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 Units 1 & 2,per provisions of 10CFR50.71(e)

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July 22, 1996

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Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2  
1996 FINAL SAFETY ANALYSIS REPORT UPDATE

Attached are ten copies of the changed pages for the 1996 update to the Cook Nuclear Plant Final Safety Analysis Report (FSAR). These pages are being transmitted to you according to the provisions of 10 CFR 50.71(e). Instructions for incorporating the update are included with each copy.

In addition to vertically barring the specific change, changed pages have been dated "July 1996" in the lower right corner. Vertical change bars next to the July 1996 date indicate that the information has only shifted pages.

We hereby certify that the information contained in this update to the FSAR, to our knowledge, accurately presents changes made to the plant from January 22, 1995, through January 22, 1996. We note that we are in the process of performing a comparison of the FSAR to the plant design and operations.

Sincerely,

*for*   
E. E. Fitzpatrick  
Vice President

/jen

Attachment

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Table 3.2-1	1995
Fig. 3.2-1	1991
Fig. 3.2-2	1991
Fig. 3.2-3	1991
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Fig. 3.2-5	1991
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Fig. 3.2-6	1991
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Fig. 3.2-17	1982
Fig. 3.2-18	1990
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Fig. 3.3-1	1991
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Fig. 3.3-16	1991
Fig. 3.3-17	1991
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Fig. 3.3-21	1991
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Fig. 3.3-26	1991
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Fig. 3.3-28	1991
Fig. 3.3-29	1991
Fig. 3.3-30	1991
Fig. 3.3-31	1991
Fig. 3.3-32	1991
Fig. 3.3-33	1991
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Fig. 3.4-4	1991
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Table 3.5.1-1 (2pp)	1991
Table 3.5.1-2 (2pp)	1991
Table 3.5.1-3	1991
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4.2-19	1991
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Table 4.2-1 (3pp)	1989
Table 4.2-2	1992
Table 4.2-3	1994
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Fig. 4.2-2A	1982
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Fig. 4.2-6	1982
Fig. 4.2-7	1982
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Fig. 4.2-9 Ref. (4pp)	1982
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Table 4.3-1	1990
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Table 4.3-5 (2pp)	1990
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	5.2-38	1987
	5.2-39	1987
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Table 5.2-5	1990
Table 5.2-6	1990
Table 5.2-7	1990
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Fig. 5.2-4	1982
Fig. 5.2-5	1988
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Fig. 5.2.2-2	1982
Fig. 5.2.2-2A	1982
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Fig. 5.2.2-15	1982
Fig. 5.2.2-16	1982
Fig. 5.2.2-17	1982
Fig. 5.2.2-18	1982
Fig. 5.2.2-19	1982
Fig. 5.2.2-20	1982
Fig. 5.2.2-21	1982
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Fig. 5.2.2-23	1982
Fig. 5.2.2-24	1982
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Fig. 5.2.2-26	1982
Fig. 5.2.2-27	1982
Fig. 5.2.2-28	1982
Fig. 5.2.2-29	1982
Fig. 5.2.2-30	1982
Fig. 5.2.2-31	1982
Fig. 5.2.2-32	1982
Fig. 5.2.2-33	1982
Fig. 5.2.2-34	1982
Fig. 5.2.2-35	1982
Fig. 5.2.2-36	1982
Fig. 5.2.2-37	1982
Fig. 5.2.2-38	1982
Fig. 5.2.2-39	1982
Fig. 5.2.2-40	1982
Fig. 5.2.2-41	1982
Fig. 5.2.2-42	1982
Fig. 5.2.2-43	1982
Fig. 5.2.2-44	1982
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Fig. 5.2.2-50	1982
Fig. 5.2.2-51	1982
Fig. 5.2.2-51A	1982
Fig. 5.2.2-51B	1982
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Fig. 5.2.2-55	1982
Fig. 5.2.2-55A	1982
Fig. 5.2.2-56	1982
Fig. 5.2.2-56A	1982
Fig. 5.2.2-57	1982
Fig. 5.2.2-57A	1982
Fig. 5.2.2-58	1982
Fig... 5.2.2-58A...	1982
Fig. 5.2.2-59	1982
Fig. 5.2.2-59A	1982
Fig. 5.2.2-59B	1982
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Fig. 5.2.2-60	1991
Fig. 5.2.2-60A	1991
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Fig. 5.2.2-61	1982
Fig. 5.2.2-62	1982
Fig. 5.2.2-63	1982
Fig. 5.2.2-64	1982
Fig. 5.2.2-65	1982
Fig. 5.2.2-65A	1982
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5.3-15	1982
5.3-16	1984
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Table 5.3-1 (pg. 1)	1993
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Fig. 5.3-3	1982
Fig. 5.3-4	1982
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5.5-2	1982
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## 1.1 PLANT SITE SUMMARY

### 1.1.1 SITE DESCRIPTION

The approximately 650 acre site is located along the eastern shore of Lake Michigan in Lake Township, Berrien County, Michigan about 11 miles south-southwest of Benton Harbor. The population density of the area surrounding the site is relatively low. The minimum distance from the reactor containment structures to the exclusion area is about 2000 feet, with the nearest continuously occupied resident located about 2850 feet south of the reactors. The population center distance is about eight miles. The area is primarily devoted to agricultural pursuits with some manufacturing in the Benton Harbor-St. Joseph and Niles areas.

### 1.1.2 METEOROLOGY

In order to obtain meteorological data for the determination of diffusion and dispersion at the site, a meteorological recording station was established on the site during the fall of 1966. The analysis of three years data from the station is included in this report.

The site is extremely well ventilated with an extremely high percentage of strong winds and a very low occurrence of thermal inversions. There is no strong preference for any particular wind direction.

### 1.1.3 GEOLOGY AND HYDROLOGY

An investigation of site geology and hydrology was completed in 1966. The geology of the region is regular with no faults within about 50 miles of the site. The subsurface soils are adequate to support the structures and drainage of surface and ground waters is toward the lake over almost the entire site area.

#### 1.1.4 SEISMOLOGY

The area is relatively inactive seismically with no major earthquake epicenters located within about 400 miles of the site. There has been some minor activity closer to the site but no shocks within 50 miles have been large enough to cause significant structural damage.

For design purposes, a horizontal ground acceleration of 0.10g is used. All equipment and structures necessary for plant safety have been designed to withstand the effects of a horizontal ground acceleration of 0.20g.

1. The Seismic Instrumentation System consists of a control panel with three cassette mounted tape recorders, a magnetic tape playback system, one horizontal and one vertical seismic trigger, three triaxial accelerometers and associated electronic equipment. The control panel is located in the main control room and features an event indicator which illuminates when the system becomes operative. The magnetic tape playback system is also in the control room. This transfers the frequency, amplitude, and phase relationship as recorded on the tapes to a chart to facilitate quick engineering analysis as to the effect of the earthquake. The seismic triggers are located in the chlorination building which is 500 feet south of Unit 1 and serve to initiate the operation of the system. The accelerometers are oriented such that both axes are pointed in the same direction and aligned along one axis. The locations of which are as follows:
  - a) The chlorination building
  - b) The top of the primary shield wall
  - c) The bottom of the reactor pit
2. The chlorination building was chosen as a site free from influences of the other structures such that in the event of seismic excitation the accelerometer will effectively measure actual ground acceleration.

The fuel handling system also provides capability for receiving, handling and storage of new fuel. Both the new fuel storage facility and the spent fuel storage facility are shared by the two units..

#### 1.3.6 TURBINE AND AUXILIARIES

Each turbine is a tandem-compound, four element, 1,800 rpm unit, having one high pressure and three identical low pressure elements. Combination moisture separator-reheaters are employed to dry and superheat the steam between the high and low pressure turbines. The auxiliaries include deaerating surface condensers, steam jet air ejectors, turbine driven main feed pumps, motor driven condensate pumps, and six stages of feedwater heating.

#### 1.3.7 ELECTRICAL SYSTEM

The main generators are 1800 rpm, 3 phase, 60 cycle, hydrogen and water cooled units. The main transformers deliver generator power to the 345 kV and 765 kV switchyards. The station auxiliary power system consists of auxiliary transformers, 4160 v and 600 v switchgear, 600 v motor control centers, 120 v a-c vital instrument buses and 250 v d-c buses.

Two diesel generators are provided for each unit as on-site sources of power in the event of a complete loss of normal and reserve a-c power. In addition, two storage batteries are provided for each unit as on-site sources of power in the event of a complete loss of normal d-c power. Each diesel generator and battery has sufficient capacity to operate the equipment necessary for one unit to prevent undue risk to public health and safety should a loss-of-coolant accident occur.



### 1.3.8 SAFETY FEATURES

The engineered safety features provided for this plant have sufficient redundancy of components and power sources such that under the conditions of a loss-of-coolant accident they can maintain the integrity of the containment and keep the exposure of the public below the limits of 10 CFR 100, even when operating with partial effectiveness. The safety features incorporated in the design of this plant and the functions they serve are summarized below.

- a) The Emergency Core Cooling System (ECCS) injects borated water into the Reactor Coolant System. The ECCS limits damage to the core and limits the energy and fission products released into the containment following a loss-of-coolant accident.
- b) A steel-lined, domed, reinforced concrete containment vessel is anchored to a reinforced concrete foundation slab. The containment is designed to remain virtually leaktight during the pressure transient following a loss-of-coolant accident.
- c) An Ice Condenser System reduces containment pressure and removes iodine radioactivity following a loss-of-coolant accident.
- d) A Containment Spray System is used to reduce containment pressure and to remove iodine from the containment atmosphere following a loss-of-coolant accident.
- e) The Containment Isolation System incorporates valves and controls on piping systems penetrating the containment structure. The valves are arranged to provide two barriers between the Reactor Coolant System or containment atmosphere and the environment. System design is such that failure of one valve to close will not prevent isolation, and no manual operation is required for immediate isolation. Automatic Phase "A" isolation is initiated