

MURRAY HYDROELECTRIC POWER PLANT

In 1989, the City of North Little Rock stepped into the 21st century by choosing to build its own non-polluting power plant on the Arkansas River.

Located on the Arkansas River on the north end of North Little Rock city limits, the plant is adjacent to Murray Lock and Dam No. 7. For the past 20 years the plant has generated a variety of benefits for North Little Rock citizens:

- Low-cost electric power
- Reductions in purchased power requirements
- Revenues through the sale of Renewable Energy Certificates to industries seeking to offset atmospheric carbon impacts

With the national and global attention to “green power,” the Murray Hydro has come into its own. The information in this brochure is provided so that citizens can share with pride North Little Rock’s unique power station.



The Big Dam Bridge

TAKE A CLOSER LOOK

Tours of Murray Hydro can be arranged for your group or organization. Please call us for information.

Murray Hydroelectric Plant
(501) 975-0100



North Little Rock Electric can help you manage your energy needs.

For information about services and billing options, look us up on the web or call our customer service office.

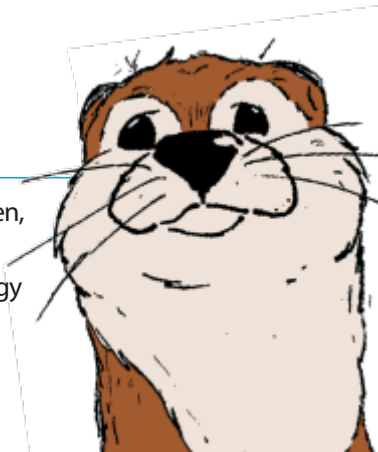
www.nlrelectric.com
(501) 771-4783

For information on more ways to save energy and reduce your carbon footprint, visit:

www.nlrgreen.org

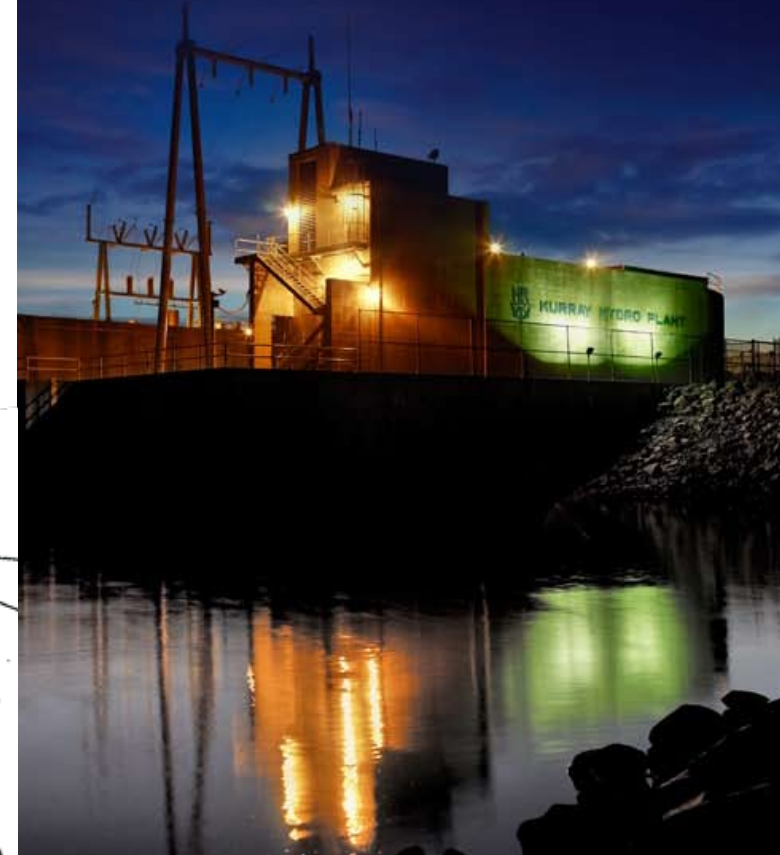
ASK WATTS

For special programs for children, call us about special programs developed by WATTS, the Energy Otter. Call (501) 975-8734



MURRAY HYDROELECTRIC POWER PLANT

Green Power for North Little Rock



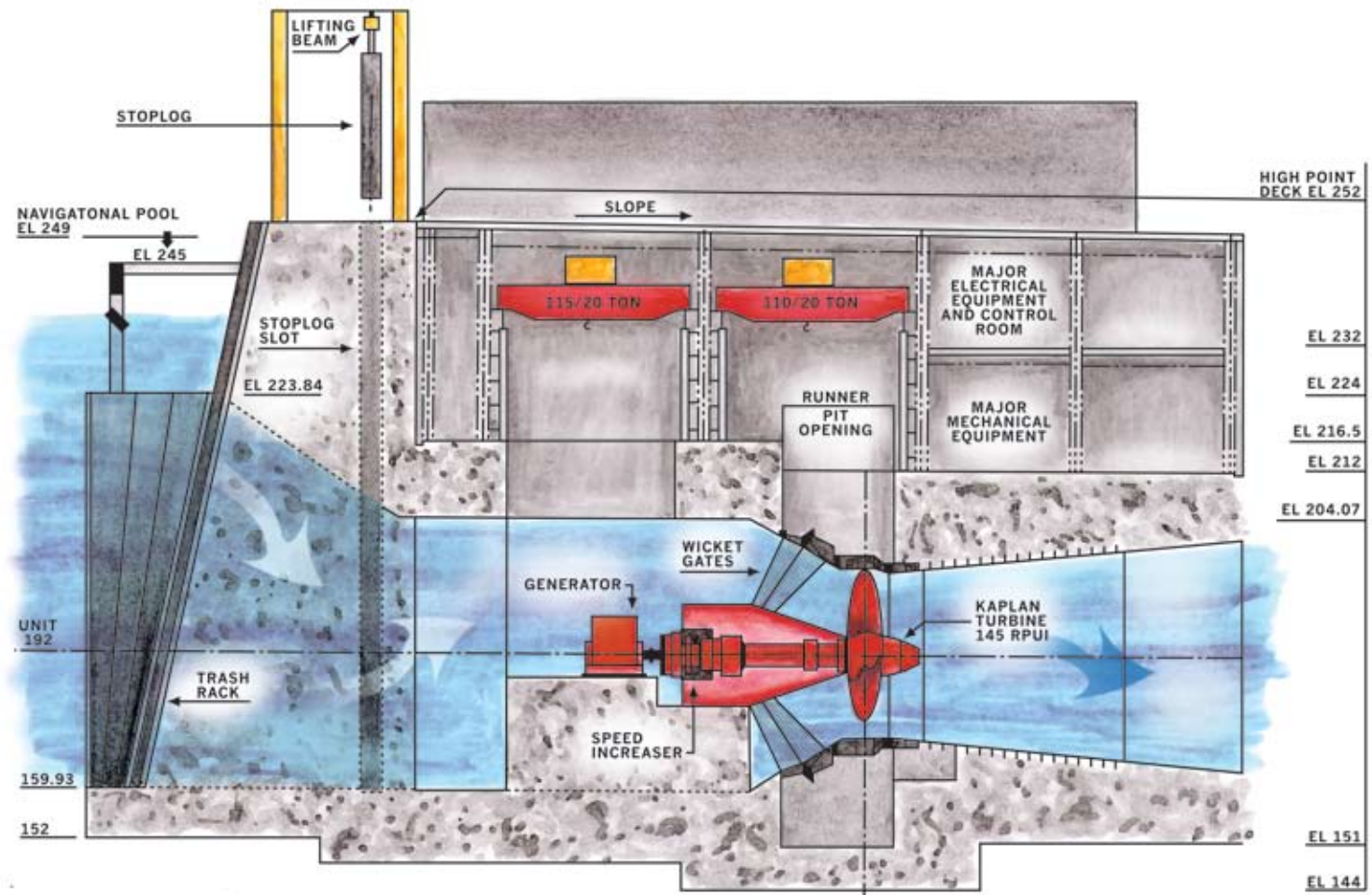


Murray Hydroelectric Plant

LOCATION: The Murray Hydroelectric Plant is adjacent to Murray Lock and Dam No. 7. The U. S. Army Corps of Engineers operates the dam for flood control and navigational purposes. The plant's address is _____.

ELEVATION: The powerhouse deck elevation is 252 ft., and the forebay and tailrace channels were excavated for conveying water flow to and from the powerhouse. The lowest level of the powerhouse is 151 ft. elevation with the bottom of the sump pit at 141 ft.

GENERATORS: The two generators are open-pit design with horizontal double-regulated turbines, rated at a speed of 46 RPM with a runner diameter of 27.6 feet. The



runner consists of three Kaplan-type blades, which provide efficient operation over a net head range of five to 18 feet. A two-stage, epicyclic, gear-type speed increaser is used to step up the turbine speed to 450 RPM, which allows a smaller and more cost-effective generator to be used.

OUTPUT: Each generator is rated at 22.77 MW at a power factor of 0.9 with a rated voltage of 6.9 kV, and utilizes a static excitation system.

TURBINES: The turbines' sixteen wicket gates operate by a mechanical-hydraulic governor system at 1000 psi as well as two servomotors mounted in the turbine pit. The wicket gates are designed to self-close on loss of oil pressure. The gate timing is 17 seconds.

SYNCHRONIZATION: The turbine blade controls are integrated into the governor, and a net head signal to the governor adjusts the pitch of the blades for maximum operation. The controller also prepositions the blade tilt for unit startup, locks the last position on loss of net head signal and drives the blade to minimum tilt or "flat" position upon turbine overspeed.

SHUTDOWN: In the highly unlikely event of governor or wicket gate failure, wheeled intake gates drop to stop flow up to a maximum runaway discharge of 33,000 cubic feet per second (cfs).