

NUCLEAR/SONGS

The increasing volume and variety of radioactive materials that is generated, stored, or transported in Orange County has created potential nuclear incident threats. Radioactive material is any material that emits radiation spontaneously. It may significantly contribute to or cause an increase in mortality and an increase in serious illness.

The circumstances and geographic features in the vicinity of potential incidents vary greatly. Incidents may occur at fixed facilities where there are opportunities for development of site-specific contingency plans. They may also occur at any place along a land, water, or air transportation route, and may occur in unpredictable locations which may be relatively inaccessible by ground transportation.

Among the possible causes of a nuclear incident are earthquakes, dam failures, transportation accidents, civil disturbances including terrorism, and problems within a nuclear facility. A nuclear incident may trigger one or more secondary events, including blasts, explosions, radioactive fallout, fires, power failures, dam failures, flash floods, transportation disruptions, accidents, overpass failures, building collapse, fuel shortages, food and/or water supply contamination, or disruption of distribution systems.

NUCLEAR FACILITY

There are two sites in Orange County with nuclear reactors: San Onofre Nuclear Generating Station (SONGS) (See Figure 17) and the University of California Irvine. The UCI reactor is used for research purposes.

The Orange County Nuclear Power Plant Emergency Plan has been developed to deal with the four emergency classification levels at SONGS. These are:

1) Unusual Event

A minor occurrence takes place which does not affect offsite jurisdictions but might have the potential to increase in intensity. These range from small fires to major non-nuclear events.

2) Alert

When the unusual event escalates beyond certain technical specifications, the Alert level is reached. There is still no major impact on offsite agencies, except that EOCs (including the OA EOC) are staffed and response personnel are put on standby.

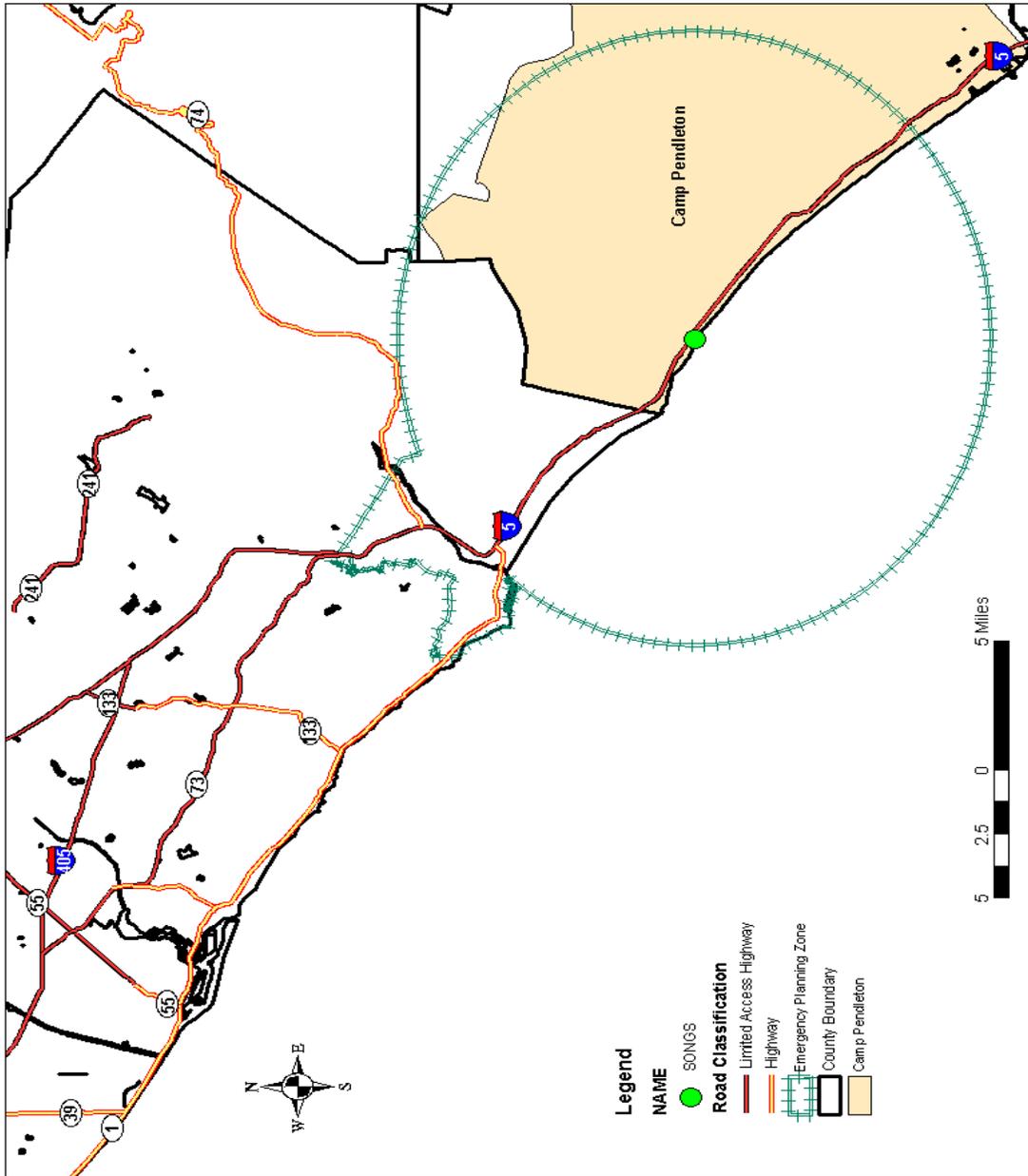
3) Site Area Emergency

This stage of a nuclear incident may have minor impact on offsite areas but will have major impact on the onsite areas.

4) General Emergency

The situation escalates to a full nuclear accident that would affect an area of up to ten miles directly and up to 50 miles for ingestion pathway effects.

Figure 17 – SONGS Emergency Planning Zone



TRANSPORTATION CORRIDORS

1) Freeways

The major transportation routes in Orange County consist of the freeway systems. Over 250 miles of interstate highway and 719 miles of other major transportation routes run through Orange County. The California Highway Patrol has designated these highways as radioactive materials transportation corridors. The U.S. Department of Transportation has identified Interstate 5 as the third busiest highway transportation corridor in the country.

2) Railroads

Accidents along railroad corridors are a concern. Although small sources of radioactivity are not usually carried by train, large sources such as spent nuclear fuel are transported via railroads. Accidents involving train derailments and content exposure are rare in Orange County. A major impact would occur if a spent fuel cask were to rupture. An evacuation of up to three miles might be required, in addition to the expenditure of many thousands of dollars for clean-up.

MILITARY BASES

The military bases in and surrounding Orange County (i.e., Seal Beach Naval Weapons Center, Los Alamitos Armed Forces Reserve Center, and Camp Pendleton) have the potential to store and transport radioactive material in the form of nuclear warheads for bombs and missiles. Although a nuclear explosion is unlikely, the potential for the spread of radioactive material from the high explosive detonator may cause contamination over a two-mile area.

LARGE GAMMA RAY STERILIZATION FACILITIES

The County has two large gamma ray sterilization facilities. Almost six million curies of radioactive cobalt 60 are stored in pools of water behind eight-foot thick concrete walls. The general public and industrial operations would be threatened if the concrete containment cracked and the pools lost their water supply. There could be up to a six-mile evacuation as a result of the opening of the containment. No contamination from the water would result.

INDUSTRIAL USERS

Orange County has over 200 specific licensees who use sealed and unsealed sources of radiation. The hazards range from a small spill inside a facility to a radioactive plume of smoke from a major fire. Exposure to the smoke would cause both internal and external exposure hazards.

