

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. 86-92

FOR

TELEDYNE RYAN AERONAUTICAL
NEAR LINDBERGH FIELD
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

1. Teledyne Ryan Aeronautical is a major aircraft manufacturing company in the City of San Diego. In 1969, Teledyne Ryan Aeronautical became a division of Teledyne Industries, Inc. The Teledyne Ryan Aeronautical plant is located on a 44-acre site at 1701 Harbor Drive, which is adjacent to the San Diego International Airport. Teledyne Ryan Aeronautical is located in an area in which other industries and facilities are located. The facilities at this site include engineering departments, manufacturing and production areas, research and testing laboratories, and office space. The facilities cover approximately 1.1 million square feet of floor space.
2. Teledyne Ryan Aeronautical's primary operations include fabrication and assembly of airframes for various types of aircraft. Various plant operations at Teledyne Ryan Aeronautical use cutting oils, lubricants, and a variety of cleaning solvents. Such substances as lead, copper, chromium, and zinc are elements of materials used in priming, painting, and metal working operations at the plant. Teledyne Ryan Aeronautical also uses electrical transformers and capacitors which use fluids containing polychlorinated biphenyls (PCBs). Various industrial organic compounds are also used at the Teledyne Ryan Aeronautical facility. Other facilities located in the area of Teledyne Ryan Aeronautical may also use these same substances.
3. The *Comprehensive Water Quality Control Plan Report, San Diego Basin (9)* (Basin Plan) was adopted by this Regional Board on March 17, 1975; approved by the State Water Resources Control Board on March 20, 1975; and updated by the Regional Board on February 27, 1978; March 23, 1981; January 24 and October 3, 1983; and August 27, 1984. The 1978, 1981, 1983 and 1984 updates were subsequently approved by the State Board.
4. The Basin Plan establishes the following prohibitions on waste discharges to coastal surface waters subject to tidal action, which includes San Diego Bay:
 - a. "The discharge of industrial wastewaters exclusive of cooling water, clear brine or other waters which are essentially chemically unchanged, into waters subject to tidal action is prohibited."
 - b. "The dumping or deposition of chemical wastes, chemical agents or explosives into water subject to tidal action is prohibited."

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5. The Basin Plan also establishes the following beneficial uses for waters of the San Diego Bay:
 - a. Industrial Service Supply
 - b. Navigation
 - c. Water Contact Recreation
 - d. Noncontact Water Recreation
 - e. Ocean Commercial and Sport Fishing
 - f. Saline Water Habitat
 - g. Preservation of Rare and Endangered Species
 - h. Marine Habitat
 - i. Fish Migration
 - j. Shellfish Harvesting
6. California Water Code Section 13050 defines pollution as an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects (1) such waters for beneficial uses, or (2) facilities which serve such beneficial uses.
7. Storm runoff from the Teledyne Ryan Aeronautical facility flows into five separate storm drain systems. One of these storm drain systems, which is referred to as the 15-inch storm drain system, collects stormwater runoff from the eastern portion of Teledyne Ryan Aeronautical property, and discharges into the San Diego Bay east of Convair Lagoon. Three of the storm drain systems, one 30-inch diameter drain, one 54-inch diameter drain, and one 60-inch diameter drain discharge into the Convair Lagoon portion of San Diego Bay. Two of these storm drain systems, the 54-inch and 60-inch diameter storm drains, originate beyond the limits of and upgradient from the Teledyne Ryan Aeronautical plant site and receive storm runoff from other sources including the General Dynamics, Convair Division plant and the San Diego International Airport - Lindbergh Field. The 30-inch diameter drain originates at the Teledyne Ryan Aeronautical plant site. The 30-inch storm drain system receives storm runoff from the Teledyne Ryan Aeronautical plant site and, according to Teledyne Ryan Aeronautical personnel, also receives storm runoff from the adjacent Lindbergh Field. The previously mentioned 30-inch, 54-inch and 60-inch diameter storm drain systems discharge into the Convair Lagoon portion of San Diego Bay. Several additional storm drain pipes which do not receive storm runoff from Teledyne Ryan Aeronautical also discharge into the Convair Lagoon portion of San Diego Bay. In addition, Convair Lagoon has been used for many years as a dumping ground for derelict boats.
8. On February 28, March 29, May 31, and October 11, 1985, Regional Board staff conducted a comprehensive sampling study of the storm drains located on Teledyne Ryan Aeronautical property. Regional Board staff collected sediment and water samples from storm drain sumps for heavy metals, PCBs, and volatile organic compounds. The results of these analyses revealed that PCBs, some metals, and certain volatile organic compounds, were present in the Teledyne Ryan Aeronautical storm drain sumps. The Regional Board staff sampling data is contained in the Regional Board files.

9. Monitoring performed by Regional Board staff on June 13, 1983, June 28, 1984 and May 2-3, 1985 at locations in Convair Lagoon adjacent to the 30-inch, 54-inch, and 60-inch storm drain outlets which discharge into the Convair Lagoon portion of San Diego Bay shows elevated levels of PCBs in the San Diego Bay sediments. The San Diego Bay sediment sample results are contained in the Regional Board files.
10. Further evidence of elevated concentrations of PCBs in Convair Lagoon was obtained by the California State Mussel Watch Program. The California State Mussel Watch Report for 1984-85 states that dry, wet and lipid weight levels of PCB's in mussel tissue planted in Convair Lagoon have consistently been the highest ever measured in the history of the State Mussel Watch Program. The wet weight total PCB level of 2.4 mg/kg detected by the State Mussel Watch Program in 1984/85 exceeds the United States Food and Drug Administration tolerance level of 2.0 mg/kg, wet weight for PCB's in fish and shellfish. As a result the County of San Diego, Department of Health Services has posted Convair Lagoon to restrict the collection and consumption of mussels from the area. Prior to 1985 the tolerance level for total PCB's was set at 5.0 mg/kg wet weight. As a result previously high levels of total PCB's in the Convair Lagoon mussel tissue had not exceeded the pre-1985 USFDA tolerance level. However, the 3.79 mg/kg wet weight of total PCB's measured by the State Mussel Watch Program in 1982-83 and the 2.01 mg/kg of total PCB's measured in 1983-84 provide confirmation that the 1984-85 PCB results are not isolated measurements.
11. As shown in previous findings, Regional Board staff sampling to date has detected PCBs in the sediment contained in storm drain sumps on Teledyne Ryan Aeronautical property. The highest concentrations of PCBs were found in the 30-inch diameter storm drain system which flows to the Convair Lagoon portion of San Diego Bay. The Regional Board believes that the data collected to date provides ample evidence that PCB contaminated sediment was carried into San Diego Bay by storm water runoff. Therefore, the Regional Board concludes that the PCB contaminated sediment in the 30-inch storm drain system has, at a minimum, contributed to the elevated PCB concentrations found in the sediment of Convair Lagoon. Furthermore, the PCBs found in the 30-inch diameter storm drain sumps located on Teledyne Ryan Aeronautical property at present would also be discharged into Convair Lagoon during future rainfall events.
12. Regional Board staff has initiated an expanded investigation to attempt to identify other possible contributors to the PCB contamination problem in Convair Lagoon.
13. The discharge of PCB's from the 30-inch diameter storm drain system located on Teledyne Ryan Aeronautical property into Convair Lagoon has, at a minimum, contributed to the creation of a condition of pollution in Convair Lagoon in accordance with the following rationale:
 - a. State Mussel Watch sampling of Convair Lagoon in 1982/83, 1983/84 and 1984/85 revealed PCB concentrations in mussel tissue of 3.79 mg/kg (wet weight), 2.01 mg/kg (wet weight) and 2.4 mg/kg (wet weight) respectively. These values exceed the current U.S. Food and Drug

Administration tolerance level of 2 mg/kg (wet weight) which was established in 1985. As a result, the San Diego County Health Department has quarantined the Convair Lagoon portion of San Diego Bay to prevent the collection of shellfish for human consumption.

- b. As stated in previous findings, the Basin Plan establishes one beneficial use of San Diego Bay to be shellfish harvesting, which includes the collection of clams, oysters, abalone, shrimp, crab and lobster for either commercial or sport purposes. The discharge of PCBs into Convair Lagoon has resulted in the impairment of the shellfish harvesting beneficial use of the Convair Lagoon portion of San Diego Bay.
 - c. Discharges of PCBs into San Diego Bay also threaten to impair other beneficial uses of the waters in San Diego Bay. These include Water Contact Recreation, Ocean Commercial and Sport Fishing, Saline Water Habitat, and Marine Habitat. The presence of PCBs in the environment at certain concentrations have been found to cause toxic effects in man and animals, particularly if repeated exposures occur.
 - d. The impairment of beneficial uses in the Convair Lagoon portion of San Diego Bay by elevated levels of PCBs has created a condition of pollution, as defined by the California Water Code and stated in Finding No. 6. Therefore, the discharge of PCBs into Convair Lagoon from the 30-inch storm drain system located on Teledyne Ryan Aeronautical property has contributed to the pollution in Convair Lagoon.
14. As stated in previous findings, Regional Board staff sampling to date has detected the presence of PCBs and other chemicals in the storm drain system at Teledyne Ryan Aeronautical which flows to the Convair Lagoon portion of San Diego Bay. During rainfall events, contaminated sediment and other waste material present in the storm drain system are carried by stormwater runoff into San Diego Bay. These waste discharges into San Diego Bay constitute violations and threatened violations of the Basin Plan prohibitions as stated in Finding No. 4.
 15. On September 19, 1986, Teledyne Ryan Aeronautical voluntarily submitted to Regional Board staff a report dated September, 1986 entitled *Proposed Storm Drain Sediment Removal and Catch Basin Sediment Sampling Methodology*. By letter dated September 25, 1986, Teledyne Ryan Aeronautical transmitted copies of revised pages for this report. The aforementioned report and revisions is hereinafter referred to as the TRA Proposal. The TRA proposal outlines the steps which Teledyne Ryan Aeronautical proposes to take to remove contaminated sediment from portions of the storm drain system on its property. In addition, the proposal discusses procedures for sample collection, worker health and safety, and sample collection and analyses. A map showing the location of storm drains on Teledyne Ryan Aeronautical property was also included with the cleanup proposal. This map contains a detailed numbering system which assigns a different number to each storm drain sump entering the storm drain system. These sump numbers will be used in this Order to identify particular sumps on Teledyne Ryan Aeronautical property.

16. Procedures for removing contaminated sediment from the 30-inch storm drain system as described in the TRA Proposal and modified by the Regional Board are outlined below:
- a. Separate Department of Transportation-approved drums will be marked with the catch basin number for each of the basins within the system (140-154). In catch basins which contain free water, the water will be removed first and absorbed by vermiculite in a 55 gallon drum. In catch basins containing a depth of six inches (6") or more of sedimentary material, one sample shall be collected of each six inch (6") depth of sediment starting from the sediment surface. The bottommost vertical sediment portion, if less than six inches (6") shall also be sampled where, in the opinion of Regional Board staff, a sufficient sample size can be collected. All sedimentary materials will then be shovelled out of each catch basin and placed into the designated drum. Loose materials will be vacuumed from the catch basin using a large industrial vacuum. All vacuum exhaust air will pass through a high-efficiency particle absorption (HEPA) filter. Subsequently, the interconnecting lines will be cleaned as outlined below. When line cleaning has been completed and the cleaning materials and sediment have been collected, all drop box walls and floors will be cleaned with a rotating wire brush. All loose materials will be removed with the vacuum described above. Once all cleaning has been completed, the walls and floors of each drop box will be cleaned with cotton pads saturated with a strongly alkaline (pH approximately 13) surfactant. This material has been repeatedly shown to be effective in PCB removal from floor slabs, walls, and other concrete structures.
 - b. All collected sediment materials stored in drums will be thoroughly mixed and retained in separate drums for a period of at least 60 days. The sediment materials in those drums as well as the sediment samples collected in place shall be subsequently analyzed for PCB's and heavy metals. Teledyne Ryan Aeronautical will notify Regional Board staff of the date that the samples will be collected in place from each sump or mixed and collected from each drum in advance of such activities so that splits can be collected if desired or Regional Board staff may witness the proceeding. At the time of sample collection, three split samples will be prepared. One set of samples will be provided to the Regional Board and the other two sets of samples will be transported to an EPA certified and DOHS certified laboratory retained by Teledyne Ryan Aeronautical. At the laboratory, one set of samples will be prepared for heavy metals and PCBs analyses. Fifty percent (50%) of sample extract for PCBs will be analyzed immediately and the remainder will be held for the maximum holding period of 30 days from date of sample collection for subsequent analysis if required. Similarly, the extract for samples digested for heavy metals analyses will be held for the maximum holding period of 30 days for later analysis if required. The second set of samples will be held indefinitely by the laboratory.

- c. The 30-inch storm drain system interconnecting lines between sumps 140 and 154 will be cleaned using dry steam at 360°F, at a pressure of up to 1700 pounds per square inch (psi), and at a water flow rate not-to-exceed 1 gallon per minute (gpm). Unlike hydroblasting, which typically is carried out at high pressures in the range of 2000-10000 psi, the dry steam proposed for this activity will be used under the lowest pressure feasible to dislodge sediment and other materials adhering to pipe bores and the low flow water feed rate will be adjusted to allow resultant water flow to carry sediment and other cleaned materials out of the pipe and into the next receiving basin for collection and solidification. This proposed process will generate approximately one gallon per minute whereas a technique such as hydroblasting generates up to 10 gallons per minute and could force PCBs, if any, into the concrete due to extremely high operating pressures.
17. The Teledyne Ryan Aeronautical proposal as modified by the Regional Board, describes the following methodology for sediment removal from sumps 56, 57, 58, 66 and 67 on the 54-inch storm drain system and sumps 92, 130, and 133 on the 60-inch storm drain system:
 - a. In catch basins which contain free water, the water will be removed first and absorbed by vermiculite in a 55 gallon drum. With the exception of sump 58, an in place sediment sample shall be collected from each catch basin. In catch basins containing a depth of six inches (6") or more of sedimentary material, one sample shall be collected of each six inch (6") depth of sediment starting from the sediment surface. The bottommost vertical sediment portion, if less than six inches (6") shall also be sampled where, in the opinion of Regional Board staff, a sufficient sample size can be collected. All sedimentary materials will then be shovelled out of each catch basin and placed into a double polyethylene-lined waste bin for storage. Subsequently, all drop box walls and floors will be cleaned with a rotating wire brush. All loose materials will be removed with a large industrial vacuum. Exhaust air from the vacuum will pass through a high efficiency particle absorption (HEPA) filter. Vacuumed materials will be added to the sediment stores in the waste storage bin.
 - b. All collected sediment materials stored in drums will be thoroughly mixed and retained in separate drums for a period of at least 60 days. The sediment materials in those drums as well as the sediment samples collected in place shall be subsequently analyzed for PCB's and heavy metals. Teledyne Ryan Aeronautical will notify Regional Board staff of the date that the samples will be collected in place from each sump or mixed and collected from each drum in advance of such activities so that splits can be collected if desired or Regional Board staff may witness the proceeding. At the time of sample collection, three split samples will be prepared. One set of samples will be provided to the Regional Board and the other two sets of samples will be transported to an EPA certified and DOHS certified laboratory retained by Teledyne Ryan Aeronautical. At the laboratory, one set of samples will be prepared for heavy metals and PCBs

analyses. Fifty percent (50%) of sample extract for PCBs will be analyzed immediately and the remainder will be held for the maximum holding period of 30 days from date of sample collection for subsequent analysis if required. Similarly, the extract for samples digested for heavy metals analyses will be held for the maximum holding period of 30 days for later analysis if required. The second set of samples will be held indefinitely by the laboratory.

18. Additional sampling is necessary to determine whether additional cleanup is required of storm drain sumps and pipe sections that comprise the 54-inch, 60-inch and 15-inch diameter storm drain systems. In the report submitted in September, 1986, Teledyne Ryan Aeronautical proposed a plan for additional sampling, which included heavy metal analysis of sediment from four storm drain sumps on the 54-inch storm drain systems and three on the 60-inch storm drain system. Upon review of the proposed storm drain sampling program, Regional Board staff concluded that additional storm drain sump sampling is necessary to ascertain the possible presence of contaminants in the 54-inch, 60-inch and 15-inch diameter storm drain systems.
19. This enforcement action is exempt from the provisions of the California Environmental Quality Act in accordance with Section 15321, Chapter 3, Title 14, of the California Administrative Code.
20. Teledyne Ryan Aeronautical has cooperated fully with the Regional Board staff in its Convair Lagoon investigation. Teledyne Ryan Aeronautical desires to resolve this matter in an expeditious manner and therefore has consented to the issuance and entry of this Order and agrees to be bound by the provisions, terms and conditions of this Order. By consenting to this Order, Teledyne Ryan Aeronautical does not admit the validity of any claim or admit any liability arising under Federal, State, or local law from any conditions present at its facility or in Convair Lagoon, nor does it admit any issue of law or fact other than its obligation to comply with this Order.

IT IS HEREBY ORDERED, That pursuant to Section 13304 of the California Water Code, Teledyne Ryan Aeronautical shall comply with the following directives:

1. By December 15, 1986, Teledyne Ryan Aeronautical shall submit to the Regional Board a report containing a detailed description of all cleaning, maintenance and construction activities carried out on storm drains traversing Teledyne Ryan Aeronautical property from January 1, 1980 to the present.
2. By November 1, 1986, Teledyne Ryan Aeronautical shall remove all contaminated sediment and other wastes from the sumps and interconnecting storm drain lines of the 30-inch storm drain system located on Teledyne Ryan Aeronautical property which includes sumps and interconnecting pipes from sump 140 through sump 154. Removal of sediment from this storm drain system shall be in accordance with the procedures described in Finding No. 16 of this Order. Sediment samples collected from each sump shall be

analyzed for PCB's and heavy metals. For each sample, concentrations of individual PCB species shall be reported as well as the total PCB concentration.

3. By November 1, 1986, Teledyne Ryan Aeronautical shall remove all contaminated material and other wastes from sumps 56, 57, 58, 66 and 67 on the 54-inch storm drain system and sumps 92, 130, and 133 on the 60-inch storm drain system located on Teledyne property. Removal of wastes from these sumps shall be in accordance with the procedures outlined in Finding No. 17 of this Order. Samples of the sediment removed from each individual storm drain sump shall be analyzed for heavy metals and PCBs. For each sample, concentrations of individual PCB species shall be reported as well as the total PCB concentration.
4. By November 1, 1986, Teledyne Ryan Aeronautical shall collect sediment samples from storm drain sumps 21, 43, 45, 47, 55, 64, 91, 102, 124, 132, 173, and 181. An in place sediment sample shall be collected from each catch basin. In catch basins containing a depth of six inches (6") or more of sedimentary material, one sample shall be collected of each six inch (6") depth of sediment starting from the sediment surface. The bottommost vertical sediment portion, if less than six inches (6") shall also be sampled where, in the opinion of Regional Board staff, a sufficient sample size can be collected. Samples of the sediment removed from each individual storm drain sump shall be analyzed for heavy metals and PCBs. For each sample, concentrations of individual PCB species shall be reported as well as the total PCB concentration. If no sample can be collected from any one of these sumps, Teledyne Ryan Aeronautical may, upon approval from Regional Board staff, collect a sample from an alternative sump.
5. Selection, transport and analyses of sediment samples shall be in accordance with the procedures contained in 40 CFR Part 261, Identification and Listing of Hazardous Waste and as set forth in Appendix B of the TRA Proposal. Teledyne Ryan Aeronautical shall consult with the Regional Board Executive Officer for the procedures to be used for collection of vertical sediment samples.
6. The removal of contaminated sediment from storm drain sumps and interconnecting lines on Teledyne Ryan Aeronautical property shall not cause any wastes to be discharged into San Diego Bay.
7. All waste removed from storm drain sumps and interconnecting lines on Teledyne Ryan Aeronautical property shall be disposed of in conformance with federal, state and local laws and regulations.
8. By December 15, 1986, Teledyne Ryan Aeronautical shall submit an application for a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES application shall include a best management practices (BMP) plan which complies with the regulations specified in 40 CFR, Part 131, Subpart K, *Criteria and Standards for Best Management Practices Authorized Under Section 304(e) of the Act*. The purpose of the BMP plan is to prevent, or minimize the potential for, the release of toxic substances from ancillary activities to the waters of the United States

through plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. More specifically, the BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps.
 - b. Establish specific objectives for the control of toxic and hazardous pollutants.
 - (1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of toxic or hazardous pollutants to waters of the United States due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances to result in significant amounts of toxic or hazardous pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow and total quantity of toxic or hazardous pollutants which could be discharged from the facility as a result of each condition or circumstance.
 - c. Establish specific Best Management Practices to meet the objectives identified under Paragraph b of this section, addressing each component or system capable of causing a release of significant amounts of toxic or hazardous pollutants to the waters of the United States.
 - d. Be reviewed by plant engineering staff and the plant manager; and
 - e. Include the following elements:
 - (1) BMP Committee
 - (2) Reporting of BMP Incidents
 - (3) Risk Identification and Assessment
 - (4) Employee Training
 - (5) Inspections and Records
 - (6) Preventive Maintenance
 - (7) Good Housekeeping
 - (8) Materials Compatibility
 - (9) Security
9. Teledyne Ryan Aeronautical shall obtain approval from the Regional Board staff for any proposed modifications of the cleanup and sampling plan outlined in this Order prior to implementing such modifications.
10. If, for any reason, Teledyne Ryan Aeronautical is unable to perform any activity or submit any document in compliance with the schedule set forth herein or in compliance with any work schedule submitted pursuant to this Order and approved by the Regional Board, or new information indicates

that revisions to this Order are appropriate, Teledyne Ryan Aeronautical may request, in writing, an extension of the time specified or other appropriate revisions to this Order. The request shall include a justification for the extension or other revision. If the Regional Board is convinced that an extension or other revision of this Order is appropriate it will revise the Order accordingly. The discharger shall comply with the revised Order.

Ladin H. Delaney

LADIN H. DELANEY
Executive Officer

Date: October 17, 1986

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