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Metropolis Works Upgrades

Upgrade Work Goals

Reduced risk to plant, employees and surrounding community by:

1. Strengthening key buildings and equipment against seismic risk
2. Reducing UF₆ release risks
3. Improving hydrofluoric acid (HF) storage on site
4. Improving ability to withstand effects of strong tornadoes
5. Improving emergency response plan and processes

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Partnered With Internationally Recognized Experts

Structure analysis experts
with deep NRC/nuclear power experience

RPK Structural Mechanics / MXA Associates



Recognized structural engineering leader



Engineering and structure design experts



Leading risk assessment firm for petroleum and chemical industries

Assuring Safety Top Priority

Examples of Upgrades

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Feed Materials Building (FMB)

- FMB is main production facility for UF₆
- Six floors (plus basements) with processes; piping spans multiple floors



62 seismic valves and seismic controls added.
Valves automatically close when seismic event is detected.



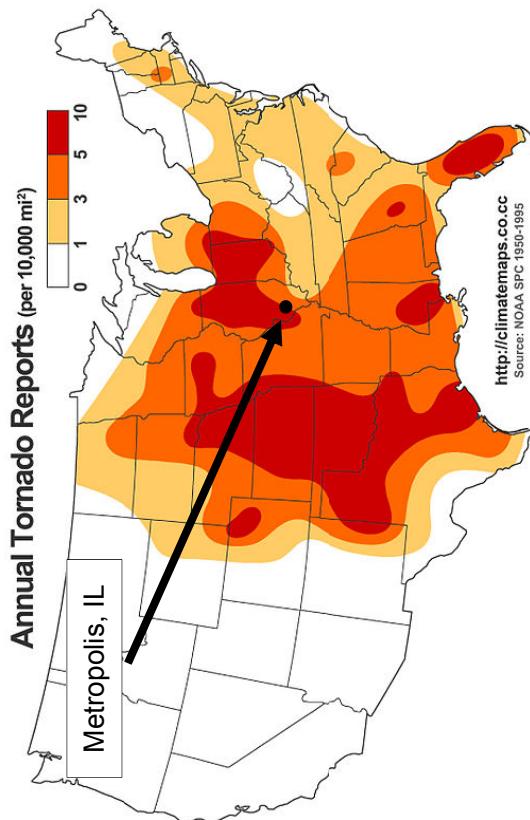
Restraints and bumpers added to process equipment and pipe supports hardened.



Tornado Hardening

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Tornado Risk



- Tornado risk based on Metropolis Works' location

- Threat primarily from debris, objects propelled by high winds
- Protection enhanced against telephone-pole size "missiles"

Mitigation

- Tornado preparedness procedures initiates process shutdown



- Added tornado shields for critical areas

- Installed guards, cages around key equipment and instruments
- Tornado winds help disperse materials

Risk of Wind-Driven Debris Mitigated

HF Handling Upgrades

Sourcing HF From Railcars

- HF sourced for manufacturing processes directly from railcars as needed
- Eliminated use of storage tanks
- Railcar a safer alternative
 - Railcars have thicker walls vs. storage tanks (1-1/32" vs. 1/2")
 - Can handle 5 times more pressure
 - Designed to withstand start-stop stresses, roll-overs



Examples of Railcar Strength

- Oct. 2012 derailment in Kentucky: car left track and rolled over.
No leak.
- Feb. 2005 derailment near Pittsburgh. Two railcars derailed down hill.
No leak.

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Seismic Valves



Quick shut-off valve on railcar activates automatically when seismic event detected by ground sensors at plant

Better, Safer Handling of HF

Summary

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- Honeywell invested more than \$40 million in upgrades to ensure safety of plant and the surrounding community
- Exceeded NRC license requirement
- Investment also preserved more than 270 full-time jobs and hundreds of local contractors