

SWRCB Policy on Using Coastal and Estuarine Waters for Power Plant Cooling

SWRCB Meeting, Sacramento, CA

May 4, 2010

Federal Water Pollution Control Act

- **32 U.S.C. § 1326(b). Cooling water intake structures.** 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.
- Became law in 1972.

The Riverkeeper I Decision

Riverkeeper, Inc. v. EPA, 358 F.3d 174 (2d Cir. 2004)

- 1: RESTORATION MEASURES are “plainly inconsistent with the statute’s text and Congress’s intent in passing the 1972 amendments.” (EPA HQ responded with memo to Regions prohibiting restoration)
- 2: COMPARABLE RESULTS: “A facility must aim for 100 percent... It may not ... aim for 90 percent ...” (fn. 16)

The Riverkeeper II Decision

Riverkeeper, Inc. v. EPA, 475 F.3d 83 (2d Cir. 2007)

1. “Restoration measures are not part of the location, design, construction, or capacity of cooling water intake structures, *Riverkeeper I*, 358 F.3d at 189, and a rule permitting compliance with the statute through restoration measures allows facilities to avoid adopting *any* cooling water intake structure technology at all, in contravention of the Act's clear language as well as its technology-forcing principle.” 475 F.3d at 110.

The Riverkeeper II Decision

Riverkeeper, Inc. v. EPA, 475 F.3d 83 (2d Cir. 2007)

2. “The statutory directive requiring facilities to adopt the *best* technology cannot be construed to permit a facility to take measures that produce second-best results, especially given the technology-forcing imperative behind the Act. 475 F.3d at 107-08 (internal citations omitted)

“Our concern with the EPA's determination ... is further deepened by the Agency's rejection of closed-cycle cooling and selection of a suite of technologies as the basis for BTA”

Entergy Corp. v. Riverkeeper, Inc.
29 S.Ct. 1498 (2009)

- Denied cert on Restoration Measures.
- Left Second Circuit decision undisturbed, except on cost-benefit.
- Majority opinion: Some cost-benefit analyses might be prohibited by Section 316(b).
- Justice Breyer's concurrence is key: "take account of Congress' technology-forcing objectives."

New York State DEC Denial of WQC for Indian Point

On April 2, 2010, NY DEC denied the Indian Point nuclear plant's request for a CWA 401 water quality certification.

DEC found: Continued use of once-through cooling violates state standards, because it ~2.5 billion gallons of river water a day, entraining and impinging almost 1 billion aquatic organisms per year and discharging excessive levels of heat.

Calif. OTC Impacts - Examples

- Context: From over 4 to up to 13 times *more* water circulates through power plants for cooling than the entire State Water Project delivers annually.
- The 12 Southern California plants kill up to 30% of the number of fish recreationally caught in the Bight every year.
- The Moss Landing plant can cause up to a 40% loss of the productivity of Elkhorn Slough, a National Estuarine Research Reserve.

Outline of Proposed Changes

- Reinstate Track 1 Preference
- Strengthen Track 2 to meet CWA mandates (unit-by-unit compliance, based on actual flow)
- Strike exceptions for combined cycle generation
- Ensure specific compliance dates/restore SWRCB decision authority over compliance dates
- Ensure only appropriate use of “interim mitigation”
- Eliminate non-safety-related site-specific considerations for nuclear plants; ensure Special Studies comply with Clean Water Act
- Strengthen monitoring requirements

Reinstate Track 1 Preference: Section 2.A.(2)

- 316(b): location, design, construction, and capacity of cooling water intake structures must reflect the best technology available (BTA)
 - BTA is not optional – Track 2 does *not* reflect BTA
 - U.S. Supreme Court in *Entergy* allows for consideration of costs; does not allow Policy to side-step BTA with no showing whatsoever
- “Feasibility” showing must be reinstated

Track 1 Preference: Section 2.A.(2) (cont.)

(2) ~~The~~ If the owner or operator of an *existing power plant** demonstrates to the Regional Water Boards' satisfaction that compliance with Track 1 is not feasible*, the owner or operator must reduce impingement mortality and entrainment of marine life

Definition of “Not Feasible”

*Not Feasible** – Cannot be accomplished because (a) is incapable of being done due to space or physical constraints, after full consideration of all tower and other designs and placements both on- and off-site, and/or (b) significant public safety considerations or significant negative environmental impacts have been shown to be incapable of mitigation pursuant to law. All efforts to implement Track 1 within the constraints of other regulations and/or local ordinances must be fully exhausted before Track 1 may be considered “not feasible.” Cost is not a factor to be considered when determining feasibility under Track 1.

Base Track 2 Requirements on Calculations Unit-by-Unit: Section 2.A.(2)

- Track 2 I/E mortality reduction must be calculated on a unit-by-unit basis, not whole facility basis
 - Unit-by-unit calculations are consistent with Track 1
 - Whole facility calculations leave a loophole for continued unit-level use of OTC
- 2.A.(2): If the owner or operator ... demonstrates to the Regional Water Boards' satisfaction that compliance with Track 1 is not feasible*, the owner or operator must reduce impingement mortality and entrainment of marine life ~~for the facility, as a whole,~~ for each unit, to a comparable level to that which would be achieved under Track 1...

Base Track 2 Requirements on Actual, Not Design, Flows: Section 2.A.(2)(b)(i)

- Track 2 now allows plants to calculate compliance based on “design” flow
- Most plants operate well below design flow
- Based on 2000-2005 average actual flows:
 - Haynes Generating Station is operating at >73% below its design flow
 - Huntington Beach and Redondo Beach Generating Stations are operating at > 65% below their design flows

Base Track 2 Requirements on Actual, Not Design, Flows: Section 2.A.(2)(b)(i)

- Track 2 should be based on monthly actual flow (most recent 5 yr ave), not design flow, to account for changes from design flow & seasonal variability
- 2.A.(2)(b)(i): For plants relying solely on reductions in flow, by recording and reporting reductions in terms of monthly flow, in which case a minimum of 93% reduction ~~in terms of design~~ in flow must be met on a monthly basis as compared to the average actual monthly flow over the five year period directly preceding the effective date of this policy or...

Track 2 Flow Calculations Should Reflect Track 1: Sections 2.A.(2)(a)(ii) & (b)(ii)

- Track 2 I/E mortality reductions should be consistent with Track 1 requirements
 - As written: 90% [Track 2] of 93% [Track 1] = only 83% I/E mortality reduction for Track 2
- 2.A.(2)(a)(ii) ...A “comparable level” is a level that achieves at least ~~90% of~~ the reduction in impingement mortality required under Track 1.
- 2.A.(2)(b)(ii) ...A “comparable level” is a level that achieves at least ~~90% of~~ the reduction in entrainment required under Track 1.

Eliminate Track 2 Exceptions for Combined-Cycle Facilities

- BTA is defined in the SED as achieving an intake flow rate reduction at “a level commensurate with a closed cycle wet cooling system and a through-screen intake velocity reduction to no more than 0.5 ft/sec.” SED at 59.
- The Draft Policy provides exceptions for existing combined-cycle facilities that fail to meet BTA or Section 316(b) mandates.

Eliminate Track 2 Exceptions for Combined-Cycle Facilities: Section 2.A.(d)

(d) The owner or operator of an *existing power plant** with *combined-cycle power-generating units* * installed prior to [the effective date of the Policy] ~~may choose one of the following compliance options:~~

- ~~(i) The owner or operator~~ may count prior reductions in impingement mortality and entrainment resulting from the replacement of steam turbine power-generating units . . .

Eliminate Track 2 Exceptions for Combined-Cycle Facilities: Section 2.A.(d) (cont.)

(d) . . . with *combined-cycle power-generating units**, towards meeting Track 2 requirements ~~for the entire power plant where those units are located~~. Reductions in entrainment shall be based on reductions in intake flows for the units replaced with combined cycle units, calculated as the difference between:

1. the maximum permitted discharge . . . for the ~~entire power plant~~ affected units replaced with combined cycle units as identified in the plant's...

Eliminate Track 2 Exceptions for Combined-Cycle Facilities: Section 2.A.(d)(i)(1)-(2)

- (d) 1. ...prior NPDES permit that authorized the steam turbine power-generating units which were subsequently replaced with the *combined-cycle power-generating units** and
2. the maximum permitted discharge . . . for the ~~entire power plant, including the combined cycle~~ affected combined cycle units, as identified in the plant's NPDES permit authorizing the *combined-cycle power-generating units**.

Question: Why "discharge" used for comparison versus "intake"?

Eliminate Combined Cycle

“Credits”: Section 2.A.(2)(d)(i)

- Ostensibly based on the notion that existing facilities using combined cycle generation should be given “credit” for prior “mitigation” actions.
- Policy changes go far beyond that rationale and are unsupported by evidence or findings.
- Prior mitigation should not be allowed to count toward meeting BTA under Track 2.
- ~~STRIKE ENTIRE LAST PARAGRAPH (after 2.A.(2)(d)(i)(2) on page 6), beginning “The owner or operator may also count as prior entrainment reductions any...”~~

Strike Illegal Combined Cycle Compliance Alternative: Sec. 2.A.(2)(d)(ii)

- No legal basis.
- Does not meet BTA.
- No evidence in the record, nor any findings, to even remotely suggest that this provision equals BTA.
- Far different even than giving credit for past conduct.
- **THIS PROVISION SHOULD BE REMOVED.**

Compliance Dates Cannot Be Indefinite: Sections 2.B.(2)(a)-(c)

- Compliance dates essential to ensure CWA mandates met and grid integrity maintained with clear, reliable schedules
- Policy allows for unsupported, indefinite suspension of adopted compliance dates
- Adopted compliance dates must be adhered to unless (a) showing made and (b) new date for compliance as soon as possible is adopted based on showing

Compliance Dates Cannot Be Indefinite: Section 2.B.(2)

(2) Based on the need for continued operation of an *existing power plant** to maintain the reliability of the electric system, a final compliance date may be suspended or amended under the following circumstances:

Compliance Dates Cannot Be Indefinite: Section 2.B.(2)(a)

Suspension of Final Compliance Date for Less Than 90 Days for *Existing Power Plants Within CAISO Jurisdiction.** If CAISO ~~determines~~ demonstrates that continued operation of an *existing power plant** is necessary in the short-term, CAISO shall provide written notification with such demonstration to the State Water Board, the Regional Water Board with jurisdiction over the *existing power plant**, and the SACCWIS. If the Executive Directors of the CEC, ~~and~~ CPUC and State Water Board do not object in writing within 10 days

Compliance Dates Cannot Be Indefinite: Sec. 2.B.(2)(a) (cont.)

...In the event ~~either~~ CEC, ~~or~~ CPUC or the State Water Board objects as provided in this paragraph, then the State Water Board shall hold a hearing as expeditiously as possible to determine whether to suspend the compliance date in accordance with paragraph (d). This suspension option may not be used more than one time in any 12-month period, and not more than three times in total, for each existing power plant.

Compliance Dates Cannot Be Indefinite: Section 2.B.(2)(b)

Suspension Amendment of Final Compliance Date for Longer Than 90 Days for *Existing Power Plants Within CAISO Jurisdiction.** If CAISO ~~determines~~ demonstrates that continued operation of an *existing power plant** is ~~necessary~~ essential to maintain the reliability of the electric system, CAISO shall provide written notification with such demonstration to the State Water Board, the Regional Water Board with jurisdiction over the *existing power plant**, and the SACCWIS. If the Executive Directors of the CEC and CPUC do not object in writing . . .

Compliance Dates Cannot Be Indefinite: Section 2.B.(2)(b) (cont.)

. . . During the 90-day time suspension or within 90 days of receiving a written notification with adequate demonstration from CAISO, the State Water Board shall conduct a hearing in accordance with paragraph (d) to determine whether to ~~suspend the . . . amendments~~ adopt an amended final compliance date consistent with the CAISO demonstration and other information provided to the State Water Board, and in consideration of the final compliance dates contained in the policy.

Compliance Dates Cannot Be Indefinite: Section 2.B.(2)(c)

(c) ~~Suspension~~ Amendment of Final Compliance Date for *Existing Power Plants Within Los Angeles Department of Water and Power (LADWP) Service Area.** If the LADWP Commission demonstrates and determines, through a public process, that continued operation of an *existing power plant** ... is necessary ... Within 45 days of receiving a written notice with demonstration from LADWP, the State Water Board shall conduct a hearing ... to determine whether to ~~suspend~~ amend the final compliance date. In considering whether to ~~suspend or~~ amend the final compliance date the State Board shall consult with the CAISO.

Compliance Date Hearings Must Recognize SWRCB Mandates, Authority: Section 2.B.2.(d)

- Policy invents a new standard requiring the State Board to make a “finding of overriding consideration” based on “compelling evidence.”
- CAISO’s input is important, but does not relieve the State Board of its obligation to implement federal law.

Compliance Date Hearings Must Recognize SWRCB Mandates, Authority: Section 2.B.2.(d) (cont.)

(d) In considering whether to suspend or amend the final compliance dates, the State Water Board shall ~~implement~~ give significant weight and consideration to the recommendations of and the evidence provided by the CAISO, CEC and CPUC, and shall provide clear support for its decisions with regard to any suspensions or final amended compliance dates unless the Water Board finds that there is compelling evidence. . . .

Immediate/Interim Requirements Must Comply with 316(b): Section 2.C.

- *Riverkeeper II* found mitigation in lieu of BTA is illegal; issue was not challenged in *Entergy*
- “Interim” mitigation combined with indefinite deadline suspension becomes *de facto* illegal use of mitigation in place of BTA
- “Interim” mitigation must be applied in the context of firm, swift deadlines
- “Interim” mitigation also begin immediately; plants have externalized impacts for decades

Immediate/Interim Requirements Must Comply with 316(b): Sec. 2.C.(3)

(3) The owner or operator of an *existing power plant** must implement measures to mitigate the interim impingement and entrainment impacts resulting from the cooling water intake structure(s), commencing [~~five~~ one years after the effective date of this Policy] and continuing up to and until the owner or operator achieves final compliance. The owner or operator must include in the implementation plan, described in Sections 3.A and 3.D below, the specific measures that will be undertaken to comply with this requirement . . .

SACCWIS Process Must Recognize SWRCB Mandates, Authority: Section 3.B.(5)

- Again invents a new standard requiring the State Board to make a “finding of overriding consideration” based on “compelling evidence.”
- SACCWIS’ input is important, but this does not relieve the State Board of its obligation to implement federal law at Section 316(b).
- Also, the last two sentences have nothing to do with grid reliability and should be removed, along with new finding language in 1.I: “...~~including permitting constraints.~~”

SACCWIS Process Must Recognize SWRCB Mandates, Authority: Sec. 3.B.(5)

(5) The State Water Board shall consider the SACCWIS' recommendations and direct staff . . . In the event that the SACCWIS energy agencies (CAISO, CPUC, and CEC) make a unanimous recommendation for and demonstration in support of, an implementation schedule modification based on grid reliability, the State Water Board shall conduct a hearing consistent with Section 2.B.(2)(d).~~implement the recommendation unless the State Water Board finds that there is compelling evidence not to make the recommended modification and makes a finding of overriding considerations. In the event that (i) an owner or operator is unable to obtain permits required for a facility upgrade to comply with a final compliance date established in this policy, and (ii) the State Water Board finds that the owner or operator used best efforts to obtain the required permits, then the State Water Board shall suspend a final compliance date specified in this policy for a period not to exceed two years.~~

Restore Prior Safety Focus for Nuclear Facilities: Section 2.D.

- Originally provided a site-specific determination for nuclear facilities where in conflict with NRC *safety* requirements.
- Now "*any*" NRC requirement can prompt site-specific alternatives – which is much broader than even the original Bush Administration US EPA Phase II rule. 40 CFR 125.94(f).
- Restore prior intent to focus on *safety*.

Restore Prior Safety Focus for Nuclear Facilities: Section 2.D.

If the owner or operator of an existing *nuclear-fueled power plant** demonstrates that compliance with the requirements for *existing power plants** in Section 2.A, above, of this Policy would result in a conflict with a safety ~~any~~ requirement established by the Commission . . . the State Water Board will make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Commission's safety requirements. The State Water Board may also establish alternative, site-specific requirements in accordance with Section 3.D(8) as needed to meet the Commission's safety requirements and implement the Clean Water Act and Porter-Cologne.

Special Studies for Nuclear Facilities Must Comply with CWA: Sec. 3.D.(7)

- Essentially exempts them from compliance with Section 316(b).
- BPJ Approach has not worked in the past.
- No basis for comparison of many of the factors listed, particularly when compared to Track 2 compliance.
- Need analytical rigor and commitment to CWA to ensure compliance.

Special Studies for Nuclear Facilities Must Comply with CWA: Sec. 3.D.(7)

(7)The State Water Board shall consider the results of the special studies, and . . . shall base its decision to modify this Policy with respect to the *nuclear-fueled power plants** on the following . . .

(b) Ability to achieve compliance with Track 1 ~~or Track 2~~ considering factors including, but not limited to, engineering constraints, space constraints, permitting constraints, and public safety considerations;

(c) Potential environmental impacts of compliance with Track 1 ~~or Track 2~~, including, but not limited to, air emissions;

~~(d) Any other relevant information.~~

Special Studies for Nuclear Facilities Must Comply with CWA: Sec. 3.D.(8)

(8) If the State Water Board finds that the costs for a specific *nuclear-fueled power plant** to implement Track 1 ~~or Track 2~~, . . . are wholly out of proportion to the costs considered by the State Water Board in establishing Track 1 ~~or Track 2~~, then the State Water Board shall establish, after public hearing and comment, alternate requirements for that *nuclear-fueled power plant**.

The State Water Board shall establish alternative requirements no less stringent than justified by the wholly out of proportion ~~(i) cost or (ii) factor(s)~~ of paragraph 7. The burden is on the person requesting the alternative requirement

Monitoring Provisions Must Be Strengthened: Sec.s 4.A.1(a) & B.1(b)

- Policy falls short on monitoring
 - 12-month baseline & compliance monitoring period does not account for seasonal variability
 - Gives direction to facility to select 12-month baseline
- If loss of preference for Track 1 is adopted, most plants will take Track 2
- Sound monitoring & baseline critical for true I/E mortality reduction & compliance assessment

Monitoring Provisions Must Be Strengthened: Sec.s 4.A.1(a) & B.1(b)

- 4.A.1(a) The study period shall be at least ~~12~~ 36 consecutive months.
- 4.B.1(b) The study period shall be at least ~~12~~ 36 consecutive months, and shall occur different seasons, including periods of peak use when the cooling system is in operation.

Monitoring Provisions Must Be Strengthened: Sec.s 4.A.2 & 4.B.2

- 4.A.2: After the Track 2 controls are implemented, to confirm the level of impingement controls, ~~another impingement study, consistent with Section 4.A(1)(a) to (d), above,~~ monthly impingement monitoring shall be performed and reported to the Regional Water Board.
- 4.B.2: After the Track 2 controls are implemented, to confirm the level of entrainment controls, ~~another entrainment study~~ monthly entrainment monitoring (with a study design to the Regional Water Board's satisfaction...) shall be performed and reported

Conclusions

- After almost five years of significant effort, the latest proposed changes move the State *further* from: compliance with Section 316(b), protection of the environment, and a reliable implementation process that maintains grid integrity.
- We respectfully request the above changes to ensure compliance with the Clean Water Act, increased clarity, reduction in Regional Board burdens, statewide consistency of implementation, and healthy environment.