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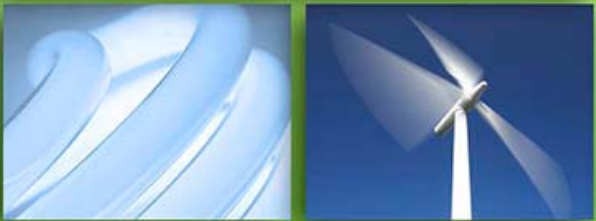
Plant Closure Workshop

November 12, 2009

RGE Russell Station Plant Closure

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Rochester Gas and Electric Corp.**





Rochester Gas and Electric Corporation

Russell Station Closure

Hugh J. Ives
November 12, 2009

Russell Station Electric Generating Station

(looking southeast)



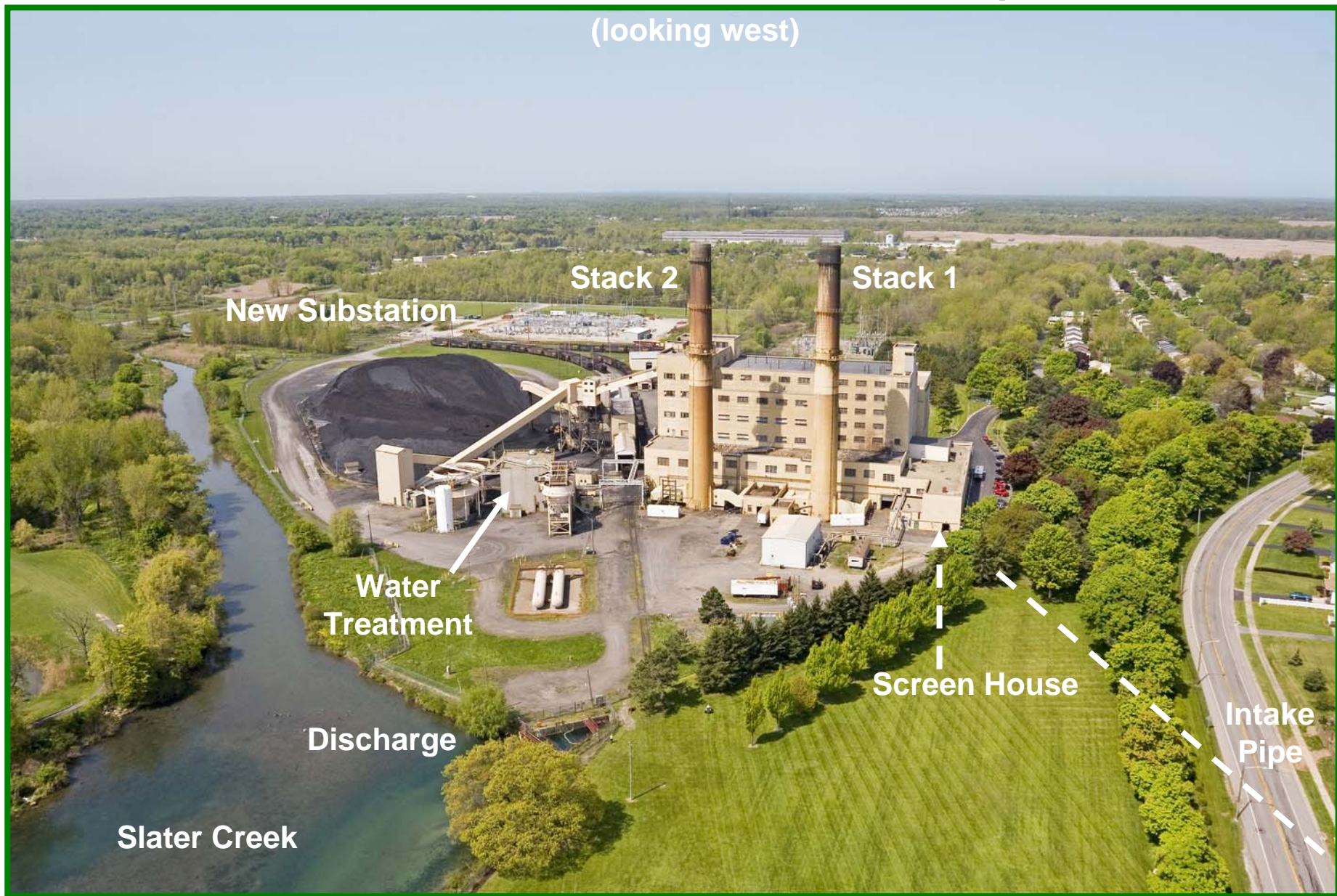
Boiler
Bldg

Turbine
Bldg

- Coal fired
- Four units
- Installed capacity - 250 MW
- In Service 1948; closed 2008
- South shore of Lake Ontario, Rochester, NY

Russell Station Electric Generating Station

(looking west)



Background

- Older plant: Unit 1 on-line in 1948; Unit 4 on-line in 1957
- Restrictive environmental regulations
- Located in the heart of a residential neighborhood that has grown up around it over the years
- Relatively small site
- Plant output needed for electric system stability – supported a “load pocket”

Evaluate Basic Options

- Upgrade emissions control systems and go on as before
- Rebuild and/or re-power with new technology
- √ Reinforce electrical transmission system to eliminate the need for plant to supply load center and retire Russell Station

Option Selected Notes

- √ Reinforce electrical transmission system to eliminate the need for plant to supply load center and retire Russell Station

- 1. Rochester Transmission Project (RTP) established

- 2. Russell Closure and RTP were separate projects but required very tight schedule coordination

- 3. Russell Unit shutdowns in step with completion of various phases of RTP

Now what? Evaluate More Options!

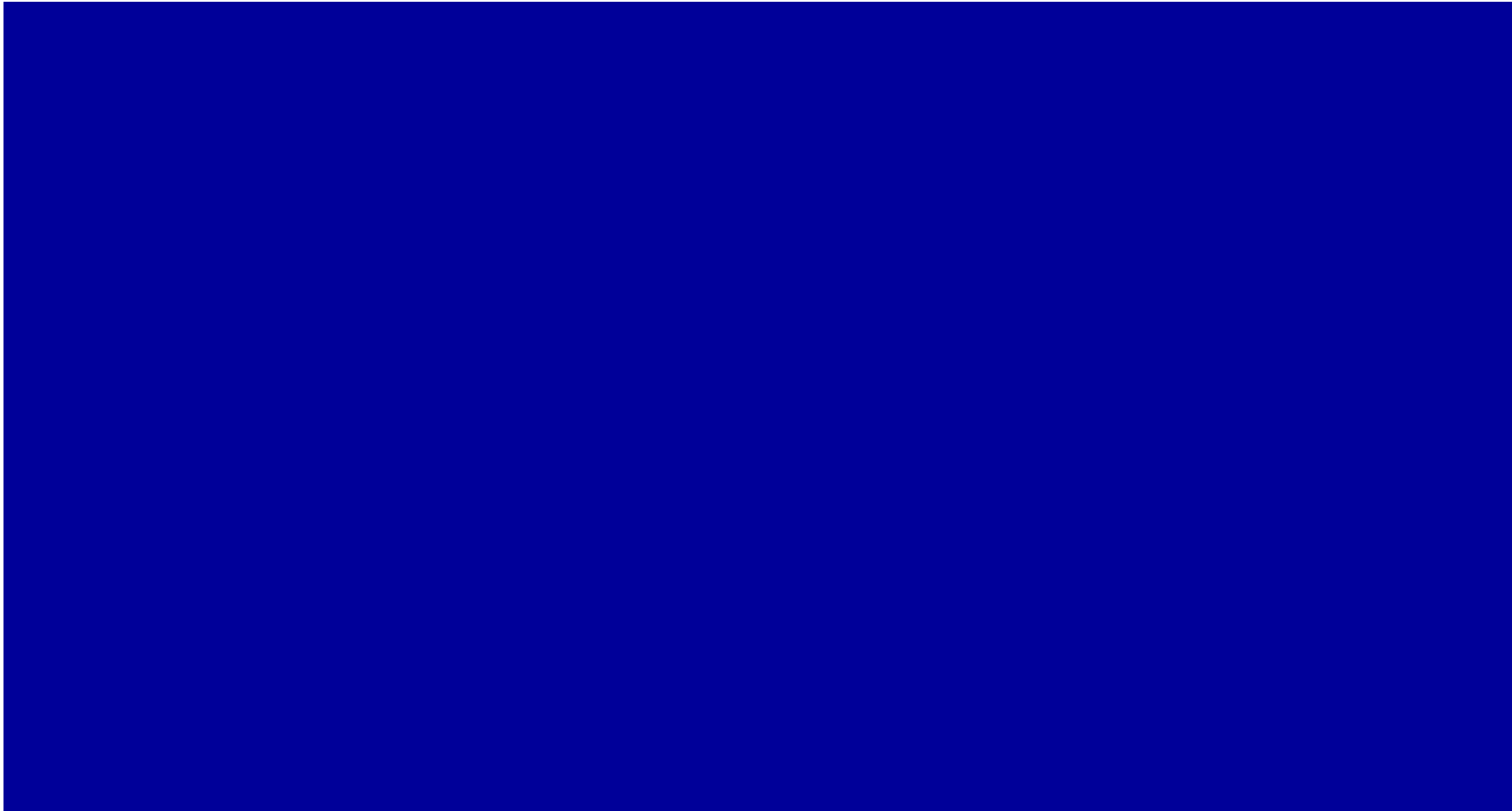
- Demolish plant down to a green-field condition
- Mothball for future restart / re-power
- Sell
- √ Decommission / Close and leave in safe condition for future demolition, restart/re-power or future sale

Option Selected Notes

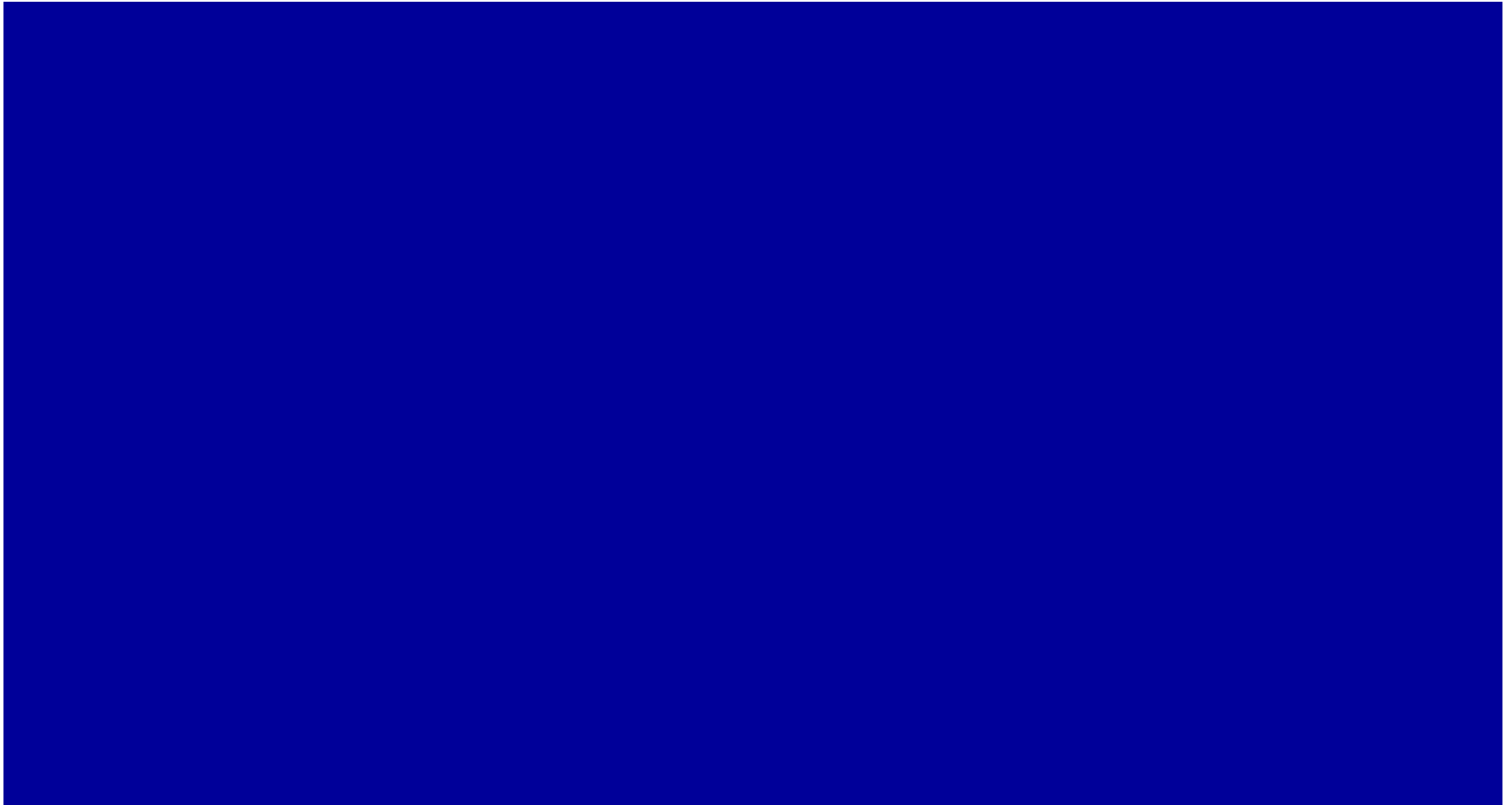
√ Decommission / Close and leave in safe condition for future demolition, restart/re-power or future sale

1. Some systems needed to keep operating after the plant closed
2. Being in a residential neighborhood, needed to maintain property appearance, safety, security, etc.
3. Generator interconnects severed
4. No preservation of generation equipment

...so now what?

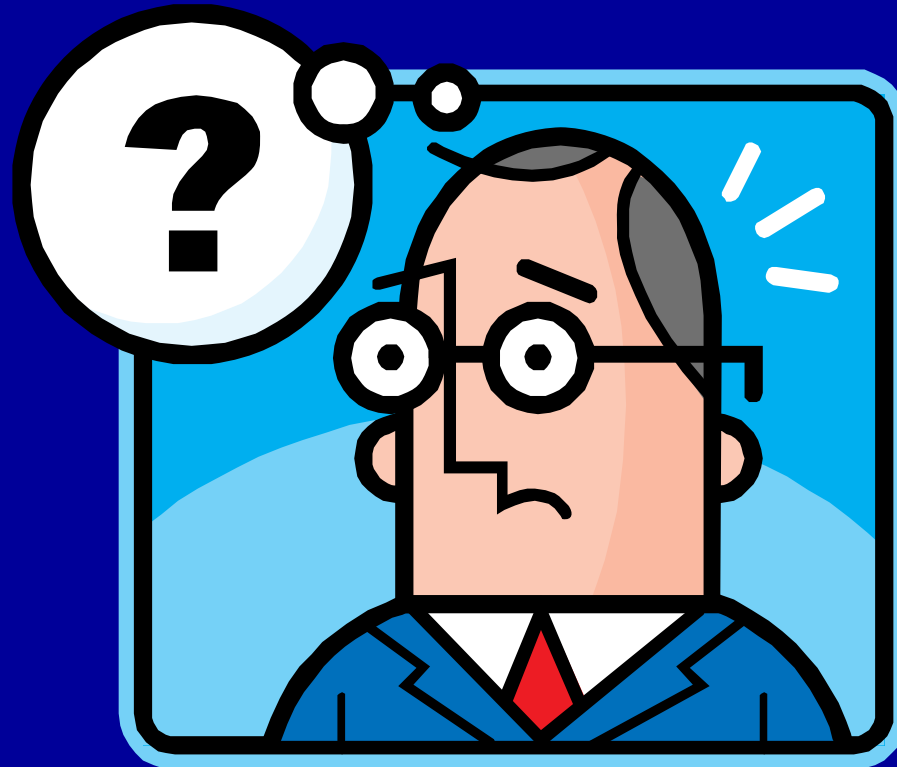


...so now what? Make it Happen!



...so now what? Make it Happen!

But how?





Establish Guiding Principles

Maintain your commitment to

- Personnel Safety - To those performing closure activities and those that come after – don't leave any unpleasant surprises!
- Environmental Compliance
- Being a “good neighbor”
- Facility / Site / Grounds Safety and Security
- Performing high quality work
- Good / timely internal and external communications
- Budget adherence
- Schedule adherence
- Others

Set the Basic Approach

- Start early
- Review past experiences and implement “lessons learned”
- Establish primary team and sub-teams - think about who has to be involved to make it all happen.
- Establish timelines and schedules
- Inventory every major system, sub-system, piece of equipment, each facility – everything you can think of – and you won’t think of everything at the start
- Determine current status of each element identified - Condition A
- Determine end state need of each element identified - Condition B
- Develop detailed plan to get each element from Condition A to Condition B

Establish the Project Team

- It takes many players to operate a generating plant like Russell
- It takes just as many to close one down.
- Teamwork is the key to success
- Russell Closure Project Team – key areas

Engineering (Lead)

Operations

Maintenance

Environmental

Legal

Accounting

Property Records

Security

Safety

Fire Protection

Facilities

IT

Purchasing

Real Estate

T&D

Reg / Govt Affairs

Comm / PR

Senior Mgt

Outside Contractors

Local / State Agencies

Closure Project: 5 Basic Categories

- **Advanced Independent Tasks:** Done beforehand outside of normal station operations; e.g., planning, studies, budget, prelim construction,
- **Unit Shutdown Dependent Tasks** – done only after a specific unit was taken off line.
- **Common System Tasks:** Done only after systems common to all units were taken off line, e.g., service water systems, ash disposal systems, stack 1, etc.
- **Site Reconfiguration Projects:** Done only after all of the units were shut down – coal handling, waste treatment, coal pile, fire systems, air systems, controls systems, etc.
- **Final Projects:** Done as we backed out of the plant – security, doors, windows, fencing, electrical reconfigurations, sanitary facilities, locker rooms, offices, tools/equipment, parts, IT equipment, records, etc.

Unit Decommissioning Plans

Similar to unit AI&O – up to a Point

- Unit off-line for last time
- Isolate / hold electrical and mechanical equipment and systems
- Degas and disconnect generator and associated equipment
- Wet & dry ash removal
- Drain boiler, hotwell, and condenser
- Trim bunkers / remove coal



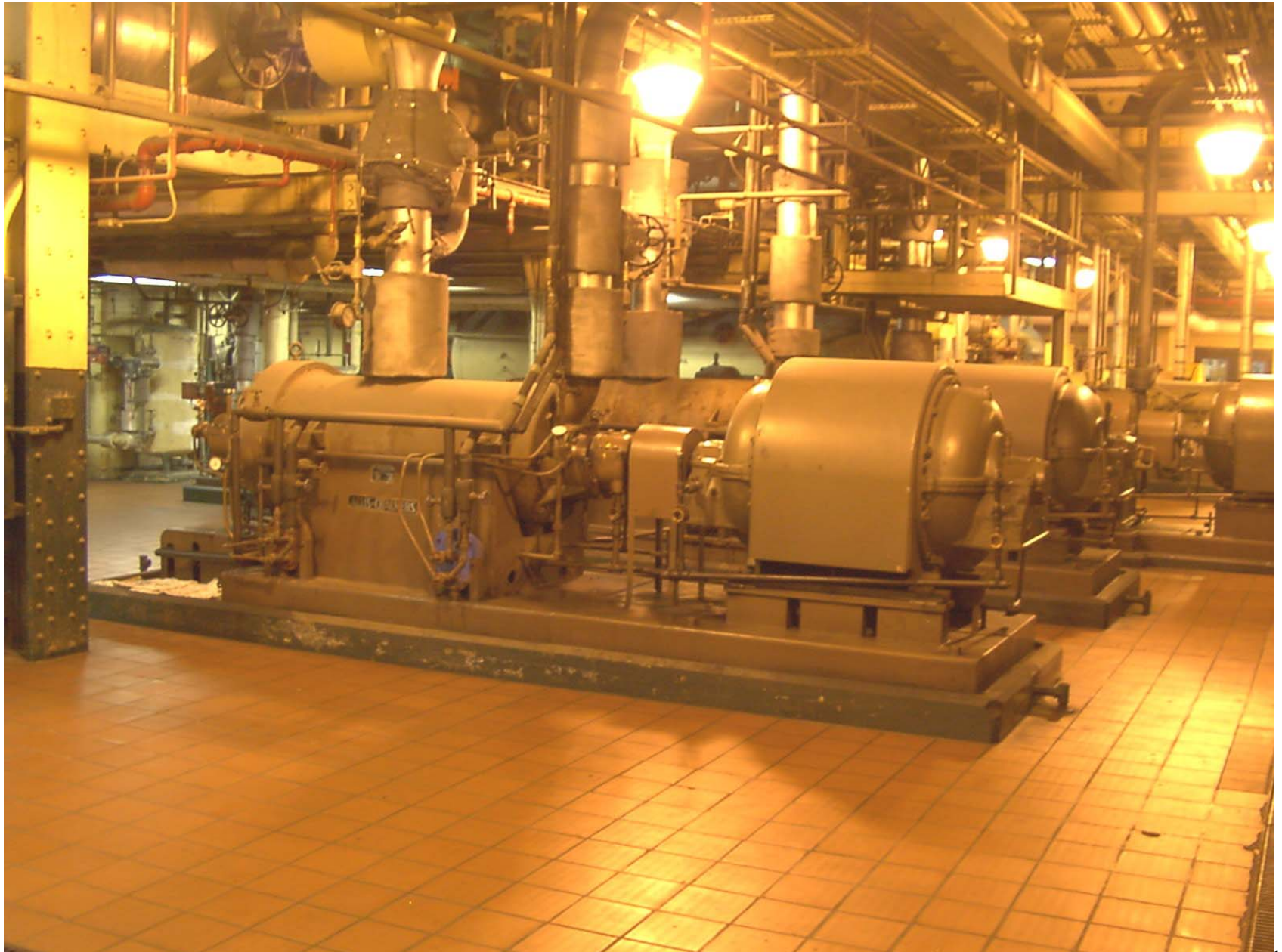
Unit Decommissioning Plans

Similar to unit AI&O – up to a point

Once the unit was cooled, the program changed dramatically.
Removed, drained, cleaned, disconnected, etc. anything and everything that is not needed

Partial List

- Boiler
- Turbine
- Oil tanks, systems and piping
- Coal delivery equipment, bunkers, mills, feeders, exhausters...
- Auxiliary equipment - pumps, motors, ash systems, condensers, etc
- Electrical power and control equipment
- Feedwater and condensate systems
- Draft equipment
- Hazardous materials - control batteries, chemicals, solvents, etc





Closure was not a simple case of abandonment

- Some plant systems and facilities needed to stay active such as stack lighting, interior lighting, water treatment facility, some air and water, small work shop, some tools and equipment and some people too
- The plant needed to be put into a safe condition
 - AC/DC electrical systems drastically reconfigured
 - All chemicals and hazardous wastes/ materials removed
 - Fire loading reduced (oil / trash / wood / debris / paper / etc
 - Security – (liability, protection of assets, etc)
 - Remote monitoring / surveillance – security and system alarms



Prepare plant for final closure.

After units / common systems decommissioned

- Bathrooms, locker rooms, offices, lunchroom, etc
- No building heat – water pipes drained, facilities not operational
- Batteries - Retired and disposed (DC controls on chargers)
- CCTV Cameras – PTZ with remote/offsite monitoring and control
- Card key readers and security locks
- Chemicals – All removed except those necessary for continued operation of water treatment system (sumps, coal pile runoff, etc)
- Coal Bunkers – Emptied and wash down to reduce fire loading
- Coal pile – Remaining fuel sold and pile closed in accordance with DEC approved plan
- Water Intake/discharges – Left in place – for possible future use
- Continue with electric reconfigurations
- Continue sweeping / cleaning of plant and equipment
- Prepare for relocate of records, tools, equipment



Final Configuration After Closure

- Post closure electrical load minimized
- Exterior lighting supported - driven by security / maintenance needs
- Leachate and control system supported
- Interior lights supported – usually off but need to be available.
- Stack lighting remains operational - access platforms maintained
- Area dusk to dawn lights
- WTS power reconfigured - supplied from off site
- All electrical rooms - decommissioned and secured (copper)
- One elevator remains operational
- Fire protection systems – decommissioned, portable fire extinguishers only
- Hazardous materials removed unless necessary to support specified continued operation - including mercury control switches
- Hydro SCADA relocated



Final Plant Configuration (cont.)

- Lightning protection (Stacks) maintained
- Main Lift Station continued operation and associated permit
- Oil Storage tanks on site – closed per regulations
- Oil Water Separator building – secured, tanks drained
- Permits – All operating permits were surrendered
- Rail system – Remains
- Security – Exterior doors locked, exterior ground windows covered by plywood, fencing remains in place, additional fencing added as deemed necessary. Exterior gates padlocked
- Sumps – Cleaned out, sump pumps deactivated
- The coal pile formally closed and the site stormwater run-off system reconfigured to support new system loading
- Final plant configuration drawings and records developed
- Budget developed for continued O&M support needs
- Small staff (retiree contractors) remain to support day-to-day O&M

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(looking southeast)



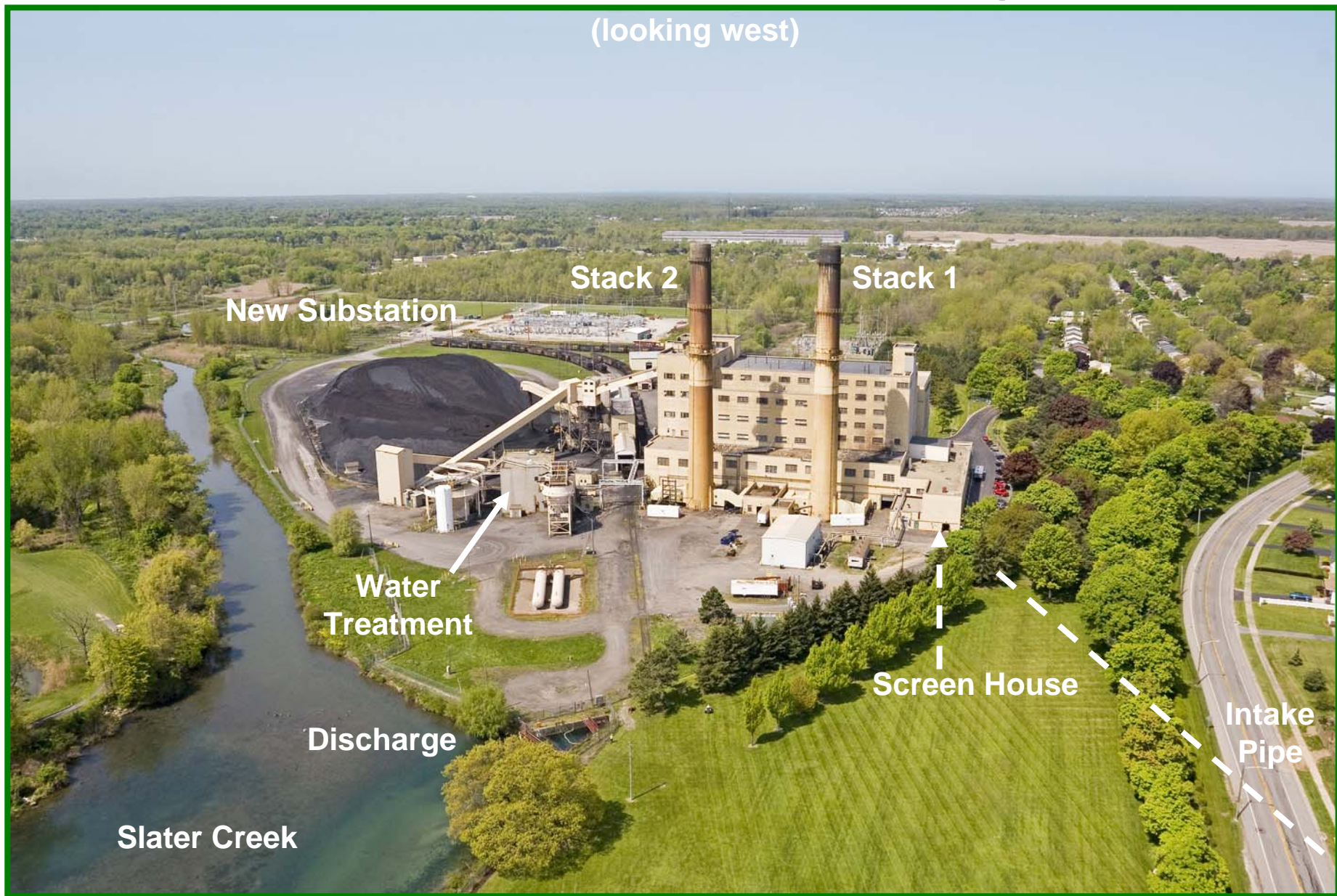
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Project Summary

- ❑ Planning took more than a year and was the key to our success.
- ❑ A project team made up of all shareholders in the process was created and this team actively monitored progress and shared information for the entire time
- ❑ All objectives achieved on budget and schedule
- ❑ Russell's support of the RGE local electric maintained in accordance with RTP
- ❑ The bulk of the work handled by station personnel
- ❑ All work and activities completed safely
- ❑ All work done in the midst of a re-organization
- ❑ New, streamlined, Fossil/Hydro Organization fully functional at completion of Russell Closure

Great Accomplishments!!!

- Russell Station served the Rochester Community for more than 50 years - and did it well
- It's people were dedicated to providing reliable electric power to our customers on a 24/7 basis
- Times change and when it was decided that the station had outlived its usefulness, it's people once again stepped up to the challenge and performed one final task
 - They did it well
 - They did it with pride
 - They did it safely
 - And by the way, they did it on schedule and under budget!



A photograph of a sunset over a body of water. The sun is low on the horizon, creating a bright orange and yellow glow. The sky is filled with wispy clouds. In the foreground, a large, dark, cylindrical industrial tower is visible on the right side. The overall scene is dark, with the sunset providing the main source of light.

Together...Shaping the Future of Electricity