CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 7698
for
TRW Inc. (Hawthorne Site)
(NPDES NO. CA0063916)

I. Reporting Requirements

A. TRW Inc. (TRW or Discharger) shall implement this monitoring program on the effective date of this Order. All monitoring reports should be addressed to the Regional Board, Attention: Information Technology Unit.

Monitoring reports shall be submitted according to the following schedule.

Reporting Period	Report Due
January-March	April 15
April -June	July 15
July -September	October 15
October-December	January 15
Annual Summary Report	March 1

B. If there is no discharge during any reporting period, the report shall so state.

C. The Discharger shall submit an annual summary report containing a discussion of the previous year's effluent data, as well as graphical and tabular summaries of the data. The data shall be submitted to the Regional Board on hard copy and on a 3 ½-inch computer diskette. Submitted data must be IBM compatible, preferably using EXCEL software. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with waste discharge requirements. This annual report is to be received by the Regional by March 1 of each year following the calendar year of data collection.

D. The Discharger shall inform the Regional Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

E. The Discharger shall notify Regional Board staff of the date when groundwater discharges will commence and terminate.

II. Effluent Monitoring Requirements

A. A sampling station shall be established for each points of discharge and shall be located where representative samples of that effluent can be obtained.

B. This Regional Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.

C. Pollutants shall be analyzed using the analytical methods described in 40 CFR 136.3, 136.4, and 136.5 (revised May 14, 1999); or where no methods are specified for a given pollutant, by methods approved by this Regional Board or State Board. Laboratories analyzing effluent and/or receiving water samples must be certified by the California Department of Health Services and must include quality assurance/quality control (QA/QC) data in their reports. For the purpose of monitoring pH, residual chlorine, and temperature, tests may be conducted at the field sampling location or in a mobile laboratory provided that all requirements of the approved analytical methods for NPDES use in 40 CFR 136 are met.

The monitoring reports shall specify the analytical method used, the method detection limit (MDL) and the minimum level (ML) for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported by one of the following methods, as appropriate:

1. An actual numerical value for sample results greater than or equal to the ML; or,

2. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML; or,

3. "Not-Detected (ND)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used.

Current MLs (Attachment T-1) are those published by the State Water Resources Control Board (State Board) in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, March 2, 2000*.

D. Where possible, the MLs employed for effluent analyses shall be lower than the permit limits established for a given parameter. If the ML value is not below the effluent limitation, then the lowest ML value and its associated analytical method shall be selected for compliance purposes. At least once a year, the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory QA/QC procedures.

The Regional Board, in consultation with the State Board Quality Assurance Program, shall establish an ML that is not contained in Attachment T-1, to be included in the Discharger's permit, in any of the following situations:

1. When the pollutant under consideration is not included in Attachment T-1;

2. When the Discharger and the Regional Board agree to include in the permit a test method that is more sensitive than those specified in 40 CFR 136 (revised May 14, 1999);

3. When the Discharger agrees to use an ML lower than those listed in Attachment T-1;

4. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Attachment T-1 and proposes an appropriate ML for their matrix; or,

5. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved method 1613 for dioxins and furans, method 1624 for volatile organic substances, and method 1625 for semi-volatile organic substances. In such cases, the Discharger, the Regional Board, and the State Board shall agree on a lowest quantifiable limit, and that limit will substitute for the ML for reporting and compliance determination purposes.

E. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC items must be run on the same dates the samples were actually analyzed, and the results shall be reported in the Regional Board format (when it becomes available) and submitted with the laboratory reports. Proper chain of custody procedures must be followed and a copy of the chain of custody shall be submitted with the report.

III. Effluent Monitoring Program

The following shall constitute the effluent monitoring program for the effluent:

Constituent	Units	Type of Sample	Monitoring Frequency
Total flow	gal/day	---	quarterly
Temperature	^{o}F or ^{o}C	grab	quarterly
pH	pH units	grab	quarterly
Suspended solids	mg/L	grab	quarterly
$BOD_5 20^{o}C$	mg/L	grab	quarterly
Oil and grease	mg/L	grab	quarterly
Residual chlorine	mg/L	grab	quarterly
Turbidity	NTU	grab	quarterly
Dissolved oxygen	mg/L	grab	quarterly
Sulfides	mg/L	grab	quarterly
Phenols	mg/L	grab	quarterly
Phenolic compounds (chlorinated)	µg/L	grab	quarterly
Benzene	µg/L	grab	quarterly
Toluene	µg/L	grab	quarterly
Xylene	µg/L	grab	quarterly
Ethylbenzene	µg/L	grab	quarterly
Carbon tetrachloride	µg/L	grab	quarterly
Tetrachloroethylene	µg/L	grab	quarterly
Trichloroethylene	µg/L	grab	quarterly
1,1,1-trichloroethane	µg/L	grab	quarterly
1,4-dichlorobenzene	µg/L	grab	quarterly
1,1-dichloroethane	µg/L	grab	quarterly
1,2-dichloroethane	µg/L	grab	quarterly
1,1-dichloroethylene	µg/L	grab	quarterly
Vinyl chloride	µg/L	grab	quarterly
Acetone	µg/L	grab	quarterly
Chromium (VI)	µg/L	grab	quarterly

Constituent	Units	Type of Sample	Monitoring Frequency
Arsenic	µg/L	grab	quarterly
Cadmium	µg/L	grab	quarterly
Copper	µg/L	grab	quarterly
Lead	µg/L	grab	quarterly
Mercury	µg/L	grab	quarterly
Silver	µg/L	grab	quarterly
Selenium	µg/L	grab	quarterly
Zinc	µg/L	grab	quarterly
Toxicity – acute[1]	% survival	grab	annually
Toxicity – chronic[1]	TUc[2]	grab	annually

1/ See Section V.

2/ TUc = 100/NOEC, where NOEC is "no observed effect concentration" and is expressed as the maximum percent effluent concentration that causes no observable effect on an organism.

IV. Interim Monitoring Program

The Discharger is required to monitor for the following constituents on a quarterly basis for one year. The detection levels used for sample analyses must be consistent with the requirements specified in Attachment T-1. The results of analyses will be used to perform RPA and to determine which constituent (if any) requires a CTR-based effluent limitation.

Constituent	Units	Type of Sample
Antimony	µg/L	grab
Nickel	µg/L	grab
Thallium	µg/L	grab
Chlorobenzene	µg/L	grab
1,2-dichlorobenzene	µg/L	grab
1,3-dichlorobenzene	µg/L	grab
Hexachlorobenzene	µg/L	grab
Chlorodibromomethane	µg/L	grab
Dichlorobromomethane	µg/L	grab
1,2-dichloropropane	µg/L	grab
1,3-dichloropropylene	µg/L	grab
Methyl bromide	µg/L	grab
Methylene chloride	µg/L	grab
1,1,2,2-tetrachloroethane	µg/L	grab
1,2-trans-dichloroethylene	µg/L	grab
1,1,2-trichloroethane	µg/L	grab
Acenaphthene	µg/L	grab
Acenaphthylene	µg/L	grab
Anthracene	µg/L	grab
Benzidine	µg/L	grab
Benzo(a)anthracene	µg/L	grab

Constituent	Units	Type of Sample
Benzo(a)pyrene	µg/L	grab
Benzo(b)fluoranthene	µg/L	grab
Benzo(ghi)perylene	µg/L	grab
Benzo(k)fluoranthene	µg/L	grab
Bis(2-chloroethoxy)methane	µg/L	grab
Bis(2-chloroethyl)ether	µg/L	grab
Bis(2-chloroisopropyl) ether	µg/L	grab
Bis(2-ethylhexyl) phthalate	µg/L	grab
Butylbenzyl phthalate	µg/L	grab
2-chloronaphthalene	µg/L	grab
Chrysene	µg/L	grab
Dibenzo(a,h)anthracene	µg/L	grab
3,3'-dichlorobenzidine	µg/L	grab
Diethyl phthalate	µg/L	grab
Dimethyl phthalate	µg/L	grab
Di-n-butyl phthalate	µg/L	grab
2,4-dinitrotoluene	µg/L	grab
1,2-diphenylhydrazine	µg/L	grab
Fluoranthene	µg/L	grab
Fluorene	µg/L	grab
Hexachlorobutadiene	µg/L	grab
Hexachlorocyclopentadiene	µg/L	grab
Hexachloroethane	µg/L	grab
Indeno(1,2,3-cd)pyrene	µg/L	grab
Isophorone	µg/L	grab
Nitrobenzene	µg/L	grab
N-nitrosodimethylamine	µg/L	grab
N-nitrosodi-n-propylamine	µg/L	grab
N-nitrosodiphenylamine	µg/L	grab
Pyrene	µg/L	grab
Aldrin	µg/L	grab
alpha-BHC	µg/L	grab
beta-BHC	µg/L	grab
gamma-BHC	µg/L	grab
Chlordane	µg/L	grab
4,4'-DDT	µg/L	grab
4,4'-DDE	µg/L	grab
4,4'-DDD	µg/L	grab
Dieldrin	µg/L	grab
alpha-endosulfan	µg/L	grab
beta-endosulfan	µg/L	grab
Endosulfan sulfate	µg/L	grab
Endrin	µg/L	grab
Endrin aldehyde	µg/L	grab
Heptachlor	µg/L	grab
Heptachlor epoxide	µg/L	grab
Polychlorinated biphenyls[1]	µg/L	grab

Constituent	Units	Type of Sample
Toxaphene	µg/L	grab
TCDD[2]	µg/L	grab

1/ The sum of Aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016.

2/ The Discharger shall conduct effluent/receiving water monitoring for the presence of the 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD or Dioxin) congeners. A grab sample shall be collected twice per year for one year. The Discharger shall calculate the Toxic equivalence (TEQ) for each congener by multiplying its analytical concentration by the appropriate Toxicity Equivalence Factor (TEF) listed below:

Congeners	(TEF)
2,3,7,8-tetra CDD	1.0
1,2,3,7,8-penta CDD	1.0
1,2,3,4,7,8-hexa CDD	0.1
1,2,3,6,7,8-hexa CDD	0.1
1,2,3,7,8,9-hexa CDD	0.1
1,2,3,4,6,7,8-hepta CDD	0.01
Octa CDD	0.0001
2,3,7,8-tetra CDF	0.1
1,2,3,7,8-penta CDF	0.05
2,3,4,7,8-penta CDF	0.5
1,2,3,4,7,8-hexa CDF	0.1
1,2,3,6,7,8-hexa CDF	0.1
1,2,3,7,8,9-hexa CDF	0.1
2,3,4,6,7,8-hexa CDF	0.1
1,2,3,4,6,7,8-hepta CDF	0.01
1,2,3,4,7,8,9-hepta	0.01
Octa CDF	0.0001

V. Toxicity Monitoring Program

A. Acute Toxicity Effluent Monitoring Program:

I. The Discharger shall conduct acute toxicity tests on effluent grab samples by methods specified in 40 CFR Part 136 which cites USEPA's Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, August, 1991 (EPA/600/4-90/027) or a more recent edition to ensure compliance in 100 % effluent.

II. The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish effluent. The method for topsmelt is found in USEPA's Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine to Freshwater Organisms, First Edition, August 1995 (EPA/600/4-95/136).

III. In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 48 hours of the chronic toxicity test as the results of the acute toxicity test.

B. Chronic Toxicity Effluent Monitoring Program:

I. The Discharger shall conduct critical life stage chronic toxicity tests on effluent samples (24-hour composite) or receiving water samples in accordance with EPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Third Edition, July 1994 (EPA/600/4-91/002)* or EPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, August 1995, (EPA/600/R-95/136).*

II. Effluent samples shall be collected after all treatment processes and before discharge to the receiving water.

III. Test Species and Methods:

a. The Discharger shall conduct short-term tests with the cladoceran, water flea (*Ceriodaphnia dubia* - survival and reproduction test), the fathead minnow (*Pimephales promelas* - larval survival and growth test), and the green alga (*Selenastrum capricornutum* - growth test) as an initial screening process for a minimum of three, but not to exceed five, suites of tests to account for potential variability of the effluent / receiving water. After this screening period, monitoring shall be conducted using the most sensitive species.

b. Every 18 months, the Discharger shall re-screen once with the three species listed above and shall continue to monitor with the most sensitive species. Re-screening shall be conducted at a different time of year from the previous re-screening.

c. The presence of chronic toxicity shall be estimated as specified in EPA' s *Short-Term Methods for Estimating Chronic Toxicity of Effluent and Receiving Waters to FreshWater Organisms, Third Edition, July 1994 (EPA/600/4-91/002).*

C. Quality Assurance

i. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

ii. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manuals (EPA/600/4-91/002 and EPA/600/R-95/136), then the Discharger must re-sample and re-test within 14 days of notification by the laboratory of an invalid test.

iii. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

D. Accelerated Monitoring

i. If toxicity is detected as defined in Order No. 01-177, Sections IV.B.4 or IV.B.5, then the Discharger shall conduct six additional tests, approximately every 7 days, over a six-week period. The samples shall be collected and the tests initiated no less than 7 days apart. 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 two of the six tests exceed 1.0 $TU_{c,}$ the Discharger shall immediately implement the Initial Investigation TRE Workplan.

ii. If implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall return to the normal sampling frequency required in Section III of this Monitoring and Reporting Program (MRP).

iii. If toxicity is not detected in any of the six additional tests required above, then the Discharger may return to the normal sampling frequency required in Section III of this MRP.

iv. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Parts 4.b or 5.b of Order No. 01-177, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

v. The Discharger shall obtain 6 consecutive chronic toxicity results less than or equal to 1.0 TUc in order to return to the normal sampling frequency required in Section III of this MRP.

E. Steps in Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE)

i. Following a TRE trigger, the Discharger shall initiate a TRE in accordance with the facility's initial investigation TRE workplan. At a minimum, the Discharger shall consult EPA manual EPA/600/2-88/070 (industrial) as guidance. The Discharger will expeditiously develop and implement a more detailed TRE workplan for submittal to the Executive Officer within 15 days of the trigger, which includes:

1. Further actions to investigate and identify the cause of toxicity;

2. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity;

3. Standards the Discharger will apply to consider the TRE complete and for the return to normal sampling frequency; and,

4. A schedule for these actions.

ii. The following is a stepwise approach in conducting the TRE:

1. Step 1 includes basic data collection;

2. Step 2 evaluates optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals;

3. If Steps 1 and 2 are unsuccessful, Step 3 implements a Toxicity Identification Evaluation (TIE) and employment of all reasonable efforts using currently available TIE methodologies. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity;

4. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options;

5. Step 5 evaluates within plant treatment options; and,

6. Step 6 consists of confirmation once a toxicity control method has been implemented.

Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of efforts, evidence of complying with those requirements may be sufficient to comply with TRE requirements. By requiring the first steps of a TRE to be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages. All reasonable steps shall be taken to reduce toxicity to the required level. The TRE may be ended at any stage if monitoring finds there is no longer toxicity (or six consecutive chronic toxicity results less than or equal to 1 TU_c).

iii. The Discharger may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall consult the EPA acute and chronic manuals, EPA/600/6-91/005F (Phase I)/EPA/600/R-96-054 (for marine), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III) or other methods as approved by the Executive Officer of the Regional Board as guidance.

iv. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Parts 4.b or 5.b of Order No. 01-177, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

v. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.

vi. The Board recognizes that toxicity may be episodic and identification of causes of and reduction of sources of toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

F. Reporting

i. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by Parts 4.b and 5.b of Order No. 01-177. Test results shall be reported in Toxicity Units (percent survival or TU_c) with the discharge monitoring reports (DMR) for the month in which the test is conducted.

ii. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to Parts 4.b or 5.b, then those results also shall be submitted with the DMR for the period in which the Investigation occurred.

iii. The full report shall be submitted by the end of the month in which the DMR is submitted.

iv. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the acute toxicity average limit or chronic toxicity limit or trigger as described in Sections 1a, 2a, and 3b.

v. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the DMR. Routine reporting shall include, at a minimum, as applicable, for each test:

1. sample date(s)
2. test initiation date
3. test species
4. end point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{15}, IC_{25}, IC_{40} and IC_{50} values in percent effluent
7. TU_c values $\left(TU_c = \frac{100}{NOEC} \right)$
8. Mean percent mortality ($\pm$standard deviation) after 96 hours in 100% effluent (if applicable)
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{25} value for reference toxicant test(s)
11. Any applicable control charts

12. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

vi. The Discharger shall provide a compliance summary which includes a summary table of toxicity data from at least eleven of the most recent samples.

vii. The Discharger shall notify this Regional Board immediately of any toxicity exceedance and in writing 14 days after the receipt of the results of a monitoring limit or trigger. The notification will describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

Ordered by: _____ Date: December 13, 2001

Dennis A. Dickerson
Executive Officer