CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

RESOLUTION NO. R1-2007-0028

Policy Statement in the Matter of Petition to the California Regional Water Quality Control Board, North Coast Region 1) To Order PacifiCorp to Submit a Report of Waste Discharge and/or 2) To Issue Waste Discharge Requirements, Including Prohibitions

WHEREAS, the California Water Quality Control Board, North Coast Region, (Regional Water Board) finds that:

1. The Karuk Tribe of California, Klamath Riverkeeper, Pacific Coast Federation of Fishermen's Associations and the Institute for Fisheries Resources (Petitioners) filed a petition dated February 20, 2007, requesting that the Regional Water Quality Control Board (Regional Water Board) order PacifiCorp to submit a Report of Waste Discharge (ROWD) for its discharges of Microcystis aeruginosa, microcystin toxin, and other pollutants from the Copco and Iron Gate Reservoirs, and issue waste discharge requirements (WDR) establishing appropriate restrictions and prohibitions safeguarding the beneficial uses of the waters of the Klamath River.

2. The Regional Water Board heard arguments and comments from Petitioners, PacifiCorp staff and the public on this matter during its regularly scheduled Board meeting on March 15, 2007, in Eureka, California. This item does not constitute an adjudicatory hearing and does not result in any action taken toward any party. This Resolution is informational only, and is not intended to bind PacifiCorp or any public agency with jurisdiction over PacifiCorp.

3. The Klamath River basin is a 12,680 square mile watershed originating in southern Oregon and flowing through northern California to the Pacific Ocean at Requa in Del Norte County, California. PacifiCorp owns and operates the 161-megawatt Klamath Hydroelectric Project, that includes a system of five dams located in Oregon and California. Copco and Iron Gate Reservoirs in California are located on the main stem Klamath River. Iron Gate Reservoir is located at river mile 190 with Copco Reservoir located at approximately river mile 198.

4. Blue-green algae are commonly found in many freshwater systems. Portions of the Klamath River system experience blooms of blue-green algae. Data show the presence of Microcystis aeruginosa and its toxin microcystin prompting health alerts by the US Environmental Protection Agency (US EPA), the State Water Resources Control Board (State Water Board), the Regional Water Board and the Karuk and Yurok Indian tribes for portions of the Klamath River. Blue-green algae thrive in warm, nutrient rich, slow moving to stagnant water bodies such as lakes, ponds, reservoirs and sluggish stream reaches having adequate sunlight for growth and reproduction; conditions present during the low-flow summer and fall seasons in Copco and Iron Gate reservoirs. By providing slow to stagnant pools of water, Copco and Iron Gate Reservoirs accumulate nutrients from upslope-upriver during summer and early fall seasons and cause increased temperatures near the surface of the reservoirs, thereby promoting blooms of Microcystis aeruginosa and its associated toxin.

5. *The Water Quality Control Plan for the North Coast Region* (Basin Plan) designates the beneficial uses of water bodies within the North Coast Region, prescribes both narrative and/or numeric objectives determined by the Regional Water Board necessary to protect those beneficial uses, and includes implementation programs or actions designed to meet objectives and protect beneficial uses of water. The beneficial uses of water bodies, water quality objectives, and the state and federal antidegradation policies, together, constitute water quality standards.

6. The Klamath River and its tributaries support a number of existing and potential beneficial uses of water including:
   - municipal and domestic drinking supplies,
   - agricultural water supply,
   - industrial service water,
   - industrial processing water,
   - groundwater recharge,
   - navigation,
   - hydropower generation,
   - water contact recreation,
   - non-contact recreation,
   - commercial and sport fishing,
   - warm freshwater habitat,
   - cold freshwater habitat,
   - wildlife habitat,
   - rare, threatened or endangered species habitat,
   - marine habitat,
   - spawning, reproduction and/or early development,
   - shellfish harvesting,
   - estuarine habitat,
   - aquaculture,
   - subsistence fishing
   - Native American culture.

A beneficial use is to be protected in any location that it is found, regardless of whether it is designated for a specific hydrologic unit in the Basin Plan. For example, subsistence fishing by Native Americans is not designated in Table 2-1 for the Klamath River hydrologic unit, yet this use is known to occur and must be protected.

7. The Basin Plan contains a narrative water quality objective that prohibits toxicity in concentrations that are toxic to human, plant, animal, or aquatic life. Compliance with this objective can be determined by a number of factors including growth anomalies. Growth anomalies leading to violations of the toxicity objective would include blooms of Microcystis aeruginosa and its toxin microcystin in amounts deleterious to the health of individuals.

8. Many species of blue-green algae produce toxic compounds known as cyanotoxins. Microcystin and anatoxin toxins are the two most common cyanotoxins encountered in California. Health risks from exposure to moderate concentrations of cyanotoxins during recreational activities can cause skin rashes, eye irritations, allergic reactions, gastrointestinal upsets and other illnesses. Exposure to high levels of microcystin in recreational

and drinking water supplies is known to promote tumor growth and progressive chronic liver damage, and death in vertebrates.

9. The California Department of Health Services (DHS) has developed draft guidance recognizing the World Health Organization's (WHO) Tolerable Daily Intake and Guideline Values for microcystin toxin in water. The Tolerable Daily Intake is applicable to drinking water and Guideline Values relate to exposure during recreational water use. Risk levels and guidelines for blue-green algal cells and microcystin toxin include:
   - Drinking Water: 1 part per billion microcystin
   - Bathing and recreational waters:
     i. Low Probability of Adverse Health effects: 4 ppb microcystin or 20,000 cells/ml
     ii. Moderate Probability of Adverse Health Effects: 20 ppb microcystin or 100,000 cells/ml
     iii. High Probability of Adverse Health Effects: "Scum" on surface water.

10. The WHO and DHS Guidelines for a Moderate Probability of Adverse Health Effects of 20 ppb for microcystin toxin were exceeded in Copco and Iron Gate reservoirs. In the absence of promulgated, numeric water quality standards for this toxin, it is appropriate to consider exceedance of the WHO and DHS Guidelines for determining compliance with the narrative objective for toxicity. The Statewide Blue-Green Algae Group is working to standardize the methodologies for differentiating microcystin variants. More sampling and analyses will be conducted this summer.

11. The Basin Plan contains a narrative water quality objective that prohibits biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Nutrient concentrations immediately upstream of Copco Reservoir and within Copco and Iron Gate Reservoirs are at levels that are biostimulatory and result in seasonal blooms of blue-green algae that cause nuisances and adversely affect beneficial uses. Some of the blue-green algae species, excluding Microcystis aeruginosa, identified in Copco and Iron Gate Reservoirs fix atmospheric nitrogen, thereby increasing nitrogen loads to the reservoirs. When the algae die, the nutrients within the algal cells are either stored in the bottom sediments within the reservoir or are released into the water column. These stored and/or released nutrients, especially phosphorus, often enhance nutrient enrichment in affected reservoirs, thus propagating additional blooms of blue-green algae in what the WHO calls a self-sustaining "feedback loop".

12. The Basin Plan contains a narrative water quality objective that prohibits tastes and odors in concentrations that impart undesirable tastes and odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses. Recreational surveys by PacifiCorp showed that numerous recreational users of the two reservoirs objected to the odors caused by decaying blue-green algae.

13. The Basin Plan contains a narrative water quality objective that prohibits floating material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses. Blue-green algae blooms were documented and photo evidence shows accumulations of blue-green algae, almost exclusively Microcystis aeruginosa, in algal mats or scum

on the waters surface and shorelines of the reservoirs which created nuisance conditions and adversely affected beneficial uses of water.

14. Evidence that beneficial uses of water in and downstream of Copco and Iron Gate Reservoirs are being adversely affected by blue-green algae include:
    - The exceedance of the DHS and WHO guidelines.
    - Visible and extensive algal mats.
    - Recreational water users' avoidance of swimming, wading, water-skiing, and fishing in areas of the reservoirs with excess blue-green algae blooms.
    - The Karuk tribe has offered anecdotal evidence that during traditional "whole body water immersion" ceremonies in "traditional locations and at traditional time frames," participants experienced skin rashes and gastrointestinal upsets. They believe it is from exposure to blue-green algal toxins.

15. Water quality data indicates that controllable water quality factors associated with Copco and Iron Gate Reservoirs are currently out of conformance with a number of Basin Plan water quality objectives. Water within and discharged from the reservoirs routinely exceed the following water quality objectives during the summer months:
    - Taste and Odor
    - Floating Materials
    - Biostimulatory substances
    - pH
    - Dissolved Oxygen
    - Toxicity

16. California Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, shall file with the Regional Water Board a ROWD containing such information and data as may be required by the Regional Water Board, unless the Regional Water Board waives such requirement. Discharges from the tailrace of a dam are considered a "discharge of waste" under the Porter-Cologne Water Quality Control Act. (*Lake Madrone Water District v. SWRCB*, 209 Cal.App.3d 163(1989).)

17. The Petitioners request that the Regional Water Board order PacifiCorp to file a ROWD and/or issue WDRs for Copco and Iron Gate Reservoirs, pursuant to the California Water Code. These hydroelectric facilities are regulated under the Federal Power Act through a federal license issued by the Federal Energy Regulatory Commission (FERC). The federal license may contain certain conditions to adequately protect, mitigate and enhance beneficial public uses. In issuing the federal license, FERC has a duty to ensure that the project is best adapted to the Basin Plan. (16 U.S.C.A. § 803(a); see also 40 C.F.R. § 2.19 [the Basin Plan is part of California's comprehensive plan for the orderly and coordinated control, protection, conservation, development and utilization of the water resources of the state, and has been submitted for filing pursuant to Federal Energy Regulatory Commission (FERC) regulations].)

18. The United States Supreme Court has ruled that the Federal Power Act preempts state law. The state may not require a permit for a project already

licensed by FERC except for proprietary rights to water. (See *First Iowa Hydro-Electric Cooperative v. FPC,* 328 U.S. 152 (1946); *California v. FERC*, 495 U.S. 490 (1990); *Sayles Hydro Associates v. Maughan,* 985 F.2d 451 (9th Cir. 1993).) Accordingly, the Regional Water Board cannot effectively require PacifiCorp to submit a ROWD and/or issue WDRs for the Copco and Iron Gate facilities, as requested by Petitioners.

19. States must ensure compliance with water quality standards and other appropriate requirements of state law through the statutory provisions of the federal Clean Water Act. (*PUD No. 1 of Jefferson County v. Washington Department of Ecology,* 511 U.S. 700 (1994).) Water quality certification by the state is required for any activity requiring a federal license or permit, which may result in any discharge to waters of the United States. (33 U.S.C. §1341.) Under section 401 of the Clean Water Act, a state may impose conditions on a federal project or a project required to obtain a federal permit, in order to certify that the project protects beneficial uses and meets water quality objectives as specified in the Basin Plan. (*S.D.Warren Co. v. Maine Board of Env'l. Protection,* 126 S.Ct. 1843 (2006) [unanimously upholding state's jurisdiction to regulate FERC hydroelectric facilities under section 401 of the Clean Water Act].)

20. In California, an application for water quality certification shall be filed with the Executive Director of the State Water Board, and notice provided to the Executive Officer of the Regional Water Board, when the proposed activity is associated with a FERC-licensed hydroelectric facility. (Cal. Code Regs., tit. 23, §3855.) The State Water Board is actively reviewing PacifiCorp's application for water quality certification, and both State and Regional Water Board staff have commented on the federal environmental document issued by FERC for the project. To date, PacifiCorp has not provided adequate information to provide sufficient information to certify that the project will comply with the Basin Plan. PacifiCorp has proposed to develop a reservoir management plan to address water quality impairment within the project area. The Regional Water Board will continue to participate in the relicensing process to ensure that the water quality certification conditions the project to meet Basin Plan requirements. Water quality plans, including PacifiCorp's reservoir management plan, should be developed in advance of license issuance so that implementation begins at the time the certification and license is issued.

21. Section 303(d) of the Clean Water Act requires states to identify waters that do not meet applicable water quality standards and further requires the US EPA to list such waters on the 303(d) impaired waters list. The Clean Water Act also requires that states or the US EPA establish Total Maximum Daily Loads (TMDLs) for waters on the impaired water list. Such TMDLs shall be established at levels necessary to implement applicable water quality standards with seasonal variations and a margin of safety.

22. The Klamath River in California is on the federal Clean Water Act section 303(d) list for elevated nutrients, elevated temperature, organic enrichment/low dissolved oxygen, and in the Klamath Glen hydrologic subarea (Klamath River below the community of Weichpec) for sedimentation/siltation. Reaches of the Klamath River in Oregon are on the 303(d) list for low dissolved oxygen, elevated temperature, chlorophyll a and pH. The Regional Water Board is in the process of developing TMDLs for

these impairments, in cooperation with Oregon Department of Environmental Quality and with support from US EPA Regions 9 and 10.

23. Development of the Klamath River TMDLs is based largely on application of numerical water quality models, but also incorporates semi-quantitative and qualitative information linking pollutant source contributions to violation of water quality standards. Though these TMDLs are still in development, once the TMDL is implemented, it is expected that pollutant load and waste load allocations will result in reduced nutrient and organic enrichment of the Klamath River in California, as well as reduced stream temperatures. These improvements in water quality are expected to reduce the occurrence and frequency of blue-green algae blooms. It is anticipated that the TMDL will include water quality targets for chlorophyll a, blue-green algae cell density, and toxin concentrations that are protective of water quality standards.

24. Regional Water Board staff has begun the process of updating the 303(d) list. Data and information on the blue-green algae blooms and associated toxin concentrations in the Klamath River have been submitted to Regional Water Board staff for consideration in the listing process. Regional Water Board staff will consider recommending that the Regional Water Board list Copco and Iron Gate Reservoirs for blue-green algae and the microcystin toxin.

25. The Action Plan, which will implement the Klamath River TMDLs, will require that the water quality certification issued by the State Water Board ensures compliance with the Basin Plan. In addition, it may address any discharges upstream found to contribute to the blue-green algae problem in the reservoirs. Development of the TMDL is not intended to delay any action to improve water quality conditions on the Klamath River in the interim.

26. As explained above, the State Water Board and FERC are required to condition the relicensing of the Klamath Hydroelectric Project to meet water quality objectives and protect beneficial uses. In the interim, Regional Water Board staff is participating in efforts by the Statewide Blue-Green Algae (BGA) Work Group, the Klamath BGA Work Group, and the Drinking Water Program of the DHS to finalize blue-green algae guidance. The Klamath BGA Group is finalizing sample points for a two year contract awarded to UC Santa Cruz.

27. Regional Water Board staff will continue to work with the counties and Tribes to assure that all efforts are made to effectively inform the public of health concerns as they occur, including:
    - Posting of health alerts by the Regional Water Board if necessary.
    - Continued involvement with the Klamath BGA and the Statewide BGA Work Groups.
    - Work with Drinking Water Program of DHS to finalize statewide blue-green algae guidelines as a voluntary response to BGA blooms.

NOW, THEREFORE, BE IT RESOLVED THAT,

1. Petitioners' request to require PacifiCorp to submit a ROWD for Copco and Iron Gate Dams is DECLINED;

2. Staff shall continue to diligently develop and complete the Klamath TMDLs that will result in compliance with the listed water quality standards;

3. Staff shall work with the PacifiCorp, Tribes, counties, and other interested parties to ensure that all efforts are made to effectively inform the public of health concerns as they emerge this summer, including posting by the Regional Water Board if necessary.

CERTIFICATION

I, Catherine E. Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, North Coast Region, on April 26, 2007.

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Catherine E. Kuhlman