Los Angeles Department of Water & Power

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August 21, 2015

Mr. Sam Unger, Executive Officer
Los Angeles Region
Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Unger:

Subject: Comments on the Tentative NPDES Permit for the AES LLC Alamitos Generating Station

The Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to comment on the AES LLC Alamitos Generating Station tentative draft permit (Permit). The AES Generating Station is located across the San Gabriel River from LADWP's Haynes Generating Station. Both plants discharge into the same receiving water body, the San Gabriel River, and have performed joint receiving water monitoring studies for several permitting cycles. The receiving water monitoring parameters, survey frequencies, and sampling locations specified in the Haynes and Alamitos Generating Stations' NPDES permits have been identical for decades. Therefore, some permit conditions placed in the AES permit may then be similar for LADWP. It was noticed that one very significant change in the AES permit is the re-designation of the discharge from an ocean discharge to an estuarine discharge.

LADWP is writing to express our concerns about the potential adverse impacts of the proposed change and its implication for LADWP's electric grid reliability in Southern California. These concerns include serious electrical service reliability risks posed to manufacturers, commercial businesses, and residential customers in our region. As detailed below, we are concerned that the re-classification of the discharges from the San Gabriel River generating stations as estuarine discharges (and not ocean discharges) poses serious risks to LADWP's ability to provide safe and reliable power to the region.

LADWP received a revision to its NPDES permit dated June 16, 2004 (R4-2004-0089), which updated the Order to include the repower of Haynes Units 3 and 4. Order R4-2004-0089 discussed the estuary re designation and allowed for special studies to be done by the discharger; the order also specified that the Regional Board would review the studies and determine whether changes are merited to the receiving water classification or beneficial use designations[1]. Since then, LADWP has performed

[1] RWQCB letter dated June 16, 2004, Order No. R4-2004-0089, paragraph 19. Special Studies.

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additional modeling to analyze the impacts of further changes at the facility to the Lower San Gabriel River. Specifically, the earlier modeling had used flows from Units 3 and 4 as baseline, while the new modeling used the current flows (with the repowered Units incorporated into the modeling) as the base flow condition.

On August 14, 2015, LADWP and Regional Board staff met to discuss the AES draft permit and the estuary designation and the impact to LADWP, and it is our understanding that important issues in NPDES permits such as this one are handled in the permitting process. In addition, it was decided that staff would meet on a regular basis with LADWP in part to review and discuss the results of past and current monitoring and modeling studies performed on behalf of LADWP in the San Gabriel River.

In submitting these comments, LADWP emphasizes that it strongly supports the protection of the environment. LADWP only requests a balanced solution that takes into account both environmental protection and grid reliability.

History of the Lower San Gabriel River

The San Gabriel River originally discharged to the San Pedro Bay. In 1938, major flooding occurred, and the San Gabriel River was diverted to the southern end of the Alamitos Bay. In 1951, the San Gabriel River silted up and jetties were constructed at the entrance to Alamitos Bay. In 1959, the jetties were completed and the operations of the power plants cleared the silt from the flood control channel. In 1962, the Marina was completed, and the Los Cerritos Channel discharged to the Marine Stadium. The outlet of the San Gabriel River in its present location is a result of two previous diversions designed primarily to keep floods and sediment out of the Alamitos Bay and the Marina.

Between the mouth of the River and the power plant discharge points, the channel contains saline water that originated from the San Pedro Bay and entered the plants via the Alamitos Bay, the source of the cooling water used by the plants. When the lower San Gabriel River was modified to create a fixed flood control channel, the function and purpose of the river were permanently altered. A new ecological baseline was established by the construction of the flood control channel and the introduction of the power plant discharges in 1956 (See photos Exhibit 1).

Permitting History of the Power Plants

The physical definitions, biological characteristics, and permitting history do not support the designation of the receiving waters as an estuary. The Haynes and Alamitos Generating Stations were first designated as discharges to the "San Gabriel River Tidal Prism," which was defined in the 1975 Basin Plan as:

(1) The volume of water contained in a tidal basin between the elevations of high and low water.
(2) The total amount of water that flows into a tidal basin or estuary and out again with movement of the tide, excluding any fresh-water flow.

However, since 1974, the Haynes Generating Station has been regulated as an ocean discharge. For five successive permitting cycles, the Haynes Generating Station has been permitted in accordance with the Ocean Plan. The current habitat of the lower San Gabriel River does not conform to that of an estuary. All regulatory definitions of an estuary rely predominantly on the existence of a mixing zone of fresh and ocean water where the fresh water encounter with the ocean water occurs at the mouth of the river. In an estuary, there is a tidal influence and a mixing zone where the fresh water from the river meets salt water from the ocean. This does not happen at the mouth of the lower San Gabriel River. Extensive physical studies and modeling (and validation of the models) have shown that, instead, cooling water discharges from the generating stations mix with the ocean water from the San Pedro Bay. Most of the water within the lower San Gabriel River is ocean water that has been circulated through the generating stations, and that water extends between the river mouth to a location below the Seventh Street Bridge.

Extensive studies conducted more than 40 years ago (but still relevant today) concluded that the lower San Gabriel River is dominated by cooling water discharged from the Haynes and Alamitos Generating Stations. Although the water level in the river rises and falls with the tide, this results from warm water being "stored" within the flood control channel during flood tide, and being subsequently "released" during ebb tides. The rise and fall of water levels in the channel do not result from upriver tidal intrusions of ocean water from the mouth. In fact, ocean water does not extend into the river channel near the generating stations when the stations are operating:

> The height of the tide acts as a dam that retards the flow of the channel…Heated discharge water is essentially stored in the channel on a flood tide and then released on the following ebb tide.[2]

In addition to these studies, LADWP has performed extensive modeling of the River. A hydrodynamic study of the lower San Gabriel River was conducted by Flow Science for LADWP in preparation of the Haynes Unit 5 and 6 repowering project and was completed in 2009 (see Exhibit 2). Flow Science used the Estuary Lake Computer Model (ELCOM), a three-dimensional computational fluid dynamics (CFD) model, to characterize the hydrodynamics of the receiving water. Results of this study found that

[2] MBC Applied Environmental Sciences, 2003 Lower San Gabriel River Environmental Assessment.

the lower San Gabriel River does not behave like a typical estuary where fresh water from upstream meets ocean water carried by the tides. Instead, the lower San Gabriel River is dominated by the OTC flows from both the Haynes and the Alamitos Generating Stations. The cooling water discharges from both of these stations are the major sources of inflow to the lower San Gabriel River such that the water in the channel is saline, and freshwater from upstream flows does not directly meet ocean water carried into the channel by tidal forcing. Both measured and modeled salinity and temperature profiles in the location of the discharge are representative of oceanic conditions. Finally, the modeling and associated field studies showed that flow in this portion of the lower San Gabriel River is always seaward when the plant is operating, such that the discharge would be carried into the ocean, and such that flow is not bi-directional, as would be expected in a tidal estuary. The model results were confirmed by extensive field measurements conducted by the Southern California Coastal Water Research Program (SCCWRP) and by MBC. Based on the results of the study, the portion of the river from the generating stations to the mouth of the river much more closely resembles an ocean environment than an estuarine environment.

Historical monitoring data collected in accordance with LADWP's current permit demonstrate that (1) the receiving waters are usually cooler at the station farthest downriver (RSW-012) than at the station just upriver from the Haynes and Alamitos Generating Stations (RSW-010); (2) there are usually more sediment pollution concerns upriver of the discharges; and (3) the infaunal community is usually more diverse downriver of the discharges. Bioaccumulation of metals in mussel tissue at the river mouth is comparable to that in Santa Monica Bay. The demersal fish biodiversity is similar at the river mouth in comparison to that in the Southern California Bight. The composition of the fish community collected at the river mouth has been similar to that collected at surrounding stations, and in 2014 the most prevalent species were California lizardfish, speckled sanddab, northern anchovy, and white croaker. All four of these are common marine fish species found on the inner shelf of southern California. In summary, monitoring data shows that the cooling water discharges in the San Gabriel River are not adversely affecting the biological communities in the receiving waters.

The above described studies and data show that the hydraulic regime does not conform to the conventional regulatory or biological definitions of an estuary. It most closely fits the definition of an embayment. The flow in the lower San Gabriel River is always seaward when the plants are operating, and the power plant discharges prevent the freshwater flows from the river from directly meeting the ocean water.

LADWP requests that the discharges for both AES and LADWP remain classified as "ocean" discharges and not be treated as "estuarine" discharges. The Haynes and AES Generating Stations have been in operation for over 50 years with no adverse effects to the San Gabriel River or the ocean and thus LADWP requests that the requirements for

temperature and other necessary credits that are allowed under the ocean plan be allowed. As mentioned above, the estuary designation threatens LADWP's grid reliability as will be discussed in more detail below.

LADWP Power System and Grid Reliability

LADWP is a vertically integrated utility that owns its grid system, which is not part of the California Independent System Operator (CALISO) grid system. LADWP owns and operates its own generation, transmission, and distribution facilities, and operates an independent balancing authority, meaning it is responsible for continuously balancing customer demand and generation to provide sufficient generation to handle load variations and to provide for loss of resources. It is a municipal utility and is mandated by the Los Angeles City Charter to provide safe, reliable, and cost-effective electricity.

LADWP has three coastal generating plants that are the backbone of its power system. The once-through cooling (OTC) units at its coastal generating plants provide the local power capacity, inertia, voltage stability, and support necessary to retain system grid reliability and allow for a safe and reliable supply of electricity to 1.5 million customers in the City of Los Angeles. Since LADWP's grid system was built out from its coastal plants and the area around these plants has become densely urbanized, LADWP's system is much like a peninsula or cul-de-sac, where locational generation can only be provided by the existing coastal generating units. Due to the urbanized area around the LADWP coastal plants, development has eliminated the ability to expand the local transmission system. Additionally, community opposition has effectively prevented upgrades to the transmission systems (e.g., it has taken 15 years to be able to install an underground transmission line in one Los Angeles community). Furthermore, connections to the CALISO grid system, which is separate from the LADWP grid system, are outside of the areas that are served by the LADWP coastal plants. Because the two systems are not inter-connected and cannot be effectively connected, in the areas near the coastal plants, mandated locational generation requirements and power needs could not be met by the CALISO system. Further, these coastal plants are site constrained, and any physical modifications to these plants must be carefully planned and done sequentially since all units must remain on line during construction. [3, 4]

The replacement of 85 percent of LADWP's in-basin generation to eliminate OTC is an unprecedented undertaking. In addition, LADWP faces multiple mandatory mandates in the next 20 years that will result in the replacement of 90 percent of the energy sources that it has relied upon for the last 70 years. The new LADWP will be confronted with having to integrate variable power output from renewable energy sources while balancing power load with new quick start technology. As the transformation takes

[3] LADWP Comment Letter to EPA Water Docket, EPA-HQ-OW-2008-0667, dated August 18, 2011.
[4] LADWP letter to EPA dated January 23, 2012.

place, the old units at the coastal plants will be essential to meet mandatory local capacity requirements. Therefore, these units must stay on line until the new quick start units are available. In order to achieve this necessary transformation to meet the California State Water Resources Control Board (State Board) OTC policy and all the other required mandates, and for LADWP to be able to provide reliable power, the time line granted to LADWP by the State Board is critical for LADWP.

LADWP has commenced its repowering program, which includes the conversion of its OTC cooling systems to closed cycle cooling, in order to eliminate OTC to comply with State Board OTC policy. In order to completely eliminate OTC with closed cycle cooling and maintain grid reliability, LADWP will be making significant capital investments through 2029 to repower to non-OTC units at the Haynes Generating Station. The 2029 schedule, which the State Board has approved, is tailored to the unique circumstances and site-specific considerations of LADWP's facilities and grid system. To provide balance and grid system reliability, as mentioned before, the old units must remain operational until the new units are placed in service.

The Haynes Generating Station is a reliability must run (RMR) facility, which means that its contribution to the grid system is mandatory in order to meet the North American Electric Reliability Corporation (NERC) reliability standards. It is essential that there is enough power and generating capacity in the local area in the event of supply disruptions or equipment failures. This plant provides the necessary energy and capacity to the surrounding local area—there is no other resource.

The need for LADWP's coastal power plants was recently underscored when a large nuclear baseload plant in California unexpectedly was forced to shut down. The sudden shutdown of this plant caused a shortage in local generating capacity that could only be addressed by the operation of local generation capacity. This incident concretely demonstrated the reliability risks posed to the Los Angeles area if there were to be any premature shutdown of the coastal plants before replacement generation capacity can be brought online.

Conclusions

The reclassification of the lower San Gabriel River water body as an estuary threatens the future availability of the Haynes Generating Station, due to the inability to be able to meet immediately the stringent requirements that come with the estuary designation, such as the thermal requirements, the potential loss of dilution credits, and the 301 (g) chlorine variance, etc. These necessary elements are in the current permit and are necessary for the station to continue to operate. They are allowed and were granted because the discharge was designated as an ocean discharge, and LADWP's monitoring data indicate that they have not resulted in significant impacts to the biota in the lower San Gabriel River. The chlorine variance was issued based on the

demonstration that there were no adverse effects to the environment and human health. Elimination of these critical allowances will shut Haynes down, place the City of Los Angeles in non-compliance with NERC, and threaten the reliability of not only the Southern portion of the City of Los Angeles grid system but the entire grid system.

LADWP understands that once the OTC flows from the power plants are eliminated (currently planned to occur by 2029); the lower San Gabriel River hydraulic regime will change. To that end, LADWP is in the process of finding a solution for the in-plant waste streams that will be associated with the dry cooling process. LADWP has contacted the City of Long Beach and is currently in discussions regarding the possibility of sending these flows to the Long Beach sanitary sewer.

The change in designation to an estuarine discharge from an ocean discharge is a critical impact to LADWP. LADWP urges the Regional Board to coordinate the re-designation with LADWP's repower schedule, which is a finite time period that has already been agreed upon by the State Board. LADWP is on schedule and such an approach not only makes good sense and is essential to maintaining the reliability and integrity of the LADWP electrical system, but is consistent with the results of the modeling and the river's hydraulic regime.

In closing, it should be emphasized that both LADWP and AES have made the commitment to eliminate OTC at these two generating stations. LADWP strongly believes that protection of the environment is vital and looks forward to working out a solution that takes into account LADWP's critical reliability issues.

For additional specific comments to the AES tentative permit, please see Enclosure 1.

Sincerely,

Mark J. Sedlacek
Director, Environmental Affairs

KR:
Enclosures
c: Ms. Deborah Smith – LARWQCB
Mr. David Hung – LARWQCB
Mr. Thomas Siebels – LARWQCB
Ms. Julie Gill – AES
Mr. Stephen O'Kane - AES
Mr. Shane Beck – MBC
Ms. Susan Paulsen – Exponent, Inc.

Los Angeles Department of Water and Power
August 21, 2015

Enclosure 1

Specific Comments on the

Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES Permit / Tentative Time Schedule Order – AES Alamitos Generating Station, 690 N. Studebacker Road, Long Beach, California (NPDES Permit No. CA0001139, CI-6113)

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Order - Section VII Compliance Determination

J. Chronic Toxicity – page 16 and

Monitoring and Reporting Program – Section V. Whole Effluent Toxicity Testing Requirements

A. Definition of Chronic Toxicity – page E-9

LADWP has concerns regarding the use of the Test of Significant Toxicity (TST) approach to determine the chronic toxicity of the effluent samples. The TST methodology, although supported by Region IX of the Environmental Protection Agency (EPA), has not been through a federal or state rulemaking process, and is not fully approved for inclusion as part of permit testing requirements. Because of differences between the TST and traditional statistical methods for evaluating effluent toxicity, the TST has the potential to return false positives for toxicity in samples at a significantly higher rate that the design failure rate of 5%. EPA, in its own document describing this methodology (June 2010 Guidance, which has not been through a formal rulemaking process), indicates in the Notice and Disclaimer section that EPA "believes" this is another statistical approach to determining toxicity but also states that the document "does not and cannot impose any legally binding requirements…on permittees...".

LADWP recommends that, since the TST methodology has not yet been approved and included in the State's Toxicity Policy (which remains in development) and is also the subject of current litigation, the TST methodology requirement be removed and that the chronic toxicity testing using the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136) be retained. This methodology is specific to west coast organisms and applicable to the discharges from the Alamitos Generating Station.

Monitoring and Reporting Program – Section VIII. Receiving Water Monitoring Requirements

A. Surface Water Monitoring at Monitoring Locations RSW001 through RSW-012 –page E-13

Table E-4. Receiving Water Monitoring Requirements for RSW-001 through RSW-012

This table requires that receiving water station RSW-011 be sampled once per year for chronic toxicity. The sample is to be a 24-hour composite sample. This is a new

requirement that has not been present in any of the previous discharge permits. Two issues arise from this requirement. First, neither the Alamitos Generating Station nor the Haynes Generating Station can control other sources of water to the San Gabriel River at the prescribed monitoring location. While each generating station can and does perform chronic toxicity testing on their respective outfall discharges, toxicity results from samples collected in the river, while providing a data point of toxicity, would not correlate back to the individual discharges and cannot be accurately interpreted. A positive result for toxicity in the river would not be indicative of a toxicity problem coming from either generating station. Holding the stations responsible for toxicity in the receiving water over which they do not have control is not justified.

Second, the monitoring location is located at a roadway overpass that is in the public right-of-way, and it will likely not be possible to deploy the autosampling equipment that would be required to collect a 24-hour composite sample in the river. Providing such a sampling device would be problematic as there is no location that is accessible or available to install such a device, and safety concerns also exist about a long-term presence for sampling equipment and sampling personnel within the roadway or in the river.

LADWP requests that the chronic toxicity monitoring requirement for the receiving water station RSW-011 be removed from the permit.

Monitoring and Reporting Program – Section VIII. Receiving Water Monitoring Requirements

B. Surface Water Monitoring at Monitoring Locations RSW001 through RSW-012 –page E-14

Table E-5. Harbor Toxics TMDL Monitoring Requirements for RSW-001

Table E-5 indicates a minimum sampling frequency of 3 times per year for these sampling locations. The footnote indicates that two of these samples are to be collected during wet weather events and that the “first large storm event” of the season shall be included as one of the wet weather monitoring events. The term “first large storm event” is not defined in the permit. Also, with the ongoing drought situation in the Los Angeles region, rain events are not frequent and it may not be possible to obtain the required number of samples in any given year.

Therefore, LADWP recommends this requirement be revised to require 3 receiving water sample events during the year, with two to be obtained during the defined wet season and one during the defined dry season, independent of rainfall events.

Monitoring and Reporting Program – Section IX. Other Monitoring Requirements

A. Visual Monitoring of Receiving Water Sampling Point –page E-18

The permit requires visual monitoring of the discharge location with a list of several items that need to be recorded with each observation. It is unclear from the list of visual inspection requirements how this information will ensure compliance with the permit or how this additional information will be used over the life of the permit. These inspections are not tied to specific sample times, as the requirement to perform the inspection does not coincide with the required sampling requirements in the permit. Sampling results will not necessarily tie back to the daily inspections, so no meaningful conclusions could be made based on the visual inspections with sample results. This requirement will require significant personnel resources to perform and organize the results with no obvious benefit. In addition, many of the items to be visually monitored will require subjective determination by each individual who performs the inspection. These individual subjective determinations will also not be able to be compared with any level of confidence, nor will they provide results that will be meaningful when compared with each other.

Since this requirement is resource-intensive and without benefit, LADWP recommends that this visual monitoring requirement be removed from the Monitoring and Reporting Program.

Monitoring and Reporting Program – Section X. Reporting Requirements

B. Self-Monitoring Reports (SMRs) –page E-20

Table E-8. Monitoring Periods and Reporting Schedule

The SMR due dates as indicated in Table E-8 indicate that reports are to be due on the first day of the second month following the close of the reporting period. This reporting deadline does not provide sufficient time to receive laboratory results from testing that may be initiated near the end of a reporting period. Moving the due date to the 15th of the second month following the close of the reporting period provides the needed

additional time to complete the analytical testing and to receive the reports from testing laboratories so that they can be included in the appropriate reports.

LADWP recommends that the due dates for all reports be changed to be the 15th day of the second month following the close of the reporting period, as this will allow for 45 days to receive analytical data from laboratories for inclusion in the monthly reports.

Monitoring and Reporting Program – Section X. Reporting Requirements

C. Discharge Monitoring Reports (DMRs) –page E-21

Item 1 of this section indicates that the permittee shall submit DMR information electronically and will discontinue paper DMR submittals. Item 3 of this section states that the DMR results must be reported on the official EPA preprinted DMR forms. These two requirements are in conflict with each other. It seems that Item 3 should be removed from the permit since electronic reporting is being required.

LADWP recommends that Item 3 of this section be removed from the permit.

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Exhibit 1

Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES Permit / Tentative Time Schedule Order – AES Alamitos Generating Station, 690 N. Studebacker Road, Long Beach, California
(NPDES Permit No. CA0001139, CI-6113)

Some History

- *San Gabriel River originally discharged to San Pedro Bay and has been diverted twice, beginning in 1920s, completed in about 1956*
- *Power plants (HnGS and AES) were constructed in late 1950s/1960s*
- *Plants were first regulated as discharges to tidal prism (San Gabriel River Tidal Prism)*
  - *Order 59-56 for Haynes was for discharge to SGRTP*

U.S. Coast Survey (1859) Point Fermin to San Gabriel River.

Alamitos Bay in 1927, with recent diversion of the San Gabriel River from the Marine Stadium to Alamitos Bay

River and Bay in 1938 following major flooding - note river has been diverted to southern end of Alamitos Bay

FLOW SCIENCE

1951 - Note how river has silted up and jetties under construction at entrance to Alamitos Bay

1959

Jetties completed and power plants in operation clearing the silted Flood Control Channel

FLOW SCIENCE

1962 Marina completed and Los Cerritos channel discharging to Marine Stadium

Reduced discharges April 2013 (800 mgd)

FLOW SCIENCE

Alamitos Bay and HnGS Intake Channel

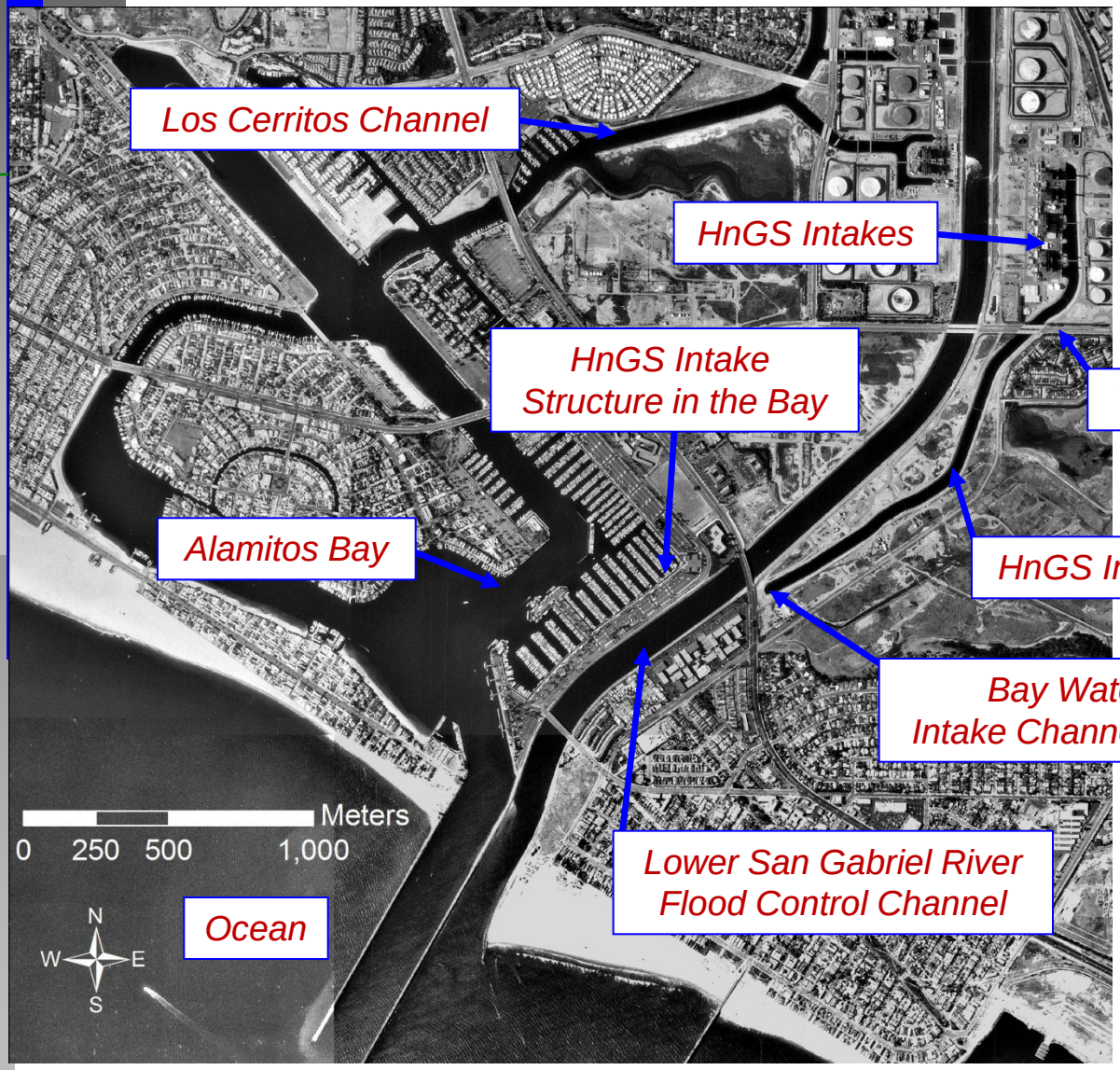

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Exhibit 2

Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES Permit / Tentative Time Schedule Order – AES Alamitos Generating Station, 690 N. Studebacker Road, Long Beach, California
(NPDES Permit No. CA0001139, CI-6113)