



CampusEnergy2021

BRIDGE TO THE FUTURE

Feb. 16-18 | CONNECTING VIRTUALLY

WORKSHOPS | Thermal Distribution: March 2 | Microgrid: March 16



RESPOND, REBUILD, & REDIRECT



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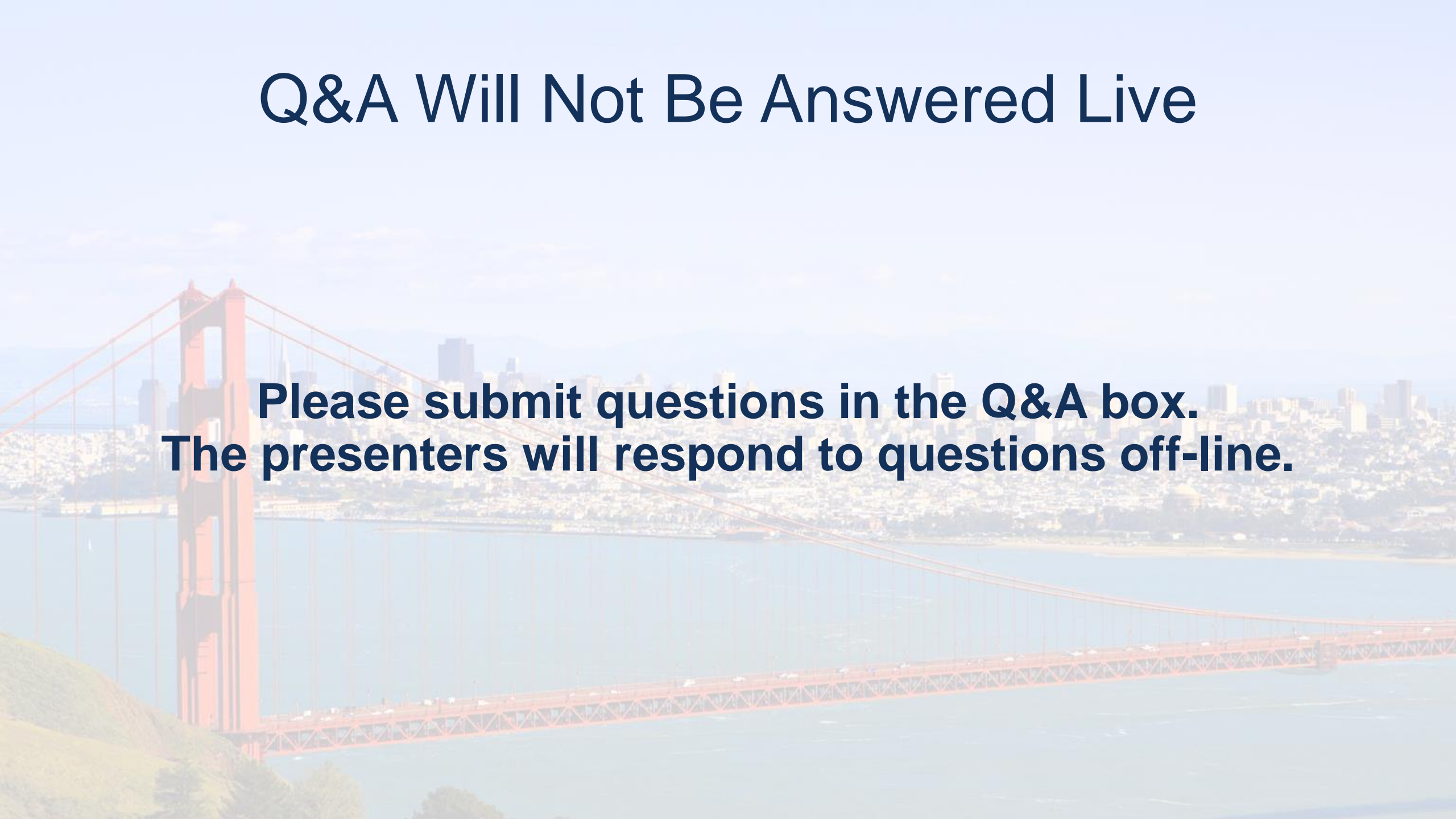
Ashley Energy

BURNS  **MCDONNELL**

David Goetz, Burns & McDonnell
Dan Dennis, Ashley Energy, LLC

Q&A Will Not Be Answered Live

**Please submit questions in the Q&A box.
The presenters will respond to questions off-line.**



Ashley Energy Plant

► Location – St Louis, MO



Ashley Energy Plant

- ▶ 1902 – Original Plant Build
- ▶ 1970s – Fuel Conversion on Old Blr's 5 and 6
- ▶ 1998 – Cogen Units
- ▶ 2004 – Packaged Boilers
- ▶ Grade – Elev 40
- ▶ Lower Working Level of Plant – Elev 6



Ashley Energy Plant

- ▶ Natural Gas Fired Cogeneration Facility
- ▶ > 400kpph Steam Generation
- ▶ 35MW Electricity
- ▶ Annual Energy Sales
 - 28.5MM lbs of Steam
 - XX MWhr of Electricity



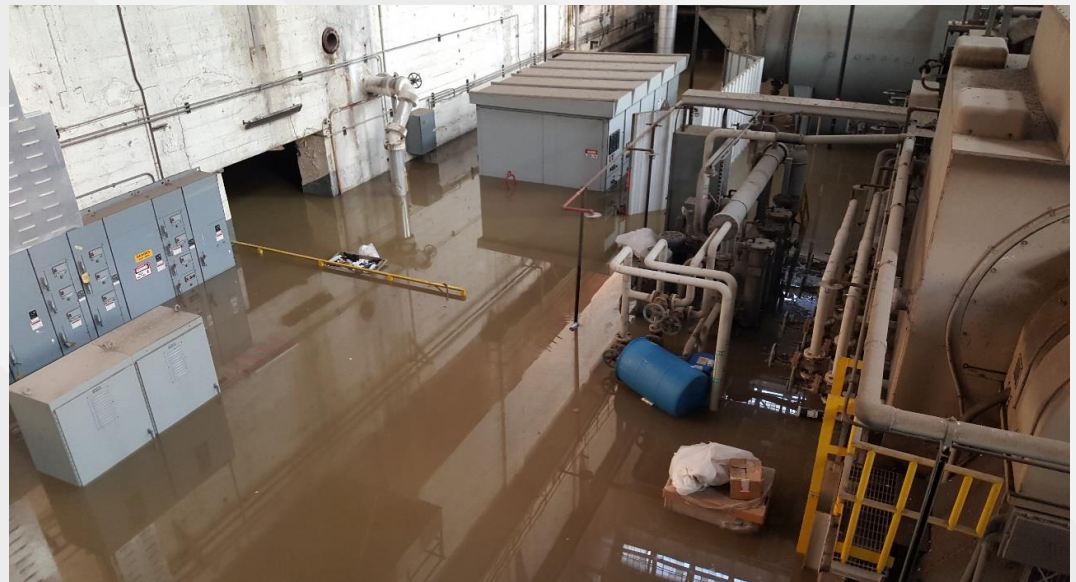
Emergency Event

- ▶ June 1, 2019 Sanitary and Stormwater Pumping Station failed
- ▶ > 5 million gallons of sanitary/stormwater entered the plant
- ▶ 11+ hour event, 25" of water per hour, filled plant to Elevation 29 (23+ feet)



Emergency Event

- ▶ Emergency Management
- ▶ Coordination with City/Utility Co's/Clients
- ▶ Initial Rental Equipment
- ▶ Early Damage Assessment



Emergency Event

- ▶ Personnel Safety
- ▶ Remove Water from Plant
 - 14 Day Removal Period
- ▶ Compile Plant Logs, event documentation



Emergency Response

- ▶ Restore Steam Service
- ▶ Temp Elec Service to Plant
- ▶ Condition Assessment
- ▶ Equipment OEM's
- ▶ Hazardous Material Team
- ▶ Contractors
- ▶ Insurance Team



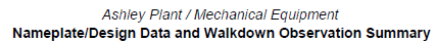
Emergency Response

- ▶ Multi-phase Assessment
- ▶ Immediate and Long-term Damage
- ▶ Equipment Lay-up Plans



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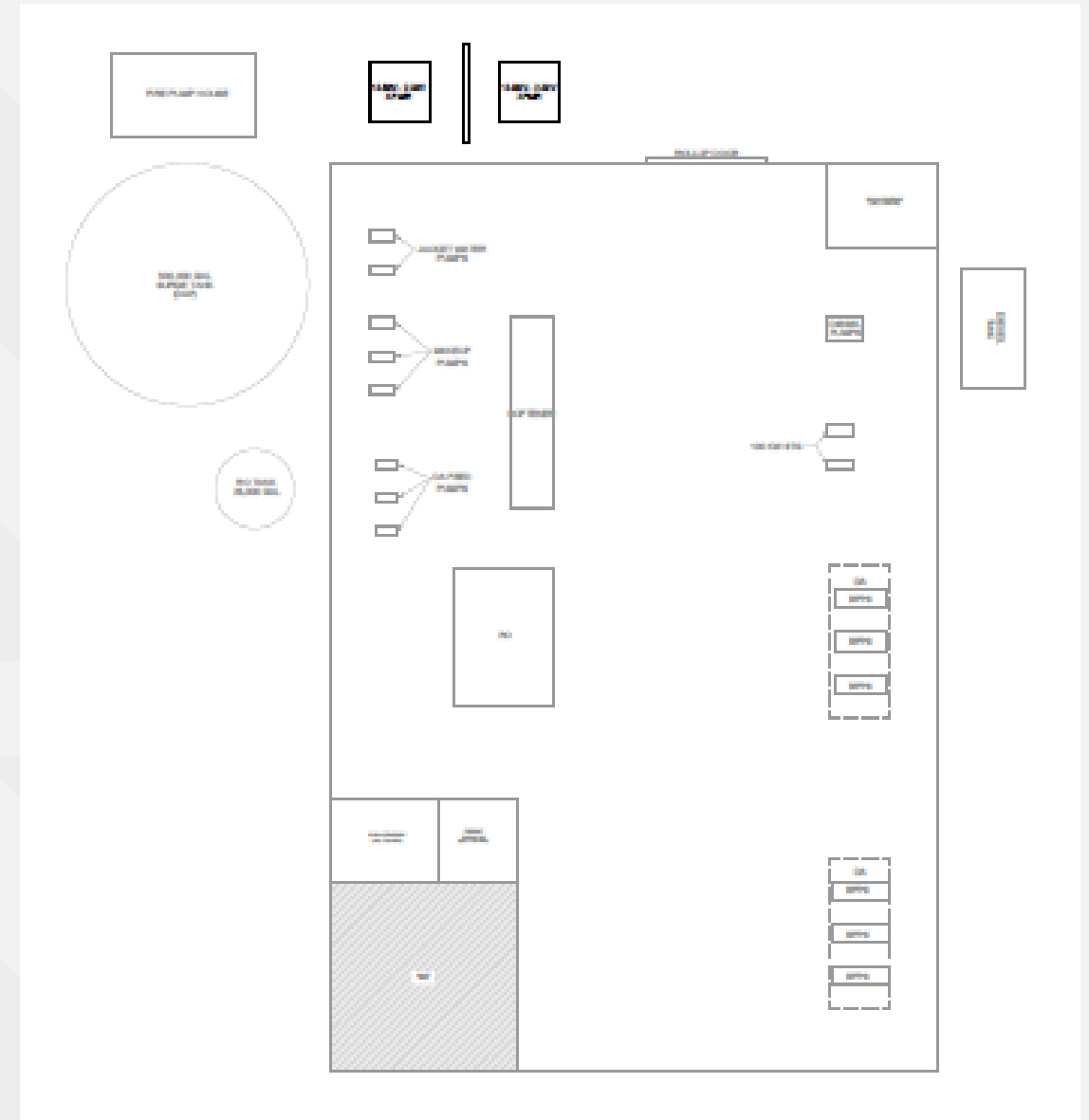
- ▶ Re-create lost plant documentation
 - Process Flow Diagrams
 - Floor Plans
 - Itemized Equipment Lists
- ▶ Damage Assessment Matrix



ID	Category	Equipment Designator	Qty	Floor	Area of Plant	Recommendation	Original Equip. Manufacturer (OEM)	OEM Present for Walkdown? Name?	Model No. / Serial No.	Date of Manf (Italized if from Drawings)	Rating Data	Walkdown Observations / General Notes	Equipment Lead Time (Weeks)
1	Air Compressors / Dryers	New Air Compressor	1	6	NE	Replace	Ingersoll Rand	No	SN: PG0993U04246 Heat exchanger (Wilkerson Model WH-BH-0725, SN: W1651		215 CFM 125 psig 50 HP	Includes air cooled condenser, dryer, and receiver tank. Compressor model discontinued by I-R I-R manual online indicates weight of compressor at 2,384 lbs Heat exchanger data not available, appears to have taken air temperature down from 300 F down to under 180 F to admit into the dryer. Assume this is an aftercooler. Receiver tank data could not be found and model is no longer made	17

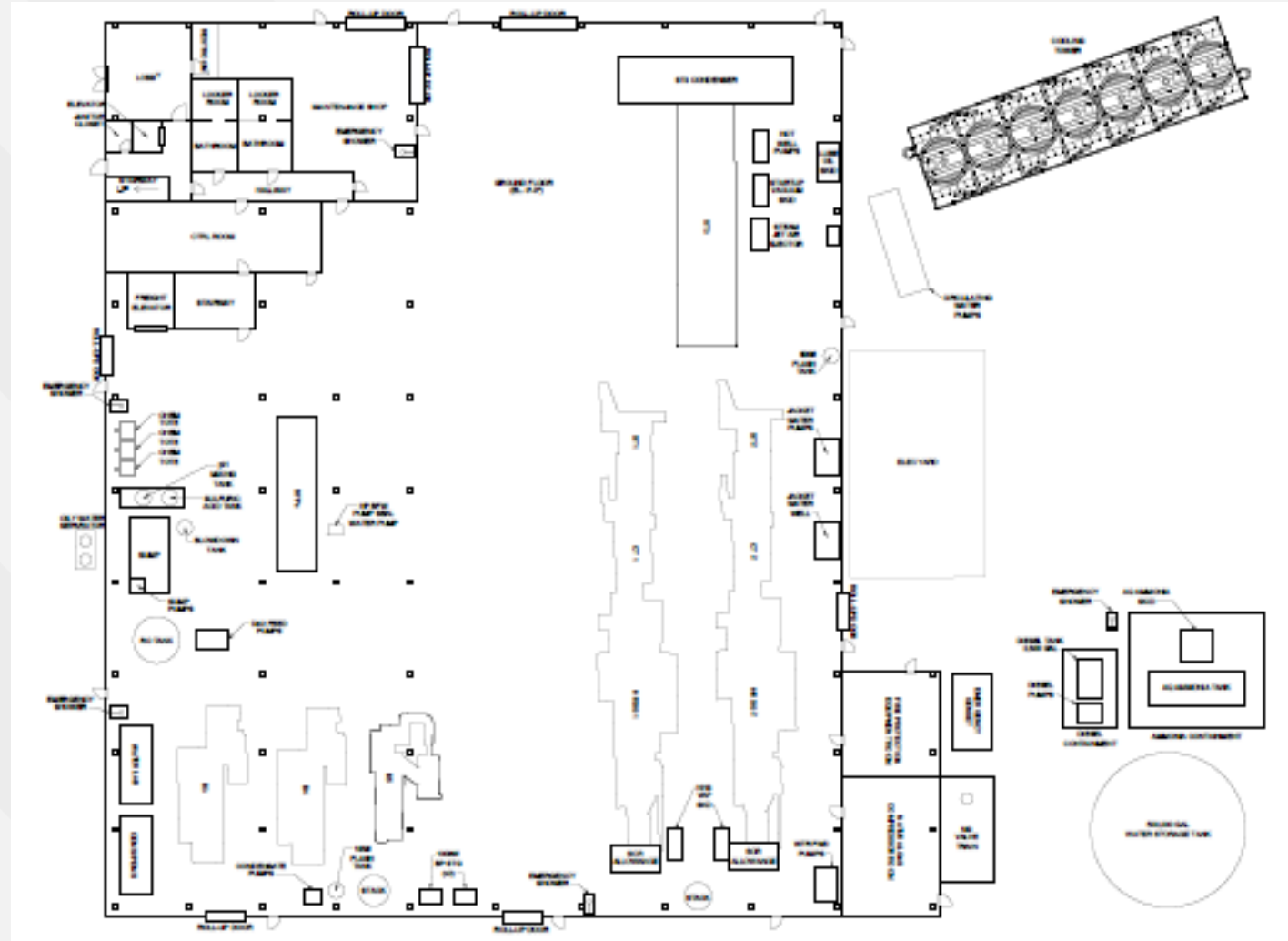
Rebuild

- ▶ Repair or Replace Recommendations
- ▶ Analyze Exploration
 - Opt A - Replace As-is, Where-is
 - Opt B - Relocate Equipment to Facility Adjacent to the Plant
 - Opt C - New Plant Location



Rebuild

- ▶ Options Analysis
- ▶ Preliminary Schedules
 - Equipment Lead Times
 - Plant Abatement
 - Construction Schedule
 - Insurance Claim
- ▶ Budgetary Costs
- ▶ Master Planning Activities



Redirect

- ▶ Continued Support thru Insurance Claim Process
- ▶ Conceptual Design of Preferred Option
 - Plant Laser Scan
 - 3D Modeling
 - Refined Schedule
 - Updated Costs



Redirect

▶ Lessons Learned



Questions?

Thank you

David Goetz



Dan Dennis

