



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

July 2, 2007

In Reply Refer To: WTR-7

August Slivnik, Vice President
Black Oxide Service
1070 Linda Vista Drive
San Marcos, California 92069

Re: May 3, 2007 Clean Water Act Inspection

Dear Mr. Slivnik:

Enclosed is the July 2, 2007 report for our May 3, 2007 inspection of Black Oxide Service in San Marcos, California. Please submit a short response to the findings in Sections 2 - 4 of this report, to EPA, the Encina Water Management Authority, and the Regional Water Quality Control Board, by **August 30, 2007**.

The main findings are summarized below:

- 1 Black Oxide Service qualifies as a "zero-discharging" new source metal finisher since it generates but does not discharge regulated wastewaters to the sewers. Black Oxide Service was found to be configured and appeared to be operated to achieve and maintain "zero-discharge" compliance with the Federal standards and local limits.
- 2 The Encina Wastewater Authority permit appropriately requires periodic "zero-discharge" self-certification since compliance is achieved by not discharging to the sewers. Waste manifests should accompany the self-certifications.
- 3 The hazardous waste manifests for 2006 accounted for spent black oxide solutions and spent paint but did not include any record of evaporator residuals, grinder sludges, tank bottom sludges, or spent machine shop coolants.

I appreciate your helpfulness extended to me during this inspection. I remain available to the Encina Wastewater Authority and to you to assist in any way. Please do not hesitate to call me at (415) 972-3504 or e-mail at arthur.greg@epa.gov.

Sincerely,

*Original signed by:
Greg V. Arthur*

Greg V. Arthur
CWA Compliance Office

Enclosure

cc: Lisa Urabe, Encina Wastewater Authority



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User: Black Oxide Service
1070 Linda Vista Drive, San Marcos, California 92069
Zero Discharging New Source Metal Finisher
(40 CFR 433)

Treatment Works: Encina Wastewater Authority
Encina Water Pollution Control Facility - Encina Ocean Outfall
(WDR No.R9-2005-0219 and NPDES Permit CA0107395)

Vallecitos Water District
Meadowlark Water Reclamation Plant
(WDR No.R9-2007-0018)

Dates of Inspection: May 3, 2007

Inspection Participants:

US EPA: Greg V. Arthur, Region 9, CWA Compliance Office, (415) 972-3504

RWQCB-San Diego: None

Encina WA: Debbie Biggs, Director of Envr Compliance, (760) 438-3941 x3601
Lisa Gray Urabe, IW Control Inspector, (760) 438-3941 x3604

Black Oxide Service: August Slivnik, Vice President, (760) 744-8735

Report Prepared By: Greg V. Arthur, Environmental Engineer

July 2, 2007



1.0 Scope and Purpose

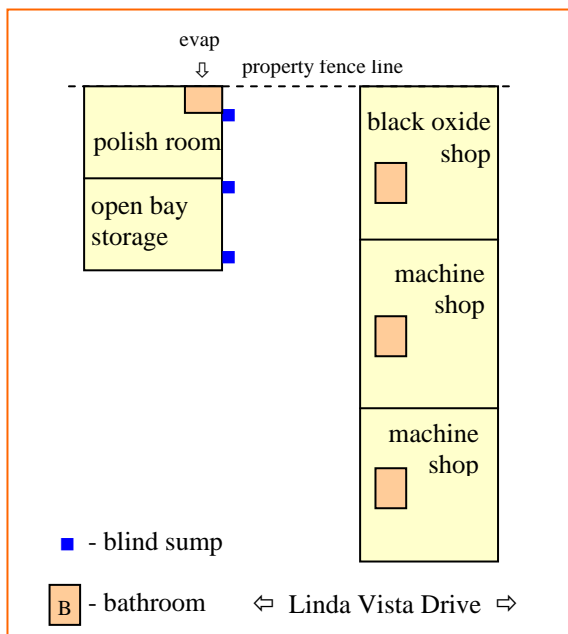
On May 3, 2007, EPA and the Encina Wastewater Authority conducted a compliance evaluation inspection of Black Oxide Service in San Marcos, California. The purpose was to ensure compliance with the Federal, State and local regulations covering the discharge of non-domestic wastewaters into the sewers under the Clean Water Act. In particular, it was to ensure:

- Classification in the proper Federal categories;
- Application of the correct Federal, State and local standards at correct sampling points;
- Consistent compliance with the standards; and
- Fulfillment of Federal self-monitoring requirements.

Black Oxide Service, Inc., located at 1070 Linda Vista Drive, would qualify as a categorical industrial user under the Clean Water Act within the Vallecitos Water District sewer service area if it discharged process-related wastewaters to the sewers. The compliance of Black Oxide Service was assessed through this inspection as part of an on-going EPA evaluation of industrial users in EPA Region by industry sector. The inspection participants are listed on the title page. Arthur conducted the inspection on May 3, 2007.

1.1 Process Description

Black Oxide Services is a manufacturing machine shop and a job-shop black oxide coater of steel and stainless steel parts. Black Oxide Service consists of two buildings on Linda Vista Drive in San Marcos. The main building consists of three connected enclosed shops, each with bathrooms, together housing machine shops and the black oxide coating line. The second building consists of an enclosed blasting and polishing shop, and an open storage bay.



Black Oxide Shop - This shop houses black oxide coating, bathrooms, an office, an old pretreatment unit, and work tables. The black oxide line involves alkaline soap cleaning, hydrochloric-acid pickling, caustic hot black oxide coating, and final oil coating.

Machine Shops - These shops house Blanchard grinding, machining, welding, CNC milling, sanding, lathes, as well as two bathrooms. The machining steps currently utilize only water-based synthetic coolants without fungicide additions, although Black Oxide Service plans to switch to oil-based coolants.

Polish Room - This room houses grit blasting, polishing, uniform washing, and an evaporator.



Black Oxide Service does not own most of the parts processed. The Vice President of Black Oxide Service asserted that 99% are supplied and owned by customers and only 5% fabricated on-site and owned by Black Oxide Service. The machine shop operations began in the 1970's. The black oxide coating line was added in 1985.

1.2 Facility SIC Code

Black Oxide Coating is assigned the SIC code for metals coating (SIC 3479).

1.3 Facility Wastewater Sources

There were no observed process-related wastewater discharges from Black Oxide Services to the Vallecitos Water District sewers. There was, however, one facility washing machine that drained through a hose to a drainage swale behind the property.

Black Oxide Spent Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. The generation rate depends on bath usage, effectiveness of bath contamination control, and the amount of drag-out lost into the rinses. The black oxide coating spents are pumped to drums for off-hauling as hazardous to General Environmental Management, while the other solution spents are regenerated strictly through additions. Losses from pickling and alkaline soap cleaning are through drag-out on the parts into the rinses. The list of spents follows below.

Baths Generating Spents		Baths Not Generating Spents
T5 - black oxide coating T7 - black oxide coating T8 - black oxide coating	None	T1 - alkaline soap T3 - HCl-acid pickling T6 - final oil coating
Off-Hauled as Hazardous	Discharged to Sewers	Additions Only

Black Oxide Rinses - Black Oxide Service employs two first-stage rinses for just the black oxide line preparation steps. The list of rinses follows below.

Rinses Not Discharged		Rinses Discharged
T2 - 1° spray static for T1	T4 - 1° overflow for T3	None
To On-site Evaporator		Discharged to the Sewers

Machine Shop - The Blanchard grinder recirculates a water-based coolant to a stillwell from which grinding sludges are removed for disposal off-site as hazardous. Compressor condensate is transferred by pump to the evaporator. The machine shop mills, lathes, sanders, and drills use a single synthetic water-based coolant, regenerated at each machine strictly through additions, with losses likely through vaporization or as drag-out on the parts into the black oxide line alkaline cleaning step. Black Oxide Service does not add a biocide to the synthetic water-based coolant. There were no other observed water uses in the machine shops.



Other Wastewaters - Other wastewaters include air compressor condensate and storm water captured in blind sumps. In addition, on the day of this inspection, the drain hose from a washing machine was found extended through the back fence to a drainage swale behind the property. The vice president removed the hose immediately upon discovery.

Residuals - The vice president of Black Oxide Service identified a number of residuals off-hauled as hazardous to General Environmental Management. These include grinder sludges, black oxide tank bottom sludges, spent black oxide solutions, and evaporator residuals. No other wastewater-related residuals are expected because Black Oxide Service does not chemically treat or precondition of any wastewaters.

1.4 Facility Process Wastewater Handling

Since 2004, Black Oxide Service has been operated to not discharge to the sewers through the delivery and on-site evaporation of process-related wastewaters.

Composition - The process wastewaters listed in section 1.3 above would be expected to contain chromium, lead, nickel, zinc, nitrates, and caustic/acidic conditions, as well as oils, salts, surfactants, and other pollutants in the surface grime and machining residue cleaned off parts.

Delivery - Black Oxide Service delivers the rinses by pump and hard pipe to the evaporator. The only other acknowledged method of delivery, a portable pump and hose, is used to deliver compressor condensate and captured storm water sump drainage to the evaporator. The portable pump and hose could also be used to deliver other wastewaters to other destinations, for example, to drums for off-site disposal, or potentially even to the bathrooms. *See* the photos in Section 1.7 on the next page. *Also* see Section 3.2 of this report.

1.5 POTW Legal Authorities

Encina Wastewater Authority - The Encina Wastewater Authority owns and operates the Encina Water Pollution Control Facility and Ocean Outfall, which discharges to the Pacific Ocean, and operates an approved pretreatment program, as required by the State of California in the San Diego RWQCB's Waste Discharge Requirements, No. R9-2005-0219, reissued in 2005, and serving as NPDES Permit No. CA0107395. The Encina Wastewater Authority comprises six member agencies, including the Vallecitos Water District which serves San Marcos County. The Encina Wastewater Authority has established a sewer use ordinance that applies to all industrial users within the sewer service areas of the member agencies. Under this authority, the Encina Wastewater Authority issued general permit No.5011 to Black Oxide Service prohibiting discharge of Federally regulated wastewaters to the sewers.

Vallecitos Water District - The Vallecitos Water District owns and operates the Meadowlark Water Reclamation Plant, which draws a portion of the flows generated in the San Marcos County service area for tertiary treatment and reclaim to irrigation, as required by the State of California in the San Diego RWQCB's Waste Discharge Requirements, No. R9-2007-0018,



reissued to the Vallecitos Water District in 2007. The Encina Wastewater Authority sewer use ordinance applies to industrial discharges to the Meadowlark Water Reclamation Plant.

1.6 Sampling Record

There are no compliance samples since Black Oxide Service is not authorized to discharge under the Encina Wastewater Authority industrial user permit No. 5011.

1.7 Photo Documentation

Four of six photographs taken during this inspection are depicted and saved as *blackoxide-2.jpg*, *-3.jpg*, *-4.jpg* and *-6.jpg*. The other pictures were either blurry or a duplicate.



Photo: Black oxide line
Taken By: Greg V. Arthur
Date: 05/03/07



Photo: Hard piping behind black oxide line
Taken By: Greg V. Arthur
Date: 05/03/07



Photo: 2° containment behind black oxide line
Taken By: Greg V. Arthur
Date: 05/03/07



Photo: Portable pump and hose in black oxide room
Taken By: Greg V. Arthur
Date: 05/03/07



2.0 Sewer Discharge Standards and Limits

Federal categorical pretreatment standards (where they exist), national prohibitions, State groundwater, and the local limits (where they exist) must be applied to the sewer discharges from industrial users. (40 CFR 403.5 and 403.6).

Summary

No Federal categorical pretreatment standards, national prohibitions, or local limits apply because there are no process-related wastewater discharges to the sewers. However, Black Oxide Service does generate wastewaters that would be regulated under the Federal metal finishing standards if they were discharged. The application of Federal standards, national prohibitions, and local limits was determined through visual inspection.

Requirements

- None.

Recommendations

- The Encina Wastewater Authority permit should list the Federal standards that would apply if process-related wastewaters were discharged to the sewers.
- The permit should also specifically extend the prohibition against discharge to all non-domestic wastewaters, and not just to the Federally-regulated wastewaters.

2.1 Classification by Federal Point Source Category

Black Oxide Service would qualify as a new source metal finisher subject to the Federal standards in 40 CFR 433 if its process-related wastewaters were discharged to the sewers. It would qualify as a new source because operations of the black oxide line began in 1985 after the August 31, 1982 promulgation date of the metal finishing rule for new sources. Any discharge would not qualify under any other Federal rule in 40 CFR 407-471.

2.2 Local Limits and National Prohibitions

Local limits and national prohibitions would apply to any discharge of the process-related wastewaters generated on-site. Local limits and national prohibitions are meant to express the limitations on non-domestic discharges necessary to protect the sewers, treatment plants, treatment plant sludges, and their receiving waters from adverse impacts. Generally, technically-based numerical local limits supplant national prohibitions. The Encina Wastewater Authority local limits that apply to wastewater discharges from Black Oxide Service to the sewers are listed on the next page.



Local Limits	Cd	Cr	Cu	Pb	Ni	Ag	Zn	O&G	pH	BOD	TSS	TTO
daily-max (mg/l)	0.43	3.50	4.40	1.80	1.80	4.20	6.20	400	-	-	-	2.00
instant (s.u.)	-	-	-	-	-	-	-	-	5.5-11.0	-	-	-
daily-load (lbs/d)	-	-	-	-	-	-	-	-	-	500	500	-

The Encina Wastewater Authority permit applies a "zero discharge" requirement, but not as the expression of the local limits, since the permit only prohibits the discharge of Federally-regulated wastewaters. So, even though Black Oxide Service has a "zero discharge" permit, technically it may discharge process and domestic wastewaters that (1) are not regulated by any Federal categorical standards and (2) are in compliance with the Encina Wastewater Authority local limits. The permit does not recognize this potential for non-domestic discharge and thus does not establish a point of compliance or monitoring requirements.

2.3 Federal Categorical Pretreatment Standards New Source Metal Finishing - 40 CFR 433.17

40 CFR 433.17	Cd	Cr	Cu	Pb	Ni	Ag	Zn	CNt	CNa	TTO
daily-maximum (mg/l)	0.11	2.77	3.38	0.69	3.98	0.43	2.61	1.20	0.86	2.13
month-average (mg/l)	0.07	1.71	2.07	0.43	2.38	0.24	1.48	0.65	0.32	-

Applicability - Under 40 CFR 433.10(a), the metal finishing standards apply to the process wastewaters from pickling (a form of chemical etching), and black oxide (a form of chemical coating). The metal finishing standards "... apply to plants that perform ..." the core operations of electroplating, electroless plating, etching, anodizing, chemical coating, or printed circuit board manufacturing and they extend to other on-site operations, such as cleaning, machining, polishing, and assembly associated with metal finishing and specifically listed in 40 CFR 433.10(a). If any of the core operations are performed, the new source metal finishing standards apply to discharges from any of the new source core or associated operations.

As a result, the Federal metal finishing standards would apply to all wastewaters from the black oxide line, spents, rinses, and rinses, all wastewaters from the black oxide line, spent machine shop coolants, shop spills and mop waters, and grinder sludges. The Federal standards would not apply to washing machine tail water, air compressor condensate, captured storm water sump drainage, and domestic wastewater from bathrooms and sinks.

2.4 Compliance Sampling

There are no identified process wastewater discharges to the sewers. As a result, there are no sampling points for the non-domestic wastewaters.

2.5 Pollutants of Concern

There are no pollutants of concern as long as Black Oxide Coating does not discharge any non-domestic wastewaters.



3.0 Compliance with Federal Standards, National Prohibitions, and Local Limits

Industrial users must comply with the Federal categorical pretreatment standards that apply to their process wastewater discharges. 40 CFR 403.6(b).

Categorical industrial users must comply with the prohibition against dilution of the Federally-regulated waste streams as a substitute for treatment. 40 CFR 403.6(d).

Industrial users must comply with the provision restricting the bypass of treatment necessary to comply with any pretreatment standard or requirement. 40 CFR 403.17(d).

All non-domestic wastewater discharges to the sewers must comply with local limits and the national prohibitions. 40 CFR 403.5(a,b,d).

Summary

Black Oxide Coating is configured and operated to achieve compliance with the Federal standards for existing source job-shop metal finishers, the national prohibitions, and local limits by not discharging process-related wastewaters to the sewers. Black Oxide achieves "zero-discharge" compliance through the on-site evaporation of rinses and the off-site hauling of other generated wastes. The evaporation of rinses was observed in-place and functioning. However, the hazardous waste manifests in 2006 do not account for all of the waste streams identified by Black Oxide Service for off-site hauling, in particular, the evaporator residuals, grinder sludges, tank bottom sludges, and spent machine shop coolants.

Requirements

- None.

Recommendations

- Black Oxide Coating should eliminate the possession on-site of any long hoses used in the transfer of solutions throughout the facility.

3.1 National Objectives

The general pretreatment regulations were promulgated in order to fulfill the national objectives to prevent the introduction of pollutants that:

- (1) cause operational interference with sewage treatment or sludge disposal,
- (2) pass-through sewage treatment into the receiving waters or sludge,
- (3) are in any way incompatible with the sewerage works, or
- (4) do not improve the opportunities to recycle municipal wastewaters and sludge.



This inspection did not include an evaluation of whether achievement of the national objectives in 40 CFR 403.2 have been demonstrated by the Encina and Vallecitos wastewater treatment plants through consistent compliance with their sludge and discharge limits.

3.2 Compliance with Standards and Limits

Compliance Status - Although Black Oxide Service provides on-site evaporation, compliance with the applicable Federal standards and local limits through zero-discharge practices is achieved only through the proper handling of all spents, residuals, and rinses by the shop operators. Consistent compliance through zero-discharge practices depends on the successful and consistent delivery of all wastewaters to their proper destinations, either to the on-site evaporator or to barrels for off-site hauling.

Physical Configuration - Black Oxide Service is configured and appears to be operated to achieve and maintain “zero-discharge” compliance with the Federal standards and local limits. However, the physical means to potentially discharge remains since some delivery involves a portable pump and hose. Maintaining only short hose lengths prevents the delivery of spent solutions to improper disposal points.

Discharge and Disposal - The records do not document all of the losses of solution spents or residuals that would be necessary to explain the continued successful operation of a "zero-discharging" shop. In particular, the hazardous waste manifests for 2006 accounted for spent black oxide solutions and spent paint but did not include any record of evaporator residuals, grinder sludges, tank bottom sludges, or spent machine shop coolants.

3.3 Dilution and Bypassing

The Federal standards in 40 CFR 403.6(d) and 403.17(d) prohibit “dilution as a substitute for treatment” and “bypassing any treatment necessary to comply with standards. There is no possibility to violate the prohibition against dilution as a substitute for treatment since Black Oxide Service does not treat and discharge wastewaters to the sewers.

On the other hand, any inadvertent or unauthorized discharge to the sewers would violate the prohibition against bypassing treatment necessary to comply since compliance with Federal standards and local limits is achieved through the capture, evaporation, and off-hauling of all wastewaters. It is possible that Black Oxide Service can bypass to the sewers for the reasons laid out above. *See* Section 3.2 above. *Also* see Section 2.0 above.



4.0 Compliance with Federal Monitoring Requirements

Significant industrial users must self-monitor for all regulated parameters at least twice per year unless the sewerage agency monitors in place of self-monitoring. 40 CFR 403.12(e) & 403.12(g).

Each sample must be representative of the sampling day's operations. Sampling must be representative of the conditions occurring during the reporting period. 40 CFR 403.12(g) and 403.12(h).

Summary

Black Oxide Service does not qualify as a significant industrial user since it is not authorized to discharge its Federally-regulated wastewaters to the sewers. As a result, it is not necessary for the Encina Wastewater Authority to issue a permit with self-monitoring requirements. Since compliance is achieved through zero-discharge practices, it is appropriate that the Encina Wastewater Authority has issued a permit that substitutes a written certification of no discharge in lieu of semi-annual self-monitoring.

Requirements

- None.

Recommendations

- The semi-annual self-certification statements should include copies of the hazardous waste manifests documenting the off-hauling of spents, spent static rinses, and residuals.
- The semi-annual self-certification statements should include statements explaining how much wastewater is generated and disposed of from the evaporator and each of the following tank series:

bath #	gal (est)	associated rinses tank #	gal (est)	operational function
T1	400	T2 static rinse	400	alkaline soap cleaning
T3	400	T4 on-demand overflow	400	HCl-acid pickling
T5	600	none	-	caustic black oxide coating
T6	400	none	-	oil coating
T7	40	none	-	caustic black oxide coating
T8	100	none	-	caustic black oxide coating
evap	-	-	-	on-site evaporator