1. This license applies to the Pilgrim Nuclear Power Station, a single cycle, forced circulation, boiling water nuclear reactor and associated electric generating equipment (the facility), owned by Entergy Nuclear and operated by ENO. The facility is located on the western shore of Cape Cod Bay in the town of Plymouth on the Entergy Nuclear site in Plymouth County, Massachusetts, and is described in the "Final Safety Analysis Report," as supplemented and amended.

2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Entergy Nuclear:

   A. Pursuant to the Section 104b of the Atomic Energy Act of 1954, as amended (the Act) and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," a) Entergy Nuclear to possess and use and b) ENO to possess, use, and operate the facility as a utilization facility at the designated location on the Pilgrim site;

   B. ENO, pursuant to the Act and 10 CFR 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

   C. ENO, pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source or special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

   D. ENO, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

   E. ENO, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

3. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations; 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50 and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

   A. Maximum Power Level

      ENO is authorized to operate the facility at steady state power levels not to exceed 2028 megawatts thermal.

1.0 DEFINITIONS

The succeeding frequently used terms are explicitly defined so that a uniform interpretation of the specifications may be achieved.

ACTION	ACTION shall be that part of a specification which prescribes remedial measures required under designated conditions.
AUTOMATIC PRIMARY CONTAINMENT ISOLATION VALVES	Are primary containment isolation valves which receive an automatic primary containment group isolation signal.
COLD CONDITION	Reactor coolant temperature equal to or less than 212°F.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is a reload-cycle specific document that provides core operating limits for the current operating reload cycle. These cycle specific core operating limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these operating limits is addressed in individual specifications.
DESIGN POWER	DESIGN POWER means a steady state power level of 2028 thermal megawatts.
FIRE SUPPRESSION WATER SYSTEM	A FIRE SUPPRESSION WATER SYSTEM shall consist of: a water source(s); gravity tank(s) or pump(s); and distribution piping with associated sectionalizing control or isolation valves. Such valves shall include hydrant post indicator valves and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser.
HOT STANDBY CONDITION	HOT STANDBY CONDITION means operation with coolant temperature greater than 212°F, system pressure less than 600 psig, the main steam isolation valves closed and the mode switch in startup.
IMMEDIATE	IMMEDIATE means that the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action.

NOTES FOR TABLE 3.1.1

1. There shall be two operable or tripped trip systems for each trip function (e.g., high drywell pressure, reactor low water level, etc.). An instrument channel, satisfying minimum operability requirements for a trip system, may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE channel in the same trip system is monitoring that parameter.

   An inoperable channel and/or trip system need not be placed in the tripped condition if this would cause a full scram to occur. When a trip system can be placed in the tripped condition without causing a full scram to occur, place the trip system with the most inoperable channels in the tripped condition, per the table below. If both systems have the same number of inoperable channels, place either trip system in the tripped condition, per the table below.

Condition	Required Action	Completion Time
a. With less than the mininum required operable channels per trip function in one trip system.	Place associated trip system in trip or*	12 hours
b. With less than the minimum required operable channels per trip function, in both trip systems.	Place one trip system in trip or*	6 hours
c. If full scram trip capability is not available for a given trip function	Restore RPS trip capability or*	1 hour

* Initiate the actions required by Table 3.1.1 and specified in Actions A through D below for that function:

A. Initiate insertion of operable rods and complete insertion of all operable rods within four (4) hours.

B. Reduce power level to IRM range and place mode switch in the startup/hot standby position within eight (8) hours.

C. Reduce turbine load and close main steam line isolation valves within eight (8) hours.

D. Reduce power to less than 32.5% of design.

BASES:

3.1 REACTOR PROTECTION SYSTEM (Cont)

The requirement that the IRM's be inserted in the core when the APRM's read 2.5 indicated on the scale assures there is proper overlap in the neutron monitoring systems and thus, sufficient coverage is provided for all ranges of reactor operation.

The provision of an APRM scram at ≤15% design power in the Refuel and Startup/Hot Standby modes and the backup IRM scram at ≤120/125 of full scale assures there is proper overlap in the Neutron Monitoring Systems and thus, sufficient coverage is provided for all ranges of reactor operation.

The APRM's cover the Refuel and Startup/Hot Standby modes with the APRM 15% scram, and the power range with the flow-biased rod block and scram. The IRM's provide additional protection in the Refuel and Startup/Hot Standby modes. Thus, the IRM and APRM 15% scram are required in the Refuel and Startup/Hot Standby modes. In the power range, the APRM system provides the required protection (Reference FSAR Section 7.5.7). Thus, the IRM system is not required in the Run mode.

The high reactor pressure, high drywell pressure, reactor low water level, and scram discharge volume high level scrams are required for Startup/Hot Standby and Run modes of plant operation. They are, therefore, required to be operational for these modes of reactor operation.

The requirement to have the scram functions, as indicated in Table 3.1.1, operable in the Refuel mode is to assure shifting to the Refuel mode during reactor power operation does not diminish the capability of the reactor protection system.

Below 32.5% of rated core thermal power for the most limiting balance-of-plant configuration, the scram signals due to turbine stop valve closure or fast closure of turbine control valves are bypassed because flux and pressure scram are adequate to protect the reactor. If the scram signal due to turbine stop valve closure or fast closure of turbine control valves is bypassed at lower powers, (< 32.5% of rated core thermal power), less conservative MCPR, LHGR, and MAPLHGR operating limits may be applied as specified in the CORE OPERATING LIMITS REPORT.

Average Power Range Monitor (APRM)

APRM's #1 and #3 operate contacts in one subchannel and APRM's #2 and #3 operate contacts in the other subchannel. APRM's #4, #5, and #6 are arranged similarly in the other protection trip system. Each protection trip system has one more APRM than is necessary to meet the minimum number required per channel. This allows the bypassing of one APRM per protection trip system for maintenance, testing, or calibration. Additional IRM channels have also been provided to allow for bypassing of one such channel.

BASES:

3.1 REACTOR PROTECTION SYSTEM (Cont)

The APRM system, which is calibrated using heat balance data taken during steady-state conditions, reads in percent of design power (2028 MWt). Because fission chambers provide the basic input signals, the APRM system responds directly to average neutron flux. During transients, the instantaneous rate of heat transfer from the fuel (reactor thermal power) is less than the instantaneous neutron flux due to the time constant of the fuel. Therefore, during abnormal operational transients, the thermal power of the fuel will be less than that indicated by the neutron flux at the scram setting. Analyses demonstrated that with a 120 percent scram trip setting, none of the abnormal operational transients analyzed violate the fuel safety limit and there is a substantial margin from fuel damage. Therefore, the use of flow-referenced scram trip provides even additional margin.

An increase in the APRM scram setting would decrease the margin present before the fuel cladding integrity safety limit is reached. The APRM scram setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams, which have an adverse effect on reactor safety because of the resulting thermal stresses.

Thus, the APRM setting was selected because it provides proper margin for the fuel cladding integrity safety limit yet allows operating margin that reduces the possibility of unnecessary scrams.

Analyses of the limiting transients show that no scram adjustment is required to assure the minimum critical power ratio (MCPR) is greater than the safety limit MCPR when the transient is initiated from MCPR above the operating limit MCPR.

For operation in the startup mode while the reactor is at low pressure, the APRM scram setting of 15 percent of rated power provides proper thermal margin between the setpoint and the safety limit, 25 percent of rated. The margin is sufficient to accommodate anticipated maneuvers associated with power plant startup. Effects of increasing pressure at zero or low void content are minor, cold water from sources available during startup is not much colder than that already in the system, temperature coefficients are small, and control rod patterns are constrained to be uniform by operating procedures backed up by the rod worth minimizer.

Worth of individual rods is very low in a uniform rod pattern. Thus, of all possible sources of reactivity input, uniform control rod withdrawal is the most probable case of significant power rise. Because the flux distribution associated with uniform rod withdrawals does not involve high local peaks, and because several rods must be moved to change power by a significant percentage of rated power, the rate of power rise is very slow. Generally the heat flux is in the near equilibrium with the fission rate. In an assumed uniform rod withdrawal approach to the scram level, the rate of power rise is no more than five percent of rated power per minute, and the APRM system would be more than adequate to assure a scram before power