

## Feynman Computing Center (FCC) Generator Spill Plan

The Feynman Computing Center (FCC) has six (6) diesel powered generators which serve as emergency standby power systems for the FCC data centers.

Listed below is a description of each of the electrical systems serving FCC:

### FCC1 Electrical System

The 1,500 kW generator, serving the FCC1 electrical system, is located at the east end of the FCC parking lot. This generator contains a diesel tank that holds 1,900 gallons of diesel fuel. The UL listed, double-walled, steel fuel tank provides 100% secondary containment. The fuel tank/containment facilities comply with all applicable provisions of NFPA 30, NFPA 31 and appropriate state and local fire codes. A tertiary containment exists which surrounds the concrete foundation of the generator. This containment is capable of holding 3,400 gallons of liquid, and is comprised of the following:

- Cast-in-place concrete walls to provide a 48" wide trench around the generator foundation;
- 6" clay liner along the bottom of the 48" wide trench;
- Geotextile fabric, located above the clay liner;
- A 48" wide trench, which is filled with 33" of 1.5 inch diameter river washed gravel;
- An 18" diameter fiberglass sump in the corner of the 48" wide trench to collect any water that may accumulate

### FCC2 Electrical System

The FCC2 electrical system supplies electrical power for the High Availability Computing Center located on the third floor of FCC. This system includes three (3) 500kW Generac generators which are located west of FCC. Each of the packaged engine generator systems has a double wall, base-mounted fuel tank/containment system including a UL-142 rated diesel tank that holds 936 gallons of diesel fuel. The double-walled steel fuel tank provides 100% secondary containment.

The electrical transformer for the FCC2 electrical systems is a 1,500 kVA pad mounted, oil filled transformer. The coolant for the transformer is insulating oil that contains no polychlorinated biphenyls (PCB) and has the following specifications:

DIELECTRIC	ASTM D 877>36kV
NEUTRALIZATION	ASTM D 974<0.05
INTERFACIAL TENSION	ASTM D 971>40 DYNES/CM
S.G.	ASTM D12980.84-0.91

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COLOR	ASTM D1500<0.5
WATER CONTENT	ASTM D1533<15 PPM
PCB CONTENT	Zero (0) allowed
THE NUMBERS SHOWN ARE A "NOT TO EXCEED" NUMBER	

The electrical substation configuration includes a secondary containment for the transformer. The design accommodates two (2) transformers and includes the following

- 5'-0" deep cast-in-place concrete walls at the perimeter of the transformer containment;
- Bentonite liner with a sodium bentonite with a minimum density of 1 lb/sf in a woven fabric mat over a 6" sand base;
- Transformer containment is filled with CA-5 gradation of river washed gravel;
- An 18" diameter fiberglass sump located in the transformer containment to collect any water that may accumulate;
- Total volume of transformer containment is 188.85 cubic feet or 1,412 gallons

#### FCC3 Electrical System

The FCC3 electrical system supplies electrical power for the FCC2 data center. This system includes two (2) 640 kW Caterpillar generators, which are located west of FCC. Each of the packaged engine generator systems has a double wall, base-mounted fuel tank/containment system including a UL-142 rated diesel tank that holds 660 gallons of diesel fuel. The double-walled steel fuel tank provides 100% secondary containment.

The electrical transformer for the FCC3 electrical systems is a 1,500 kVA pad mounted, oil filled transformer. The coolant for the transformer is insulating oil that contains no polychlorinated biphenyls (PCB) and has the same specifications and the transformer described for the FCC2 electrical system. The transformer for the FCC3 electrical system is located on a cast-in-place concrete pad within the combined transformer containment system described above.

Fuel containment facilities shall be provided at fill tube as necessary to capture fuel, should there be a spill or overflow of fuel tank. The fuel tank includes a float and alarm horn with silence pushbutton to alert the operator when the tank is full. The float activates and deactivates the sounding of the horn.

Building management shall inspect the fuel gauge on a monthly basis to determine the amount of fuel present in the tank. This inspection shall be documented. If the gauge indicates that the fuel is low, and the generator log shows that the generator has not been running for any extended period of time, then there is reason to suspect a leak/spill. An effort will be made to determine if a leak is present, and if the spill is contained.

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If a spill were to occur outside of the primary tank, 3131 shall be called. The Fire Dept. will assure that the spill is contained. **Feece Oil** will be contacted to remediate the spill. Their address is 517 Twin Rail Dr. Minooka, IL 60447. The phone number is **(815) 521-0191 or (888) 879-1911**. Whether or not the fuel is to be reclaimed for use or disposed of, the Hazard Control Technology Team needs to be immediately notified, x3741 or x4498).