When the POTW Moves In

Of all the places in Dublin, Virginia to locate a POTW, the county chose a site next to this job shop plater...

By BEVERLY A. GRAVES
Editor

Electroplate-Rite Corporation, Dublin, Virginia, started as a part-time operation in 1967. John W. Dickerson and his wife opened the operation in a small building behind the Dublin Animal Hospital. The animal hospital is still there, as is Electroplate-Rite, but since the 1967 opening, the local POTW has opened up next door.

This may sound like a nightmare, but it has not been a problem for the company. Mr. Dickerson has been in the plating business since 1953, when he worked as an apprentice plating operator for the Plate-Rite Company in Chicago, Illinois. He moved to foreman in 1958 and in 1961 joined Inland Motor Corp., Radford, Virginia, as the supervisor of the plating department.

Obviously, with Mr. Dickerson's experience he knows how to run a plating shop. Mr. Dickerson also knows how to comply with his county's effluent restrictions.

Electroplate-Rite plates silver, tin, nickel, zinc, copper, brass, chromium as well as providing anodizing, polishing, buffing, vibratory finishing, black oxiding, phosphating, enamel and urethane coating.

The semi-automated chloride zinc barrel plating line is the pride of the company. The tanks are 96 by 36 by 48 inches and handle parts up to 84-inches long, by 27-inches wide, by 36-inches high. It has two motor-driven electric trolley hoists for faster production, and the flight bar handles up to 600 lbs.

The chloride zinc will plate directly on difficult-to-plate surfaces such as carbonitrided steel, cast and malleable iron and carburized steel. The deposit is ductile and has the ability to obscure defects in the base metal with a minimum plating thickness (Table I).

But the waste treatment system is the real story at Electroplate-Rite. Mr. Dickerson and his son, Keith,

believe it is the finest waste treatment system in Virginia.

Ion exchange is used on nearly all the plating rinses. And Electroplate-Rite performs all its own ion exchange regeneration. It has helped cut water use from 18,000 gal per month to 6,000.

Plating wastes are divided into three streams: acid and alkaline rinses and acid cleaners; chromium wastes; and cyanide wastes. The company's biggest problem is not its heavy metals but the oil removed from parts during cleaning. The oils hold the metals in solution and make it difficult to precipitate them out. The company drops the pH to 2.0 and then raises it to 9.5 to precipitate the metals. Then Epsom salts are added to break the oils into fatty acids.

All chrome-containing waste is first treated in a chrome-destruct system. The system runs automatically and uses a pH meter and automatic adjustment system to maintain a pH of 2.3 to 2.5. After destruction, the treated wastewater is sent to an intermediary tank where it is treated with traditional pH adjustment and precipitation.

Acid/alkaline and cyanide wastes are sent immediately to intermediary tanks. Acid and alkaline wastes undergo traditional precipitation treatment. Cyanide wastes are treated using cyanide destruct.

Wastewaters then go into a clarifier to separate solids and liquids. The solids are sent to a filter press, dried and shipped out to a hazardous waste landfill.

Water from the clarifier passes through two swimming pool filters and then receives a final polishing in a Jarvis Manufacturing Titan 90 Model 90W Maxi-Polish filtering system. This final step has helped Electroplate-Rite meet its permit limits consistently. In 1993, the company was out of compliance only twice. This occurred in January when they were over on total iron and lead. In 1994 the company has not been out of compliance once.

The local POTW, which also monitors the company's effluent, is right next door. But this isn't why the company is so adamant about its compliance. It wants to be a good neighbor to the entire town of Dublin. **PF**

Captions:
1.
CHLORIDE zinc barrel plating line

2.
ELECTROPLATE-RITE also polishes and buffs car parts and other pieces

3.
WASTE TREATMENT is an important part of the company's entire operation.

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TABLE I--Automatic Barrel Chloride Zinc Plating Line

Station	Process	Temperature	Time
1.	Load Parts		
2.	Soak Cleaner	170-190F	Two min
3.	Electroclean	170-190F	Two min
4.	Rinse		
5.	Rinse		
6.	Rinse		
7.	HCL/Descale	120F	Two min
8.	Rinse		
9.	Rinse		
10.	Chloride Zinc	70-85F	
	Potassium Chloride: 16-19 oz/gal Ammonium Chloride: 3.5-4.5 oz/gal Wetter: 2 pct by volume Brightener: 0.5 pct by volume Two asf		
11.	Chloride Zinc Reclaim		
12.	Rinse		
13.	Rinse		
14.	Trivalent Chrome		
15.	Yellow Chromate		
16.	Rinse		
17.	Rinse		
18.	Unload/spin dry		

TABLE I--Wastewater Analysis for 1993

Permit Limit	Parameter	January	June	December
20,000 gpd	Flow	14,209	7,833	8,303
5.5 - 9.0	pH	7.5	7.4	6.45
104F	Temperature	50	69	48
250 mg/liter	Suspended solids	5.0	13	59
5.0	Chlorine	ND[1]	ND	ND
0.5	Cyanide	ND	ND	ND
1.0	Hex chrome	ND	ND	ND
5.0	Chromium	0.8	0.145	0.1
0.02	Cadmium	0.007	0.0003	ND
1.0	Copper	0.11	0.34	0.46
5.0	Iron	5.83	0.92	0.13
0.1	Lead	3.52	0.009	ND
0.5	Silver	ND	ND	ND
1.0	Tin	ND	ND	ND
4.2	Zinc	0.56	0.666	0.241

The Restoration Shop

At one time Electroplate Rite Corp. also offered automobile restoration. But company president, John Dickerson, and his son, Keith, soon learned that the cost of restoration was often more the car owner could afford.

So now, Mr. Dickerson keeps his private collectibles in a garage under the plating facility. His collection includes a 1956 Ford Crown Victoria Skyliner with a glass top and a second one without the glass top. Both are painted in the original colors.

The glass-top Ford is one of only 603 produced by Ford. Mr. Dickerson estimates that the car is worth approximately $100,000. Other cars in the collection include a 1948 Ford Coupe, 1941 Chevrolet two-door sedan, 1955 Crown Victoria and a 1957 Thunderbird.

Caption:
1956 GLASS-TOP Ford Crown Victoria