Human Health and Ecological Impact Analysis for a New Renewable Energy Facility in Florida  
S.A. Foster & P.C. Chrostowski -- CPF Associates, Inc. -- Bethesda, Maryland

**Introduction**

**Project Overview**

- Conducted a human health and ecological impacts analysis
- Assessed potential impacts associated with stack emissions from existing RDF facility and proposed WTE facility combined
- Not a formal requirement for the permitting process
- Conducted to ensure that the new facility would not have an adverse impact on human health and the environment

**Facility Location**

Palm Beach County, Florida

**Facility Description**

Located in 1,320 acre Palm Beach Renewable Energy Park

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**Human Health Risk Assessment**

**Methods**

- **How is a Risk Assessment Conducted?**
  - USEPA guidance – refined analysis
  - Evaluated risks for:
    - 10 selected chemicals or chemical classes: metals, PCDDs/PCDFs, acid gases, ammonia
    - different types of individuals (adults, children, infants)
    - varying combinations of exposure pathways (inhalation, ingestion of produce, animal products & fish, incidental ingestion of soil, infant ingestion of breast-milk)
  - Chemical-specific toxicity data obtained from USEPA-recommended databases
  - Incorporated many site-specific inputs: emission rates, site-specific surveys, meteorology, inputs for environmental fate and transport models, exposure pathways, exposure locations
  - Calculated environmental concentrations using mathematical modeling: air dispersion and deposition, environmental fate and transport

**Evaluation of PCDD/PCDF Intakes**

Long-term cancer risk – Compared to 1 in 100,000 (1E-5) USEPA benchmark cancer risk and 1 in 1,000,000 (1E-6) State benchmark cancer risk

Long-term noncancer effects – Compared to 1.0 USEPA and State benchmark hazard index and 0.25 supplemental USEPA benchmark hazard index

**Evaluation of Ecological Risks**

Exposure to dioxins & furans – Compared to typical background levels

**Conclusions**

- The new facility would not have an adverse impact on human health or the environment
- Potential risks associated with stack emissions from the two assessed facilities were below regulatory and other benchmark risk levels for both human health and ecological receptors
- Calculated incremental environmental concentrations associated with stack emissions from the two facilities would not measurably increase the typical concentrations of chemicals in the environment
- The results were consistent with studies of other modern waste-to-energy facilities that are designed, constructed and operated in accordance with federal and state laws and regulations
- Similar methodologies can be used to assess alternative waste conversion technologies