

The Current

Court Approves Water Use at Blue Castle Nuclear Project

A court ruling approved water for use at the proposed Blue Castle Holdings (BCH) new nuclear power project in Green River. Blue Castle is now the first new nuclear site in the Western U.S. with an approved water source, the single most important asset for deployment of a new nuclear power project.

The decision was issued November 27 by Utah State Seventh District Court Judge George M. Harmond Jr. The Memorandum Decision stated, "The court finds that Blue Castle presented evidence sufficient to establish that there is reason to believe that each of the statutory criteria have been met regarding the applications."

Judge Harmond's ruling also emphasized, "The court finds reason to believe that the project will not impair any existing water rights, nor will it interfere with a more beneficial use of water."

In the dry Western U.S. water availability dictates just about everything when it comes to planning life, including electric power generation.

"Without a source of water, you don't have a project," explained Aaron Tilton, Blue Castle's CEO. "The original approval by the State Water Engineer has now stood the test of an appeal where the relevant evidence was weighed. The ruling is a major de-risking milestone for the Blue Castle Project. It provides future utility participants greater certainty that the major asset, water for the deployment of a new nuclear plant, has been secured economically."

The addition of new nuclear electricity generation will fit the Utah regional markets very well by the projected commercial operation date in 2024. The Utah region will then continue to benefit from the stable generation cost of large base-load power, in a similar manner to the extensive use of cheap coal for decades, which is now declining.

"Nuclear power's base load benefits fill the approaching market void very well. As more new transmission projects are undertaken and current transmission capacity is freed

up by the coal-fired closures, utilities will have additional capability to deliver new nuclear generation from our site to their customers at competitive, stable prices," noted Mr. Tilton.

The proposed multi-unit nuclear plant could increase the electricity generated in Utah by approximately 50% by adding 2,200 - 3,000 Megawatts of installed electrical capacity, using less than 1% of the State's current water diversion.

"We always believed that the decision made by Utah State Engineer, Kent Jones, on January 20, 2012 complied with the law by approving appropriated water for use at the proposed Blue Castle nuclear plant. Judge Harmond's new review and subsequent ruling confirms that the decision by the State Engineer was in accordance with State law and was well thought-out. The ruling provides additional certainty that the State of Utah, its citizens and future power consumers will be the beneficiaries of this water use," Mr. Tilton added.

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Blue Castle Team Completes Meteorological Data Collection

Since the installation of the 60-meter meteorological tower at the proposed Blue Castle Project nuclear plant site over two years ago, Meteorological Solutions, Inc., an air quality and meteorological consulting company located in Salt Lake City, has been collecting, validating, and summarizing the data recordings from several sensors on the tower to gain a solid understanding of the prevailing weather conditions at the site.

These data recordings consisted of temperatures, wind speed, wind direction,

humidity, and precipitation measurements. This information will provide key input for designing the plant for maximum efficiency and nuclear safety.

This information has been collected under strict Nuclear Regulatory Commission (NRC) program and quality assurance guidelines and is necessary input to apply for the Blue Castle Project Early Site Permit (ESP). The data has been validated by the project team as meeting all the requirements to prepare the ESP application.



The meteorological tower has been used over the past two years to collect site data.

Rob Graber Presents Study Findings at ANS Annual Meeting



Rob Graber presented an EnergyPath Study results at the American Nuclear Society Annual Meeting

Rob Graber, Blue Castle Holdings (BCH) Senior Vice President of Energy Economics, was a presenter at the American Nuclear Society's (ANS) 2013 Annual Meeting in Atlanta on June 17th.

Mr. Graber's presentation explained the results from a new nuclear generation study completed by EnergyPath, an owner of BCH. This study, which compared the costs and risks associated with nuclear and natural gas generation over a 60-year period, was first published in the April 2013 edition of the Nuclear Engineering International (NEI) magazine.

The study found that even though natural gas electricity production currently has lower generating costs, the investment risk

in natural gas is considerably higher when compared with nuclear power generation. Not only is the gas generation investment risk higher, but, all the risk occurs after the build decision is made.

Natural gas generation can remain a competitive option as long as fuel costs remain low and predictable. The uncertainty with natural gas generation lies in the unpredictable future cost of fuel and the potential for increased environmental compliance costs.

Though the initial capital investment required for nuclear plant development is higher than the natural gas option, nuclear fuel costs are more predictable and stable over a 60-year time period.

In essence, the study concludes that the highest risk for nuclear generation comes prior to the plant being built, while the greatest risks associated with natural gas generation occur after plant construction; which means a higher, long-term risk with natural gas. Thus, nuclear plant operators

can employ options to delay or abandon the investment if the value of the plant falls short of expectations. Natural gas plants can hedge against normal fluctuations in gas prices but are vulnerable to the large and unexpected price swings observed in the past which can bankrupt natural gas plant owners.

"Based on the study results, it's our opinion that new nuclear power continues to have significant value because of the optionality that the plant possesses prior to and during construction. Six years later those assumptions are still valid," Mr. Graber stated.

"Nuclear power continues to have a significant value in a generation portfolio because of its cost stability relative to other generating options."

-Rob Graber

Part 52: Improving the Nuclear Building Process

In 1989, the U.S. Nuclear Regulatory Commission (NRC) established a new nuclear power plant licensing process under a rulemaking, enacted as 10CFR Part 52, commonly referred to as Part 52. The rulemaking was the result of more than eight years of work to improve the problematic existing process conducted under 10CFR Part 50, better known as a two-step licensing process. Part 52 was established to improve the effectiveness of the safety review and adjudicatory processes needed for granting the construction and operation of commercial nuclear plants. The U.S. Congress made Part 52 the law of the land under the Energy Act of 1992, further defining the need for standardization and due process, shifting the burden of proof for safety and environmental compliance to the front end of the plant construction.

Under the previous Part 50 licensing regime, construction permits were granted based on a Preliminary Safety Analysis Report detailing the technical design and environmental issues, which were then fully addressed during construction. The design and built process, without a completed safety review, resulted in many significant cost and schedule increases during the uncertain economic times of the 70's and 80's, when double digit inflation and interest costs hammered large capital investment projects. A separate operating license was then issued after the safety criterion was met and lengthy adjudication proceedings were completed.

Part 52 targeted many of those issues,



CFR 10 Part 52 has improved the nuclear licensing process to address safety issues earlier in the process.

as well as other improvements, and made plant standardization a priority. It essentially established a “one-step” licensing process for issuance of the construction and operating license under one procedure. Part 52 contains three separate but complementary processes: an Early Site Permit (ESP), addressing the major environmental and emergency preparedness considerations; a Design Certification that resolves, by rulemaking, all the reactor safety issues; and a Combined Operating License (COL) allowing for the construction and operating license of the facility after a mandatory hearing.

Under the new licensing regime, a company considering building a nuclear facility first chooses a suitable site and then a reactor design. The reactor design is typically one that has been certified by the NRC

already or is undergoing design certification. The company can also elect to apply for an ESP to resolve environmental issues early, under NEPA, prior to or concurrent with selection of the reactor technology. The company can also elect to directly apply

for a COL without the ESP; it will have to conduct the environmental impact studies of the ESP within the same application.

During both the ESP and COL processes, the public is kept informed and given ample opportunity to participate in the NRC licensing processes. The ESP and COL will each take two to three years to be reviewed by the NRC, after an application is accepted. A license would be issued after the safety and environmental issues are resolved in accordance with established criteria.

Once construction begins, the NRC closely monitors the project using a comprehensive process which incorporates previously defined inspections, tests, analyses, and acceptance criteria, called “ITAAC,” to ensure that plant construction meets all the criteria established by the license. After construction is completed and the NRC certifies that the plant is constructed as licensed and that there is reasonable assurance that the plant operation will be protective of the public health and the environment, the plant would commence operations after a comprehensive startup testing program. Part 52 ensures that the facility is licensed before it's built and not after, and that it is constructed and operated as licensed. The law provides improved predictability and enhanced protection of and participation by the public.

Presently, four nuclear power plants are being built in the U.S.A. in accordance with Part 52 requirements. Additional improvements are being made after conducting the processes of licensing, construction and ITAAC inspections on these four new projects.

Part 52 ensures that the facility is licensed before it's built and not after, and that it is constructed and operated as licensed.



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Seismic Station Installed at Proposed Nuclear Site

A new seismographic monitoring station was recently installed at the proposed Blue Castle Project (BCP)'s nuclear plant site and is fully operational. This station will gather site-specific seismic data that will be used first by the BCP Senior Seismic Hazard Analysis Committee (SSHAC) to determine plant design criteria and also as input to the Early Site Permit (ESP) and Combined Construction and Operating License (COL) applications to the U.S. Nuclear Regulatory Commission (NRC).

“This additional project instrumentation will improve the quality of our seismic hazard analysis by adding site specific data to the large and multi sourced regional data sets evaluated by our SSHAC team. In essence,

this will provide additional quality for our license application,” said Tom Retson, Blue Castle’s Chief Operating Officer.

The Blue Castle Project SSHAC process is a comprehensive assessment activity involving more than 50 experienced seismologists, geologists, computer modeling and geotechnical specialists and is conducted over the course of many months to support the development and submittal of a high quality BCH Early Site Permit application to the NRC. The addition of the previously unplanned on-site seismic monitoring station was a recommendation made by some members of this team during the BCP SSHAC process.

“The projected additional value of this



A technician makes the final calibrations to the seismic equipment in the underground vault.

new data continues our commitment to protection of the public safety and welfare,” Mr. Retson added.