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FROM: Department of Fish & Game Calif. Sacramento, Calif. 95814 E.C. Fullerton	DATE OF DOC 10-7-75	DATE REC'D 10-15-75	LTR XX	TWX	RPT	OTHER
TO: Mr. Gordon Dicker	ORIG 1 signed	CC	OTHER	SENT NRC PDR XX SENT LOCAL PDR XX		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-275/323	

DESCRIPTION: Ltr furnishing info on the potential impacts of the Diablo Canyon Plant aquatic ecosystem of Diablo & South Coves adjacent coastal regions.

ENCLOSURES:

Encl Removed

PLANT NAME: Diablo Canyon 1 & 2

FOR ACTION/INFORMATION DHL 10-18-75

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STATE OF CALIFORNIA—RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF FISH AND GAME
1416 Ninth Street
Sacramento, California 95814
Phone (916) 445 3531

October 7, 1975

Mr. Gordon K. Dicker, Chief
Environmental Projects Branch 2
Division of Reactor Licensing
United States Nuclear Regulatory Commission
Washington, D. C. 20555

50-275
50-323

Dear Mr. Dicker:

Thank you for your request to provide data and information concerning the potential impacts of the Diablo Canyon Nuclear Plant (DCNP) on the aquatic ecosystem of Diablo and South Coves and adjacent coastal regions. Our Department has been conducting ecological baseline studies and water quality investigations during the construction phase at DCNP. We intend to continue those studies after the plant becomes fully operational in order to determine the effects of its discharge upon Diablo Cove and adjacent areas of the coast.

As you noted, we have observed certain definite changes in benthic communities near the plant site. The effects of siltation on South Cove and the abalone mortality in Diablo Cove were, of course, caused by separate events and have resulted in different degrees of damage to the marine environment.

In 1970 and 1971, the Department documented construction impacts to South Cove as a result of the intake structure cofferdam construction. Major environmental degradation to the entire biotic community of approximately 10 acres occurred when muds and silts from the cofferdam were released into the cove.

Pacific Gas and Electric Company (PG&E) commenced cleanup dredging within South Cove in January 1974 and has proceeded, more or less continuously, since that date. The dredge had purportedly made one pass over the entire basin by early spring of 1975, with intensive silt removal activities conducted immediately in front of the intake structure. At this time, considerable amounts of silt are still present over most of the cove. Our Department, in cooperation with the Office of the Attorney General of California, has requested PG&E to explore alternative methods of silt removal, including re-establishment of the natural circulation pattern of South Cove as well as methods to reduce cove siltation from land-runoff. A number of actions have been taken by PG&E to reduce the land-runoff impacts but we are unaware of any planning by the company with regard to the circulation problem.

There is presently no recreational or commercial abalone or sea urchin fishery in South Cove. We have prepared a comprehensive inventory of the plants and animals estimated to have been lost from the South Cove as a result of the silt deposition. Except for peripheral areas, most of the formerly diverse benthic

communities have not recovered. The Department is continuing to seek restoration of the South Cove to as near original condition as possible.

During certain pump tests at DCNP in 1974 and 1975, the Department collected evidence that toxic concentrations of copper had been released to Diablo Cove. Those concentrations, identified by standard bioassay testing and heavy metal analysis, were recorded on several occasions during circulating pump testing in July 1975 and during start-up of the internal cooling water pump systems. Tissues from numerous plants and animals collected from Diablo Cove showed significantly elevated concentrations of copper in comparison with areas not affected by the discharge. Department staff established that abalone mortality and accumulation of copper resulted from the discharge of copper to Diablo Cove, which led, in part, to the decision by PG&E to replace the copper systems with titanium.

In Diablo Cove, however, assignment of losses has been complicated by other possibly interactive events. Populations of red abalone and sea urchins in Diablo Cove and control areas to the north have declined dramatically since the initial 1970-1971 surveys by the Department and several factors may have been responsible for those declines: sea otter predation (documented elsewhere in central California), increased commercial abalone take, red tide conditions in the fall of 1974, and the release of toxic concentrations of copper during pump testing in 1974 and 1975. The following percentage decreases of red abalone and sea urchins in Diablo Cove and control areas have been reported. In subtidal permanent stations for red abalone, Diablo Cove showed a 95 percent decrease in abundance while control areas showed an 80 percent decrease (1975 vs. 1970). In stratified random surveys, red abalone declines were 85 percent in Diablo Cove and 75 percent at control areas (1975 vs. 1974). Red sea urchin populations declined at similar rates in Diablo Cove and the control areas. The difficulties in identifying and differentiating between the causes of sea urchin and abalone reductions in Diablo Cove, reemphasizes the need for extremely comprehensive and intensive monitoring of all potential factors which influence the marine biota of that area.

I hope the above information will meet your needs. Please advise me if you would like further specific information and data regarding any phase of the investigations at Diablo Canyon by the California Department of Fish and Game.

Sincerely,

EC Fullerton

Director