



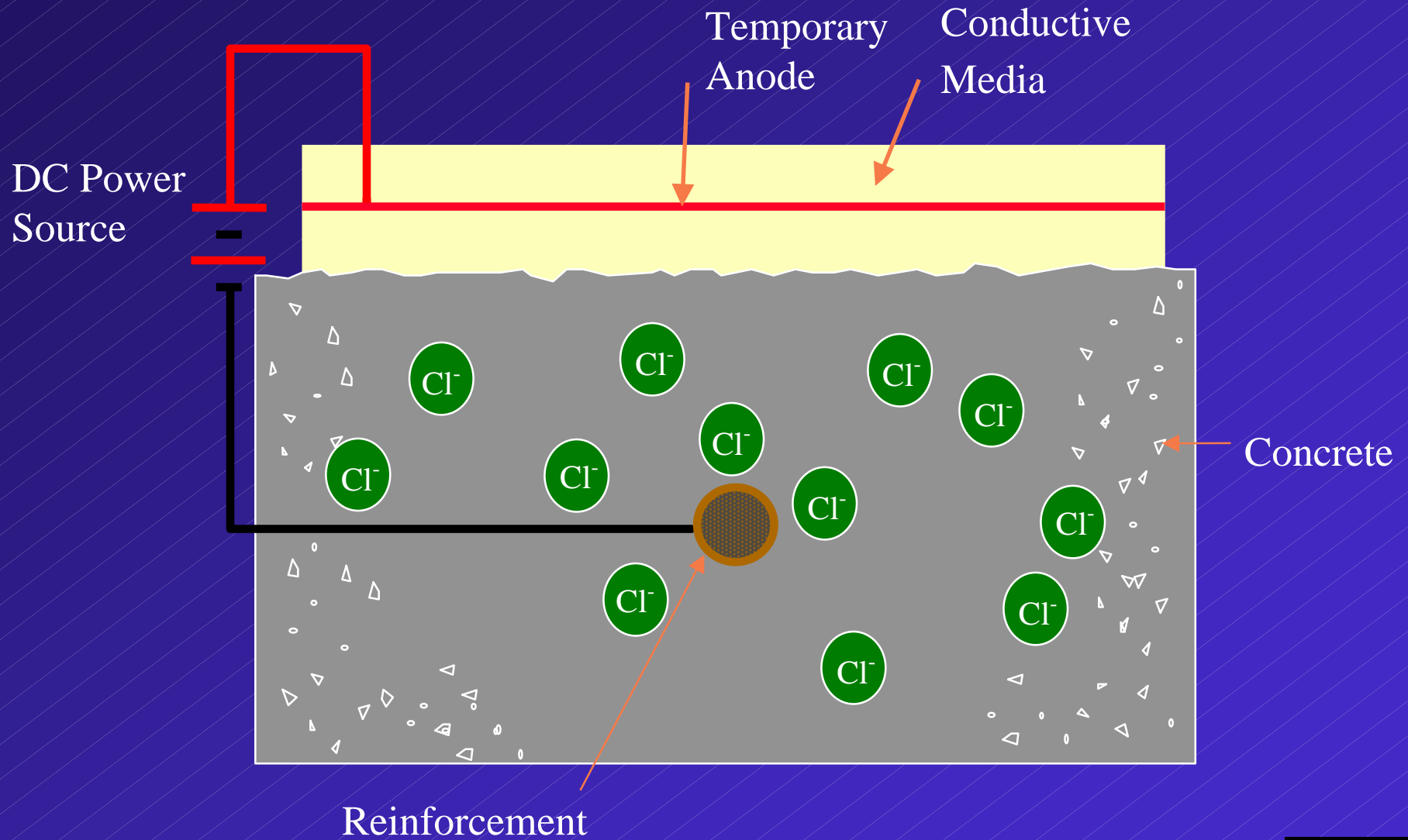
Norcure Chloride Removal Systems

Norcure Electrochemical Chloride Extraction

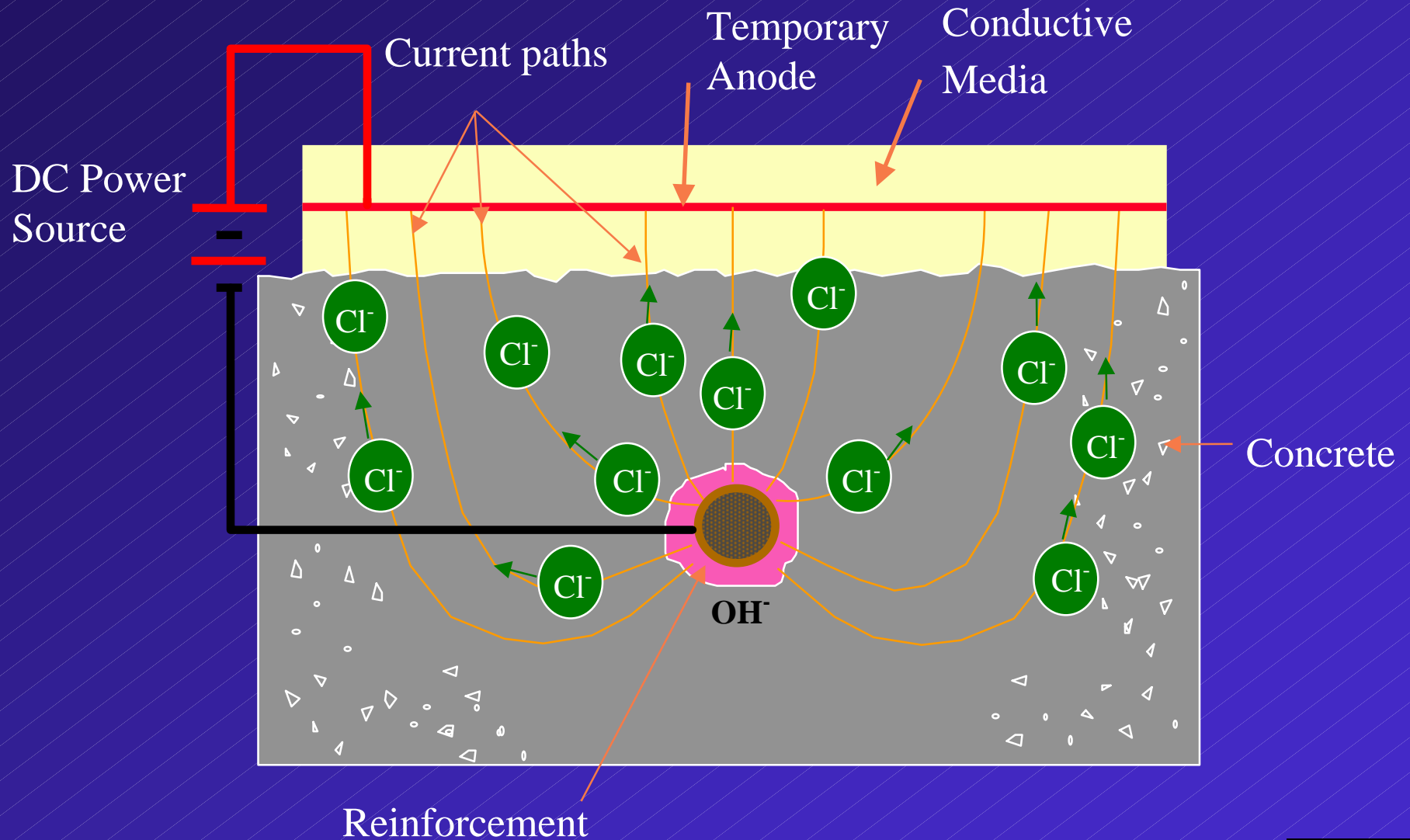
How does Norcure ECE work?

- Removes Chlorides from the Concrete
- Regenerates the Protective Passive Layer around the Reinforcing Steel

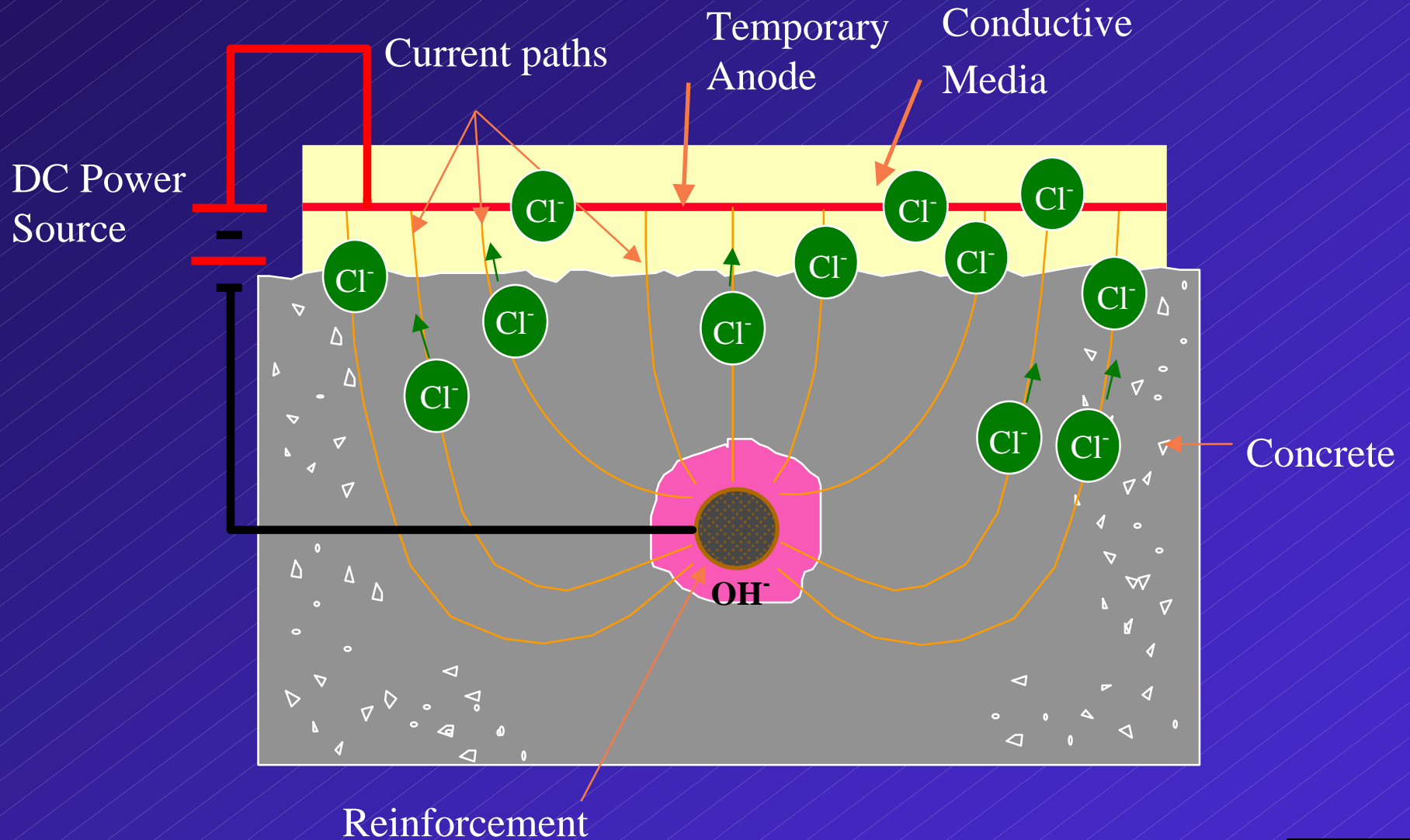
Electrochemical Chloride Extraction (ECE) From Salt Contaminated Concrete



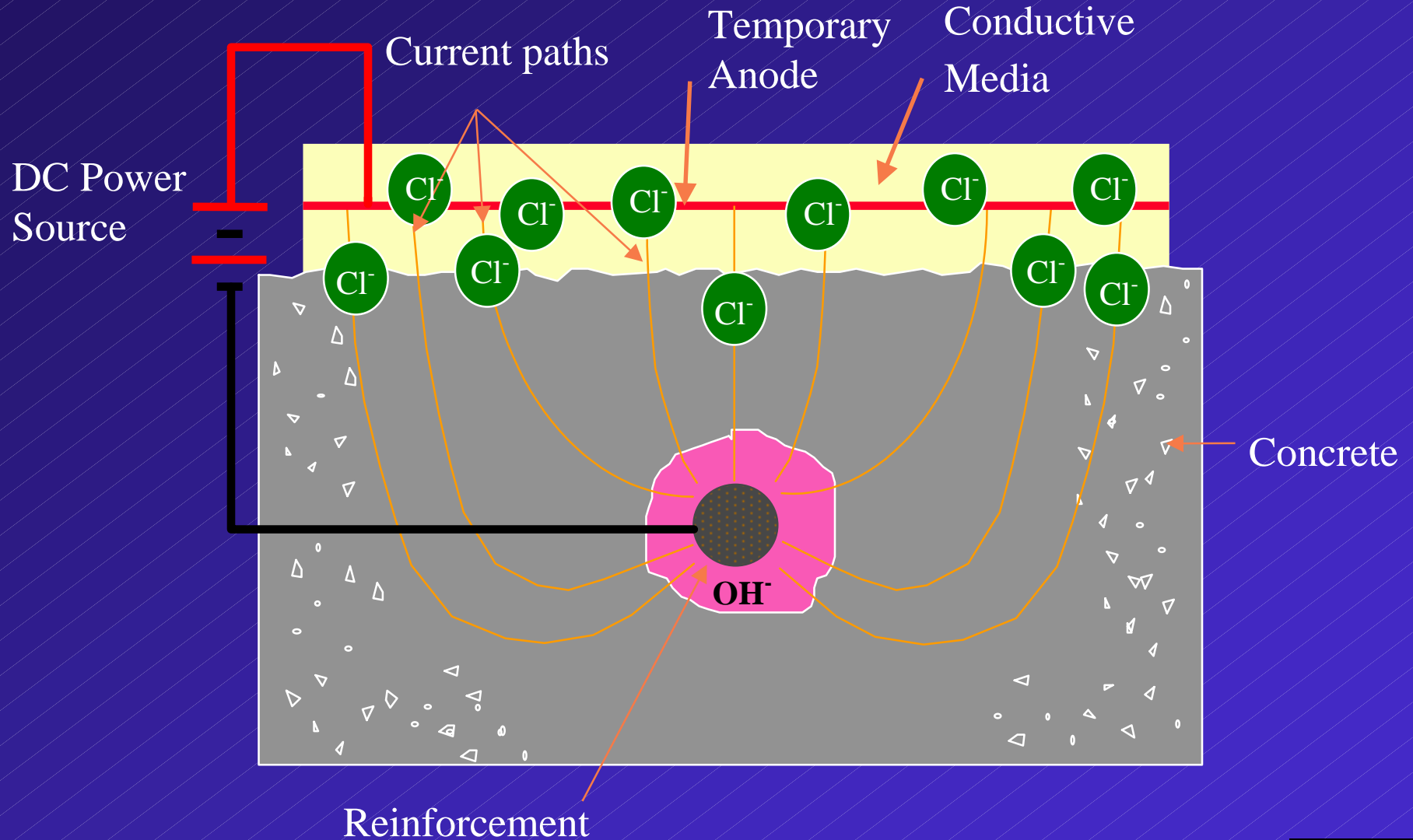
Electrochemical Chloride Extraction (ECE) From Salt Contaminated Concrete



Electrochemical Chloride Extraction (ECE) From Salt Contaminated Concrete



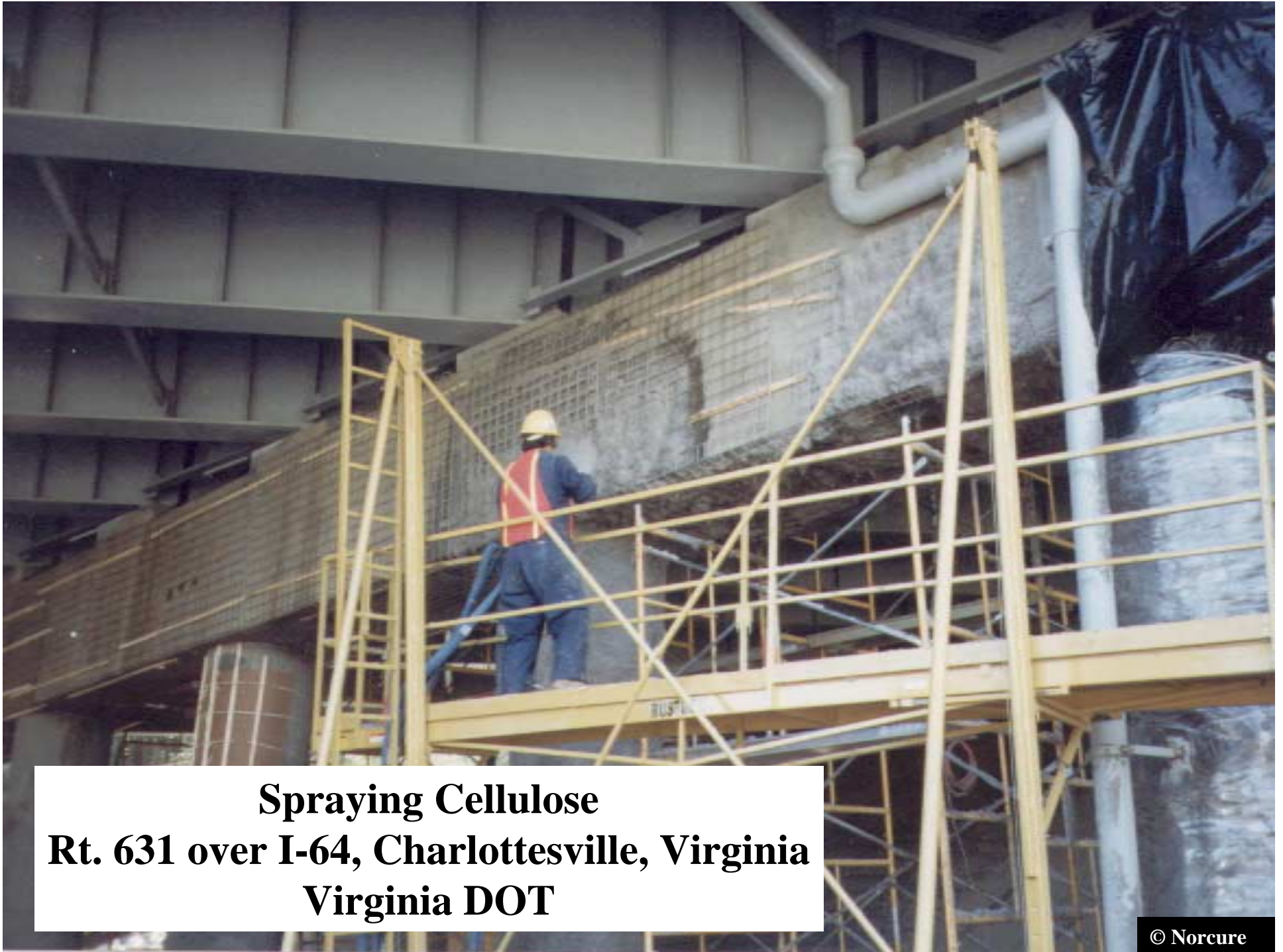
Electrochemical Chloride Extraction (ECE) From Salt Contaminated Concrete



SHRP Research

- ◆ Extensive ECE Testing Undertaken
- ◆ Confirmed ECE's Ability to:
 - Halt Corrosion
 - Restore Passive Oxide Film on Rebar
- ◆ No Adverse Chemical or Mechanical Effects
- ◆ ECE Deemed one of the Most Valuable Technologies Evaluated
- ◆ Long Term Data Shows Rebar Still Passive

Norcure on Bridge SUB-STRUCTURES



**Spraying Cellulose
Rt. 631 over I-64, Charlottesville, Virginia
Virginia DOT**



**System Installed and Running
Charlottesville, Virginia**



**Typical Hammerhead Pier Before Treatment
I-480 Omaha, Nebraska
Nebraska Department of Roads**



Anode Mesh Installation on Pier

Steel Mesh Anode Installation

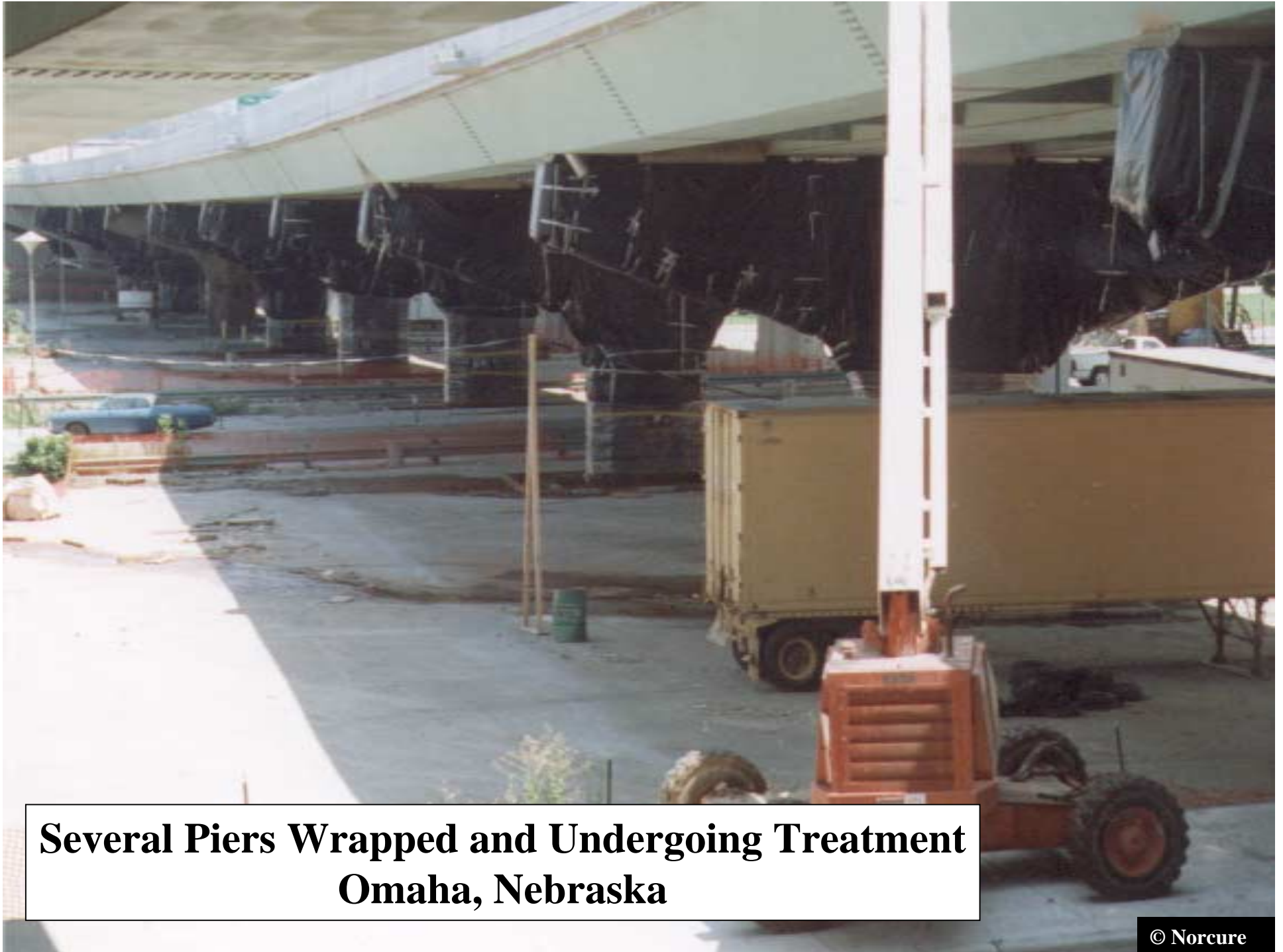




Cellulose Fiber Serves as Electrolyte



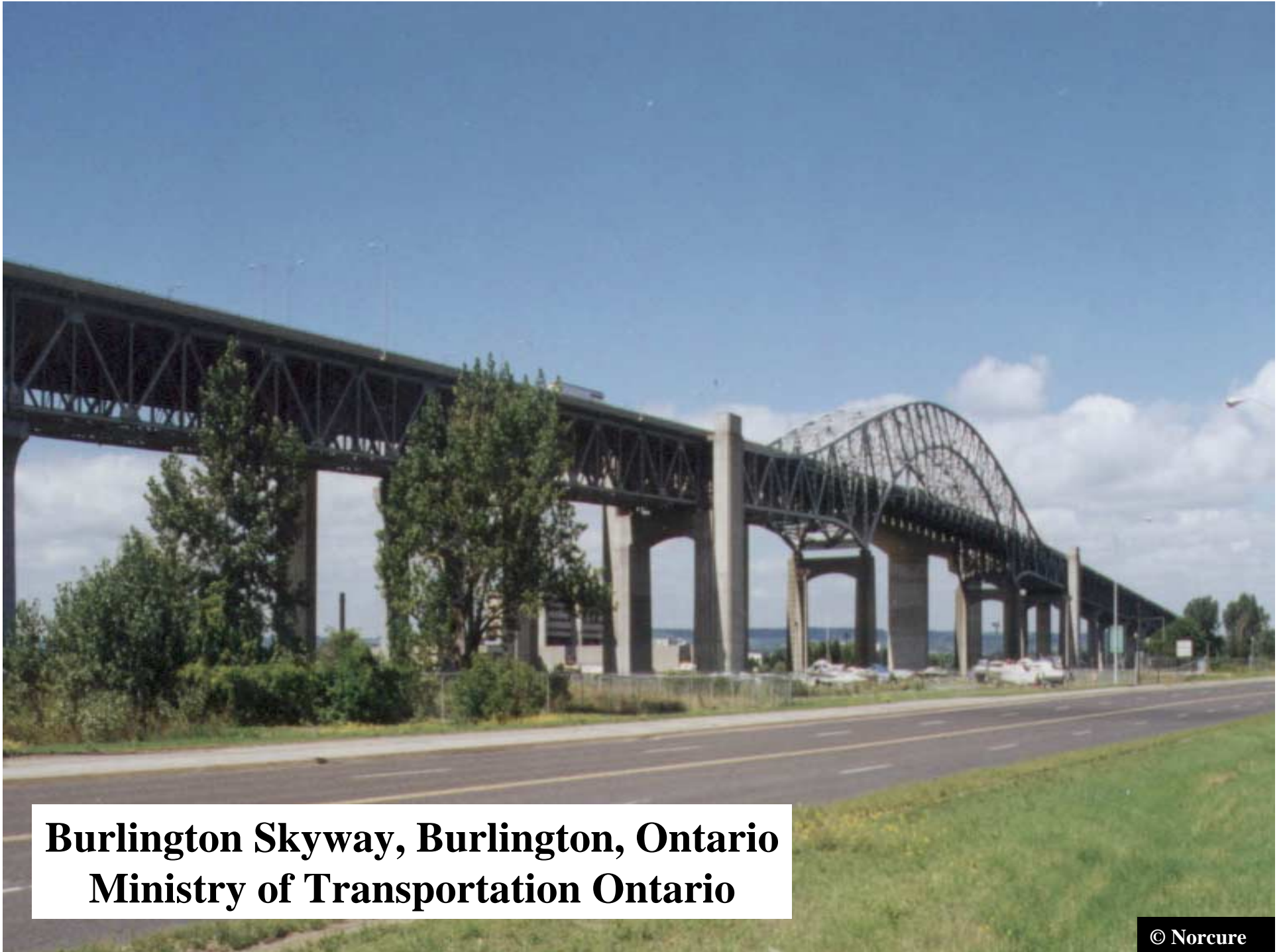
**Installation Complete
Ready to Start Treatment**



**Several Piers Wrapped and Undergoing Treatment
Omaha, Nebraska**



**Piers after Treatment
Cleaned and Sealed**



**Burlington Skyway, Burlington, Ontario
Ministry of Transportation Ontario**



**First North American Norcure Project
1989 Burlington Skyway, Burlington, Ontario
Ministry of Transportation of Ontario**

Burlington Skyway - Corrosion Potential Measurements

| (mV vs Cu-CuSO ₄) | North Face (Untreated) | | | West Face (ECE Treated) | | |
|-------------------------------|---------------------------|---------------|------|----------------------------|---------------|------|
| | <200 | 200 to 350 | >350 | <200 | 200 to 350 | >350 |
| Pre-Treatment | 0 | 85 | 15 | 0 | 96 | 4 |
| 1 Yr. After | 41 | 59 | 0 | 98 | 2 | 0 |
| 2 Yr. After | 41 | 59 | 0 | 100 | 0 | 0 |
| 3 Yr. After | 26 | 74 | 0 | 96 | 4 | 0 |
| 4 Yr. After | 26 | 70 | 4 | 98 | 2 | 0 |
| 5 Yr. After | 19 | 74 | 7 | 96 | 4 | 0 |
| 6 Yr. After | 26 | 59 | 15 | 96 | 4 | 0 |
| 7 Yr. After | 30 | 63 | 7 | 96 | 4 | 0 |
| 8 Yr. After | 11 | 78 | 11 | 96 | 4 | 0 |
| 9 Yr. After | 15 | 78 | 7 | 96 | 4 | 0 |

Note: Values represent percentage of readings within range
(negative signs omitted)

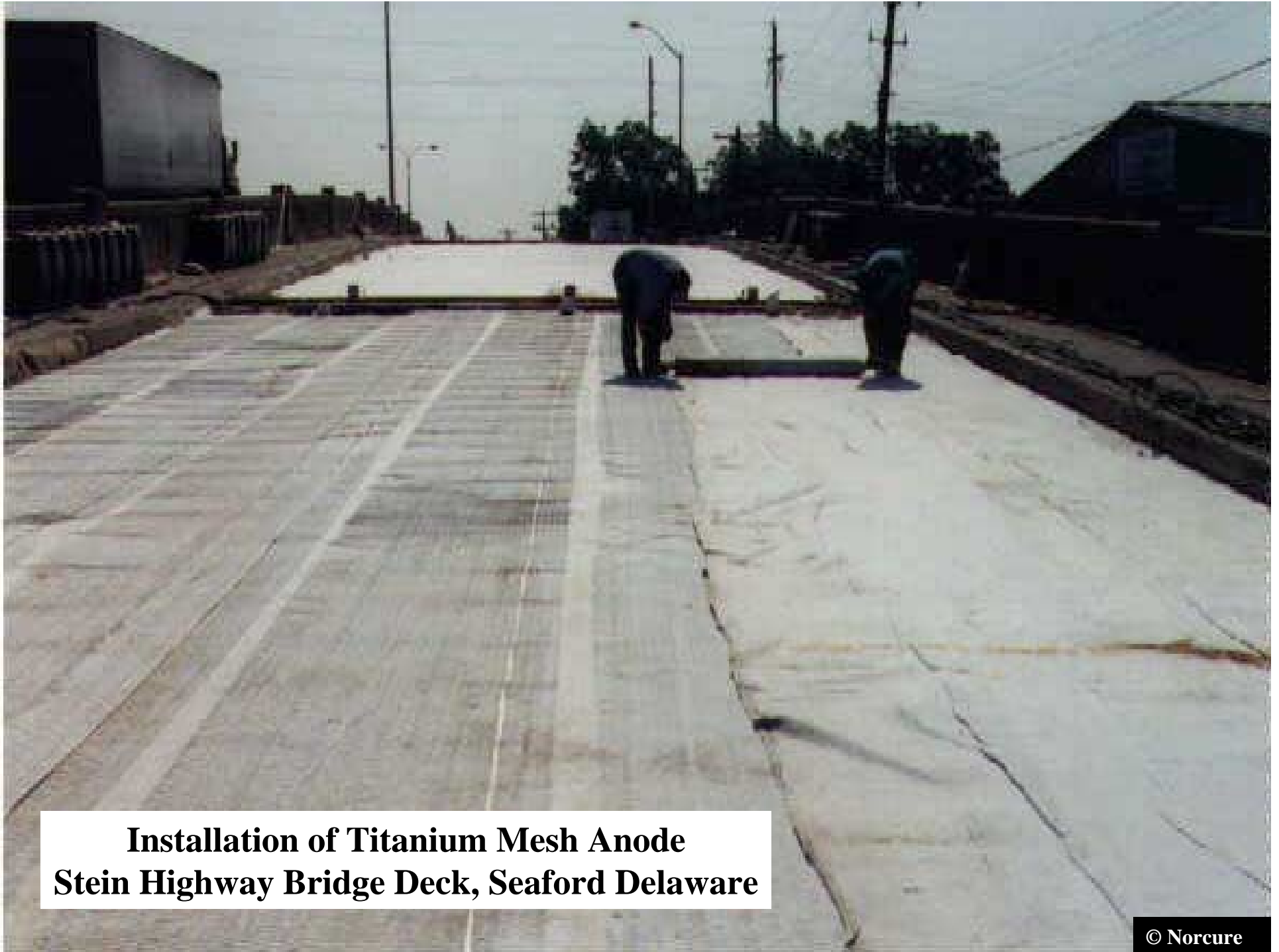
Norcure on BRIDGE DECKS



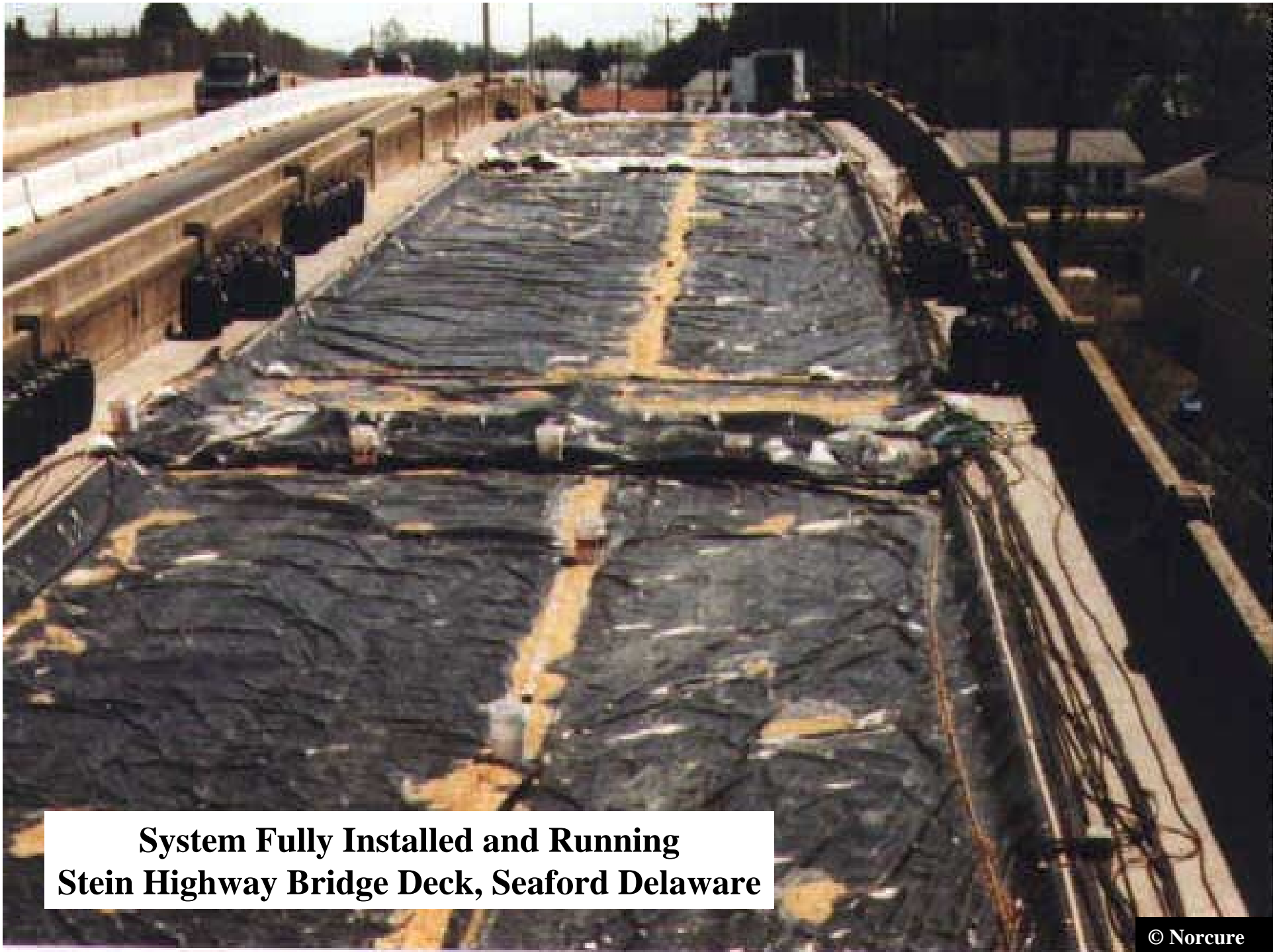
**St. Adolphe Bridge over Red River
St. Adolphe, Manitoba
Manitoba Highways and Transportation**



Seaford, Delaware: 28th best small town in the USA!



**Installation of Titanium Mesh Anode
Stein Highway Bridge Deck, Seaford Delaware**



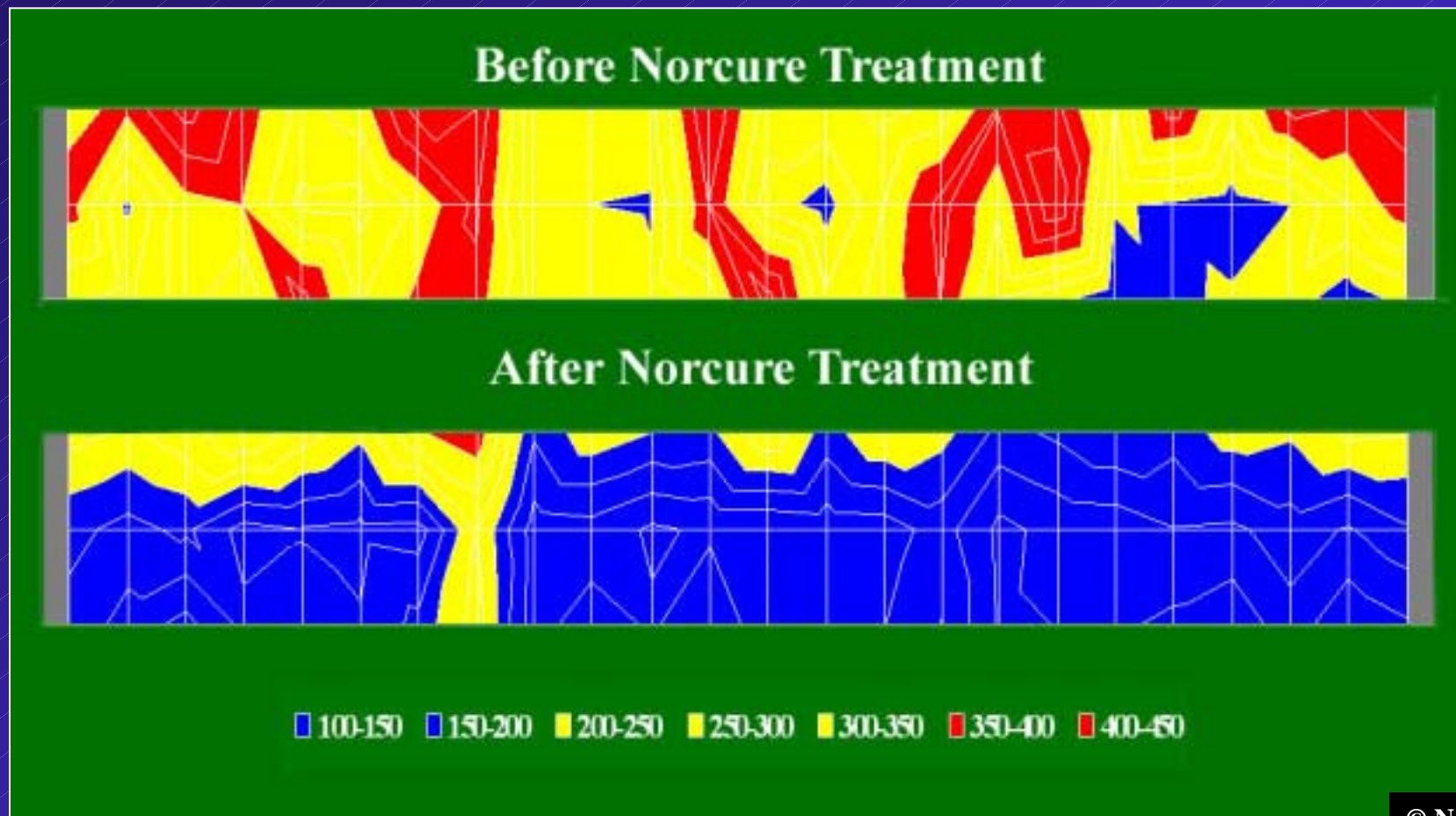
**System Fully Installed and Running
Stein Highway Bridge Deck, Seaford Delaware**



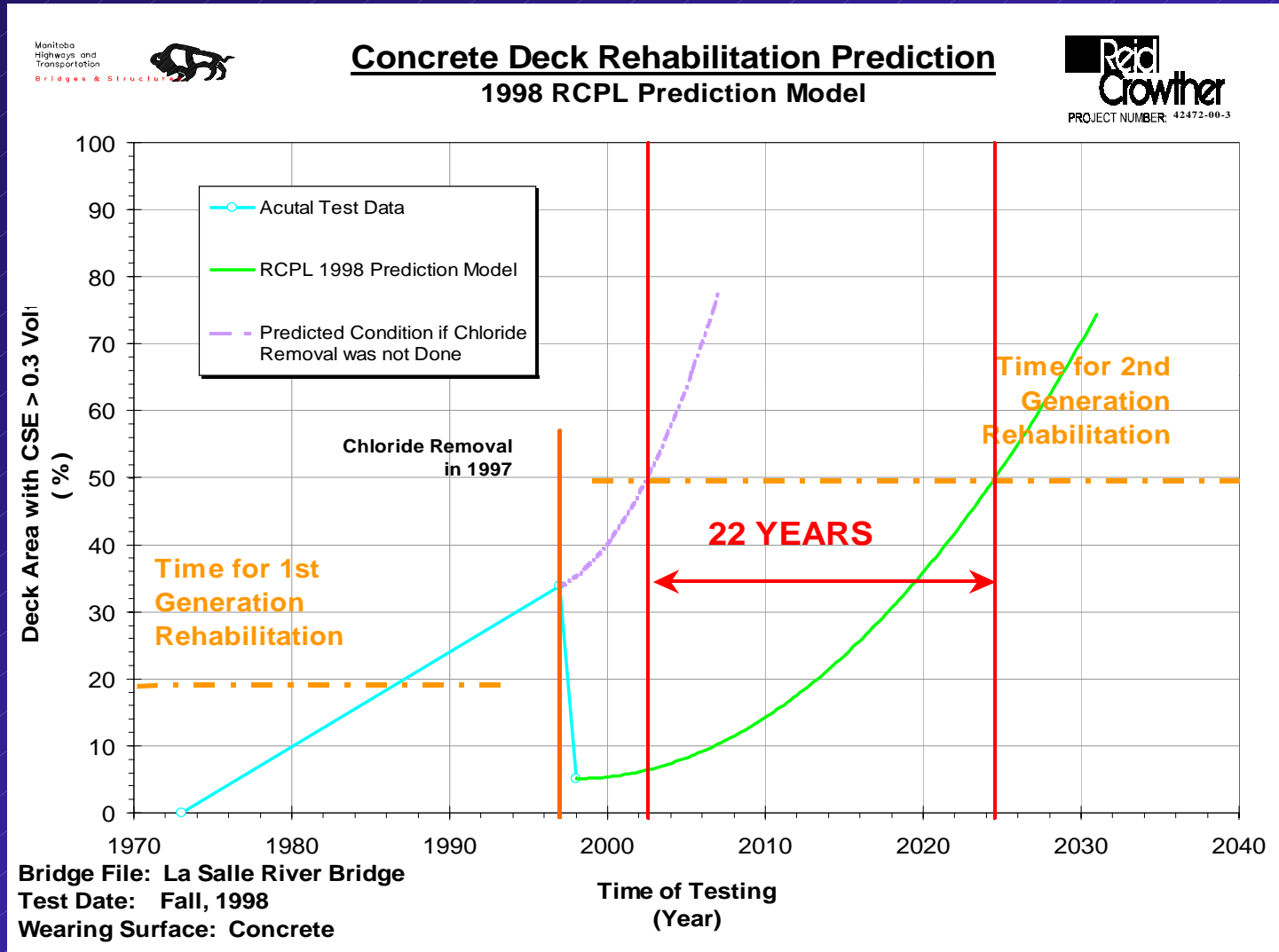
**Norcure Traffic Bearing System
PTH 332 over La Salle River, Starbuck, Manitoba
Manitoba Highways and Transportation**

Starbuck Bridge Deck

- ◆ Topographic View of Corrosion Potentials



Lifetime Extension



Benefits – Chloride Extraction

- ◆ Non-Destructive Repair Method
- ◆ Removes the Cause of Corrosion
- ◆ Lower Cost
- ◆ Permanent Advantages
- ◆ Protection for Entire Structure
- ◆ Extended Service Life
- ◆ Fast Installation and Removal
- ◆ No Permanent Maintenance Required
- ◆ More Environmentally Friendly

Net Result - Chloride Extraction

- ◆ Chlorides removed from concrete
- ◆ Hydroxyl ion formation increases pH around reinforcement
- ◆ Corrosion pits are deactivated
- ◆ Life of structure is extended