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# State Water Resources Control Board

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**TO:** Central Coast RWQCB Members

**FROM:** Jennifer S. Soloway  
Senior Staff Counsel  
**OFFICE OF CHIEF COUNSEL**

**DATE:** June 11, 2003

**SUBJECT:** LEGAL ANALYSIS OF CLEAN WATER ACT SECTION 316(b);  
HEARING ON NPDES PERMIT FOR DIABLO CANYON POWER PLANT,  
PACIFIC GAS & ELECTRIC COMPANY (PG&E)

I am submitting this memorandum to the Board in my role as the Board's legal advisor. The purpose of this memorandum is to provide guidance to the Board on applicable law. This is not testimony.

### SUMMARY OF CONCLUSIONS

- This memo only addresses legal issues pertaining to application of Clean Water Act section 316(b).
- Because of sketchy legal authority interpreting section 316(b), the Board must exercise its best professional judgment to reach a reasonable conclusion based on site-specific conditions.
- There are four basic steps in a Best Technology Available analysis:
  1. whether the facility's cooling water intake structure may result in adverse environmental impact;
  2. if so, what alternative technologies involving location, design, construction, and capacity of the cooling water intake structure can minimize adverse environmental impact;
  3. whether alternate technologies are available to minimize the adverse environmental impacts; and

**California Environmental Protection Agency**



4. whether the costs of available technologies are wholly disproportionate to the environmental benefits conferred by such measures.

### **DETAILED ANALYSIS**

The following is a detailed analysis of the legal issues that apply to this hearing. Because of the lack of regulations or comprehensive legal authority the appropriate standards must be pieced together from a variety of references.

### **ISSUES**

Issue No. 1. What legal guidance is there to help the Board interpret Clean Water Act section 316(b)?

Issue No. 2. What standards should the Board apply when considering alternative technologies to minimize environmental adverse environmental effects?

Issue No. 3. What issues should the Board consider when considering whether a technology is available?

Issue No. 4. How should the Board apply the “wholly disproportionate cost” analysis when considering Best Technology Available?

### **CONCLUSIONS TO NUMBERED ISSUES**

#### Conclusion to Issue No. 1

There are no EPA regulations that apply to the Diablo Canyon Power Plant. To ascertain the applicable standards for a BTA determination requires assembling a mosaic of EPA administrative decisions, opinions and guidance and court cases. Also, the Board should refer to recent EPA regulations applying section 316(b) to new facilities and accompanying commentary in the Federal Register to understand EPA’s most current thoughts on section 316(b). However, the new regulations do not apply to Diablo Canyon Power Plant and the materials in the federal register are not binding. Finally, these resources do not cover all the issues that must be addressed in making a BTA determination. Ultimately the Board must exercise best professional judgment to reach a reasonable conclusion based on site-specific conditions.

Note that in April 2002, EPA issued draft regulations to implement 316(b) at existing facilities. When adopted, these regulations will apply to Diablo Canyon Power Plant. Review of these draft regulations and commentary in the federal register will assist the BTA determination. EPA is required by a Consent Decree to issue final regulations by February 2004. Renewal of the Plant’s NPDES permit, scheduled for 2008, will be governed by those regulations.

Conclusion to Issue No. 2.

- Adverse environmental impacts occur whenever there will be entrainment or impingement damage as a result of the operation of a specific cooling water intake structure.
- Minimize does not mean to completely eliminate adverse impacts. New regulations define minimize to mean to reduce to the smallest amount, extent, or degree reasonably possible. EPA also views increases in fish and shellfish as an acceptable alternative to reduction in entrainment.
- Section 316(b) requires the location, design, construction, and capacity of a cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts.
- Although closed-cycle cooling systems are not cooling water intake structures they can be required indirectly by limiting the capacity of the intake by restricting the volume of water flow.

Conclusion to Issue No. 3.

- The Board may find a technology is not available if implementing it at the site would violate federal, state, or local laws administered by other agencies.
- The Regional Board has a responsibility to avoid or require abatement of conditions of nuisance as defined in Water Code section 13050. (Wat. Code §§.13263, 13304.) The Board could reject a technology that would cause a condition of nuisance.
- The Board could find a technology to be unavailable because it is technologically infeasible.
- The Board could find a technology to be so experimental that it is not available.
- The New Plant Final Regulations find that cooling towers are BTA on a national basis and mandate flow and velocity limits based on performance of cooling towers. However, the regulations provide that a discharger can get an exemption from the cooling-tower-based limitations if based on site-specific evidence, there will be significant adverse impacts on air-quality, water resources, or local energy markets.
- There may be other reasons, not listed here, to find a technology is not available.

Conclusion to Issue No. 4.

For over 25 years EPA has applied the wholly disproportionate cost test to BTA determinations. A technology may not be considered BTA if the cost of a technology is wholly disproportionate to the environmental benefit to be gained. EPA has not applied this test in a consistent manner. The methods for determining benefit and costs vary from case to case.

**ANALYSIS**

Issue No. 1. What legal guidance is there to help the Board interpret Clean Water Act section 316(b)?

Discussion of Issue No. 1.

Clean Water Act section 316(b). (33 U.S.C. § 1326(b).) Section 316(b) states:

“Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.”

The term best technology available as used in section 316(b) is usually referred to as BTA.

Clean Water Act Section 316(b) became law in 1973. In 1976, EPA adopted regulations interpreting section 316(b) but they were remanded by the Fourth Circuit Court of Appeals on procedural grounds. (*Appalachian Power Co., et al v. Train* (4<sup>th</sup> Cir. 1977) 566 F. 2d 451.) EPA did not act on the remand for nearly 25 years. In the meantime, EPA, California, and other states issuing NPDES permits have applied section 316(b) on a case-by-case basis.

After environmentalists filed suit to compel EPA to adopt 316(b) regulations, EPA signed a Consent Decree providing a time-schedule to adopt the regulations in three phases. In August 2000, EPA issued draft 316(b) regulations for new facilities. (65 Fed. Reg. 49060, “New Plant Proposed Regulations”) and in December 2001, EPA issued final 316(b) regulations for new facilities. (66 Fed. Reg. 65256, “New Plant Final Regulations.”)

The New Plant Final Regulations do not apply to Diablo Canyon Power Plant because the Plant does not fall within the definition of “new facility” in the regulations.

EPA issued phase two draft 316(b) regulations for existing power plants in April 2002. (67 Fed. Reg. 17122, “Existing Plant Draft Regulations.”) When EPA adopts final regulations, these will govern the cooling water intake system at Diablo Canyon Power Plant. EPA is scheduled to adopt final regulations in February 2004.

Until applicable final regulations are adopted, the preamble to the Existing Plant Draft Regulations provides that permit issuers should not use the proposed regulations as a guidance for BTA determinations but,

“Until the Agency promulgates final regulations based on today’s proposal, Directors should continue to make section 316(b) determinations with respect to existing facilities, which may be more or less stringent than today’s proposal on a case-by-case basis applying best professional judgment.” (67 Fed. Reg. 17125, col. 1.)

Thus there are no regulations in place to direct the Board’s BTA analysis. There are some legal opinions issued in the 1970’s by the EPA Administrator and by the EPA General Counsel that interpret the law and provide some precedent and there is one federal court opinion on point. Otherwise, the Board must rely on non-binding guidance from EPA and their consultants. The preamble to the Existing Plant Draft Regulations states permitting authorities should use existing guidance and information to form their best professional judgment. “EPA’s draft *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment; Section 316(b)* (May 1, 1977) (1977 Draft Guidance) continues to be applicable for existing facilities pending EPA’s issuance of final regulations on 316(b).” (67 Fed. Reg. 17125, col. 1.)

Because the 1977 Draft Guidance and other EPA legal opinions are about 25 years old, the preambles to the New Plant Final Regulations and Existing Plant Draft Regulations, found in the Federal Register, offer valuable insight into recent EPA interpretations of section 316(b). Also, to assist in preparation of the regulations, EPA contracted with Science Applications International Corporation (SAIC) to review the legislative, regulatory, and legal history of 316(b). SAIC’s report provides a useful summary and organization of this history and so is one of the documents submitted into the Regional Board record with this memorandum. The report is entitled: “*Preliminary Regulatory Development Section 316(b) of the Clean Water Act, Background Paper Number 1: Legislative, Regulatory, and Legal History of Section 316(b) and Information on Federal and State Implementation of Cooling Water Intake Structure Technology Requirements*” (April 1994).

The bottom line is that ascertaining the applicable standards for a BTA determination at an existing power plant, requires assembling a mosaic of EPA administrative decisions, opinions and guidance, and court cases. Also, some reference should be made to the recent EPA regulations and proposed regulations and accompanying commentary in the Federal Register for guidance on EPA’s most current thoughts on section 316(b). Finally, these resources do not cover all the issues that must be addressed in making a BTA determination. Ultimately the Board must exercise best professional judgment to reach a reasonable conclusion based on site-specific conditions.

Issue No. 2. What standards should the Board apply when considering alternative technologies to minimize adverse environmental effects?

Discussion Of Issue No. 2.

Section 316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. So review of technology focuses on modification of the location design, construction, and capacity of the intake structure. Alternatives presented by staff will focus on these four options.

In the 1970's EPA was asked whether a closed-cycle cooling system (e.g., cooling towers) could be required in an NPDES Permit under section 316(b). EPA's General Counsel concluded that cooling towers were not intake structures and could not be mandated. However, the General Counsel concluded that capacity of a cooling water intake could be affected by limiting the volume of water it could take in because limiting flow volume reduced entrainment and impingement. The plant operator would likely choose to install cooling towers in order to comply with the flow limits. Thus cooling towers and other closed-cycle cooling technologies may be considered by the Board when reviewing alternative technologies. (EPA, Office of General Counsel, Opinion #41 (June 1, 1976) pp. 3-6.)

Section 316(b) requires the technology to "minimize adverse environmental impact." What does "adverse environmental impact" mean? What is the meaning of "minimize?"

The 1977 Draft Guidance states that: "Adverse environmental impacts occur whenever there will be entrainment or impingement damage as a result of the operation of a specific cooling water intake structure." (1977 Draft Guidance, p. 15.) EPA's recent final and proposed regulations do not contain a definition of "adverse environmental impacts." The preamble to the Existing Plant Draft Regulations directs the Board to rely on the 1977 Draft Guidance. (67 Fed. Reg. 17125, col.1.) Responses to comments in the preamble to the New Plant Final Regulations indicate that EPA favors a definition similar to that in the 1977 Draft Guidance, which is "recurring and nontrivial impingement and entrainment." (66 Fed. Reg. 65292, cols.1 and 2.)

Minimizing adverse environmental impacts does not necessarily mean eliminating them. The 1977 Draft Guidance states: "Regulatory agencies should clearly recognize that some level of intake damage can be acceptable if that damage represents a minimization of environmental impact." (1977 Draft Guidance, p. 3.) The New Plant Final Regulations define "minimize" to mean "to reduce to the smallest amount, extent, or degree reasonably possible." (Emphasis added. 40 C.F.R. § 125.83.) This definition includes a "reasonableness" component. The preambles to both the New Plant Final Regulations and the Existing Plant Draft Regulations note that minimizing adverse effects does not mean complete elimination of adverse environmental effects (66 Fed. Reg. 65282, col. 3; 67 Fed. Reg. 17168, col. 2.).

EPA's interpretation of "minimize" is further clarified in the New Plant Final Regulations, which authorize use of alternatives to cooling towers. These regulations permit the use of restoration projects as an alternative to cooling towers if the discharger makes "a showing that the impacts to fish and shellfish, including important forage and predator species, within the watershed will be comparable to those which would result if you were to implement (cooling towers). This showing may include impacts other than impingement mortality and entrainment including measures that will result in increases in fish and shellfish, but it must demonstrate comparable performance for species that the Director "... identifies as species of concern." (40 C.F.R. § 125.84(d).) While this regulation does not apply to Diablo Canyon Power Plant, it indicates that EPA views increases in fish and shellfish as an acceptable alternative to reduction in entrainment.

As will be discussed below, the duty to minimize environmental effects is subject to some economic considerations. (EPA, Office of General Counsel, Opinion No. 63 (July 29, 1977), p. 8).

Issue No. 3. What issues should the Board consider when considering whether a technology is available?

#### Discussion of Issue No. 3.

A determination on whether a technology is "available" could be made on any number of grounds. The full universe of considerations cannot be predicted and set forth here. The 1977 Draft Guidance states:

"It is accepted that closed cycle cooling is not necessarily the best technology available, despite the dramatic reduction in rates of water used. The appropriate technology is best determined after careful evaluation of the specific aspects at each site." (1977 Draft Guidance, p. 12.)

The Board need not find a technology is impossible to implement to find it is not available. There are numerous possible reasons for finding a technology is not available.

Some of the considerations are:

The Board may find a technology is not available if implementing it at the site would violate federal, state or local laws administered by other agencies. Water Code section 13002 specifies that no action by the Board limit the power of another government agency to provide additional regulation on activities that might degrade water quality. Additionally, absent some pre-emptive authority, the Regional Board's Orders do not override other legal authorities.

The Regional Board has a responsibility to avoid or require abatement of conditions of nuisance as defined in Water Code section 13050. (Wat. Code §§ 13263, 13304.) A condition of nuisance, within the meaning of the Water Code occurs “during, or as a result of, the treatment or disposal of wastes.” Disposal of wastes refers to discharges of waste to surface water, ground water or land. A condition of nuisance

“(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyments of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.”

The nuisance is not limited to the discharge of waste itself although it must be associated with a discharge of waste. Common examples of nuisance covered by section 13050 are odors associated with waste water treatment plants or vectors associated with land disposal facilities. The crude oil soil plumes at Avila Beach we deemed a condition of nuisance because their presence prevented landowners from financing improvements on their land.

Because all cooling systems involve some discharge of waste, e.g., heated cooling water or blow-down, it is possible that operation of some alternatives might cause a condition of nuisance, in violation of the Water Code.

The Board could find a technology to be unavailable because it is technologically infeasible. In some cases, technical infeasibility may be unquestionable, a certain technology might just not be possible. For example, cooling towers using fresh water at Diablo Canyon are not technically feasible because there is not a sufficient supply of fresh water in the area. In other circumstances the Board may have to consider expert opinions and other evidence, which may conflict each other, when determining technical feasibility.

The Board could find a technology to be so experimental that it is not available. One example might be the aquatic filter barrier. This technology has been used with some success in a river on the east coast. There are no studies showing it would work or last in a marine environment. There might also be other site-specific problems that would have to be solved to make it possible to install an aquatic filter barrier. If a technology is experimental there are a number of reasons for finding it is not available. First, there might not be sufficient evidence to show that it would work and thereby minimize adverse impacts of entrainment. Secondly, as a government agency, the Board may not act arbitrarily and capriciously. It may not mandate an individual or company to spend large amounts of money based on speculation that the expenditure might achieve compliance with 316(b). The Board needs substantial evidence that a technology will minimize

adverse impacts of entrainment before it can find that technology to be BTA or part of a suite of technologies constituting BTA.

EPA in the New Plant Final Regulations articulated several non-water quality considerations that should be taken into account before requiring implementation of a technology. The New Plant Final Regulations find that cooling towers are BTA on a national basis and mandate flow and velocity limits based on performance of cooling towers. However, the regulations provide that a discharger can get an exemption from the cooling-tower-based limitations if based on site-specific evidence, there will be significant adverse impacts on air-quality, water resources or local energy markets. (40 C.F.R. § 125.85.) While these regulations are not binding on the Moss Landing permit proceeding, they indicate reasonable grounds for finding a technology is not the Best Technology Available.

Issue No. 4. How should the Board apply the “wholly disproportionate cost” analysis when considering Best Technology Available?

Discussion of Issue No. 4.

EPA interpretations of section 316(b) have consistently implemented a “wholly disproportionate” cost test as established in a 1977 Decision of the Administrator. (*Public Service Company of New Hampshire, et al. Seabrook Station, Units 1 and 2*, (June 10, 1977 Decision of the Administrator) Case No. 76-7, 1977 WL 22370 (E.P.A.) “*Seabrook I.*”) In *Seabrook I.*, the EPA Administrator ruled that EPA was not required to perform a cost/benefit analyses when applying section 316(b) on a case-by-case basis. However, the Administrator reasoned that cost must be considered otherwise “the effect would be to require cooling towers at every plant that could afford to install them, regardless of whether or not any significant degree of entrainment or entrapment was anticipated.” (*Id.* pp. 6-7.) The Administrator ruled “I do not believe it is reasonable to interpret Section 316(b) as requiring use of technology whose cost is wholly disproportionate to the environmental benefit to be gained.” The “wholly disproportionate” test was affirmed by the federal First Circuit Court of Appeals in *Seacoast Anti-Pollution League v. Costle* (1<sup>st</sup> Cir. 1979) 597 F.2d 306.<sup>1</sup>

The First Circuit Court clarified the “wholly disproportionate test” was one of incremental cost. The Court stated: “[t]he Administrator decided that moving the intake further offshore might further minimize the entrainment of some plankton, but only slightly, and that the costs would be ‘wholly disproportionate to any environmental benefit’.” (*Id.* at 311.) The wholly

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<sup>1</sup> *Seabrook I* was appealed and remanded based on some procedural issues. (*Seacoast Anti-Pollution League v. Costle*, 572 F.2d 872.) On remand, the Administrator cured the procedural flaws and readopted all the findings in *Seabrook I.* (*Public Service Co. of New Hampshire, et al. v. Seabrook Station Units 1 and 2* (August 4, 1978 Decision of Administrator.) The Court of Appeal in *Seacoast Anti-Pollution League v. Costle*, 597 F.2d 306, cited in text above, affirmed the Administrator’s decision on remand.

disproportionate test has been consistently used by EPA when applying section 316(b) since the *Seabrook I* decision. It does not appear in the 1977 Draft Guidance because that document was issued in May 1977 before the *Seabrook I* ruling.

While EPA has consistently used the wholly disproportionate test, there does not seem to be any consistency in how the test is used. In *Seabrook I*, the Administrator considered various construction/design alternatives and the alternative to locate the intake offshore. Concluding that these alternatives would provide minimal environmental benefit, the Administrator rejected them. The First Circuit Court of Appeals affirmed that the cost of the offshore outfall location was wholly disproportionate to this minor additional minimization of entrainment.

When EPA drafted the New Plant Final Rule, it determined that closed-cycle cooling was best technology available for all new facilities but provided for site-based alternatives justified by use of alternative technologies and restoration projects. (66 Fed. Reg. 65314, cols. 2-3; 65315 cols. 1-2.) Nonetheless, the New Plant Final Rule preserves a form of the wholly disproportionate test. It provides that the discharger demonstrates that facility-specific data shows the cost of compliance would be wholly disproportionate with costs considered by EPA when establishing a compliance requirement, a less costly alternative may be permitted. (40 C.F.R. § 125.85(a).)

To provide further information on a variety of decisions I have attached in Excerpts the Record portions of the SAIC Background paper, commissioned by EPA, to review the legislative, regulatory, and legal history of section 316(b). This Background paper is referenced in this memorandum above. They show a lack of consistency in application of the wholly disproportionate cost test.

Attachments