

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
TEXAS UTILITIES GENERATING )  
COMPANY, et al. ) Docket Nos. 50-445 and  
 ) 50-446  
(COMANCHE PEAK STEAM ELECTRIC )  
STATION, Units 1 and 2) )

AFFIDAVIT OF RALPH E. McGRANE  
REGARDING CONTENTION SEVEN  
(ROCK OVERBREAK)

I, Ralph E. McGrane, being first duly sworn, do depose and state: I am employed by Gibbs & Hill, Inc., in the position of Assistant Chief Structural Engineer. I was responsible for establishing the criteria for the repair of rock overbreak and fissures at the Comanche Peak Steam Electric Station. My educational and professional qualifications are attached to this Affidavit.

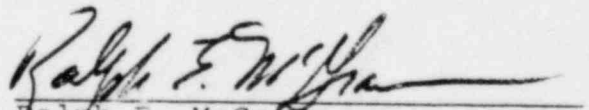
This Affidavit addresses whether, as a result of rock overbreak and fissure repair, the Comanche Peak Steam Electric Station structures will react any differently during a seismic disturbance than if the overbreak and fissuring had not occurred.

All Seismic Category I structures at Comanche Peak are designed to be founded on competent rock.

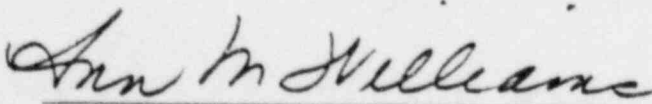
During excavation for the foundations of Seismic Category I structures, certain areas of rock were overexcavated. To compensate for the overexcavation, affected areas were specified to be backfilled with concrete having a minimum compressive strength of 2,500 pounds per square inch at 28 days, which equalled or exceeded the strength of the competent rock. In my opinion, the performance of foundations for Seismic Category I structures during a seismic event would be not different than if the rock overbreak had not occurred when concrete backfill was placed in accordance with this criteria.

In addition to rock overbreak, small fissures were identified in the rock in some areas underneath foundations of Seismic Category I structures. These fissures were the result of blasting during excavation.

To maintain design continuity of the competent rock in which the fissures were identified, grout was pumped into the fissures. When properly applied, the grout is at least as strong as (if not stronger than) the undisturbed strength of the rock, and the performance of the foundation located above or adjacent to these fissures during a seismic disturbance will be no different than if such fissuring had not occurred.

  
Ralph E. McGrane

Sworn to before me  
this 15th day of January 1982.

  
Notary Public

ANN M. WILLIAMS  
NOTARY PUBLIC, State of New York  
No. 01-017831  
Qualified in New York County

**RALPH E. McGRANE, PE**  
**Assistant Chief Engineer – Structural**  
**GIBBS & HILL, INC.**

- 1946–1948 – Manhattan College – Civil Engineering
- 1955 – Polytechnic Institute of Brooklyn – Bachelor of Civil Engineering
- 1967–1969 – Alexander Hamilton Institute – Modern Business
  
- 1957 – Registered Professional Engineer, New Jersey
- 1957 – Registered Professional Engineer, Ohio
- 1973 – Registered Professional Engineer, Texas
  
- 1979–Date – Assistant Chief Engineer – Structural, Gibbs & Hill, Inc., New York, New York, assisting Chief Structural Engineer in the performance of such duties as selection and assignment of personnel, review and approval of manpower forecasts, monitoring and appraising performance of Structural Department personnel, review of specifications, reports, design criteria, standards, and structural arrangements; monitoring performance and technical direction to supervising engineers and job engineers
  
- 1968–1979 – Supervising Engineer – Structural, Gibbs & Hill, Inc., New York, New York, supervision of structural engineering: Fort Calhoun Nuclear Power Station (PWR), Unit 1 (480 MWe) and Unit 2 (1256 MWe), Omaha Public Power District, Nebraska; Ringhals Nuclear Power Station (PWR) Unit 2 (800 MWe), Statens Vattenfallsverk, Sweden; Aguirre Nuclear Power Plant (PWR, 600 MWe), Puerto Rico Water Resources Authority; Comanche Peak Steam Electric Station (PWR), Units 1 and 2 (1150 MWe each), Texas Utilities Services, Inc.
  
- 1965–1968 – Engineer – Structural, Gibbs & Hill, Inc., New York, New York, structural engineering: Zorita Nuclear Power Station (PWR, 160 MWe), Union Electrica Madrilena, Spain; Fort Calhoun Nuclear Power Station
  
- 1962–1965 – Assistant Engineer – Structural, Gibbs & Hill, Inc., New York, New York, structural engineering and supervision of design: Bay Shore Station, Unit 3, 140 MW, Toledo Edison Co.; 25-MW barge-mounted steam-electric power plant and seawater injection system, Zelten Field, Esso Standard Libya, Inc.; Farragut substation, Consolidated Edison Co. of New York, Inc.; Shen-Ao Power Plant, Unit 3, 200 MW, Taiwan Power Company
  
- 1957–1961 – Assistant Design Engineer – Structural, Gibbs & Hill, Inc., New York, New York, supervision of structural design: Shen-Ao Power Plant, Unit 1, 75 MW Unit 2 140 MW, Taiwan Power Co.; Princeton-Pennsylvania proton accelerator, U.S. Atomic Energy Commission, James Forrestal Research Center, Princeton, New Jersey; linear electron accelerator, Rensselaer Polytechnic Institute; Lexan plastic plant, Mt. Vernon, Indiana, General Electric Company
  
- 1956–1957 – Structural Engineer, George W. Saathoff, Hoboken, New Jersey, structural design and supervision, Bay Shore Station, Units 1 and 2, Toledo Edison Company
  
- 1956 – Structural Design Engineer, Wigton-Abbott Corp., Plainfield, New Jersey, steel and foundations for steel mill and refinery structures

RALPH E. McGRANE, PE

- 1952-1955 - Structural Designer, George W. Saathoff, Hoboken, New Jersey, design and checking foundations and structures; assistance in development of coal-handling facilities, railway layout, cofferdams, and coal dock for power plants: Springdale Station, Unit 8, West Penn Power Co.; steam power station addition, Lake Charles, Louisiana, Cities Service Co.; Bay Shore Station Unit 1, Toledo Edison Company
- 1951-1952 - Structural Designer, The Parco Co., New York, New York, design for chemical plants and oil refineries
- 1948-1951 - Junior Civil Engineer, Bureau of Highways and Sewers, Borough President of Brooklyn, Brooklyn, New York, drainage studies and design for sewer construction