

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2002-0186
NPDES NO. CA0063363

WASTE DISCHARGE REQUIREMENTS
FOR
AIR PRODUCTS AND CHEMICALS, INC.
(WILMINGTON HYDROGEN FACILITY)

The California Regional Water Quality Board, Los Angeles Region (hereinafter Regional Board) finds:

Background

1. Air Products and Chemicals, Inc., (hereafter Air Products or Discharger) discharges wastes from its Wilmington Hydrogen Facility (Hydrogen Plant) under waste discharge requirements contained in Order No. 94-116 adopted by this Board on December 5, 1994. Order No. 94-116 serves as a National Pollutant Discharge Elimination System (NPDES) permit (CA0063363) for the facility.
2. The Discharger has filed a report of waste discharge (ROWD) and has applied for renewal of its waste discharge requirements and NPDES permit.

Purpose of Order

3. The purpose of this order is to renew the WDRs for Air Products. This NPDES permit regulates the discharge of treated wastewater to Dominguez Channel estuary, a water of the State and United States.

Facility Description

4. The Hydrogen Plant manufactures hydrogen and is located at 700 Henry Ford Avenue, Wilmington, California. The facility is located on an 11-acre parcel and is bordered by Anaheim Street to the north, Henry Ford Avenue to the west, and Dominguez Channel to the southeast. The Discharger supplies hydrogen to the Ultramar Inc. Wilmington Refinery (Ultramar Refinery) for use in its formulated fuels program. Figures 1 and 2 depict the location and plan view of the facility, respectively.

The Hydrogen Plant has a total design capacity of 80 million standard cubic feet per day of gaseous hydrogen. Gaseous hydrogen is produced by reacting steam with hydrocarbon feed stock supplied by the Ultramar Refinery. The manufacturing processes consist of feed stock hydrogenation and sulfur removal, reforming in the steam methane reformer, shift conversion, and hydrogen purification.

Discharge Description

5. The Discharger proposes to discharge wastewaters and storm water runoff to Dominguez Channel, via two discharge points located on the west bank of the channel, south of Anaheim Street, within the estuary. The waste then flows to East Basin Consolidated Slip, Los Angeles Inner Harbor. The wastewaters and storm water discharge through two different outfalls (separated approximately by a distance of 5 feet). Because of the proximity to each other, the Latitude and Longitude will be considered the same. Figures 3 and 4 depict the schematic diagrams of the wastewater flows at Discharge Serial Numbers 001 and 002.

- a. Discharge Serial No. 001: Inplant Wastewaters

Latitude: 33°46'76"

Longitude: 118°14'33"

Total flow: Inplant wastewaters of 591,000 gpd consist of cooling tower blowdown, boiler blowdown, hydrogen plant condensate, and several boiler make-up water treatment system streams (filter backwash, softener regeneration wastewater, reverse osmosis reject, ion exchange, regeneration wastewater).

- b. Discharge Serial No. 002: Stormwater and non-process wastewater

Latitude: 33°46'76"

Longitude: 118°14'33"

Total flow: The maximum allowed discharge flow of 1,089,600 gpd is based on maximum 3.74 inches of rainfall for a 24-hour period (on a facility area of 463,100 square feet) during the last five years (1,079,600 gpd), plus 10,000 gpd to account for fire test water and leaks and spills from cooling water and boiler steam/water lines. The discharge on any given day will be proportionate to the rain in the last 24 hours plus 10,000 gpd. If there is no rain, the maximum allowable discharge is 10,000 gpd.

Serial No. 002 discharge includes primarily storm water runoff (from both internal, equipment containing areas and perimeter areas) during wet season. Storm water collected from internal areas passes through parallel oil/water separators. The oil/water separators then discharge into a sump which collects the perimeter area storm water. Discharge flow during dry season results from occasional fire water system tests and sporadic leaks from boiler and cooling water equipment and lines. The water flows to the oil/water separator and then to a final collection sump.

6. Over the six-year period between September 1996 and April 2002, the Discharger had seventeen exceedances of hexavalent chromium, oil and grease, residual chlorine, BOD,

TSS, pH, and acute toxicity discharge limits. Violations have been identified and are being evaluated for appropriate enforcement.

7. Air Products has applied to the City of Los Angeles, Bureau of Sanitation, Los Angeles Industrial Wastewater Division to discharge the Hydrogen Plant wastewater to the municipal sanitary sewer. The City of Los Angeles is currently performing hydraulic studies to determine the hydraulic capacity availability.

Applicable Plans, Policies, and Regulations

8. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) as amended on January 27, 1997 by Regional Board Resolution No. 97-02. The Basin Plan (i) designates beneficial uses for surface and groundwaters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state antidegradation policy (*Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Board Resolution No. 68-16, October 28, 1968), and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The Regional Board prepared the 1994 update of the Basin Plan to be consistent with all previously adopted State and Regional Board plans and policies. This Order implements the plans, policies and provisions of the Regional Board's Basin Plan.
9. The Basin Plan contains water quality objectives and beneficial uses for inland surface waters and for the Pacific Ocean. Inland surface waters consist of rivers, streams, lakes, reservoirs, and inland wetlands. Beneficial uses for a surface water can be designated, whether or not they have been attained on a waterbody, in order to implement either federal or state mandates and goals (such as fishable and swimmable for regional waters). Beneficial uses of streams that have intermittent flows, as is true for many Southern California streams, are designated as intermittent. The beneficial uses of inland surface waters generally include water contact recreation, warm freshwater habitat, cold freshwater habitat, inland saline water habitat and commercial and sport fishing.
10. The Basin Plan contains water quality objectives for, and lists the following beneficial uses of the Dominguez Channel estuary.

Dominguez Channel Estuary – Hydro Unit No. 405.12

Existing: water contact recreation, non-contact water recreation, commercial and sport fishing, estuarine habitat, marine habitat, wildlife habitat, rare, threatened, or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development

Potential: navigation

11. The State Board adopted a Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for Dominguez Channel watershed.
12. On May 18, 2000, the U.S. Environmental Protection Agency (USEPA) promulgated numeric criteria for priority pollutants for the State of California [known as the *California Toxics Rule* (CTR) and codified as 40 CFR section 131.38]. In the CTR, USEPA promulgated criteria that protects the general population at an incremental cancer risk level of one in a million (10^{-6}), for all priority toxic pollutants regulated as carcinogens. The CTR also provides a schedule of compliance not to exceed 5 years from the date of permit issuance for a point source discharge if the Discharger demonstrates that it is infeasible to promptly comply with the CTR criteria.
13. On March 2, 2000, the State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through National Toxics Rule (NTR) and to the priority pollutant objectives established by the Regional Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP was effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The SIP does not apply to discharges comprised solely of storm water, but some of the protocols identified in the SIP provide a rationale approach for determining reasonable potential and represent the best available science with respect to minimum levels for all surface water discharges. The SIP requires the dischargers' submittal of data sufficient to conduct the determination of priority pollutants requiring Water Quality Based Effluent Limitations (WQBELs) and to calculate the effluent limitations. The CTR criteria for salt water or human health for consumption of organisms, whichever is more stringent, are used to develop the effluent limitations in this Order to protect the beneficial uses of the Dominguez Channel estuary.
14. Under 40 CFR 122.44(d), Water Quality Standards and State Requirements, "Limitations must control all pollutants or pollutant parameters (either conventional, non-conventional, or toxic pollutants), which the Director [permitting authority] determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." Where numeric effluent limitations for a pollutant or pollutant parameter have not been established in the applicable state water quality control plan, 40 CFR Part section 122.44(d)(1)(vi) specifies that WQBELs may be set based on USEPA criteria, and may be supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria, and to fully protect designated beneficial uses.

15. Effluent limitation guidelines requiring the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT), were promulgated by the USEPA for some pollutants in this discharge. Effluent limitations for pollutants not subject to the USEPA effluent limitation guidelines are based on one of the following: best professional judgment (BPJ) of BPT, BCT or BAT; current plant performance; or WQBELs. The WQBELs are based on the Basin Plan, other State plans and policies, or USEPA water quality criteria which are taken from the CTR. These requirements, as they are met, will protect and maintain existing beneficial uses of the receiving water. The attached fact sheet for this Order includes specific bases for the effluent limitations.
16. State and Federal antibacksliding and antidegradation policies require that Regional Board actions to protect the water quality of a water body and to ensure that the waterbody will not be further degraded. The antibacksliding provisions are specified in section 402(o) of the Clean Water Act (CWA) and in the Title 40 of the Code of Federal Regulations (40 CFR), section 122.44(l). Those provisions require a reissued permit to be as stringent as the previous permit with some exceptions where effluent limitations may be relaxed.
17. Numeric toxic constituent limitations are prescribed for this discharge pursuant to the numeric water quality objective in the Basin Plan, CTR, and 40CFR Part 122.44(d)(1). For toxics constituents that have not been consistently detected in the effluent and have been determined to have no reasonable potential for causing or contributing to excursions in water quality objectives, no numerical limitations are prescribed.

Watershed Management and Total Maximum Daily Loads

18. The Regional Board has implemented the Watershed Management Approach to address water quality issues in the region. Watershed management may include diverse issues as defined by stakeholders to identify comprehensive solutions to protect, maintain, enhance, and restore water quality and beneficial uses. To achieve this goal, the Watershed Management Approach integrates the Regional Board's many diverse programs, particularly Total Maximum Daily Loads (TMDLs), to better assess cumulative impacts of pollutants from all point and non-point sources. A TMDL is a tool for implementing water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions. The TMDL establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby provides the basis to establish water quality-based controls. These controls should provide the pollution reduction necessary for a waterbody to meet water quality standards. This process facilitates the development of watershed-specific solutions that balance the environmental and economic impacts within the watershed. The TMDLs will establish waste load allocation (WLAs) and load allocations (LAs) for point and non-point sources, and will result in achieving water quality standards for the waterbody.
19. The Dominguez Channel begins in El Segundo and flows through portions of Hawthorne,

Torrance, Gardena, Carson, and Wilmington to the East Basin of the Los Angeles Harbor. The channel is concrete-lined above the estuary (Vermont Avenue). Dominguez Channel receives discharges from highly developed and industrialized areas.

20. On May 12, 1999, USEPA approved the State's most recent list of impaired waterbodies. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with Section 303(d) of the Federal Clean Water Act to identify specific impaired waterbodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources.

Within the Dominguez Channel Watershed, the following water bodies are classified as impaired and are listed on the 1998 California 303(d) List and Total Maximum Daily Load (TMDL) Schedule: Los Angeles Harbor Main Channel, Los Angeles Fish Harbor, Los Angeles Consolidated Slip, Los Angeles Harbor Inner Breakwater, Los Angeles Harbor Southwest Slip, Cabrillo Beach (inner) Los Angeles Harbor Area, Cabrillo Beach Outer, Dominguez Channel, and Dominguez Channel estuary.

The water quality problems, caused by both point sources and non-point sources, associated with this Dominguez Channel estuary are: chromium, copper, lead, zinc, DDT, aldrin, dieldrin, chlordane, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), ammonia, coliform, benthic community effects, and sediment toxicity.

TMDL development for Dominguez Channel watershed is scheduled for fiscal year 2003, beginning with one for coliform. The TMDLs will include WLAs for the 303(d)-listed pollutants, and the Board will adopt a WQBEL consistent with the corresponding WLA. If authorized, a time schedule might be included in a revised permit to require compliance with the final WQBEL.

21. Section 303(d) of the CWA requires that the State identify a list of impaired water bodies and develop and implement TMDL for these water bodies. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still protect beneficial uses. The USEPA entered into a consent decree with the Natural Resources Defense Council (NRDC), Heal the Bay, and the Santa Monica BayKeeper on March 22, 1999, under which the Regional Board must adopt all TMDLs for the Los Angeles Region within 13 years from that date. This permit incorporates a provision to reopen the permit to implement and enforce approved load allocations for wastewater discharge from Wilmington Hydrogen Facility and require changes to comply with the allocated discharge loads.
22. To prevent further degradation of the water quality of Domingues Channel and to protect its beneficial uses, mixing zones and dilution credits are not allowed in this Order. This determination is based on:
 - The 303(d)-listed pollutants exceed water column criteria. Since there is no

assimilative capacity of the receiving water, a dilution factor is not appropriate, and the final WQBEL should be numeric objective applied end-of-pipe.

- The discharge may contain the 303(d)-listed pollutants that are bioaccumulative. These pollutants, when exceeding water criteria within the mixing zone, can potentially result in tissue contamination of organism directly or indirectly through contamination of bed sediments with subsequent incorporation into the food chain.

The proposed human health and wildlife criteria may be sufficiently protective for persistent bioaccumulative chemicals. It is necessary that mass-based limits be established to assure that the discharge will not cause or contribute to an exceedance of water quality standards, including narrative standards.

Data Availability and Reasonable Potential Monitoring

23. 40 CFR 122.44(d)(1)(ii) requires that each toxic pollutant be analyzed with respect to its reasonable potential when determining whether a discharge (1) causes; (2) has the reasonable potential to cause; or (3) contributes to the exceedance of a receiving water quality objective. This is done by performing a reasonable potential analysis (RPA) for each pollutant.
24. Section 1.3 of the SIP requires that a limit be imposed for a toxic pollutant if (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criteria, or (2) the background concentration is greater than the CTR criteria. However, for the pollutants on the 303(d) list, due to the impairment of the Dominguez Channel estuary, the background concentrations have already been determined to be higher than the CTR criteria, but the Regional Board should consider other evidence as to whether the discharge is likely include the constituent at all. Sufficient effluent data are needed for this analysis.
25. RPAs were performed for the priority pollutants for which effluent data were available. Best professional judgment was used in this proposed Order to determine the presence and reasonable potential of each toxic pollutant. Based on the calculations, six pollutants (copper, cyanide, silver, hexavalent chromium, zinc, and dichlorobromomethane) for Discharge Serial Number 001 and four pollutants (copper, cyanide, mercury, and silver) for Discharge Serial Number 002 have the reasonable potential of exceeding the water quality objectives. Effluent limitations are prescribed for these pollutants in this Order. This Order requires the Discharger to monitor priority pollutants to gather data to be used in RPAs for future permit renewals and updates.
26. For some pollutants, including aldrin, alpha-BHC, beta-BHC, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, PAHs, total PCBs, toxaphene, and TCDD equivalents, effluent limitations are not prescribed for these pollutants; however, consistent with the SIP, monitoring is required for future evaluation.

27. Water quality objectives/criteria specified in the Basin Plan, the CTR, or the effluent limits from the existing permit were used to set the limits for toxic pollutants that are believed to be present in the effluent and have reasonable potential of exceeding the water quality criteria. Other toxic pollutants may only be monitored to gather data to be used in RPAs for future permit renewals and updates.

For 303(d) listed pollutants, the Regional Board plans to develop and adopt TMDLs which will specify WLAs for point sources and LAs for non-point sources, as appropriate. Following the adoption of TMDLs by the Regional Board, NPDES permits will be issued with effluent limits for water quality based on applicable WLAs. In the absence of a TMDL, effluent limits for 303(d) listed pollutants, for which RPA indicates a reasonable potential, were established for concentration based on the most stringent applicable CTR criterion and/or Basin Plan objective.

Interim Limits

28. The Discharger, in a letter dated October 3, 2002, indicated that it is infeasible to achieve immediate compliance with the CTR-derived WQBELs for the identified priority pollutants from RPA, and submitted a compliance schedule. Interim monitoring data submitted by the Discharger indicates that these constituents have been detected at a concentration greater than the new limit proposed in this Order.
29. 40 CFR Part 131.38(e) provides conditions under which interim effluent limits and compliance schedules may be issued. The SIP does allow inclusion of an interim limit with specific compliance schedule in an NPDES permit for priority pollutants if the limit for the priority pollutant is CTR-based. The Discharger requested a 36-month compliance schedule, but a compromised 30 month period is proposed. Interim limits based on current treatment facility performance for priority pollutants that have been identified by RPA calculations are contained in this NPDES permit.
30. The SIP requires that the Regional Board establish other interim requirements such as requiring the discharger to develop pollutant minimization and/or source control measures and participate in the activities necessary to develop final effluent limitations. When interim requirements have been completed, the Regional Board shall calculate final WQBELs for that pollutant based on the collected data, reopen the permit, and include the final effluent limitations in the permit provisions. Once final limitations become effective, the interim limitations will no longer apply.

CEQA and Notifications

31. The Regional Board has notified the Discharger and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to submit their written views and recommendations.

32. The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements.
33. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the CWA or amendments thereto, and shall take effect at the end of ten days from the date of its adoption provided the Regional Administrator, USEPA, has no objections.
34. Pursuant to California Water Code section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to the State Water Resources Control Board, Office of Chief Counsel, ATTN: Elizabeth Miller Jennings, Senior Staff Counsel, 1001 I Street, 22nd Floor, Sacramento, California, 95814, within 30 days of adoption of the Order.
35. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) in accordance with the California Water Code, section 13389.

This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Clean Water Act or amendments thereto, and shall take effect at the end of ten days from the date of its adoption provided the Regional Administrator, USEPA Region 9, has no objections.

IT IS HEREBY ORDERED that Air Products and Chemicals, Inc. in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, shall comply with the following:

I. Discharge Requirements

A. Discharge Prohibition

1. Wastes discharged shall be limited to inplant wastewaters (filter backwash, softener regeneration wastewater, reverse osmosis system reject, mixed bed ion exchange regeneration waste [resulting from water treatment], cooling tower blowdown, boiler blowdown, and hydrogen plant condensate), storm water and non-process wastewater. The discharge of wastes from accidental spills or other sources is prohibited.
2. Discharges of water, materials, thermal wastes, elevated temperature wastes, toxic wastes, deleterious substances, or wastes other than those authorized by this Order, to Dominguez Channel, or waters of the State, are prohibited.
3. The discharge of any radiological, chemical, or biological warfare agent or high

level radiological waste is prohibited.

B. Effluent Limitations

1. The pH of the discharge shall at all times be within the range of 6.5 and 8.5.
2. The temperature of the discharge shall not exceed 100°F.
3. The ammonia concentration shall not exceed the values listed in Attachment 2.
4. The fecal coliform concentration shall not exceed a log mean of 200 MPN/100 ml (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of the total samples collected during any 30-day period exceed 400 MPN/100ml.
5. Toxicity limitations:
 - a. Acute Toxicity Limitation and Requirements
 - i. The acute toxicity of the effluent shall be such that: (i) the average survival in the undiluted effluent for any three (3) consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, and (ii) no single test producing less than 70 % survival.
 - ii. If either of the above requirements (Section I.B.5.a.i), is not met, the Discharger shall conduct six additional tests over a six-week period. The Discharger shall ensure that they receive results of a failing acute toxicity test within 24 hours of the close of the test and the additional tests shall begin within 3 business days of the receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. However, if the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet objective.
 - iii. If the initial test and any of the additional six acute toxicity bioassay test result in less than 70% survival, the Discharger shall immediately begin a TIE.
 - iv. The Discharger shall conduct acute toxicity monitoring as specified

in Monitoring and Reporting Program (MRP) No.7466.

b. Chronic Toxicity Limitation and Requirements:

- i. This Order includes a chronic testing toxicity trigger defined as an exceedance of 1.0 TU_c in a critical life stage test for 100% effluent. (The monthly median for chronic toxicity of 100% effluent shall not exceed 1.0 TU_c in a critical life stage test.)
- ii. If the chronic toxicity of the effluent exceeds 1.0 TU_c, the Discharger shall immediately implement an accelerated chronic toxicity testing according to MRP No. 7466, Section IV.D. If the results of two of the six accelerated tests exceed 1.0 TU_c, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan. (see I.B.5.b.v, below).
- iii. The Discharger shall conduct chronic toxicity monitoring as specified in MRP No. 7466.
- iv. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

- v. Preparation of an Initial Investigation TRE Workplan:
 - aa. The Discharger shall submit a copy of the Discharger's initial investigation Toxicity Reduction Evaluation (TRE) workplan (1-2 pages) to the Executive Officer of the Regional Board for approval within 90 days of the effective date of this permit. If the Regional Board Executive Officer does not disapprove the workplan within 60 days, the workplan shall become effective. The Discharger shall use EPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:
 - ab. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of

toxicity, effluent variability, and treatment system efficiency;

- ac. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and,
 - ad. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor) (See MRP Section IV.E.3. for guidance manuals).
6. The discharge of effluents for Discharge serials Numbers 001 and 002 in excess of the following limits are prohibited:
- a. Conventional and non-conventional pollutants:

Constituent	Units	Discharge Limitations ^{4/}	
		Monthly Average	Daily maximum
BOD ₅ 20°C	mg/L	20	30
Oil and grease	mg/L	10	15
Total suspended solids	mg/L	30	100
Settleable solids	ml/L	0.1	0.3
Total residual chlorine	mg/L		0.1

^{4/} The monthly average concentration shall be the arithmetic average of all the values of daily concentrations calculated using the results of analyses of all samples collected during the month. If only one sample is taken within that month, compliance shall be based on this sample result.

The mass emission (in lbs/day) for the discharge shall be calculated and reported using the limitation concentration and the actual flow rate measured at the time of discharge, using the formula:

$$m = 8.34 C_i Q$$

where: m = mass discharge for a pollutant, lbs/day
 C_i = limitation concentration for a pollutant, mg/L
 Q = actual discharge flow rate, mgd

- b. Toxic pollutants
 - i. Discharge Serial Number 001

Constituent	Units	Discharge Limitations ^{4/}	
		Monthly Average	Daily Maximum
Hexavalent Chromium	µg/L	41	82
Copper ^{2/}	µg/L	2.4	4.8
Cyanide	µg/L	0.5	1
Dichlorobromomethane	µg/L	46	92
Silver ^{2/}	µg/L	0.95	1.9
Zinc ^{2/}	µg/L	45	90

4/ The monthly average concentration shall be the arithmetic average of all the values of daily concentrations calculated using the results of analyses of all samples collected during the month. If only one sample is taken within that month, compliance shall be based on this sample result.

The mass emission (in lbs/day) for the discharge shall be calculated and reported using the limitation concentration and the actual flow rate measured at the time of discharge, using the formula:

$$m = 8.34 C_i Q$$

where: m = mass discharge for a pollutant, lbs/day
C_i = limitation concentration for a pollutant, mg/L
Q = actual discharge flow rate, mgd

2/ Discharge limitations for these metals are expressed as total recoverable

ii. Discharge Serial Number 002

Constituent	Units	Discharge Limitations ^{4/}	
		Monthly Average	Daily Maximum
Copper ^{2/}	µg/L	2.4	4.8
Cyanide	µg/L	0.5	1.0
Mercury ^{2/}	µg/L	0.05	0.1
Silver ^{2/}	µg/L	0.95	1.9

4/ The monthly average concentration shall be the arithmetic average of all the values of daily concentrations calculated using the results of analyses of all samples collected during the month. If only one sample is taken within that month, compliance shall be based on this sample result.

The mass emission (in lbs/day) for the discharge shall be calculated and reported using the limitation concentration and the actual flow rate measured at the time of discharge, using the formula:

$$m = 8.34 C_i Q$$

where: m = mass discharge for a pollutant, lbs/day
C_i = limitation concentration for a pollutant, mg/L
Q = actual discharge flow rate, mgd

^{2/} Discharge limitations for these metals are expressed as total recoverable

7. Interim Limits:

a. Commencing with the date of this Order to June 15, 2005, Air Products shall comply with the performance-based interim limits for toxic pollutants listed below for Discharge Serial Numbers 001 and 002.

i. Discharge Serial Number 001

Constituent	Units	Discharge Limitations Monthly Average ^{4/}
Hexavalent Chromium	µg/L	45
Copper ^{2/}	µg/L	28
Cyanide	µg/L	53
Dichlorobromomethane	µg/L	68
Silver ^{2/}	µg/L	36
Zinc ^{2/}	µg/L	130

^{4/} Numerical interim limits were derived statistically using the results of interim monitoring conducted in 2001. The interim limit was set at the 95th percentile (Upper Confidence Limit) of the performance data using the formula,

$$\text{Limit} = X + [t(1,\alpha 0.05),v] * Sx$$

where,

X is the sample mean,

[t(1,α0.05),v] is the one tailed t-value for 95% confidence, at v degrees of freedom, and

Sx is the standard deviation of the sample

^{2/} Discharge limitations for these metals are expressed as total recoverable

ii. Discharge Serial Number 002

Constituent	Units	Discharge Limitations Monthly Average ^{4/}
Copper ^{2/}	µg/L	40
Cyanide	µg/L	50
Mercury ^{2/}	µg/L	2
Silver ^{2/}	µg/L	3

^{4/} Statistical analysis could not be performed because of lack of enough sampling results (only two data points for each constituents are available). All constituents, except copper are non detects and the detection value is used as the interim limit. For copper the detected value of 40 µg/L (the second value is non-detect) is used as the interim limit.

- 2/ Discharge limitations for these metals are expressed as total recoverable
- b. The Discharger shall submit quarterly progress reports to describe the progress of studies and/or actions undertaken to reduce these compounds in the effluent, and to achieve compliance with the limits in this Order by the deadline specified in provision I.B.7.c, below. The first progress report shall be received at the Regional Board by April 15, 2003.
 - c. Air Product shall submit, by July 31, 2003, a detailed engineering work plan detailing how the final limitations contained in this Order will be met. The plan shall include, at minimum, the following elements:
 - i. An engineering analysis of all water quality data collected since the adoption of the Order, along with an identification of the type of source reductions planned;
 - ii. An evaluation of treatment methods or other corrective actions to be taken to meet the requirements of this Order;
 - iii. A layout of the implementation plan, along with cost estimates for same;
 - iv. An explanation regarding any additional monitoring that will be required in order to finalize the implementation plan; and,
 - v. A schedule setting forth compliance implementation dates. There shall be no more than one year between events in the compliance implementation schedule.
 - d. The interim limits stipulated shall be in effect for a period not to extend beyond June 15, 2005. Thereafter, the Discharger shall comply with the limitations specified in Section I.B.6.b of this Order.
 - e. The Discharger must notify the Regional Board's Executive Officer, in writing, no later than 14 days following interim date, compliance implementation event, or quarterly report, of the Discharger's compliance or noncompliance with the interim requirements.

C. Receiving Water Limitations

- 1. The discharge shall not cause the following conditions to exist in the receiving waters:

- a. Floating, suspended or deposited macroscopic particulate matter or foam;
 - b. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - c. Visible, floating, suspended or deposited oil or other products of petroleum origin;
 - d. Bottom deposits or aquatic growths; or,
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge shall not cause nuisance, or adversely effect beneficial uses of the receiving water.
 3. The temperature at any time or place and within any given 24-hour period to be altered by more than 5°F above natural temperature; but at no time be raised above 80°F for waters with a beneficial use of WARM (Warm Freshwater Habitat)
 4. The discharge shall not cause the following limits to be exceeded in the receiving waters at any place within the waterbody of the receiving waters:
 - a. The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units;
 - b. Dissolved oxygen shall not be less than 5.0 mg/L anytime, and the median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation;
 - c. Dissolved sulfide shall not be greater than 0.1 mg/L;
 - d. Total ammonia (as N) shall not exceed concentrations specified in the Basin Plan (June 13,1994, Attachment H), subject to the following conditions:
 5. The discharge shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or State Board. If more stringent applicable water quality standards are promulgated or approved

pursuant to section 303 of the CWA, or amendments thereto, the Regional Board will revise or modify this Order in accordance with such standards.

6. The discharge shall not cause the following to be present in receiving waters:
 - a. Biostimulatory substances at concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses;
 - b. Chemical substances in amounts that adversely affect any designated beneficial use;
 - c. Oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the receiving water or on objects in the water;
 - d. Suspended or settleable materials in concentrations that cause nuisance or adversely affect beneficial uses;
 - e. Taste or odor-producing substances in concentrations that alter the natural taste, odor, and/or color of fish, shellfish, or other edible aquatic resources; cause nuisance; or adversely affect beneficial uses;
 - f. Substances that result in increases of BOD₅20⁰C that adversely affect beneficial uses;
7. The discharge shall not alter the color, create a visual contrast with the natural appearance, nor cause aesthetically undesirable discoloration of the receiving waters.
8. The discharge shall not degrade surface water communities and population including vertebrate, invertebrate, and plant species.
9. The discharge shall not damage, discolor, nor cause formation of sludge deposits on flood control structures or facilities nor overload their design capacity.
10. The discharge shall not cause problems associated with breeding of mosquitoes, gnats, black flies, midges, or other pests.

II. Requirements

- A. The Discharger shall immediately develop a Pollutant Minimization Plan (PMP) when there is evidence that a priority pollutant is present in the effluent above an effluent limitation.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Board:

1. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
 2. Submittal of a control strategy designed to maintain concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
 3. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and,
 4. An annual status report that shall be sent to the Regional Board including:
 - All PMP monitoring results for the previous year;
 - A list of potential sources of the reportable priority pollutant(s);
 - A summary of all actions undertaken pursuant to the control strategy; and
 - A description of corrective and preventive actions to be taken in the following year to maintain/achieve compliance.
- B. Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP):
1. An updated SWPPP that describes site-specific management practices for minimizing storm water runoff from being contaminated, and for preventing contaminated storm water runoff from being discharged directly to waters of the State.
 2. A BMPP that entails site-specific plans and procedures implemented and/or to be implemented to prevent hazardous waste/material from being discharged to waters of the State. The updated BMPP shall be consistent with the requirements of 40 CFR 125, Subpart K, and the general guidance contained in the *NPDES Best Management Guidance Document*, USEPA Report No. 600/9-79-045, December 1979 (revised June 1981). In particular, a risk assessment of each area identified by the Discharger shall be performed to determine the potential of hazardous waste/material discharge to surface waters.

Both plans shall cover all areas of the Facility and shall include an updated drainage map for the Facility. The Discharger shall identify on a map of appropriate scale the

areas that contribute runoff to the permitted discharge points; describe the activities in each area and the potential for contamination of storm water runoff and the discharge of hazardous waste/material; and, address the feasibility for containment and/or treatment of the storm water. The plans shall be reviewed annually and at the same time. These two plans are required to be updated within 90 days of the effective date of this Order and are required to be retained on site and submitted to the Regional Board upon request.

- C. The Discharger shall submit within 180 days of the effective date of this Order an updated Spill Contingency Plan. The Contingency Plan shall be site-specific and shall cover all areas of the facility. The Contingency Plan shall be reviewed at the same time as the BMPP. Updated information shall be submitted within 30 days of revision.
- D. Pursuant to the requirements of 40 CFR 122.42(a), the Discharger must notify the Board as soon as it knows, or has reason to believe (1) that it has begun or expected to begin, to use or manufacture a toxic pollutant not reported in the permit application, or (2) a discharge of toxic pollutant not limited by this Order has occurred, or will occur, in concentrations that exceed the specified limits in 40 CFR 122.42(a).
- E. In the determination of compliance with the monthly average limitations, the following provisions shall apply to all constituents:
 - 1. If the analytical result of a single sample, monitored monthly or at a lesser frequency, does not exceed the monthly average limit for that constituent, the Discharger will have demonstrated compliance with the monthly average limit for that month.
 - 2. If the analytical result of a single sample, monitored monthly or at a lesser frequency, exceeds the monthly average limit for any constituent, the Discharger shall collect three additional samples at approximately equal intervals during the month. All four analytical results shall be reported in the monitoring report for that month, or 45 days after the sample was obtained, whichever is later.

If the numerical average of the analytical result of these four samples does not exceed the monthly average limit for that constituent, compliance with the monthly average limit has been demonstrated for that month. Otherwise, the monthly average limit has been violated.
 - 3. In the event of noncompliance with a monthly average effluent limitation, the sampling frequency for that constituent shall be increased to weekly and shall continue at this level until until compliance with the monthly average effluent limitation has been demonstrated.
 - 4. Any single reported value which exceeds a daily maximum effluent concentration of the waste discharge requirements shall be considered a violation of said limit.

III. Provisions

- A. The Discharger shall comply with all the applicable items of the *Standard Provisions and Reporting for Waste Discharge Requirements* (Standard Provisions, Attachment N). If there is any conflict between provisions stated herein and the Standard Provisions, those provisions stated herein prevail.
- B. This Order includes the attached Monitoring and Reporting Program. If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the former prevail.
- C. The Discharger shall comply with the requirements in the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity [State Water Resources Control Board (State Board) Order No. 97-03-DWQ, NPDES Permit No. CAS000001].
- D. This Order neither exempt the Discharger from compliance with any other laws, regulations, or ordinances that may be applicable, nor legalize the waste disposal facility.
- E. The Discharger shall at all times properly operate and maintain all facilities and systems installed or used to achieve compliance with this Order.
- F. Pursuant to 40CFR §122.61(b), coverage under this Order may be transferred in case of change of ownership of land or discharge facility provided the existing discharger notifies the Executive Officer at least 30 days before the proposed transfer date, and the notice includes a written agreement between the existing and new dischargers containing a specific date of transfer of coverage, responsibility for compliance with this Order, and liability between them.
- G. This Order may be modified, revoked, reissued, or terminated in accordance with the provisions of 40 CFR Sections 122.44, 122.62, 122.63, 122.64, 125.62 and 125.64. Causes for taking such actions include, but are not limited to: failure to comply with any condition of this Order; endangerment to human health or the environment resulting from the permitted activity; or acquisition of newly-obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by the Discharger for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.
- H. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to their storm drain systems.

V. Reopeners

- A. Pursuant to 40CFR §122.62 and 122.63, this Order may be modified, revoked and reissued, or terminated for cause. Reasons for modification may include new information on the impact of discharges regulated under this Order become available, promulgation of new effluent standards and/or regulations, adoption of new policies and/or water quality objectives, and/or new judicial decisions affecting requirements of this Order,
- B. This Order may be reopened and modified, in accordance with SIP Section 2.2.2.A, to incorporate new limits based on future reasonable potential analysis to be conducted, upon completion of the collection of additional data by the Discharger.
- C. This Order may be reopened and modified, to incorporate in accordance with the provisions set forth in 40 CFR Parts 122 and 124, to include requirements for the implementation of the watershed management approach.
- D. This Order may be reopened and modified, in accordance with the provisions set forth in 40 CFR Parts 122 and 124, to include new Minimum Levels.
- E. This Order may be reopened and modified, to revise effluent limitations as a result of future Basin Plan Amendments, such as an update of the Ammonia objective, or the adoption of a TMDL for Dominguez Channel estuary.
- F. This Order may be reopened and modified, to revise the toxicity language once that language becomes standardized.
- G. This Order may also be reopened and modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR Sections 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this order and permit, endangerment to human health or the environment resulting from the permitted activity.

VI. Expiration Date

This Order expires on November 10, 2007.

The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

VII. Rescission

Order No. 94-116, adopted by this Regional Board on December 5, 1994, is hereby

Air Products and Chemicals, Inc.
Wilmington Hydrogen Facility
Order No. R4-2002-0186

CA0063363

rescinded except for enforcement purposes.

I, Dennis Dickerson, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 12, 2002.

Dennis A. Dickerson
Executive Officer