



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

August 19, 2002

MEMORANDUM TO: James E. Lyons, Director
New Reactor Licensing Project Office
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

THROUGH: Ken E. Brockman, Director /RA/
Division of Reactor Projects

THROUGH: William D. Johnson, Chief /RA/
Project Branch A
Division of Reactor Projects

FROM: Charles J. Paulk, Senior Project Engineer /RA/
Project Branch A
Division of Reactor Projects

SUBJECT: PRE-APPLICATION SITE VISIT TO GRAND GULF NUCLEAR STATION
FOR FAMILIARIZATION WITH GEOTECHNICAL DATA GATHERING
PROCESSES FOR EARLY SITE PERMIT

Entergy Nuclear Potomac was created by Entergy Operations, Inc., to pursue the development and submission of an Early Site Permit in accordance with 10 CFR Part 52, Subpart A. Entergy Nuclear Potomac has contracted Enercon Services (Enercon) to develop the application, utilizing the Enercon quality assurance program, as necessary, for the collection and analysis of data required to support the application. An application for an early site permit does not imply that an applicant has decided to build a nuclear power plant on the site. It is a process by which an applicant can obtain approval of a site that would be suitable to place a nuclear power plant if such a decision would be made within the life of the permit.

On August 1-2, 2002, I accompanied Mr. R. Jenkins, Project Manager, and Dr. J. Ma, Structural Engineer, to the Grand Gulf Nuclear Station. The purpose of this visit was to observe activities associated with the gathering of data for demonstrating the suitability of a potential site for placement of a nuclear power plant. These observations will provide background information for the NRR reviewer after an application is received.

The staff noted that the applicant's plans were to drill three holes and perform four cone penetrometer tests in what was designated as the proposed power block area. The intent, as we were able to understand, was to demonstrate a correlation with the data gathered during the initial siting for the existing plant. Such correlation would, in the applicant's mind, minimize the effort required on their part to demonstrate the seismic and geological acceptability of the proposed site.

The staff requested, and obtained, a copy of project instructions for the early site permitting project of Grand Gulf Nuclear Station Site on August 1, 2002. The project instructions for the geologic, geotechnical, and geophysical field exploration and sampling used at the site were provided in Enercon's Procedure PPD ENTO-002, "Early Site Permitting Project Grand Gulf Nuclear Station Site," Revision 2. The project instructions called for three exploratory borings, with seismic wave velocity surveys in the exploratory boreholes, and four cone penetrometer tests. Field activities were directed by William Lettis & Associates, Inc.

Exploratory borings and cone penetrometer tests were conducted on August 1-2, 2002, during the time of the staff visit. The first boring (identified as B-1) and the first cone penetrometer test (identified as CPT-1) had been completed before the staff arrived. During this visit, we observed the performance of two cone penetrometer tests (identified as CPT-2 and CPT-3) and the partial drilling of a test hole (identified as B-2) with the collection of soil samples. The purpose of the exploratory boring is to characterize subsurface geologic conditions, perform in-situ testing, perform borehole geophysical surveys, and obtain soil samples for laboratory testing. The staff saw several wood boxes of soil samples from B-1 that were stored in a shaded area, awaiting shipment to the University of Texas at Austin for dynamic soil testing. Each box contained several plastic tubes of soil samples. Each tube was marked and sealed with waxed at both ends to prevent the escape of moisture from the soil. The soil samples appeared to be properly sealed and packed. The staff witnessed the drilling of B-2. Geologists were present during the drilling of B-2, as required by the project instructions.

Drilling of B-2 ran into problems. The first problem was that the soil around the hole became unstable. Bentonite grout mix was injected into the soil to stabilize it. The second problem was jamming of the equipment, which was used to core the soil samples, at approximately 150 feet. Field crews were trying to resolve the problems when the staff left the site. Therefore, the staff did not witness the soil samples taken from B-2, or the measurement of seismic wave velocity profiles because the B-2 hole was not cleared.

The cone penetrometer test was performed using a penetrometer tip with a conical point having a 60° apex angle and a cone base to advance through the soil at a constant rate. The data provided a detailed record of cone resistance which is useful for evaluation of site stratigraphy, homogeneity and depth to firm layers, voids or cavities, and other discontinuities. The cone penetrometer test provides a rapid method for determining subsurface in-situ conditions without the need of obtaining soil samples. On August 1, 2002, CPT-2 thru 4 were completed in one day. The crew performing these tests cleaned the equipment before testing. Notes regarding equipment response and penetration were recorded by a geologist during each sounding. The geologist directed the entire test.

During the observed cone penetrometer tests, the staff noted that the attained depth was approximately 100 feet. The geologist stated that, at that depth, they had hit a formation of gravel and that the penetrometer could not go any further without sustaining damage. The data generated from the test equipment was recorded electronically by the test equipment and manually by the geologist for future reviews and analyses.

The staff inquired about the data correlation between B-1 and CPT-1 because the two locations were near each other. While the data was preliminary, the geologists stated that the data correlations were excellent and most blow count numbers (a measure of soil density) between

the two methods appeared to be within 5 percent. The staff also inquired whether the preliminary data from B-1 and CPT 1 thru 4 compared well with previous data obtained for the existing plant or not. The geologists indicated that the raw data they had obtained had compared favorably with the previous data.

The staff was provided with information on the construction and use of the instrument that was to be used to obtain seismic wave velocity data of the ground formations surrounding the drill holes. This was necessary because the drilling operation had fallen behind schedule due to mechanical problems with the drilling rig.

In addition to observing the collection of geotechnical data, we toured the area where a proposed circulating water intake canal would be located. We also toured the area where the existing meteorological tower was located. These tours were performed to become familiar with their locations.

In general, the staff did not identify any significant concern relating to the conformance of work in progress with the procedures developed for performing the boring and collection of geotechnical data.

Attachment:
Supplemental Information

cc w/attachment:

Mr. David Batalo
Lead Engineer - Siting
Early Site Permitting Project
5000 Dominion Boulevard
Glen Allen, VA 23060

Mr. Russell Bell
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Eugene "Gene" S. Grecheck
V.P. Nuclear Support Services
5000 Dominion Boulevard
Glen Allen, VA 23060

Mr. Joseph "Joe" D. Hegner
Lead Engineer - Licensing
Early Site Permitting Project
5000 Dominion Boulevard
Glen Allen, VA 23060

Mr. Paul Gunter
Nuclear Information & Resource Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

Mr. Rod M. Krich, Vice President
Licensing Projects
Exelon Nuclear
4300 Winifield Road, 2nd Floor
Warrenville, IL 60555

Mr. David Lochbaum, Nuclear Safety Engineer
Union of Concerned Scientists
1707 H Street, NW, Suite 600
Washington, DC 20006-3919

Mr. Edwin Lyman
Nuclear Control Institute
1000 Connecticut Avenue, NW
Suite 410
Washington, DC 20036

Mr. William D. Magwood, IV
U.S. Department of Energy
Office of Nuclear Energy, Science &
Technology
Director of the Watchdog Project
NE-1, Room 5A-143
1000 Independence Avenue, SW
Washington, DC 20585

Dr. Gail Marcus
U.S. Department of Energy
Office of Nuclear Energy, Science &
Technology
NE-1, Room 5A-143
1000 Independence Avenue, SW
Washington, DC 20585

Mr. Thomas P. Miller
U.S. Department of Energy, NE-20, Rm. A286
Headquarters - Germantown
19901 Germantown Road
Germantown, MD 20874-1290

Mr. Thomas Mundy, Director, Project
Development
Exelon Generation
200 Exelon Way, KSA3-E
Kennett Square, PA 19348

Mr. James Riccio
Greenpeace
702 H Street, NW, Suite 300
Washington, DC 20001

Mr. Spencer Semmes
Lead Engineer - Technology
Early Site Permitting Project
5000 Dominion Boulevard
Glen Allen, VA 23060

Mr. Ron Simard
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Marvin Smith
Project Manager
Early Site Permitting Project
5000 Dominion Boulevard
Glen Allen, VA 23060

Mr. Edward F. Sproat, III
Vice President-Int'l Projects
Exelon Generation
200 Exelon Way
Kennett Square, PA 19348

Mr. George Alan Zinke
Project Manager
Nuclear Business Development
Entergy Nuclear
M-ECH-683
1340 Echelon Parkway
Jackson, MS 39213

William A. Eaton, Vice President
Operations - Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi 39150

Executive Vice President
and Chief Operating Officer
Entergy Operations, Inc.
P.O. Box 31995
Jackson, Mississippi 39286-1995

Wise, Carter, Child & Caraway
P.O. Box 651
Jackson, Mississippi 39205

Winston & Strawn
1400 L Street, N.W. - 12th Floor
Washington, DC 20005-3502

Director
Division of Solid Waste Management
Mississippi Department of Natural
Resources
P.O. Box 10385
Jackson, Mississippi 39209

James E. Lyons

-5-

President, District 1
Claiborne County Board of Supervisors
P.O. Box 339
Port Gibson, Mississippi 39150

Director, Nuclear Safety
and Regulatory Affairs
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi 39150

General Manager
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi 39150

The Honorable Richard Ieyoub
Attorney General
Department of Justice
State of Louisiana
P.O. Box 94005
Baton Rouge, Louisiana 70804-9005

Office of the Governor
State of Mississippi
Jackson, Mississippi 39201

Mike Moore, Attorney General
Frank Spencer, Asst. Attorney General
State of Mississippi
P.O. Box 22947
Jackson, Mississippi 39225

Dr. F. E. Thompson, Jr.
State Health Officer
State Board of Health
P.O. Box 1700
Jackson, Mississippi 39215

Robert W. Goff, Program Director
Division of Radiological Health
Mississippi Dept. of Health
P.O. Box 1700
Jackson, Mississippi 39215-1700

Vice President
Operations Support
Entergy Operations, Inc.
P.O. Box 31995
Jackson, Mississippi 39286-1995

Electronic distribution from ADAMS by RIV:

RBorchardt (**RidsNrrAdip**)

FEltawila (**FXE**)

NRR_NRLPO

TBergman, EDO (**JWS1**)

JTappert (**JRT**)

JWilson (**JHW1**)

AKulger (**AJK1**)

MJohnson (**MRJ1**)

MReinhart (**FMR**)

JLee (**JYL1**)

MSnodderly (**MRS1**)

RPalla (**RLP3**)

LBrown (**LAB2**)

BZalcman (**BXZ**)

PKuo (**PTK**)

CCasto (**CAC1**)

JHannon (**JNH**)

TKenyon (**TJK2**)

Elmbro (**EXI**)

TQuay (**TRQ**)

EFox (**EFF**)

CAbbott (**CFA**)

RMcIntrye (**RPM1**)

CHinson (**CSH**)

SAli (**SAA3**)

EThrom (**EDT1**)

SWeerakkody (**SDW1**)

SKlementowicz (**SXK**)

KGibson (**KHG**)

TFoley (**TXF1**)

DThatcher (**DFT**)

KManoly (**KAM**)

MKotzalas (**MXK5**)

OPA (**OPA**)

PMNS (**PMNS**)

MEI-Zeftawy, ACRS (**MME**)

ACerne (**ACC1**)

RGardner (**RNG**)

JBlake (**JJB1**)

Regional Administrator (**EWM**)

DRP Director (**KEB**)

DRS Director (**EEC**)

Senior Resident Inspector (**RWD**)

Branch Chief, DRP/A (**WDJ**)

Senior Project Engineer, DRP/A (**CJP**)

Staff Chief, DRP/TSS (**PHH**)

RITS Coordinator (**NBH**)

Hard Copy

ESP PM

RVJenkins

R:_GG\2002\GG Pre-App Site Visit.wpd

| | | | | |
|---------------|------------------|------------------|------------------|------------------|
| RIV:SPE:DRP/A | PM:NRLPO | SE:EMEB | DD:NRLPO | SC:EMEB |
| CJPaulk | RVJenkins | JSMa | MKGamberoni | KAManoly |
| /RA/ | E-CJPaulk | E-CJPaulk | E-CJPaulk | E-CJPaulk |
| 08/15/02 | 08/14/02 | 08/12/02 | 08/14/02 | 08/14/02 |
| C:DRP/A | D:DRP | | | |
| WDJohnson | KEBrockman | | | |
| /RA/ | /RA/ | | | |
| 08/14/02 | 08/19/02 | | | |

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

ATTACHMENT

SUPPLEMENTAL INFORMATION

LIST OF PERSONS CONTACTED

Entergy Nuclear Potomac

M. Bougeois - Project Manager
G. Zinke - Regulatory Manager

Enercon Services

J. Kegerreis - Site Coordinator
D. Whitson - Quality Assurance Manager

William Lettis & Associates, Inc.

J. Bachhuber, CEG, RG - Project Manager, Vice President
J. Helms, CEG, RG - Project Geologist
J. Hengesh, RG - Senior Geologist

GeoVision

A. Martin, RG - Technical Director