

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 91-136

AN ORDER REQUIRING USS - POSCO INDUSTRIES, PITTSBURG, CONTRA COSTA COUNTY, TO CEASE AND DESIST FROM VIOLATING WASTE DISCHARGE REQUIREMENTS CONTAINED IN ORDER NO. 88-085

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. On May 18, 1988, the Regional Board adopted Order No. 88-085 (NPDES No. CA0005002), prescribing waste discharge requirements for USS - Posco Industries, Pittsburg (hereinafter referred to as the discharger).
2. The discharger operates a steel finishing plant. Final products include zinc, tin and chrome-coated steel strip. Processes used in the finishing are electrolytic tinning and chroming, pickling with hydrochloric and sulfuric acid, hot coat galvanizing, cold rolling, alkaline cleaning and annealing.
3. The discharger currently discharges an average of 7.7 million gallons per day (MGD) of combined process wastewaters, cooling tower blowdown, and during periods of wet weather, stormwater runoff. Treatment of this waste, designated Waste 001, includes chemical precipitation with lime, sedimentation, and neutralization. Waste 001 is discharged to New York Slough, which is up-estuary to Suisun Bay. Waste 001 is discharged through an exposed pipe with no diffuser, and is considered to be a shallow water discharge.
4. The discharger completed a modernization program of their steel finishing plant and their wastewater treatment facilities at the end of 1989. A number of significant process additions and deletions were completed, including the addition of cooling towers. The latter have greatly reduced the wastewater flow, which historically averaged 18 MGD. The discharger also made improvements to their wastewater treatment plant. Tankage was added to replace settling and pH adjustment ponds, and a new-pump-station and oil separation tank were added too.
5. Effluent Limitation A.2. of Order 88-085 states that:

"The survival of test fishes in 96-hour parallel continuous flowthrough bioassays of the discharge of Waste 001 shall achieve a median of 90 percent survival for three consecutive samples and a 90 percentile value of not less than 70 percent for 10 consecutive samples for each of two species."

6. Effluent limitation A.5. of Order 88-085 states, among others, the following limits:

	<u>Units</u>	<u>Daily Maximum</u>
Hexavalent Chromium	ug/l	11
Lead	ug/l	5.6
Nickel	ug/l	7.1
Zinc	ug/l	58

7. Prohibition C.1. of Order 88-085 states:

"The discharge of Waste 001 at any place where it does not receive a minimum initial dilution of at least 10 to 1 is prohibited unless the Board has granted the Discharger an exception."

8. Prohibition C.2. of Order 88-085 states:

"The discharge of all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, is prohibited."

9. The Basin Plan provides for an exception to its initial dilution requirement (such as stated in Prohibition C.1.) . in cases where:

"An inordinate burden would be placed on the discharger relative to beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means, such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability."

10. The Basin Plan provides for exceptions to its toxic pollutant limitations (such as Effluent Limitations A.5.) in cases where the discharger:

".... demonstrates that all sources of the toxic pollutant are being controlled through application of all reasonable treatment and source control measures. Such proposals must include an assessment of the impact of the alternate effluent limit on the beneficial uses of the receiving water , and must include a demonstration that the costs of additional measures do not bear a reasonable relationship to the level of beneficial uses protected by such additional measures."

11. The Basin Plan provides for **no** exceptions to the acute toxicity standard contained in Effluent Limitation A.2.

12. Order 88-085 allowed for the development of exception requests for both Prohibition C.1. (initial dilution requirement) as well as for the effluent limits listed in Provision A.5. A number of studies relative to both requests have been completed. As a result, USS - Posco has requested permission to increase the A.5. effluent limits by a factor of two, in order to account for the average level of dilution (2:1) provided to their discharge. This request has not been concurred with, due to uncertainties in the submitted studies.

13. Since the completion of the modernization program (December , 1990), USS-Posco had 42 violations of Limitation A.5. (metals limits), and 48 violations of Limitation A.2. (toxicity). These violations have occurred on 83 separate days, and are listed below.

	<u>VIOLATION</u>	<u>VALUE*</u>	<u>FLOW (MGD)</u>
June 3, 1991	Toxicity - 90 percentile	30%	6.9
	Toxicity - median	50%, 75%	
June 9	Hexavalent Chromium	605 ppb	6.3
June 10	" "	14	6.7
June 17	" "	860 ppb	5.9
June 18	" "	49	6.9
May 7	Toxicity - 90 percentile	20%, 55%	7.3
May 9	Hexavalent Chromium	2,300 ppb	7.3
May 10	" "	26	6.2
May 13	Toxicity - 90 percentile	20%	7.4
	Toxicity - median	35%	
May 23	Hexavalent Chromium	61 ppb	7.3
May 28	Toxicity -90 percentile	25%	8.1
	Toxicity - median	30%	
May 29	Hexavalent Chromium	20	8.4
May 30	Toxicity -90 percentile	30%	7.9
	Toxicity - median	35%, 85%	
April 2	Toxicity - 90 percentile	20%, 55%	10.7
	Toxicity -median	30%, 85%	
April 9	Toxicity - 90 percentile	20%, 55%	9.2
	Toxicity -median	35%, 85%	
April 16	Toxicity - 90 percentile	20%, 55%	7.7
	Toxicity -median	45%	
April 22	Hexavalent Chromium	120 ppb	6.6
April 23	Toxicity - 90 percentile	20%, 55%	7.4
	Toxicity -median	45%	
April 30	Toxicity - 90 percentile	20%, 55%	7.4
March 4	Nickel	25	7.9
	Lead	17 ppb	

* For toxicity violations, first value listed is for stickleback, second for fathead minnows (where only one listed, this is for stickleback)

<u>DATE</u>	<u>VIOLATION</u>	<u>VALUE*</u>	<u>FLOW (MGD)</u>
March 5	Toxicity - 90 percentile	65%	8.6
12	" "	65%	8.2
19	" "	45%	8.3
25	" "	40%, 55%	9.0
	Toxicity - median	40%, 55%	
26	Toxicity - 90 percentile	20%, 55%	13.0
	Toxicity - median	20%, 55%	
29	Toxicity - 90 percentile	20%, 55%	9.5
	Toxicity - median	20%, 85%	
February 4	Hexavalent Chromium	17 ppb	9.6
	Lead	8.7	
5	Toxicity - median	80%	9.4
12	" "	85%	9.9
19	Toxicity - 90 percentile	65%	9.1
	Toxicity - median	80%	
26	Toxicity - 90 percentile	65%	9.7
	Toxicity - median	85%	
	Hexavalent Chromium	66 ppb	
January 7, 1991	Zinc	66 ppb	6.2
8	Toxicity - median	85%	7.4
14	Zinc	140	6.2
15	Toxicity - median	85%	8.4
21	Hexavalent Chromium	23 ppb	7.1
	Zinc	82 ppb	—
22	Toxicity - 90 percentile	65%	6.5
	Toxicity - median	85%	7.1
28	Hexavalent Chromium	19 ppb	
December 3, 1990	Nickel	11 ppb	6.4
4	Toxicity - 90 percentile	0%, 15%	8.3
10	Hexavalent Chromium	32	6.9
11	Toxicity - 90 percentile	15% -fath'd	6.0
18	Toxicity - 90 percentile	15% -fath'd	7.4
November 12	Hexavalent Chromium	12 ppb	6.0
13	Toxicity - 90 percentile	0%, 15%	7.6
20	" "	0%, 15%	9.0
27	" "	0%, 15%	8.2
October 2	Toxicity - 90 percentile	0% -fath'd	3.7
3	Hexavalent Chromium	25 ppb	6.5
7	Hexavalent Chromium	22	6.1
	Zinc	90 ppb	
15	Zinc	130	6.1

* For toxicity violations, first value listed is for stickleback, second for fathead minnows (where only one listed, this is for stickleback)

<u>DATE</u>	<u>VIOLATION</u>	<u>VALUE*</u>	<u>FLOW (MGD)</u>
October 23	Toxicity - 90 percentile	0% -fath'd	6.2
29	" "	0% -fath'd	7.0
September 4	Toxicity - 90 percentile	15%, 0%	9.6
10	" "	15%, 0%	8.3
17	" "	15%, 0%	10.2
24	" "	50%-fath'd	8.9
August 1	Zinc	130 ppb	9.8
6	Zinc	82	9.2
	Toxicity - median	75%, 85%	
	Toxicity - 90 percentile	0%, 20%	
13	Hexavalent Chromium	38 ppb	10.2
	Toxicity - median	85%-fathead	
	Toxicity - 90 percentile	0%, 0%	
20	Toxicity - median	85%-fath'd	9.4
	Toxicity - 90 percentile	0%, 0%	
27	Toxicity - median	85%-fath'd	10.2
	Toxicity - 90 percentile	0%, 0%	
July 2, 1990	Toxicity - median	45%, 80%	6.8
	Toxicity - 90 percentile	45%	
9	Toxicity - median	85%	8.2
	Toxicity - 90 percentile	45%	
16	Toxicity - median	85%	9.0
	Toxicity - 90 percentile	0%, 20%	
23	Toxicity - median	15%, 50%	7.6
	Toxicity - 90 percentile	0%, 20%	—
30	Toxicity -median	15%, 50%	10.2
	Toxicity - 90 percentile	0%, 20%	
June 18	Toxicity - median	70%	7.0
	Toxicity - 90 percentile	65%	
25	Toxicity - median	45%, 80%	9.7
	Toxicity - 90 percentile	45%	
27	Hexavalent Chromium	37 ppb	10.0
May 1	Nickel	8	8.7
April 16	Hexavalent Chromium	19 ppb	8.3
24	" "	15	8.1
March 5	Lead	7 ppb	4.5
26	" "	21	7.2
February 12	Nickel	8 ppb	5.2
	Zinc	390	
19	Nickel	10 ppb	4.7
26	" "	15	2.1

* For toxicity violations, first value listed is for stickleback, second for fathead minnows (where only one listed, this is for stickleback)

<u>DATE</u>	<u>VIOLATION</u>	<u>VALUE*</u>	<u>FLOW (MGD)</u>
January 2, 1990	Zinc	140 ppb	4.3
8	" "	710	4.8
22	Hexavalent Chromium	14	4.9

14. Hexavalent chromium is of process origin and from two sources, the electro-tinning and the tin-free steel lines. USS - Posco has reported operator and design flaws as causes for recent violations.
15. No cause has been determined for the violations of the other 3 metals, zinc nickel and lead. The discharger maintains that these are not of process origin and hence their control is not possible. Prior source control studies were not conclusive, but recent data shows that much of the metals loading might still be of process origin.
16. The cause of the effluent toxicity is under investigation. While a specific toxicant has not been identified, this work has shown that the effluent toxicity might be due to trace amounts of process constituents.
17. The impacts of several of the above violations could be substantial. Despite flow reductions following the plant modernization, this remains a large discharger of wastewater into New York Slough that receives limited initial dilution. Thus many of the metals and toxicity violations could have had adverse water quality impacts.
18. Many of the metals violations could have been prevented through more stringent source control and operational practices. It appears that the toxicity violations might also be of process origin and hence under their control as well. Some voluntary abatement efforts have been taken for recent violations, notably the addition of a Chromium Reduction Unit (CRU), and the start of a Toxicity Identification Evaluation (TIE).
19. This Cease and Desist Order is intended to establish new deadlines for coming into compliance with the Basin Plan shallow water metals limits, acute toxicity standard, and initial dilution requirement. The deadlines for complying with the metals limits includes interim requirements for additional biological, source control, and treatment effectiveness studies. Requirements for completing the TIE, and commencing a Toxicity Reduction Evaluation (TRE) are also included.
20. Performance of the remedial tasks, in accordance with the time schedules set forth below, should bring the discharger into full compliance with Order 88-085.
21. This action is categorically exempt from the provisions of Chapter 3 (commencing with Section 21110 of Division 13) of the Public Resources Code

(CEQA) pursuant to Resource Agency Guidelines Section 15321.

22. The Board acknowledges that the agreement of the discharger not to contest the entry of this Order, and to perform its terms does not constitute, nor shall it be deemed, to imply admission of any violation or other wrongdoing.
23. The Board, in a public hearing, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT, the Discharger shall cease and desist from violating waste discharge requirements contained in Order 88-085 as follows:

1. Compliance with Prohibitions C.1. and C.2. of Order 88-085 shall be achieved in accordance with the time schedules set under items 2 and 3 below.
2. Compliance with Effluent limitations A.5.c. (hexavalent chromium), A.5.e. (lead), A.5.g. (nickel), and A.5.i. (zinc) of Order 88-085 shall be achieved, in accordance with the following time schedule:

A. SOURCE CONTROL PROGRAM

a. Immediate Actions

	<u>TASK</u>	<u>DEADLINE</u>
1.	Identify and implement immediate source control actions satisfactory to the Executive Officer	Forthwith
2.	Submit a status report	December 1, 1991
3.	Submit final report	March 31, 1992

b. Comprehensive Long-Term Remedial Action

	<u>TASK</u>	<u>DEADLINE</u>
1.	Submit an action plan for review and approval by Executive Officer	September 30, 1992
2.	Indicate decision as to whether an alternate limit or a deep-water outfall will be pursued. Submit a work plan and a time schedule for completion of the alternate limits or the outfall for the Board's approval, if either of these options are pursued	September 30, 1992

Note: The discharger has three options: to meet shallow water effluent limitations with the present discharge configuration, to apply for alternate limits (that is, to apply for a zero dilution credit variance) while using the present discharge configuration, or to construct a deep-water outfall, thereby having to meet the deep-water limits. The chosen option shall be pursued in accordance with the conditions of the Basin Plan.

If the discharger chooses to apply for alternate limits, they must demonstrate that water quality objectives will be met within 250 feet of the discharge point, and the the increase of mass loading resulting from permitting higher concentrations of pollutants in their discharge will not cause accumulation of pollutants in aquatic life, or sediments, to levels which would impair aquatic life or threaten human health, in accordance with the Basin Plan.

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| 3. | Commence implementation of action plan | October 31, 1992 |
| 4. | Submit a status report | February 28, 1993 |
| 5. | Complete action plan and achieve full compliance with Effluent limitations A.5 | June 30, 1993 |

Note: In the development of control strategies, full consideration must be given to complete elimination of the source if possible, as well as material substitution, process modifications, onsite and offsite recycling, upstream treatment and good operational, maintenance and housekeeping practices.

B. BEST MANAGEMENT PRACTICES (BMP)

a. Immediate Actions

- | <u>TASK</u> | <u>DEADLINE</u> |
|--|------------------|
| 1. Identify and implement immediate actions regarding best management practices, satisfactory to the Executive Officer, in order to reduce potential for spills of process materials to enter the terminal wastewater treatment plant ("TWTP") | Forthwith |
| 2. Submit a progress report summarizing actions taken | December 1, 1991 |

3. Submit final report March 31, 1992

Note: In acting immediately to improve best management practices, consider at a minimum the following: review containment structures surrounding hexavalent chromium process tanks, and any other known sources of hexavalent chromium, lead, nickel, and zinc, and review staffing requirements at both the TWTP and the Environmental Control Department.

b. Comprehensive Long-Term Remedial Action

	<u>TASK</u>	<u>DEADLINE</u>
1.	Submit an action plan for review and approval by the Executive Officer	September 30, 1992
2.	Commence implementation of the action plan	October 31, 1992
3.	Submit a status report	February 28, 1993
4.	Complete action plan and achieve full compliance with Effluent limitations A.5.	June 30, 1993

Note: For long-term improvement of BMP consider at a minimum review of containment structures surrounding additional sources of hexavalent chromium, lead, nickel, and zinc as identified by the Source Control Plan and any further managerial and operational practices recommended to reduce the impacts following accidental spills or releases to the TWTP.

3. Compliance with Effluent Limitations A.2. of Order 88-085 shall be achieved in accordance with the following time schedule:

a. Immediate Actions

	<u>TASK</u>	<u>DEADLINE</u>
1.	Implement immediate treatment and/or source control measures, satisfactory to the Executive Officer, in order to reduce toxicity	Forthwith
2.	Submit a progress report summarizing actions taken	December 1, 1991
3.	Submit final report	March 31, 1992

b. Comprehensive Long-Term Remedial Action

	<u>TASK</u>	<u>DEADLINE</u>
1.	Submit an action plan for review and approval by the Executive Officer	September 30, 1992
2.	Commence implementation of the action plan	October 31, 1992
3.	Submit a status report	February 28, 1993
4.	Complete action plan and achieve full compliance with Effluent limitations A.2.	June 30, 1993

Note: The Comprehensive Long-Term Remedial Action Plan shall include an evaluation of sources of effluent toxicity and specific toxic components. Alternative treatment and source reduction strategies shall be developed and evaluated. Source reduction strategies **must** give consideration to complete elimination of the source if possible, as well as material substitution, process modifications, onsite and offsite recycling, upstream treatment and good operational, maintenance and housekeeping practices. **Whole-effluent treatment strategies shall also be evaluated in the event that source control and treatment strategies do not successfully result in attainment of the acute toxicity limit.** The final plan shall include the design and engineering of the most effective source control and treatment processes.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 18, 1991.



STEVEN R. RITCHIE
EXECUTIVE OFFICER