific details of each ASTM.

Based on the above controls in place to ensure high quality fuel is used for the EDGs, there is minimal safety significance to the failure to verify proper color of new diesel fuel oil or provide explicitly detailed procedures for performance of ASTM requirements.

**Corrective Actions**

Caution tags were placed on the fill standpipes for both EDG fuel oil tanks to prevent new fuel from being added to the tanks without Chemistry management approval as an interim measure until procedure changes had been implemented. The caution tags were removed on August 17, 2000, following implementation of the required procedure changes for the clear and bright procedure and for verification of ASTM color.

Results from a sampling of fuel oil analyses performed during the period from September 1999 to April 2000 for the two fuel oil storage tanks and several recent fuel oil deliveries were reviewed, including three sets of data from the required offsite analyses. All parameters were within specification, including those for water and sediment from the offsite analyses.

The purchase order for new fuel was revised on August 11, 2000, to state that the fuel oil purchased for the EDGs must be clear, and not colored or dyed. Clear fuel oil will allow the performance of an ASTM color check.

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		2000	--	006	--	00
Donald C. Cook Nuclear Plant Unit 1	05000-315					4 of 4

**TEXT** (If more space is required, use additional copies of NRC Form (366A) (17))

A colorimetric analyzer was purchased to determine ASTM color of diesel fuel oil prior to unloading. Chemistry Lab Guide CLG.116, "Fuel Oil Color," was written and approved on August 11, 2000, to provide directions for performing the ASTM color test.

Procedure 12 THP 6020.CHM.307, "Emergency Diesel Fuel Oil," was revised on August 31, 2000, to require a diesel fuel oil ASTM color of 5 or less prior to running the clear and bright analysis.

All Chemistry procedures used to perform TS diesel fuel oil analyses have been reviewed to verify verbatim compliance with TS criteria, and with any referenced method; e.g., an ASTM standard. The review identified five additional TS compliance issues related to diesel fuel oil analysis surveillance procedures, discussed above. It was determined that the five procedures lacked the detail necessary to ensure verbatim compliance with the appropriate ASTM, as required by TS. These procedures will be revised by September 30, 2000, to provide detailed steps that match the procedures outlined in the respective ASTM standard.

Qualification Card CH-O-503G, "Perform Color Analysis on Oils/EHC," was written and approved for issue. Two Chemistry personnel are qualified to perform the color analysis; training and qualification of Chemistry Technicians are in progress and will be completed by September 30, 2000.

As a result of the extent of condition investigation, a potential adverse trend was identified regarding verbatim compliance with TS. This trend was appropriately documented in a Condition Report and will be evaluated in accordance with the CNP corrective action program.

**Previous Similar Events**

315/99-024-00, "Literal Technical Specifications Requirement Not Met By accumulator Valve Surveillance". TS Surveillance Requirement (SR) 4.5.1.c, which requires that power to the RCS accumulator isolation valve motor operator be disconnected by, "... removal of the breaker from the circuit," was not met by the associated surveillance procedure in that the breaker was opened and maintained in that position rather than being physically removed.

315/99-029-01, "Lack of Verbatim Compliance Results in Violations of Technical Specifications". TS SR requirement 4.8.2.3.2.c.2, which requires that the 250 VDC safety related battery cell-to-cell and terminal connections be clean, tight, free of corrosion, and coated with anti-corrosion material, was not met in that minor surface corrosion was identified in an inaccessible area, however, no action was taken to declare the battery inoperable or correct the condition.

Actions to prevent recurrence taken under these LERs were meant to sensitize plant personnel to the need to comply with both the actual wording and intent of the TS.