



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

September 2, 2011

Mr. Tom Retson, Chief Operations Officer  
Blue Castle Holdings, Inc.  
86 North University Avenue, Suite 400  
Provo, Utah 84601

SUBJECT: NRC VISIT TO THE BLUE CASTLE PROJECT SITE TO OBSERVE EARLY  
SITE PERMIT PRE-APPLICATION SUBSURFACE INVESTIGATION  
ACTIVITIES (PROJECT NO. 0768)

Dear Mr. Retson:

On August 2 & 3, 2011, NRC Region II inspectors, accompanied by a member of the Office of New Reactors (NRO) staff, conducted a site visit at the Blue Castle Project site, located near Green River, Utah. The purpose of the site visit was to observe in-process Early Site Permit (ESP) pre-application subsurface investigation activities being conducted to obtain geotechnical/seismic data to support a future ESP application for a new, proposed nuclear power plant. These observations will provide background information to assist NRC's future review of the expected ESP application for the Blue Castle Project, Utah site.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agency wide through NRC's Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov>.

Enclosed is a summary of the site visit that includes a list of NRC participants and persons with whom discussions were held.

Should you have any questions concerning this report, please contact me at 404-997-4428.

Sincerely,

*/RA/*

Bradley Davis, Acting Chief  
Construction Inspection Branch 2  
Division of Construction Inspection

Project No. 0768  
Enclosure: As stated  
cc: (See page 2)

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PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
ADAMS:  Yes    No   ACCESSION NUMBER: ML11245A074       SUNSI REVIEW COMPLETE    FORM 665 ATTACHED

OFFICE	RII:DCI	HQ:NRO		
SIGNATURE	EXR4	MAE1 via email		
NAME	EHeher	MEudy		
DATE	8/31/2011	8/31/2011	9/ /2011	9/ /2011
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY      DOCUMENT NAME: G:\CCI\Inspection Reports\New Reactors\Blue Castle\_Utah

Blue Castle Holdings

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cc:

Joe Mancinelli, Project Manager  
ENERCON Services  
400 Valley Road, Suite 301  
Mt. Arlington, New Jersey 07856

Letter to Tom Retson from Bradley Davis dated September 2, 2011

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SITE PERMIT PRE-APPLICATION SUBSURFACE INVESTIGATION  
ACTIVITIES (PROJECT NO. 0768)

DISTRUBITION w/encls:

C. Cook, NRO  
M. Eudy, NRO  
E. Heher, RII  
R. Karas, NRO  
C. Oelstrom, RII  
W. Wang, NRO  
Public

OBSERVATION OF EARLY SITE PERMIT PRE-APPLICATION  
SUBSURFACE INVESTIGATION ACTIVITIES AT BLUE CASTLE PROJECT, GREEN RIVER,  
UTAH SITE  
PROJECT NUMBER 0768

Purpose of Site visit:

The Nuclear Regulatory Commission (NRC) Region II and Office of New Reactors (NRO) staff conducted a site visit on August 2 & 3, 2011, at the proposed nuclear plant Blue Castle Project, Green River, Utah site. The NRC site visit team observed Early Site Permit (ESP) pre-application subsurface investigation activities to obtain geotechnical and seismic data at the proposed location of the new nuclear power plant. Although this visit was not an official NRC inspection, the site visit team used the following documents for guidance:

- NRC Inspection Manual Chapter 2501, Construction Inspection Program: Early Site Permit (ESP)
- NRC Inspection Procedure 45051, Geotechnical/Foundation Activities Procedure Review
- NRC Inspection Procedure 45052, Review of Geotechnical and Site Characterization Activities

This site visit was conducted to ascertain whether the potential applicant's proposed quality assurance (QA) program, as applicable to elements of early site permit geotechnical exploration activities, was being implemented. In addition, the site visit team assessed whether the technical requirements for geotechnical/foundation exploration for an Early Site Permit Application (ESPA) were adequately addressed through specifications, drawings, and work procedures and whether instructions and procedures for geotechnical/foundation activities were established by the future applicant.

Principal Persons Contacted:

T. Retson, Blue Castle Holdings, Inc.  
J. Bachhuber, Fugro Consultants, Inc.  
B. Evans, Enercon Services, Inc.  
C. Kemp, Fugro Consultants, Inc.  
K. Krug, Fugro Consultants, Inc.  
J. Mancinelli, Enercon Services, Inc.  
R. Ortiz, Fugro Consultants, Inc.  
J. Young, Fugro Consultants, Inc.  
C. Carter, GEOVision, Inc.  
R. Stellar, GEOVision, Inc.  
C. Nowak, In-Situ Engineering

NRC Inspectors:

E. Heher, Construction Inspector, RII  
C. Oelstrom, Construction Inspector Trainee, RII

NRC Accompanying Personnel:

W. Wang, Senior Geotechnical Engineer, NRO

Background:

Blue Castle Holdings, Inc. (BCH) informed the NRC that they have contracted with Enercon Services, Inc. to prepare and submit the ESP application for the Blue Castle Project, Green River, Utah site by letter dated March 8, 2011. An ESP is a partial construction permit for a nuclear power facility pursuant to 10 CFR Part 52 Subpart A. In addition, the letter stated that geotechnical/foundation and seismic data collection activities would begin in the near future and BCH requested initiation of ESP pre-application activities with the NRC. Based on this letter and coordination with BCH, the NRC scheduled a site visit for August 2 & 3, 2011 to observe ESP pre-application subsurface investigation activities to obtain geotechnical and seismic data. Enercon Services, Inc. subcontracted Fugro Consultants, Inc. to conduct the site specific geotechnical/ foundation studies and perform subsurface investigations and testing required for the ESP application.

Overview of Subsurface Investigation Activities Discussed and/or Observed:

The entrance meeting was held offsite to allow for BCH, Enercon Services, Inc., and Fugro Consultants, Inc. to provide a brief presentation covering the proposed project, ESP application timeframe, and planned and ongoing geotechnical activities to be conducted at the site by Fugro Consultants, Inc. The BCH team plans to use the subsurface investigations to provide data to be used for support of the ESPA. After the presentation, the NRC team visited the proposed Blue Castle Project site to observe subsurface geotechnical and geophysical investigations being performed at the site. Once on-site, the NRC team was provided a site specific safety briefing before beginning observations and reviews.

Quality Assurance:

Field work was being performed under the Fugro Consultants, Inc. Quality Assurance (QA) program and was implemented by the Project Planning Documents and Project Instructions. Work instructions were developed from these documents. Samples of these documents were reviewed by the site visit team. The site visit team was able to observe a QA surveillance in progress for the pressuremeter test and review a sample of previous pre-work and periodic surveillances performed by QA personnel.

The site team observed a sample of geotechnical investigation activities and reviewed associated documents to verify:

- Approved and documented instructions, procedures, and drawings were established, and were in use for site characterization activities.
- Measures were implemented for test control and engineering direction was readily available to rig geologist and drill rig technicians in the field.
- Measures existed to identify and resolve non-conformances and conditions adverse to quality.
- Coring samples were adequately stored and handled in the field in accordance with procedure.
- Controls for calibration of equipment were adequately implemented.

The site visit team reviewed the following QA documents, technical procedures, and qualifications:

- Certificate of Calibration No. 1452653 for P.O. BCHMPC2001001, dated 7/29/2011

- Corrective Action Report, CAR No. BCH-001-CAR-2011-11, dated 7/25/2011
- Corrective Action Report, CAR No. BCH-001-CAR-2011-12, dated 7/30/2011
- Fugro – Project Instruction, BCH -001-PI-01, Geotechnical Data Collection Plan, Rev. 0
- Fugro- Project Instruction, BCH-PI-02, Attachment 9, Pressuremeter
- Fugro – Project Instruction, BCH-PI-07, Surface Geophysical Survey Plan (IMASW), Rev. 1
- Fugro – Project Planning Document, BCH-PPD-001, Blue Castle ESP Application, Rev. 0
- Personnel resumes and qualifications for Rig Geologist and Field Coordinator
- Purchase Order No. BCH-FUGRO-Geovision-2011-001, dated 7/5/2011
- Purchase Order No. BCH-FUGRO-Insitu Engineering-2011-001, dated 7/5/2011
- QA Pre-Work Surveillance No. BCH-001-SR-2011-17, dated 7/25/2011
- QA Surveillance No. BCH-001-SR-2011-18, dated 7/28/2011
- Suspension P.S. Seismic Logger/Recorder Calibration Data Form, dated 7/29/2011
- Work Instruction BCH WI No. 15, Borehole Pressuremeter Testing in Boring B-1007A, Blue Castle Licensing Project, Enercon/Blue Castle Holdings, FCL, Inc.
- Work Instruction BCH WI No. 17, Borehole Geophysical Survey Boring B-1003, Blue Castle Licensing Project, Enercon/Blue Castle Holdings, FCL, Inc., Rev. 0

The site visit team reviewed copies of two Corrective Action Reports (CARs) generated to date on the project. The CARs identified issues with: 1) pressuremeter analysis software not being reviewed and approved and 2) the attachments for the Acoustic Televiwer and P-S suspension logger were missing from the Project Instructions. The CAR for the pressuremeter was still open at the time of the visit and is pending closure based on the review by Fugro Consultants, Inc. The other CAR was closed when the attachments were added to the Project Instructions on the day after the CAR was issued. The documented corrective actions appeared appropriate and timely.

#### Drilling and Sampling Observed:

Observation of work in progress included drilling, obtaining core samples, generation of logging records, and review of geophysical measurements. The NRC site visit team verified that the work was being performed in accordance with appropriate procedures.

The NRC site visit team observed the following site investigation activities:

- a. Core sample collection during drilling,
- b. Groundwater observation well drilling,
- c. Acoustic Televiwer logging,
- d. P-S suspension logging, and
- e. Pressuremeter testing.

During the observations, the site visit team interviewed on-site technical personnel to gain an understanding of the field tests and procedures, and observed one complete operation cycle for each of the tests. The site team confirmed that all observed field tests were conducted per the approved procedures and during the site visit.

The site visit team observed drilling at boring locations, B-1007 and B-1007A. Core samples were being collected at Boring B-1007. Boring B-1007A is an offset boring to Boring B-1007 and was being cored for pressure meter testing. Each drilling operation was controlled by a Fugro

rig geologist and each drill rig worked to an individual work instruction. The site team observed that the work was in accordance with applicable ASTM standards and procedure requirements. The rig geologists generated logging records to record boring location, sample name, depth interval, length, color, and soil/ rock classification. The rig geologist determined the rock recovery from each core sample and the rock quality designation (RQD). This information was recorded on the bore logs and on the sample boxes. The field boring logs were detailed and provided a record of boring results.

The site visit team examined core samples from B-1005 and B-1006, at the sample storage facility. The site visit team verified that the cores and the samples were continuously collected from the borings in accordance with Regulatory Guide 1.132 and industry standards and that the storage facility was adequate for the storage of rock core samples. The rock core samples were approximately 18 inches in length and were retrieved from the continuous rock coring at about 10-ft. intervals. These samples were used for laboratory testing. The approved procedures required these samples to be stored in a climate controlled environment. The site visit team observed four samples from Boring B-1007 being prepared for storage. The preparation of these samples was performed per the approved procedure.

GEOVision, Inc. was contracted by Fugro Consultants, Inc. to conduct Geophysical testing and data collection at the site. The site visit team met with a representative from GEOVision to discuss geophysical measurements and analyses. P-S Suspension Logging and Acoustic Televiewer testing were observed at boring B-1003 and the work packages for these tests were reviewed by the site visit team. The test results were recorded by computer software. The inspectors verified that the test data was stored in accordance with project procedures.

#### Conclusion:

Geotechnical subsurface investigation activities were observed to be adequately controlled with an appropriate level of supervisory and quality assurance oversight and in accordance with procedural requirements and industry standards. No issues were identified.