

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
PORTLAND GENERAL ELECTRIC COMPANY,) Docket No. 50-344
 et al.) (Control Building
) Proceeding)
(Trojan Nuclear Plant))
)

AFFIDAVIT OF E. W. EDWARDS
COALITION FOR SAFE POWER'S CONTENTION NO. 20
and
CONSOLIDATED INTERVENORS' CONTENTION NO. 11

1. My name is E. W. Edwards. I am employed by Bechtel Power Corporation (Bechtel) as Field Construction Manager in the San Francisco Power Division. I have been employed in this position since 1977. My professional qualifications are contained in an attachment to this affidavit. This affidavit was prepared by me or under my supervision.

2. I have been involved in the Trojan Plant modification work since May 1978. My duties have included responsibility for construction planning, which has consisted of constructibility reviews of engineering design, conceptual development of construction methods, scheduling of work sequences and planning of construction activities with Portland General Electric Company (PGE) personnel.

3. The purpose of this affidavit is to address, in part, Coalition for Safe Power's Contention No. 20 and Consolidated Intervenor's Contention No. 11, which, as combined, read:

Inadequate assessment of the effects of drilling in the control building walls during modification, has been made.

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4. This affidavit will explain how the drilling in the Control Building walls will be carried out to avoid damage to the reinforcing steel in the walls and to equipment attached or adjacent to the walls. The affidavit of Dr. William H. White concerning these contentions discusses the effect of drilling upon the shear capacity of the walls.

5. In the performance of the modification work, it is necessary to drill into existing walls in the Control Building for two purposes:

(a) Holes must be drilled through the Control Building west (R line) wall from el. 59' to el. 98' so that the 3-inch thick steel plate can be bolted to that wall; through the west (R line) wall from el. 45' to el. 61' so that new concrete can be bolted to the existing wall; and through the Control Building east (N line) wall from el. 77' to el. 95', so that the new concrete wall on N line can be bolted to the existing wall.

(b) Holes must be drilled into, but not through, existing walls in the Control Building so that reinforcing steel can be placed and grouted. This is necessary to tie the new walls at Column lines N, N' and R into the existing walls.

6. The walls where drilling will take place are either composite shear walls (masonry block and concrete core) or double block shear walls (with no concrete core). Reinforcing steel in the masonry block portions of either type of shear wall is located within some of the block cells in a uniform pattern. This steel will be avoided during drilling by a physical survey of the joints between the masonry blocks and by the use of metal detectors.

7. The location of the reinforcing steel in the concrete core portion of the composite walls cannot be similarly defined. However, since the core reinforcing steel is spaced at regular intervals, its location can be estimated for purposes of avoiding it during drilling.

8. In any event, if reinforcing steel were to be encountered by the drill, the effect would be limited to some polishing, or at most, a nick in the steel. All drilling will be done with a core drill equipped with diamond tipped bits. These drills will penetrate the wall at a very slow speed (it will take approximately one hour to penetrate a 32-inch wall). If the bit were to encounter reinforcing steel, there are a number of different indications that would make it immediately apparent to the drill operator, including markedly different sound, vibrations, and motor load. Thereupon, the drill operator will immediately discontinue drilling before the steel has been harmed, the hole will be abandoned and fully grouted before a replacement hole is drilled. The location of future holes to be drilled will be adjusted accordingly.

9. The drilling will be carried out so that the equipment attached or adjacent to either side of the Control Building

walls will not be affected. Before any drilling begins, physical surveys will be done to fix the location of all equipment attached directly to, or adjacent to, the walls in the vicinity of drilling. The holes to be drilled will be plotted so as to allow for sufficient space for fitting the washer (which has a radius of 9 inches and thickness of 2 inches) onto the bolt; thus all holes must be centered at least 9 inches from any equipment attached to the wall and must be located such that there is a gap greater than 2 inches between the wall and any piece of adjacent equipment.

10. Such distances should preclude the drilling from contacting any equipment attached to or adjacent to the wall. However, as an additional precaution, workers will be assigned to monitor the area opposite the drill penetration. These workers will be in direct communication with the drill operator and can notify him to stop drilling if equipment might be affected. The drilling machinery uses a geared mechanism to move the drill head forward. The inherent characteristics of this mechanism are such that it retains no potential energy; therefore there is no release of energy which could suddenly propel the drill head forward when the the wall is penetrated. Because of the drill's slow penetration speed, and the positive control which the drill operator has over the bit, a warning from the worker monitoring the area opposite the drill penetration will be sufficient to prevent harm to equipment adjacent to the wall from the drill bit.

11. The diamond-tipped drills to be used will cut slowly and cleanly through the concrete. Therefore, vibration and

concrete fragments from the drilling on either side of the wall will be minimal and will not affect equipment attached or adjacent to the walls.

12. For the reasons discussed above, the drilling necessary for the modification work will not harm the reinforcing steel in the walls and will not affect equipment attached or adjacent to those walls.

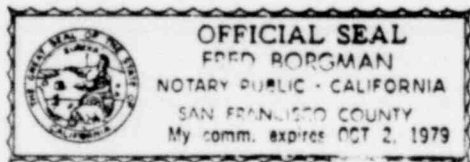
I, E. W. Edwards, of lawful age, being first duly sworn, state that I have reviewed the foregoing affidavit, and that the statements contained therein are true and correct to the best of my knowledge and belief.

E. W. Edwards
E. W. EDWARDS

STATE OF CALIFORNIA)
County of SAN FRANCISCO) ss.

SUBSCRIBED AND SWORN TO before me this 27TH day of AUGUST, 1979

Fred Borgman
NOTARY PUBLIC FOR CALIFORNIA
My Commission Expires _____



PROFESSIONAL QUALIFICATIONS
OF
EDWIN W. EDWARDS

PRESENT Field Construction Manager,
Bechtel Power Corporation

EDUCATION B.S., Electrical Engineering, University of
Oklahoma, Norman
M.B.A. General Management - Golden Gate University
of San Francisco

PROFESSIONAL DATA Registered Professional Electrical Engineer,
California, Florida, New York

SUMMARY 2 years: Field Construction Manager
1 year: Cost/Schedule Supervisor
2 years: Assistant Field Construction Manager
3 years: Project Superintendent
2 years: Field Superintendent
2 years: Project Superintendent
1 year: Senior Field Engineer
6 years: Field Engineer, Electrical

EXPERIENCE Mr. Edwards is a Field Construction Manager
assigned to the Trojan and Skagit projects.
Before being assigned to his present position,
Mr. Edwards was Cost/Schedule Supervisor for
the Pebble Springs Nuclear Plant. Previously,
he was Assistant Field Construction Manager at
the Trojan Nuclear Power Plant. This assignment
was during preparation for initial operation of
the plant.

As Project Superintendent he was fully in charge
of the construction effort at the Gerald Andrus
Steam Electric Station in Greenville, Miss.
Prior to this assignment Mr. Edwards was Field
Superintendent at Unit 2 of the Baxter Wilson
Steam Electric Station, Vicksburg, Miss. and
Montville Unit 6, Montville, Conn.

Edwin W. Edwards
EXPERIENCE (Concluded)

Mr. Edwards was Project Superintendent managing various contractors in construction of gas turbine facilities at the Missouri Avenue Station, Atlantic City, N.J.

As field engineer, electrical and senior field engineer, Mr. Edwards worked on Cocoa Unit 1 and Turkey Point Units 1 and 2 at Cocoa and Florida City, Florida respectively. With a previous employer, Reynolds Electric and Engineering, Mr. Edwards worked as a Field Engineer, electrical on the Titan I Missile bases, Rapid City, S.D. and at the Nevada Test Site, Mercury, Nevada.