Senior Design Project Description for FALL 2016
Project Title: Used Fuel Transportation System (AREVA_DFTS)

Supporter: Carrier AREVA

Supporter Technical Representative: ASSIGNED

Faculty Mentor: __X__ ASSIGNED _____ TBD (check one)

Single Team __X__ Dual Team _____ (check one)

Personnel (EN/ET): _____ E, _____ Cp, _____ Cv, __3__ M, __2__ SE

(Complete if the number of students required is known)

Expected person-hours: (250 per student)

Description of Project:

AREVA has partially developed for the Department of Energy related to the dry transfer of used nuclear fuel (UNF) from a dry storage system to another dry storage system, a transportation cask, and/or a disposal system. The proposed project has to do with detailing a specific element of the Dry Transfer System (DTS), which ideally would be portable to the various storage sites in the U.S.

Initial Project Requirements (e.g. weight, size, etc.):

The project will consist of the following components:

1. Design of the ventilation system of the hot cell where the UNF would be handled from one system to another, with key considerations of heat removal from/cooling of the UNF, prevention of air oxidation of the UNF, maintaining sub-atmospheric pressure, and filtration and monitoring of exhaust.

2. Design of a storage rack capable of safe temporary storage of various UNF designs (e.g., BWR/6 or PWR-M5 fuel assemblies), with key considerations of heat removal, optimized sizing, minimal space use, seismic stability, and remaining sub-critical (AREVA can take care of this last item).

3. Design of the interface between the DTS and the various different systems, with key considerations of adjusting for height and diameter differences of systems, maintaining vacuum seals/interlocks, seismic stability, and allowing remote placement of shield plug into systems.

Expected Deliverables/Results:

A report will be provided to describe the recommended design options.

List here any specific skills or knowledge needed or suggested (If none please state none):

None