

MAR 12 1962

Joseph Fouchard, Division of
Public Information, Headquarters

Rodney L. Southwick, Assistant to the
Manager for Public Information, SAN

PUBLIC MEETING ON BODEGA BAY APPLICATION BY PG AND E

MI:ELS

In a separate memorandum you are being sent a summary of the PG and E hearing on March 7, 8, and 9, 1962, before the California Public Utilities Commission. On the basis of that hearing and discussions with various representatives attending the hearing, it would appear advisable that when the time comes for considering a public meeting in the Bodega Bay area, similar to those held at Pleasanton and Beach Bottom, that we do more detailed advance planning. I assume such a public meeting will be conducted in advance of the formal public hearing.

1 - It would appear that PG and E might be opposed to such a meeting. That is the reaction of the present Public Relations Director for the Company, who, by the way, leaves that position effective April 1.

2 - We should make it clear, if it is true, that AEC consideration of the PG and E application does not take into consideration other potential land uses for the area involved such as future recreation and park areas. This is a matter on which the local zoning, harbor and planning commissions and Board of Supervisors have already acted. Thus the critics appearing would be reduced by a large number.

3 - A meeting should be conducted for local and State officials prior to the public meeting. A schedule could be arranged for an early afternoon meeting with such officials and a public meeting to follow in the evening. Public officials to be included would be those with interest at the State level, the County officers including Board of Supervisors, Harbor Commission, North Coast Pollution Control Board, Zoning Commission; and town officials from the immediate area.

8709180151 B51217
PDR FOIA
FIREST085-665 PDR

8709180151

RD
Bodega
Bay

MAR 12 1962

Joseph Fouchar

- 2 -

MAR 12 1962

Most of these organizations already have signified approval of the PG and E application, but are not knowledgeable about AEC regulations and procedures. By having them fully informed, we would have support from them and an excellent source of explanation to the public to allay doubts and apprehensions.

4 - Lowenstein and his briefers should be prepared to handle inquiries about how the possible effects of the plant would be controlled especially in the ocean and bay, and effects on fish, shellfish and boat traffic.

5 - I recommend that a list of all local officials be prepared and a special mailing list be established to keep them informed of AEC activities in connection with this application. They should be sent, for instance, all our public announcements on the Bodega Bay plant, including the fact we have received the PG and E application. It would be advisable to have a limited number of copies of the application for at least the Sonoma County Board of Supervisors so that it would be available locally and possibly one other copy for the nearest community to the site.

It would be advisable also that the local authorities be given a contact with R. W. Smith, Director, Compliance Region V, so that they can direct any inquiries to a local office in order to obtain immediate replies to any questions they may have. Admittedly some replies may have to be obtained from Washington, but the local contact within the State is important from the community relations viewpoint. These people generally feel Washington is a long way off, deeply concerned with other problems and that the mail takes an inordinate amount of time to get East and back.

PG and E representatives at the Public Utilities Commission hearing indicated that they would file their application with AEC in July or August, 1962, so that there is ample time for completing an information plan for this activity.

cc: Robert Lowenstein, DL and R, Headquarters
E. C. Shute, Manager, EAM



L. J. J. J.
MAR 10 1962

Joseph Fouchard, Division of Public
Information, Headquarters

Rodney L. Southwick, Assistant to the
Manager for Public Information, SAN

SUMMARY OF HEARING BEFORE CALIFORNIA PUC ON PG AND E APPLICATION
FOR CERTIFICATION OF BODEGA BAY NUCLEAR POWER PLANT

MI:RLS

On March 7, 8 and 9, 1962, hearings were conducted by Examiner Leonard S. Patterson of the California Public Utilities Commission, on the application of Pacific Gas and Electric Co. for a certificate to build a 325 MW nuclear power plant at Bodega Bay, California. The plant would be financed by PG and E, with General Electric furnishing a boiling water reactor, at an estimated cost of \$61,000,000 exclusive of transmission costs (\$64,185,000 including transmission and step-up).

As shown in "Estimated Cost of Power from Bodega Bay Plant", PG and E figures its cost of power at the plant, at 90 percent capacity, at 5.5 mills/kwh and the average delivered cost at 6.2 mills/kwh. Other figures are listed for other capacity levels.

The application was supported by the Sonoma County Labor and Industrial Board; Sonoma County Industrial Development Board; Sonoma County Harbor Commission; Sonoma County Planning Commission; Sonoma County Zoning Commission; Sonoma County Board of Supervisors; and Sonoma County Central Labor Council. In addition Alexander Grendon, Coordinator of Atomic Energy Development and Radiation Protection, appeared in favor of the application.

However, a representative of the California Fish and Game Department (Harold Bissell) requested that as part of the certification the Public Utilities Commission (PUC) include a list of conditions relating to marine studies and controls. This was opposed by PG and E, although it was agreed that the Department's requirements would be met including a two year pre-operational marine study in the Bodega Head area.

Such a study, probably under Dr. Ernest Salo of Humboldt State College, would be used to show whether slight amounts of radioactivity in discharged water would have a significant effect on the biota, and would serve as a base for the operational period. The two-year period was requested to take into consideration any changes in cycles and to allow for changes caused by fallout.

2602-05-0191

MAR 16 1962

Joseph Fouchar

- 2 -

Opponents of the application were an attorney representing Mrs. Rose Gaffney who owns 64 acres of land sought by PG and E in a condemnation proceeding; Harold Gilliam, San Francisco author and newsman; Ned Chapin, Menlo Park, an electronics engineer; and Peter William Eubanks, a youngster and part time student in San Francisco School of Fine Arts.

Chapin, however, limited his criticism to the proposed transmission lines which would cross from Bodega Head to the mainland advocating that such lines be placed underground; the cost of which was estimated by PG and E at \$5,000,000.

PG and E witnesses stated during the proceedings that four nuclear power units ultimately were planned at Bodega Head, but no decisions had been made as to the type of reactors to be used at this time. Actually the plans, designs and siting for various facilities including transmission lines appeared to be approximations and preliminary.

Access to Bodega Head was the subject of considerable discussion. Although presently the land is privately owned by PG and E, Mrs. Gaffney and others, there is no access to the public. In addition the head is located on steep palisades ranging up to 200 feet high of sheer perpendicular rock. Currents and tidal action around the head are extremely strong and make boating and swimming at the base impossible.

Bodega Head is located just west of the San Andreas fault zone, but PG and E witnesses testified that the granitic nature of the head and construction of earthquake resistant structures would prevent any shock damage. The reactor itself, as presently planned, would be underground on the east, or bayside, of Bodega Head. The water discharge area is on the west or oceanside.

Water discharge from the plant for one unit would be at the rate of 250,000 gallons per minute. For four units this would be 1,000,000 gallons per minute. For four units this would be 1,000,000 gallons per minute, it was testified.

PROCEEDINGS

The hearing was opened by the PG and E attorney (Morrissey) with a review of the available power sources in the north San Francisco Bay Area. Those counties considered immediate service area include Sonoma and Marin, and parts of Napa and Mendocino, all north of the Bay Area.

Morrissey summarized PG and E's interest in nuclear energy since 1951 in participation with other utility companies and reactor manufacturers,

MAR 10 1962

Joseph Fouchard

- 3 -

noting the PUC approved the Vallecitos Boiling Water Reactor in 1957; Humboldt Bay 60 MW reactor in 1959; and PG and E participation in the Dresden 180 MW plant.

Operation at Bodega Bay of the 325 MW unit being considered at the hearing is scheduled for 1966. The 5.5 mill rate, he explained, was based on a second core to be installed after three and a half years operation of the first core (which really means Bodega Bay would have power at that estimated rate possibly in 1970). The average power cost at plant in August 1960 for the PG and E system was about 8 mills/kwh.

At this point PUC staff counsel (Bricca) stated persons appearing at the hearing would be given opportunity to express their views and that concern of staff counsel was with public safety and the economic feasibility of the reactor plant. He added that PG and E's presentation had been sketchy, but Morrissey objected saying the company was just beginning its presentation.

An assistant State Attorney-General (Ralph Scott) then stated the concern of the State Fish and Game Department over access to fisheries, the harbor of refuge at Bodega Bay, and proposed leasing of certain tidelands by PG and E from Sonoma County.

(Purpose of leasing is for PG and E to construct an access road from the mainland around the inside of the Head to the plant site and for transmission lines over Doran Beach to the mainland. Efforts are being made to obtain Corps of Engineers approval for this. PG and E would build the road and give it to the County for maintenance. In return PG and E would get easements for the lines.)

Scott summarized his testimony by saying the State wished to rule on the size of screening for the water intake (previously done at another PGE plant); and to have PGE arrange access to various areas on the Company property on Bodega Head; assess the mixing characteristics of ocean water for the outfall; survey marine ecology; and conduct a collection of marine organism for a two-year period prior to operations.

J. Dean Worthington, Chief Civil Engineer for PGE was the first witness. He said application to AEC for a construction permit would be made next July or August, and said PGE expected to purchase by condemnation a 64-acre tract (owned by Mrs. Gaffney) north of present PGE holdings. He indicated the tract was necessary to comply with proposed AEC site criteria.

Selection of Bodega Head was based on studies made since 1952 to establish power generating sites in the north Bay Area to meet increasing residential and industrial demands for electric energy. He described the proposed plant as having 1,008 MW thermal capacity and said although they counted on 325 MW electric output, he was hopeful the plant could produce about 350 MW on the basis of General Electric estimates. He noted the site was suitable for four units.

Consultations on the earthquakes stresses and patterns in the area and on suitable construction was discussed with Don Tocher, University of California seismologist; Dr. William Quaide; and Dr. George W. Hauser, Cal Tech structural engineer.

Test borings have been made and criteria established for plant construction. The foundation would be in solid granite and the proximity of the San Andreas fault zone was not considered hazardous.

Power from Bodega would be transmitted 32 miles to Ignacio substation on the mainland. Total plant cost was estimated as of May, 1961, at \$64,158,000. It was conceded that the cost of materials, labor and design changes and improvements might increase the total. Fuel costs, however, were considered by Worthington as likely to be stable or possibly cheaper in the future.

In explaining the "equilibrium core" listed by PGE in the exhibits bearing on costs, Worthington testified this really meant the second core. He stated the first core was not typical of succeeding cores which would have lower enrichment and that the second would be more typical of cores used later. He testified 90 percent of capacity was expected. He explained "use charges" were those charged by the AEC for fuel and stated that \$9.50 per gram of Pu for buy-back was listed because the AEC-guaranteed price of \$30/gram expires in 1963.

In describing the factor of 90 percent of capacity expected from the reactor, Worthington claimed reactors were relatively simple compared with complex conventional systems. Worthington stated conventional fuel costs were based on oil at \$2.35/barrel. He forecast a further decrease in costs for nuclear plants both for capital costs and fuel costs and, conceding that capital costs would also be reduced for conventional plants, he asserted that fossil fuels were likely to go up, offsetting the capital cost improvement and that the advantage would be increasingly in favor of nuclear plants in the future.

At this point public witnesses were permitted to testify, many of them representing county, public and private organizations in support of the application. However, S. Lennart Cedarborg, attorney for Mrs. Gaffney

(landowner at Bodega) voiced opposition on the grounds the plant would ruin the scenic value of Bodega Head, would endanger the community and deflate real estate values, lower the water level for yachting and boating, and that plant and transmission lines would be unsightly. He suggested use of an alternate site in Napa County (exact location not given).

Worthington, resuming the stand, in reply to questions said the intake for water would be on tidelands and that permission had been requested to build intake facilities. Access, Worthington said, would be permitted on the planned road as far as the "boundary area", but AEC will have something to say about this. But, Worthington said, he did not expect AEC to block such access. The main powerplant area would be closed to the public as are conventional plants.

It was noted here that PGE would be guided by AEC standards to be published later. It would be Company policy to open lands adjacent to plants (as done in the mountain country) after operating experience, and provided restrictions permitted such opening. It was indicated that PGE would be willing to cooperate in making access to some areas of the Head available.

Worthington, replying to questions, said a monitoring program was planned of fish and wildlife as well as the ocean and a study of marine ecology and ocean currents would be made.

There was a considerable amount of discussion on interties with Southern Cal Edison and the proposed Canadian pool and the Northwest intertie which do not bear directly on the nuclear plant.

In addition to furnishing north Bay Areas, during off-peak periods Bodega Bay would be used to feed the PGE systems, Worthington said.

Earthquake and seismic effects were discussed in detail. Briefly, Worthington stated that PGE provides a 20 percent factor in construction for conventional power plants, but for Bodega Bay expected to have a 33 percent factor for the main buildings related to the plant except for the reactor itself which would be allowed a 50 percent factor. The site is one mile from the San Andreas fault zone. Tocher and Quaide are preparing geological and seismic reports on the site. Worthington stated that even at 15 miles from the fault zone, effects would be only slightly less than those to be expected at the present site.

Willard H. Nutting, Senior Mechanical Engineer for PGE, described the operation of a nuclear reactor and listed the boiling water reactors operating, building or planned. In his description of the detailed

components he noted that the reactor vessel was designed with an inside diameter of 181 inches, height of 51 feet, 6 inches, and thickness of 7 inches. Total weight - 386 tons. He estimated fuel replacement shut-down time at 7 to 10 days. He said the pressure suppression containment for Bodega would be similar to Humboldt Bay. He answered detailed questions about the types of waste, their handling and the types of radionuclides involved. All AEC regulations would be complied with, he said.

In summary, high level wastes would move with used fuel elements to processing plants; solid wastes to be handled by AEC-licensed disposal firms; liquids to be retained, demineralized and concentrated for disposal in compliance with AEC and North Coast Pollution Control Board regulations; gases to be discharged to the stack under control with offsite monitoring.

He noted personnel would be trained and operators licensed by the AEC. So far 31 PGE operators have been licensed by AEC Vallecitos, he said.

He emphasized that nothing "novel or untried" would be placed in the Bodega plant. Sampling operations would be continued after operations begin in compliance with AEC, State Health and Pollution Control Board requirements. He described AEC licensing requirements and review.

Dr. Ernest Salo, Humboldt State College, Associate Professor of Fisheries, and graduate of the University of Washington who worked under Seymour and Donaldson at the Radiation Biology Lab, and in the Department of Oceanography at Washington, testified no significant effects could be expected from water discharged into the sea. He has made preliminary current surveys and taken some samples from the area, but thorough studies are expected two years prior to an operating date.

He estimated that water discharged would total 150 curies of natural radioactivity annually while contaminants added by the plant would total 50 curies a year. Of the radionuclides carried by the water 69 percent would be composed of magnesium-56 with extremely short half-life.

There is no indication he said of any area in the ocean receiving one one-thousandth or even one-tenth-thousandth of maximum permissible levels from the 250,000 gallon/minute discharge.

Thermal effects would cause no changes of biological significance, Salo said, estimating that three-tenths to four-tenths of one degree would be the rise caused by the outfall, and that natural temperature fluctuations are much greater in the area.

MAR 10 1962

On cross-exam, Sale e said there would be no significant deleterious effects on fish, shellfish or organisms and no population effects or deaths to any organisms as a result of the outfall. He had not made any calculations for a possible 1,000,000 gallon/minute discharge, if four units were emplaced at Bodega.

He referred to studies on the Columbia River and by the United Kingdom in giving results of previous experience with the discharge of water from reactors.

Worthington, under cross-exam, said PGE now owns 160 acres at Bodega for which it paid about \$60,000.

Worthington also stated that he expected a plant cost of 5.7 mills/kwh from the first core. Asked about future nuclear reactors at Bodega, Worthington said if built today they would use the same type, but expect future improvements which may make the proposed reactors very different in design from the unit proposed for construction.

He said that insurance of \$60,000,000 would be taken out for property damage; \$60,000,000 for liability and that AEC indemnity went up to \$500,000,000.

There were no specific records for earthquakes at Bodega, Worthington said, but 1906 was the most severe.

He conceded PGE was considering a different design from that proposed in the application, but that "this is not firm".

Nutting, in reply to staff questions on quake effects, said there was not a specific scam for earthquakes. The site he said meets the proposed AEC site criteria regulation. During questions on health and safety, Nutting said PGE had modified some of its studies being conducted at Humboldt Bay to include suggestions from the State Health Department and would also provide that department opportunity for review of Bodega Bay plans.

Grendon, State Atomic Energy Coordinator, testified for the plant and noted that as a result of studies made by his office it is expected that nuclear fuels will become cheaper while fossil fuels in future decades will increase in price and ultimately become short in supply.

He made an interesting observation to the effect that "Federal law attempts to clarify that reactor operations are in the federal domain". However, he insisted that California was interested in and responsible for the environment, and that State law requires adequate monitoring subject to the State Health Department. He said he expected to continue

MAR 10 1962

to look out for public health and safety, that a multiplicity of agencies - State, local and federal - were concerned with safety. He referred to establishment of an advisory committee two years ago which found preoperational monitoring necessary for two years prior to reactor operation to establish base lines to determine any effects of the operation.

At this point Eubanks (part-time art student) asked whether the plutonium returned to AEC would be "used for bombs?" This was objected to by PGE counsel.

(I have additional notes on details of costs given by PGE witnesses if desired by recipients of this memo.)

cc: Robert Lowenstein, DL and R, Hqs (w/enc)
E. C. Shute, Manager, SAN (w/enc)
R. W. Smith, Dir., Compliance Region V
G. F. Helfrich, Dir., Reactor Div., SAN