

State of California
Regional Water Quality Control Board
San Diego Region

REVISED
EXECUTIVE OFFICER SUMMARY REPORT
September 9, 2009

ITEM: 7

SUBJECT: Report: NPDES permit application for reissuance of NPDES waste discharge requirements for Dynegy South Bay, LLC, South Bay Power Plant discharge to south San Diego Bay, Chula Vista, California (Order No. R9-2004-0154, NPDES NO. CA0001368). This item will include a discussion on the continued operation of the South Bay Power Plant and the proposed State Water Resources Control Board (State Water Board) Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (*David Barker*)

PURPOSE: To conduct a non-action information agenda item to discuss the continued operation of the South Bay Power Plant as it relates to the State Water Board's draft Cooling Water Policy and the appropriate timing for the Regional Board to initiate the NPDES permit reissuance proceedings for the facility.

PUBLIC NOTICE: There are no public noticing requirements for this item. This item was listed on the agenda notice that was mailed on August 20, 2009 to the Regional Board's agenda mail list of interested persons.

DISCUSSION: The South Bay Power Plant (SBPP) discharge is regulated under National Pollution Discharge Elimination System (NPDES) Order No. R9-2004-0154, adopted by the Regional Water Board in November 2004. The NPDES permit contains an expiration date of November 10, 2009. Dynegy South Bay, LLC, the operator of SBPP, has satisfied the legal requirements for an administrative extension of its current NPDES permit by submitting a timely and complete application for the reissuance of the current SBPP NPDES permit. By letter dated July 20, 2009, the Executive Officer has informed Dynegy that the Regional Water Board is deferring the NPDES reissuance at this time, including development of a draft NPDES permit, until the State Water Board adopts its draft Policy (*Statewide Water Quality Control Policy on the use of Coastal And Estuarine Waters for Power Plant Cooling*) and Dynegy submits the

information required to implement the Policy. Under this approach Dynegy's current NPDES permit (Order No. R9-2004-0154) will remain fully effective and enforceable after its five year term expires on November 10, 2009 until such time as it is superseded by a new reissued NPDES permit, or other Order, or the expiration of five additional years, whichever occurs first.

The SBPP is one of 19 power plants in California that are currently permitted to withdraw water from the ocean, bays, or estuaries for electrical energy production using a single-pass system, also known as once-through cooling (OTC). OTC power plants are generally the largest volume dischargers in California due to their high use of OTC water. OTC can cause adverse impacts when aquatic organisms are trapped against a facility's intake screens (impinged) and cannot escape, or when they suffer contact injuries that increase mortality. Likewise, smaller organisms, such as larvae and eggs, can be drawn through a facility's entire cooling system (entrained) and subjected to adverse effects due to rapid pressure changes, chemical treatment systems, and violent sheering forces, and ultimately discharged in heated facility wastewaters. The harmful "impingement" and "entrainment" effects associated with OTC water intake structures are among the most critical aspects of the power plant discharge that will be addressed by the SBPP NPDES reissuance. Other important issues related to the SBPP's discharge include heated thermal wastewater and the leaching of copper from the facility heat exchange tubing.

A November 2005 assessment found that the SBPP in San Diego Bay, assuming full operation, had an estimated annual impingement of 390,000 fish, 93 percent of which were anchovies. Impingement of certain invertebrates was also assessed at this plant; an estimated 9,019 crustaceans (shrimps, lobsters, crabs) and cephalopods (octopus and squid) were impinged annually. Annual estimated entrainment for 2003 was 2.4 billion fish larvae. Fish species most represented in the entrainment studies were gobies (arrow, cheekspot, and shadow), anchovy, combtooth blennies, longjaw mudsuckers, and silversides. The estimated annual entrainment impacts at SBPP, assuming average concentration and flow conditions, are 1,667,044,144 larval fishes entrained on an annual basis. The degradation of aquatic life attributable to the SBPP discharge is not unique and is comparable to the

degradation effects seen at other coastal power plants in the San Diego Region and throughout California. Due to these similarities as well as the reasons discussed below, it is important that the Regional Water Board initiate the NPDES reissuance proceedings in concert with the State Water Resources Control Board's (State Water Board) pending adoption of a statewide policy establishing uniform, technology-based performance standards designed to minimize and mitigate aquatic life losses from OTC impacts.

In order to address the issues caused by the lack of USEPA national OTC performance standards, the State Water Board initiated development of a statewide policy in 2005 to establish uniform, technology-based performance standards to implement CWA Section 316(b) and reduce the harmful effects associated with cooling water intake structures on marine and estuarine life. The State Water Board is well into the process of developing the Policy and recently issued a notice of public hearing to receive comments on the draft Policy at a hearing in Sacramento on September 16, 2009. The Notice of Public Hearing, the draft Policy, and the Substitute Environmental Document may be viewed at the State Water Board's website at http://www.waterboards.ca.gov/water_issues/programs/npdes/cwa316.shtml.

If adopted as drafted, the statewide Policy will effectively resolve the long-standing inconsistencies in implementation of CWA Section 316(b) technology-based requirements addressing OTC impacts and lessen the considerable permitting and resource burden associated with the technical details of the power plant permitting process. Another key feature of the draft Policy is that it contains an implementation plan that addresses potential effects to the State's electrical generation and transmission system while simultaneously coordinating the efforts of the State and Regional Water Boards to address adverse impacts from OTC systems. The proposed compliance dates contained in the draft Policy were developed considering a report produced by the energy agencies (California Energy Commission California Public Utilities Commission, and California Independent Systems Operator) titled "Implementation of Once-through Cooling Mitigation Through Energy Infrastructure Planning and Procurement Changes", and the accompanying table, titled "Draft Infrastructure Replacement Milestones and Compliance Dates for Existing

Power Plants in California Using Once-Through Cooling". The energy agencies' approach seeks to address the replacement, repowering, or retirement of power plants currently using OTC in a manner that (1) maintains reliability of the electric system; (2) meets California's environmental policy goals; and (3) achieves these goals through effective long term planning for transmission, generation and demand resources.

It would not be prudent for the Regional Water Board to move ahead now with the NPDES reissuance process for the SBPP, thereby circumventing the State Water Board's process for establishing uniform, technology-based performance standards to reduce the harmful effects associated with cooling water intake structures on marine and estuarine life. Proceeding with the SBPP NPDES permit reissuance in advance of the State Water Board's adoption of the Policy, and Dynegy's submittal of additional information needed to implement the Policy, would contribute to the continued inconsistency in implementation of Clean Water Act Section 316(b) technology-based requirements at coastal power plants that contribute to the statewide power grid. It would also would put a significant permitting burden on the Regional Water Board during a time of increasingly severe resource constraints and significantly limit the Regional Water Boards' ability to address concerns that extend beyond its jurisdiction or affect non-water-related issues, such as power plant air emissions, facility site location, and the schedule for replacement, repowering, or retirement of the SBPP.

Some of the NPDES permits for coastal plants in California, absent a firm USEPA national policy standard on which to base the requirements for OTC impacts, have been challenged repeatedly by industrial and citizen petitioners, resulting in lengthy administrative extensions well beyond the standard five year NPDES permit term. Still other NPDES permits were delayed when it appeared likely USEPA would finally adopt a national standard. The result is a significant backlog in reissuing most of the State's NPDES permits for coastal power plant facilities. In fact nearly all of California's 19 coastal OTC power plants currently operate with administratively extended NPDES permits. The Regional Water Boards are deferring the NPDES permit reissuances for coastal power plants within their respective jurisdiction pending the adoption of a state policy or federal

regulation implementing CWA Section 316(b) for existing power plant facilities.

The San Diego Region contains 2 other OTC power plants in addition to SBPP. San Onofre Nuclear Generating Station (SONGS), the second of the State's nuclear facilities, is located just south of the city of ~~Oceanside~~ **San Clemente** on land leased from Camp Pendleton. The Encina Power Plant is located near the city of Carlsbad adjacent to the Aqua Hedionda Lagoon. The SONGS NPDES Permits for Units 2 and 3 will expire in May, 2010 and the Regional Water Board Executive Officer also plans to defer the NPDES reissuances for those facilities as necessary to coordinate with the State Water Board adoption and implementation of its draft Policy.

The Regional Water Board has received several comment letters from various persons including 1) elected officials representing south San Diego County communities, 2) the Environmental Health Coalition and 3) other interested persons expressing concerns and opposition to the Regional Water Board's plan to administratively extend the term of the current SBPP NPDES permit. These comment letters and the Regional Water Board's written responses to them are attached. (The Regional Water Board letters in Attachments 9 and 10 dated August 28, 2009 and August 31, 2009, respectively, contains comprehensive information pertaining to all comments received to date.)

The comment letters make reference to the upcoming termination of the lease agreement between the Port of San Diego and Dynegy to operate the SBPP at its current location in the City of Chula Vista. The comments indicated that the Regional Water Board should not reissue the current NPDES permit because at the time the current permit was adopted it was understood that the SBPP would 1) not continue operating beyond the term of its current lease which is set to expire in November, 2009 and 2) be replaced with alternate power generation sources such as the new Otay Mesa Generating Station.

Dynegy leases both the site property and the power generating facilities located on the site from the Port of San Diego under a lease agreement that expires in November 2009. Thereafter, a 3-month period has been designated during which time the "must run" status of the plant will be

evaluated. If at the end of that period the plant is considered by the California Independent System Operator (ISO) to be a “must run” facility needed to meet the critical needs of the State’s electrical generation and transmission system, the lease will continue in effect until that status is terminated. If the ISO determines that the facility is no longer a “must run” plant, Dynegy is obligated to demolish the plant unless the Port waives this requirement. At the time the current NPDES permit for SBPP permit was adopted in November, 2004, the former facility operator, Duke Energy South Bay, LLC indicated that it had no plans to continue operating the existing SBPP facility or replace it with newer equipment after November 2009. In April 2007, Dynegy assumed responsibility for the operation of the facility as well as the terms of the lease. Dynegy currently is seeking the reissuance of the NPDES permit for another 5-year term and is presumably planning to continue to operate the facility for some period to come. The Regional Water Board is not a party to an agreement with any other party regarding the site lease, the continued siting of the SBPP facilities at its current location, or the schedule for retirement of the SBPP. These issues extend beyond the jurisdiction of the Regional Water Board and any agreements between other parties regarding these issues would not be legally binding on the Regional Water Board. Moreover the Regional Water Board has not entered into an agreement with any party regarding any limitation or contingency on future NPDES permit reissuances for the SBPP.

Background Information

The South Bay Power Plant (SBPP) is a gas and oil fueled electrical power generating plant, operated by Dynegy South Bay, LLC and located on the southeastern shore of San Diego Bay in the city of Chula Vista, approximately 16 km (10 miles) north of the U.S.-Mexican border. The plant has four major steam cycle units with a net generating capacity of 723 megawatts electric (MWe). Each unit can generate independently or in conjunction with any other unit. Generation typically cycles on a daily basis in response to demand for electricity.

The SBPP uses the waters of San Diego Bay for once-through cooling of its four electric generating units. Each unit is supplied by two circulating water pumps (CWP). The quantity of circulating water circulated through the plant is

dependent upon the number of pumps in operation. With all pumps in operation, the circulating water flow through the plant is 601 million gallons per day [mgd]. The SBPP circulates water it withdraws from San Diego Bay once through the power plant's cooling water system to condense freshwater steam used in power production. After passing through the plant, the circulating water is discharged through a channel that continually mixes with San Diego Bay water.

The federal Clean Water Act (CWA) addresses OTC's adverse impacts in Section 316(b) which mandates technology-based measures to minimize adverse environmental impacts from cooling water intake structures. As the agency authorized to implement Section 316(b) requirements, the US Environmental Protection Agency (USEPA) has made repeated efforts over the past 30 years to develop national regulations that would establish uniform performance standards for incorporation in NPDES permits for facilities using cooling water. USEPA's attempts have been subjected to repeated legal challenges by both environmental and industrial petitioners and court remands. In its most recent effort, the USEPA adopted new cooling water intake regulations in July, 2004 known as the Phase II rule establishing uniform performance standards for large existing power plants. Following legal challenges by environmental and industrial petitioners the federal Second Circuit Court of Appeals issued a decision on the Phase II rule in January, 2007. The Second Circuit Court decision, known as the Riverkeeper II decision, remanded several significant provisions of the Phase II rule to USEPA for further clarification while ruling other portions as "impermissible constructions of the statute." The major remanded provisions included USEPA's determination of Best Technology Available (BTA), the performance standard ranges, the site-specific BTA alternatives based on cost considerations, and the restoration provisions.

Although it is likely that USEPA will move forward and address the necessary changes required by the Second Circuit's remand in Riverkeeper II, it is unclear when such changes will be issued or what form they will take. Given the length of time required to develop and promulgate the initial Phase II rule (Phase II was first proposed in 2002), it may take several more years before a draft rule is proposed by USEPA for public comment and ultimately finalized. Any litigation would only extend that time frame even further,

followed by an implementation process of several more years.

USEPA has directed NPDES permitting authorities to implement CWA Section 316(b) requirements for existing facilities using best professional judgment (BPJ) for the interim period while it addresses the necessary changes required by the Second Circuit's remand in Riverkeeper II. USEPA's guidance for permitting authorities to use the BPJ approach when re-issuing NPDES permits for power plants has been in place since 1977. The effectiveness of this approach in California, however, has been decidedly mixed. The question of how to address OTC impacts is complex and requires significant resources to evaluate the intertwined technical and biological issues that comprise a BPJ analysis. The case-by-case BPJ determinations are costly labor-intensive efforts that have required a significant resource investment by each Regional Water Board to properly consider the different biological, engineering, logistical, and economic issues that comprise a full and complete analysis. The expertise required in these areas is highly specialized and not always immediately available to a Regional Water Board with limited resources devoted to power plant issues. The BPJ approach has led to varying decision criteria and different conclusions regarding the most appropriate technology-based solutions needed to address OTC impacts attributable to power plant discharges. The BPJ approach has also led to significant inconsistencies and inadequacies in permit requirements between Regional Water Boards.

LEGAL CONCERNS: None

SUPPORTING DOCS:

1. Location Map
2. Comment Letter from EHC dated May 20, 2009
3. Comment Letter from City of Chula Vista dated June 16, 2009.
4. Comment Letter from Bob Filner at al, US Congressman 51st District dated July 15, 2009.
5. Regional Water Board Letter to Dynegy South Bay LLC dated July 20, 2009.
6. Regional Water Board Response Letter to EHC dated August 4, 2009.
7. Comment Letter from City of Chula Vista dated August 14, 2009.

8. Comment Letter from Mitchell Thompson dated August 25, 2009.
9. Regional Water Board Response Letter to Bob Filner at al, dated August 28, 2009.
10. **Regional Board Response letter to City of Chula Vista dated August 31, 2009.**
11. **Comment Letter from Southwest Chula Vista Civic Association dated August 29, 2009.**
12. **Comment Letter from EHC dated August 31, 2009.**
13. **Comment Letter from Shane Johnston dated September 1, 2009.**
14. **Comment Letter from Sierra Club dated September 1, 2009.**
15. **Comment Letter from M. Dan McKirnan dated September 1, 2009.**
16. **Comment Letter from San Diego Coastkeeper dated September 1, 2009.**
17. **Comment Letter from Muriel Spooner dated September 1, 2009.**
18. **Comment Letter from San Diego Audubon Society dated September 1, 2009.**

RECOMMENDATION: The Board will not be taking action on this informational item.