AIR MAIL - SPECIAL DELIVERY

245 Market Street San Francisco 6 SUltter 1=4211

In reply please refer to

February 12, 1958

Mr. Harold L. Price, Director Division of Licensing & Regulation U.S. Atomic Energy Commission Washington 25, D.C.

Dear Mr. Price:

Confirming my telephone conversation yesterday with Dr. Beck, and in accordance with his request, I am attaching General Electric Company's letter of February 12, to me, regarding the preliminary evaluation of Eureka PG&E site for a possible 50 MW nuclear unit. Also enclosed are the maps, drawings and letter listed below.

As you probably know, we have a date with Dr. Beck, in his office, for 2:30 PM Monday, February 17.

I talked with Capt. Roddis today, and have a date with him for 10:00 AM on the 17th.

If any of the staff of the Hazards Evaluation Branch would like to talk with Mr. Smith and myself before the 2:30 meeting with Dr. Beck and either before, or after, we have seen Capt. Roddis, we shall be glad to do so.

I plan to arrive in Washington Sunday night and will stay at the Mayflower. I may be reached there.

Very truly yours,

C. C. Whelchel

Chief Mechanical Engineer

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CCW:ca

Attach-GE ltr.,2-12-58 Enclosures:

- 1. Aerial Photograph Humboldt Bay Plant
- 2. Site Plan #418701 Bechtel Dwg, July 1956
- 3. Letter 2-12-58 from J.M.Smith, GE Radiological Engineer to CCW
- 4. U.S.Geodetic Survey Map Humboldt Bay, 1944
- 5. AAA Map of California
- U.S.Geological Survey Maps: Fortuna 1944, Eureka 1951, Blue Lake 1951, Ferndale 1943, Iaqua Buttes 1950.

cc: Dr. Clifford K. Beck, Chief, Hazards Evaluation Branch, USAEC

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ATOMIC POWER EQUIPMENT DEPARTMENT

2151 SOUTH FIRST STREET . P. O. BOX 254 . SAN JOSE CALIF. . . TELEPHONE CYPRESS 7-3016

February 12, 1958

Mr. C. C. Whelchel, Chief Mechanical Engineer. Pacific Gas and Electric Co., San Francisco, Calif.

Subject: PRELIMINARY EVALUATION OF EUREKA P. G. & E. SITE FOR 50 MWE NUCLEAR POWER PLANT.

Dear Mr. Whelchel:

The site and surroundings of the P. G. & E. Humboldt Bay Power Plant near Eureka were inspected on January 14 with regard to radiological aspects of placing a 50 MWE nuclear unit on the common site.

General Area

The plant area is on the mainland shore of Humboldt Bay, opposite $(1\frac{1}{2})$ miles distant) the harbor entrance. It is about four miles south of Eureka. immediately adjacent to U. S. Highway #101 and the mainline of the Northwestern Pacific Railroad. Eureka, the county seat of Humboldt County, has a locally posted population of 30,000. Arcata, to the north of Eureka with a population of about 4,000, is the only other center with a population of more than 2,500 within 50 miles of the site. The 50 mile radius population is approximated by the population of Humboldt (70,000) and Trinity County (5,000). The population density of the two counties combined is about eleven people per square mile. Several small communities are found immediately off-site. King Salmon Resort (est. pop. 300 - 500) is 1,500 to 3,000 feet from the probable location. Spruce Point (est. pop. 300) with a school, is about 1/2 mile distant. Fields Landing (est. pop. 400) is about one mile away.

Wind Data

In the winter, the prevailing winds are from the SE (blowing toward the bay and ocean) but the high winds associated with winter storms are from the SW (blowing toward Eureks.). In the summer, both the prevailing and high velocity winds are from the N and NW (toward sparsely populated hills).

Site Size.

For a 165 MW heat rate reactor with an unshielded steel enclosure, the appropriate clear distance to off-site land for safe "worst conceivable" incident gamma

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Mr. C. C. Whelchel

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levels is about 1500 - 1700 feet. Distances on the site from the probable location of a reactor enclosure are:

a) 1450' to nearest houses in King Salmon Resort.

b) 1150' minimum to King Salmon Road, the county road providing the only exit from King Salmon Resort.

c) 1300' minimum to SW to land of Eureka Shipbuilding Co. As this land is swamp and marsh, this is no problem unless development by landfill is done.

- d) 700' minimum to the railroad. This in itself is not regarded as a problem as railroad traffic control could be used in an immediate post-accident period. However, the parcel of land between the railroad and the highway may be of concern if future development by filling the marshes occurred.
- e) On the north, the shore of the bay is about 400 feet minimum from the enclosure location, although the present P. G. & E. property line is actually out in the bay at a distance of about 900 feet from the probable enclosure location. It is assumed that control of any small craft in the immediate off-shore shallow water can be accomplished in a post-accident period. The commercially important channels in the bay are much further away than 1500 feet.

Consideration should be given as to whether the reactor enclosure should be shielded to assure permissible continued occupancy of the two fossil-fueled adjacent units in a post-accident period. Shielding of about two-thirds of the enclosure circumference (except the bay side) would eliminate all of the above problems. Present thinking is that such shielding will be appropriate.

Gaseous Waste Disposal

From building height considerations, a stack of about 250 foot height is indicated. With the system safety features available, no problems in meeting environs limits is anticipated.

Liquid Waste Disposal

Treatment with dilution into the discharge canal appears to be acceptable. Absolute control of release is assured by the batch principle. Disposal of untreated wastes via a small pipeline to the harbor mouth during outgoing tides does not appear to be impossible to consider. Significantly greater approval problems would be involved. There is little precedent for sea disposal of untreated wastes, and in Handbook #58, the National Committee on Radiation Protection recommends against it. However, if there is any economic incentive, approvals could probably be obtained. The fraction of time that the plant might operate would be of consequence in the relation between storage and release time.

Mr. C. C. Whelchel

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Solid Waste Disposal

Due to ground water presence only slightly below grade, buried tankage may be a problem. However, it may be feasible to place buried vaults and tanks in the higher ground between the plant and bay.

Environs Monitoring

During operation of the proposed plant, attention to environs monitoring in the immediate vicinity of the plant will be appropriate. Due to the seacoast site and nearby uninhabited mountains, the total area of concern within say a 10-mile radius will be relatively small. Therefore, expenses for environs monitoring should not be significantly different from that which would be anticipated for any plant of this size.

Liability Insurance

In formulas recently proposed by the AEC but not yet published, with regard to establishment of amount of NELIA type insurance required, some penalty for the proximity to Eureka would be expected. However, this penalty is approximately balanced by the low average population of the counties within 50 miles of the site.

Yours very truly,

J. M. Smith

Radiological Engineer,

Power Reactor Engineering.

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