
Pipeline Coating Application

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Appalachian Underground Corrosion Short Course

QUALITIES OF A PIPELINE COATING

- Coating must possess excellent adhesion and cohesion to steel substrate
- Coating must have good dielectric strength
- Coating must be impervious to water absorption
- Coating must have good hardness characteristics and shear strength for HDD applications
- Coating must be compatible with other coatings



Standard Surface Painting Council (SSPC)

Standards for Cleanliness

- SSPC – (SP1) – Solvent Cleaning
- SSPC – (SP2, 3) – Hand-Tool, Power-Brush
- SSPC – (SP-6) – Commercial Blast
- SSPC – (SP-7) – Brush-Off Blast
- SSPC – (SP-10) – Near-White, White Sandblast
- SSPC – (SP-12) – Water Blast



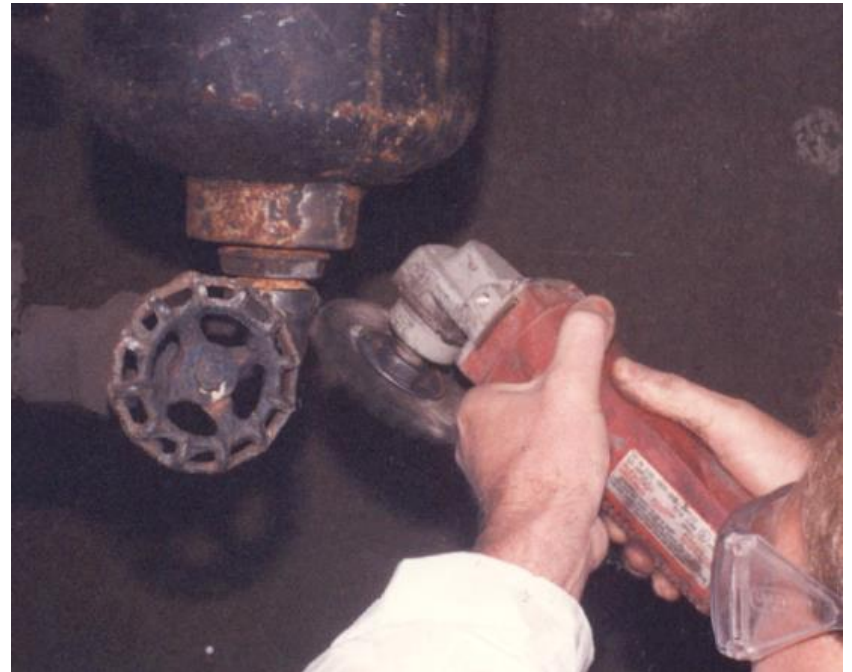
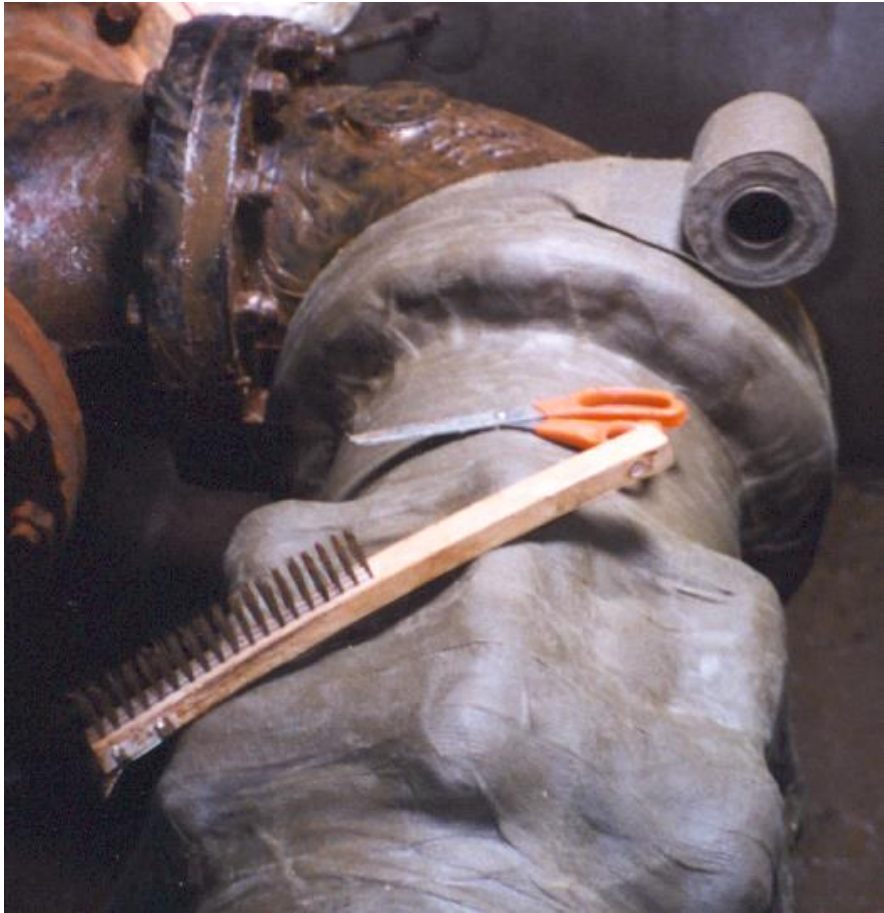
TYPES OF FIELD COATINGS

- Polyethylene/Butyl Cold-Applied Tape, Bitumen Hot-Applied Tape and Liquid Mastic
- Petrolatum/Wax Type Coatings w/ appropriate outer wraps
- Liquid Two-Part Epoxy (100% Solids)- Plural Component Spray and Brush-Applied Kits
- Coal-Tar Epoxies
- Powder Type Fusion-Bond Epoxy (Flocking in the Field)
- Heat-Shrink Sleeves (Tubular+ Split-Sleeve)

Basis For Coating Selection

- Type of Install: New Construction vs. Maintenance of Operating Lines/
- Conditions: In-Service Lines (Sweaty Pipe, Cold Pipe/Temps., Discharge Lines, etc.), Underground vs. Above-Grade (UV)
- Degrees of Surface Preparation Available, SP #1,2,3, SP#6, SP#9,10 -(NACE 2)
- Type of Coating on Pipe – Compatibility Issues
- Atmospheric Conditions During Application
- Type of New Installation of Pipeline (Bore vs. Direct Burial)
- Experience of Field Coating Crews with coating product (Pipeline Contractor vs. Company Crews)
- Supporting Data and Historical Experience with a particular coating system (pig-runs, surveys, DCVG, direct assessment techniques, etc.)





**Tools required for petrolatum/
wax tape application and surface
preparation.**



**Thin layer of
paste primer
applied to
surface.**



**Profiling Mastic
used for irregular
profiles.**



Protection of vault piping with petrolatum/wax tape system.







Cold-applied petrolatum/wax tape applied to above-ground river crossing.







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Fiberglass Water Activated Glass Outerwrap



**Remove roll
from
hermetically
sealed foil
pouch.**

Place roll
in water for
20 to 30
seconds.

Spirally wrap with a
50% + overlap.

Wind line area protected with petrolatum tape and a glass outerwrap.







06/05/2008



**Grey wax/petrolatum tape -
Applied on a pipeline span**





**Cold-applied petrolatum/wax tape system
Applied to ductile iron pipe and flanges.**





















**Primer being
applied with a roller.**



**Hot-Applied Bitumen Tape
80 mil hot applied tape,
excellent in cold temperatures
and where extra hardness is
required.**





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82018X







60 mil cold-applied tape used to repair and rehab existing pipeline.



**Surface Preparation
Grit blasted to SSPC SP-10 or NACE 2.**



**High Build 100%
Solids Liquid Epoxy
Coating
Applied to girth
weld at 25 - 30
mils.**





**100% Solids Liquid Coating in
Repair Cartridge Form
Repairs to FBE, cadwelds, etc.**



**100% Solids Liquid Spray-
Applied Epoxy Coating -
Applied with a plural
component unit with 3:1 spray
equipment.**



100% Solids Liquid Epoxy Coating - Bell hole rehab - before and after.







H-B-PG-0041
2-10-08
AUT-OK

075

075

AS-PG-0042
2-10-09
AUT-OK

|.050

(13) 26813+2/5
B-F4 FC

K	63
G	I3

|.100



13-PC-0012
2-10-09
AUT-OK

1050

13 2681346 15
B-A4 FC
K63
G13

100







□ Settings cleaned
and ready for coating
application



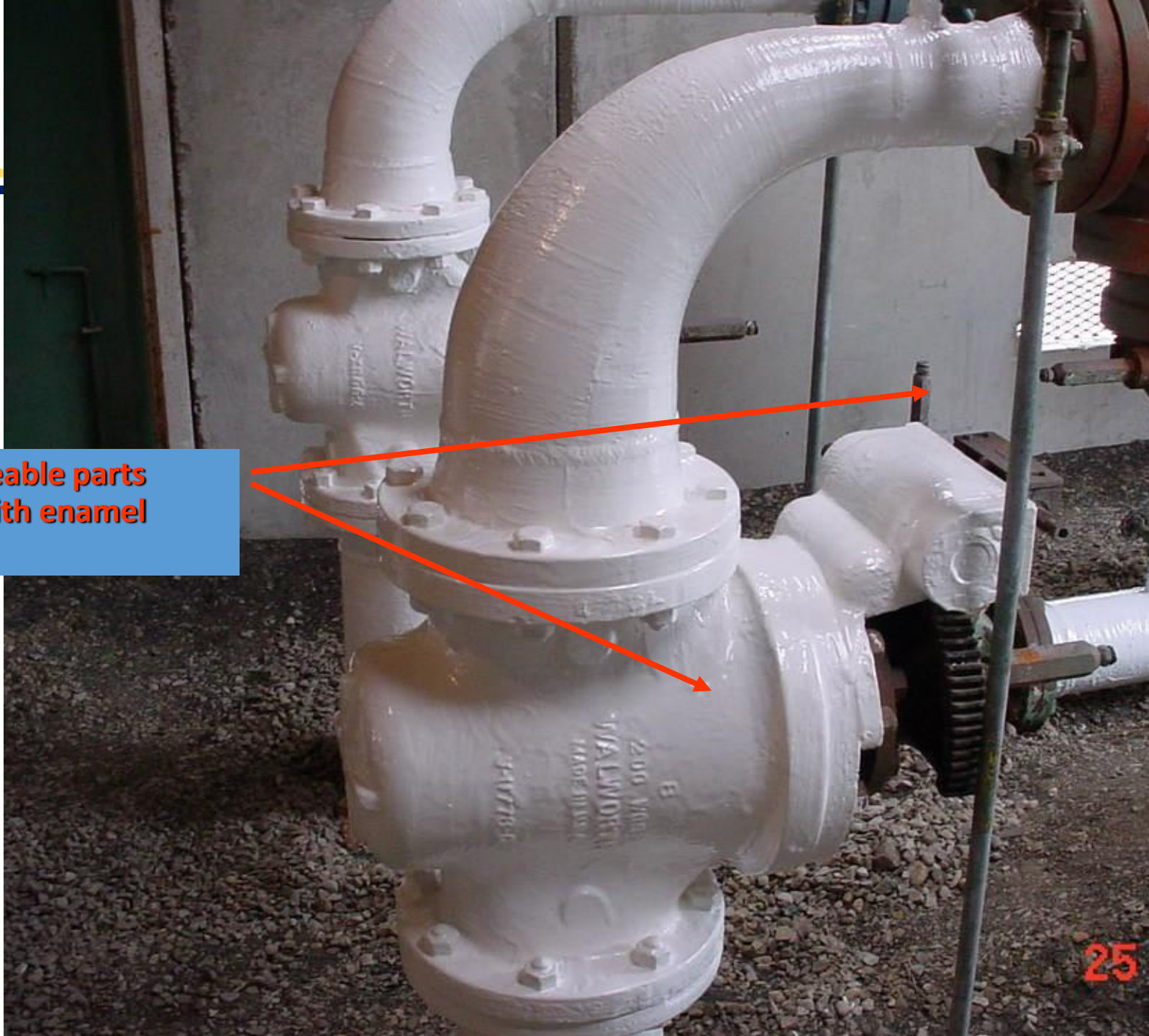
22 9:45 AM

□ **First application of Epoxy Coating and Enamel Paint**

□ **All regulator bodies and bolts coated with enamel paint**



□ All moveable parts coated with enamel paints





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Maintenance on Settings



Damaged area

Maintenance on Settings

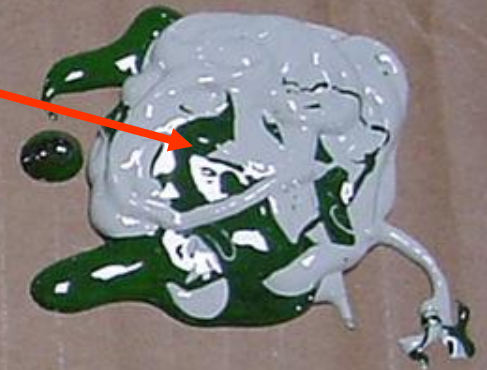


- Use a piece of Cardboard for mixing procedure

Maintenance on Settings

- 3 to 1 ratio

Clean tip after each use to prevent clogging



- Smallest Tube contains the hardener

- The larger Tube contains the Epoxy Resin



Maintenance on Settings

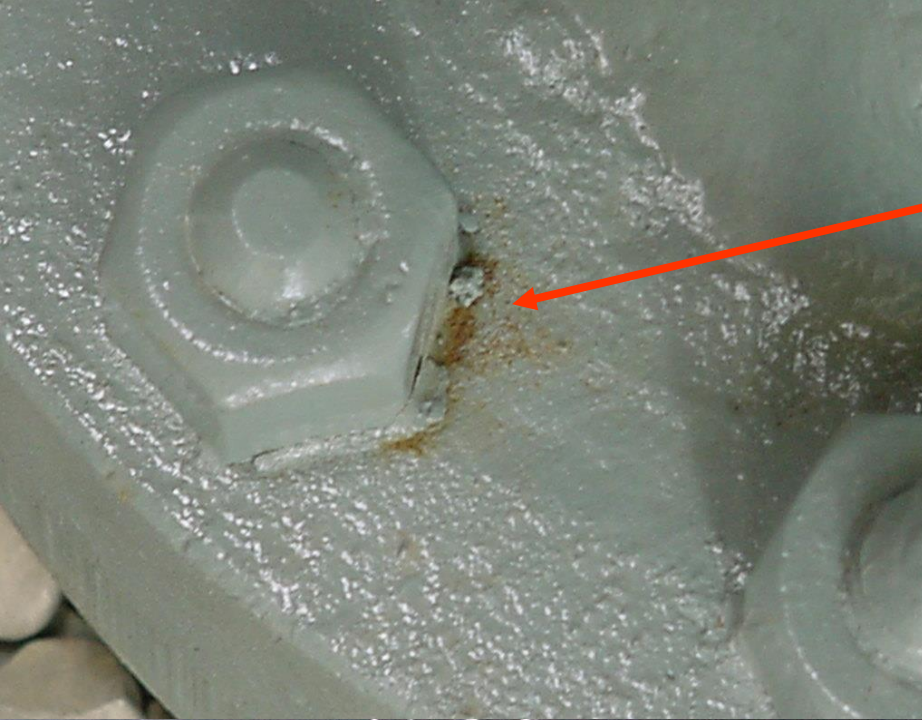


- Mix until a solid color is obtained

Maintenance on Settings

A close-up photograph of a metal surface, likely a concrete or steel structure, showing a green epoxy sealant applied to a bolt head and the surrounding area. The epoxy is thick and glossy, covering the bolt head and extending outwards. The background is a dark, textured surface, possibly concrete or steel, with some small white specks. The lighting is bright, highlighting the texture of the epoxy and the metal.

- Surface preparation – hand tool cleaning
- Apply Epoxy



Before



After



Apply Void Filler

13 11:57 AM

13 11:57 AM

13 11:57 AM

13 11:59 AM

Moisture Area

25 3:53 PM



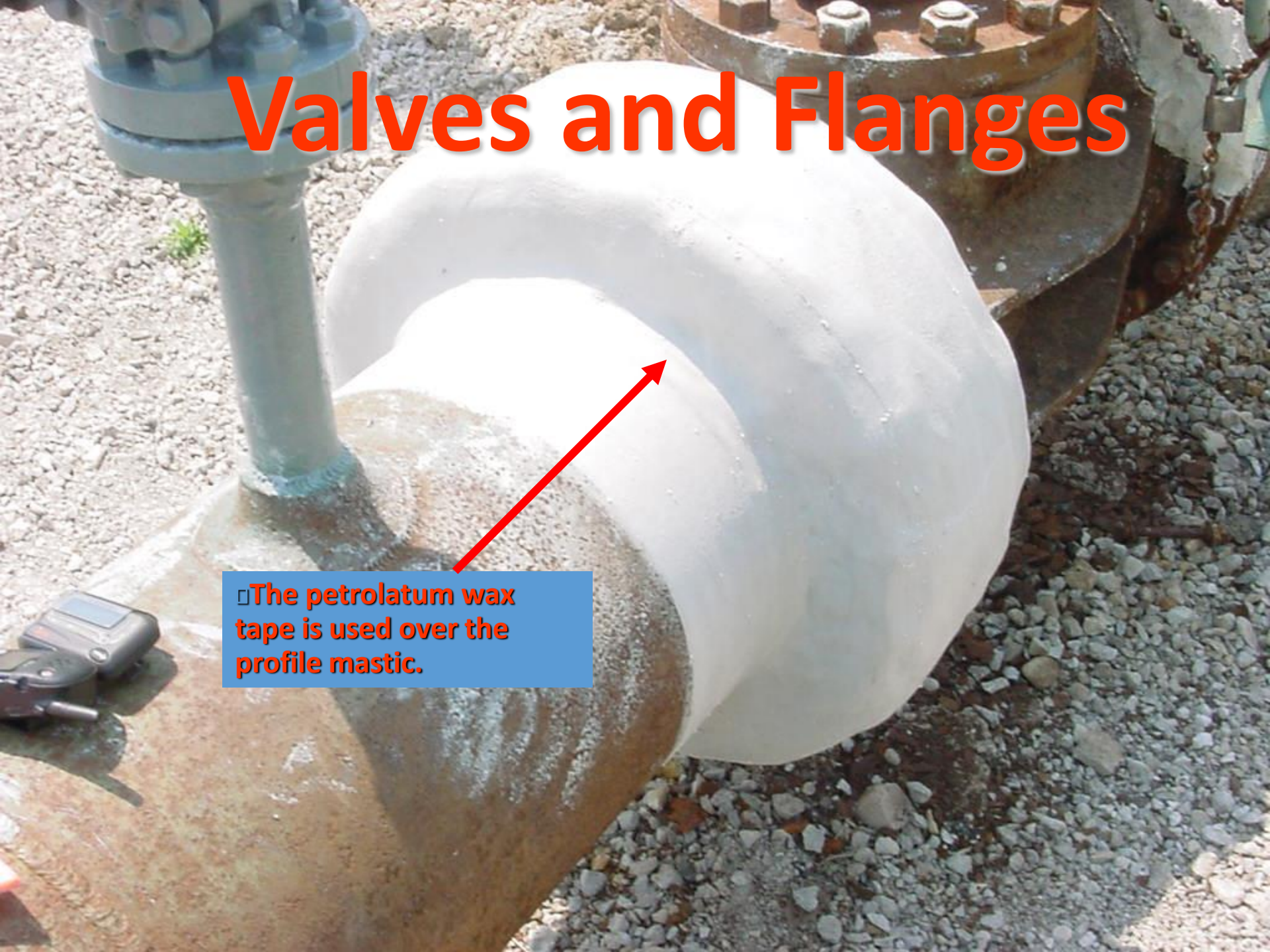
Valves and Flanges



□ Profile Mastic is applied around the bolts, crevice and crack areas to block moisture or water from entering.

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Valves and Flanges



□ The petrolatum wax tape is used over the profile mastic.

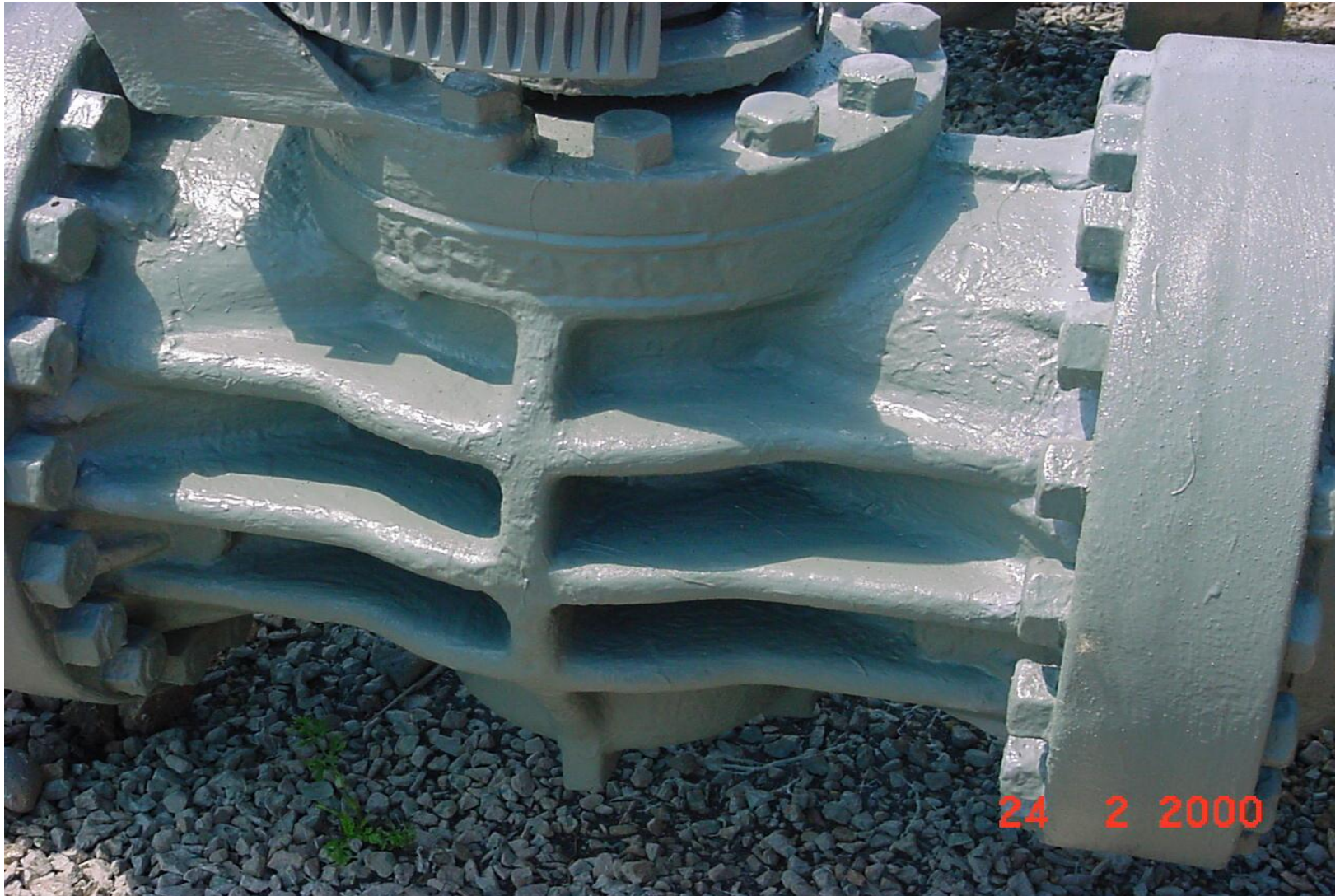
The valve side view of being exposed to the outside atmosphere.



Side view of the valve after blasting corrosive and coating disbondment areas.



The valve at a side view, finished.



24 2 2000

Thank You

Questions, Comments or Compliments!



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