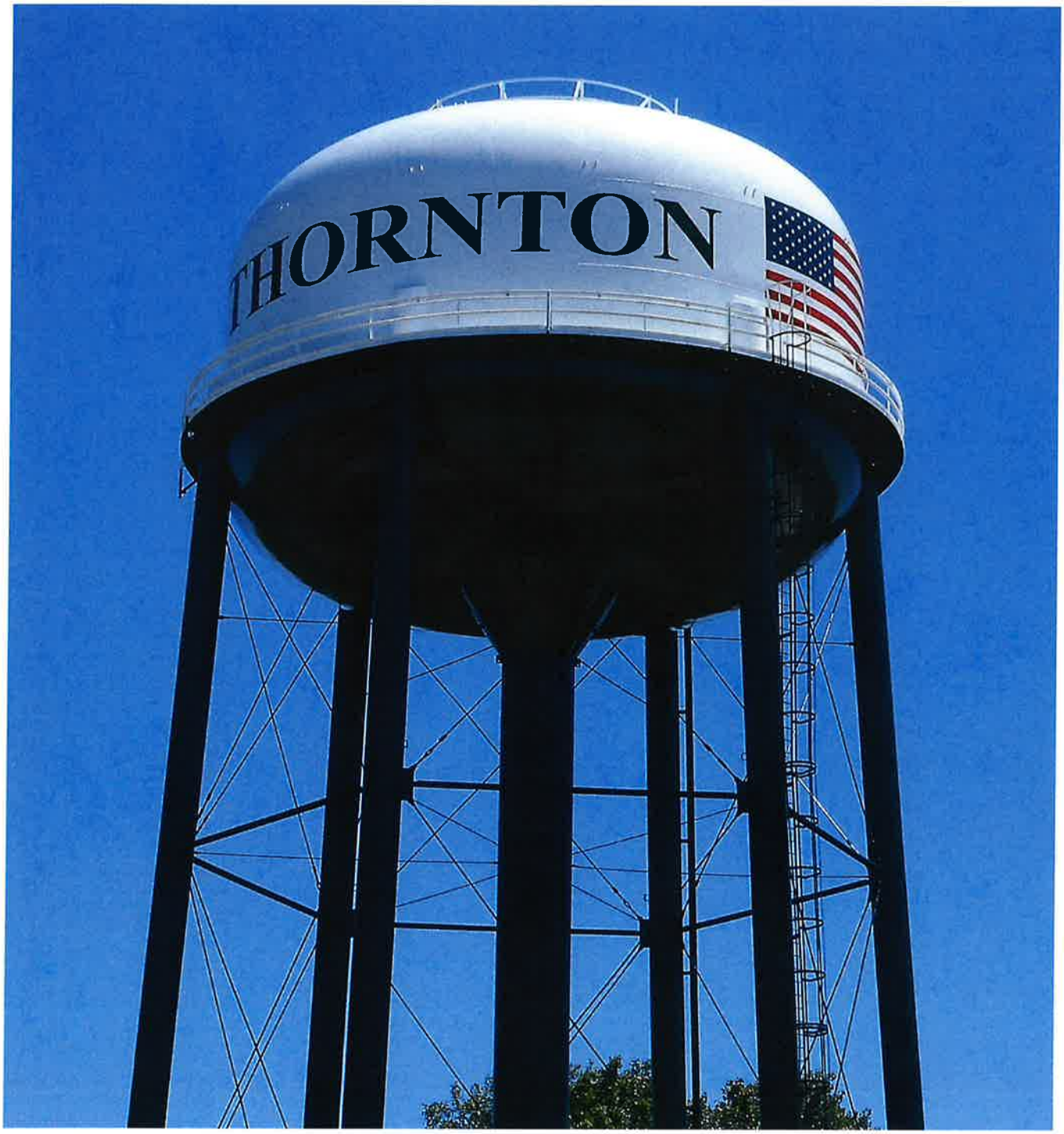
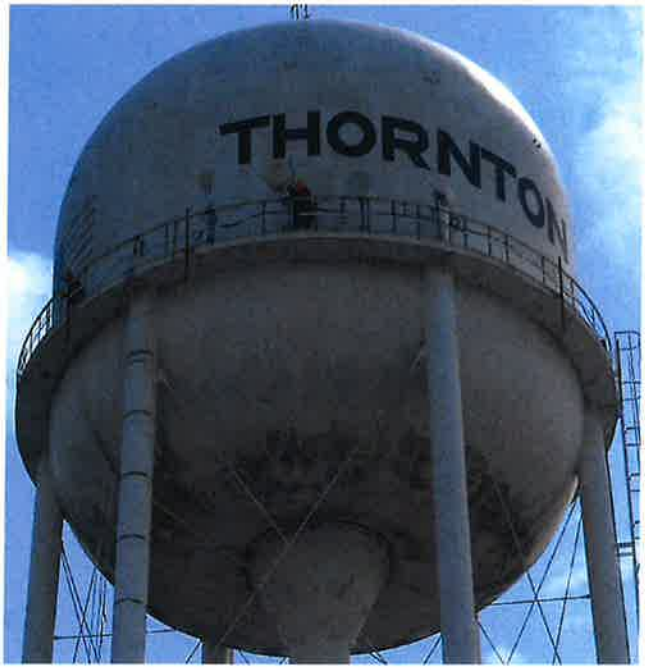
VILLAGE OF THORNTON
400,000-GALLON ELEVATED LEG TANK
REPAINTING PROJECT
REL PROJECT # 22-R0568.04

Robinson ENGINEERING
Municipal Expertise. Community Commitment.

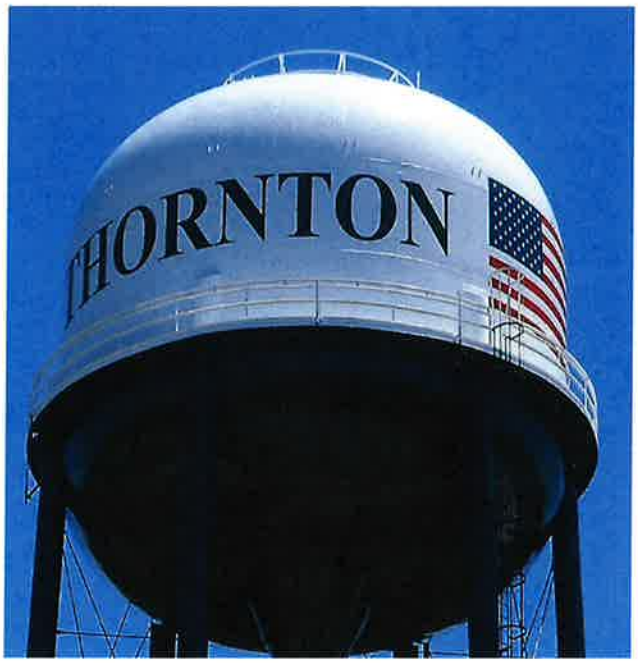


## PROJECT OVERVIEW

Village of Thornton owns, operates, and maintains a 400,000-gallon elevated leg tank located at 321 East Harriet Street, Thornton IL. 60476. The existing coating system on the exterior of the tank was beyond its useful life with chalking, mildew buildup & areas of corrosion present. The interior wet portion of the tower is beyond its designed life exhibiting areas of local corrosion. The project work included waterjet cleaning the exterior portion of the tower to SSPC-SPWJ3 (thorough cleaning), power tool cleaning areas of corrosion to bare metal (SSPC-SP11) followed by the application of a two (2) coat macropoxy sealer, spot primer, then followed by a two (2) coat high solids polyurethane intermediate & a high solids polyurethane topcoat. The interior wet portion of the tower was abrasive blasted to a near white metal finish (SSPC-SP10) followed by a two (2) coat zinc primer, followed by a 100% solids low VOC epoxy topcoat system. This project also included repairs and replacement of tank equipment including; a cathodic protection (CP) system upgrade, installation of a new frost-free roof vent, new overflow flap gate and screen, seal welding of cathodic protection covers, raised catwalk handrail height, install roof corral, repair interior stiffener ring and install new interior wet access ladder.



BEFORE TANK REPAINT



AFTER TANK REPAINT

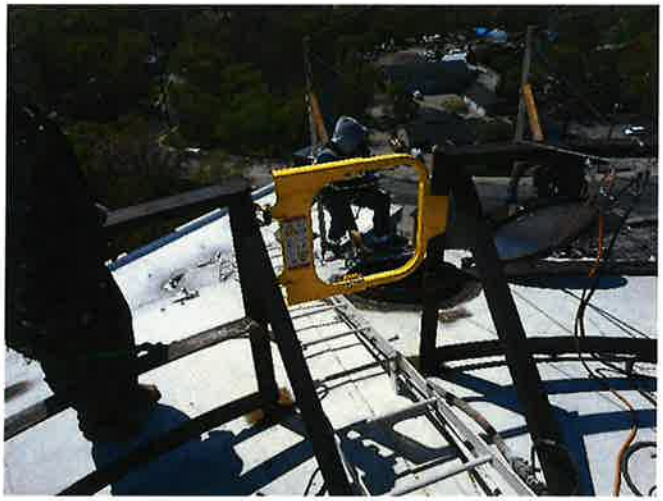
The following sections detail the Thornton elevated leg tank project.

## TANK EXTERIOR

The tower exterior portion of the project started with raising the catwalk railing system to 42" height, fabricating and installing the roof corral, and installing a new overflow pipe flap gate to prevent contamination.


ROOF CORRAL FABRICATION IN PROCESS

ROOF CORRAL FABRICATION COMPLETED



ROOF CORRAL FABRICATION COMPLETED

CATWALK HANDRAIL RAISED TO 42"

A full containment system was constructed to prevent discharge of debris into the environment. The tank exterior was waterjet cleaned to SSPC-SPWJ3 (thorough cleaning) in order to remove mildew, dirt/debris, and expose any areas of corrosion that had started to form. After the cleaning process was complete any areas of corrosion were power tool cleaned to bare metal (SSPC-SP11), followed by an application of a high solids epoxy mastic primer before end of day. This method helps prevent flash rust from forming on the tank surface and provides a longer lifespan for the coating system. The primer coat was applied at a specified dry film thickness (DFT) range of 3.0 – 5.0 mils.

CONTAINMENT SYSTEM INSTALLED


TANK EXTERIOR WATERJET CLEANED


TANK EXTERIOR WATERJET CLEANED


POWER TOOL CLEANING & PRIMER APPLICATION IN PROCESS

Once the application of the high solids epoxy primer was completed the tie-in coat 100% solids penetrating epoxy sealer was applied. The tie-in coat was applied at a dry film thickness of 1.0 – 2.0 mils, bringing the total DFT range to 4.0 – 7.0 mils. The next coating application was the intermediate coat an acrylic polyurethane, fast drying that provides color and gloss retention. This was applied at a dry film thickness of 2.0 – 3.0 mils, bringing the total DFT range to 6.0 – 10.0 mils.

INTERMEDIATE COATING IN PROCESS

INTERMEDIATE COATING IN PROCESS

INTERMEDIATE COATING IN PROCESS


INTERMEDIATE COATING DFT READING

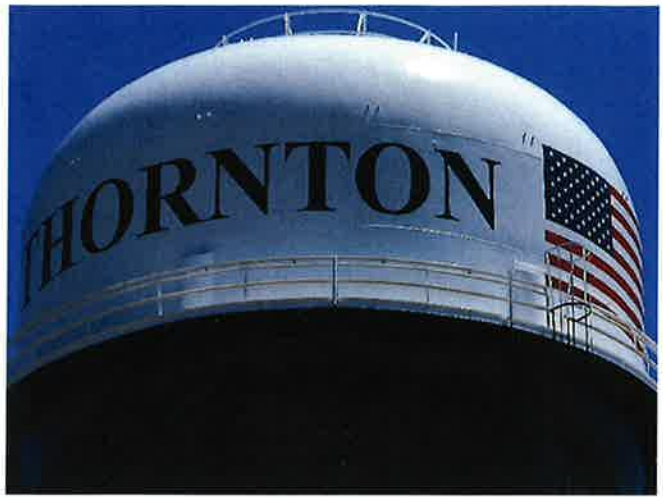
Following the polyurethane intermediate coat, a high solids fluoropolymer urethane topcoat was applied adding another 2.0 – 3.0 mils to the DFT, bringing the total DFT range to 8.0 – 13.0 mils. The fluoropolymer urethane coating offers an excellent non-stick property, reduction of friction and resistance to corrosion and UV rays. After the completion of the fluoropolymer topcoat, the logo was applied to the tank. The frost-free roof vent was coated with an epoxy coating to prevent chemical corrosion damage. Additional work was done on the metal bands and angle iron used to hold the cables for the antennas in place on the exterior leg(s) of the tower. Metal bands and angle iron were power tool cleaned, primed and coated.

FLOUROPOLYMER TOPCOAT IN PROCESS

FLOUROPOLYMER TOPCOAT IN PROCESS

FLOUROPOLYMER TOPCOAT IN PROCESS

FLOUROPOLYMER TOPCOAT IN PROCESS

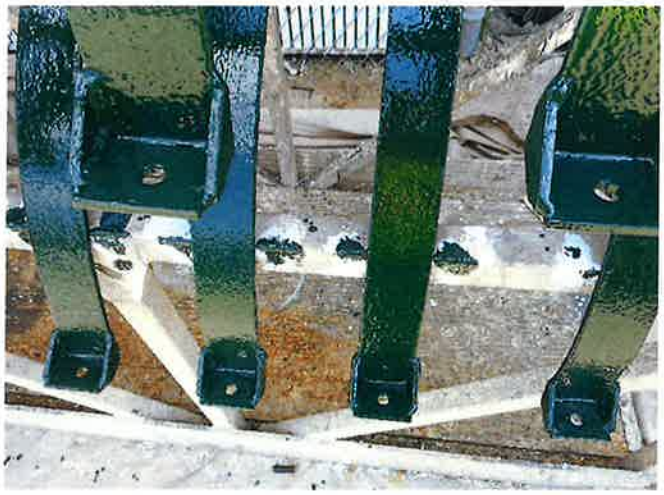



LOGO COMPLETED


LOGO COMPLETED

FROST FREE ROOF VENT COATED

METAL BANDS CLEANED AND COATED



METAL BANDS CLEANED AND COATED

ANGLE IRON CLEANED AND COATED

## TANK INTERIOR WET

The interior wet portion of the tank was abrasive blasted to a near white metal finish (SSPC-SP10) to remove the old coating system and any corrosion, as well as provide a sufficient surface profile for the new paint system to adhere to. After the abrasive blasting was completed, the interior wet portion of the tank was coated with a zinc primer at a specified DFT range of 2.0– 3.0 mils, the zinc provides the steel substrate protection by acting as a sacrificial anode.

BLASTING IN PROCESS

PRIMER COATING IN PROCESS

PRIMER COATING IN PROCESS


PRIMER DFT READING

Once the primer application was completed the interior wet portion of the tank was coated with an ultra-high solids epoxy amine topcoat at a specified DFT range of 20.0 – 30.0 mils, bringing the total DFT range to 22.0 – 33.0 mils. The low V.O.C., 100% solids high build epoxy provides a superior level of protection for the tank interior. After the topcoat had cured the new cathodic protection (CP) system was installed.

TOPCOAT IN PROCESS

TOPCOAT IN PROCESS

COMPLETED TOPCOAT APPLICATION


TOPCOAT DFT READING

Following the completion of all work the tank was sealed, filled, and disinfected utilizing AWWA method 3 and bacteriological samples were taken to ensure the tank was safe to return to service.

# DAILY INSPECTION REPORTS

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 3-27--24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 10:00 am | **32°**F | 75% | °F | **25°**F | 14 mph |

| **ABRASIVE BLASTING** | | **Notes** |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| **SURFACE PROFILE MEASUREMENTS (locations)** | **Min** | **Max** | **Average** | **Specified** | **Ok** |
|---|---|---|---|---|---|
| | | | | | |

| **Coatings Applied** | **Manufacturer & Type** | **Application Method** | **Batch #** | **Ok** |
|---|---|---|---|---|
| | | | | |

| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
|---|---|---|---|---|
| | | | | |

| **DFT 'S** | **DFT Before** | **Min** | **Max** | **Average** | **Specified DFT Range** | **Ok** |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Insite antenna removal team from T-Mobil is on-site today removing their cabling system. Crane is to deliver tomorrow to remove antenna equipment from catwalk railing on tower. Temporary holding tanks are in place and set up – 3 tanks are located at the ground storage tank facility, 1 tank is located at the elevated leg tank facility. Testing of the temporary water system and Bac-T testing need to be performed prior to draining the tower. Municipal antennas and dishes are scheduled to be removed April 4th.

| **COATING APPLICATION CHECKLIST** | **YES** | **NO** | **N/A** |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


THORNTON

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 3-28--24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 12:20 pm | **46°**F | 46% | °F | **27°**F | 9 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

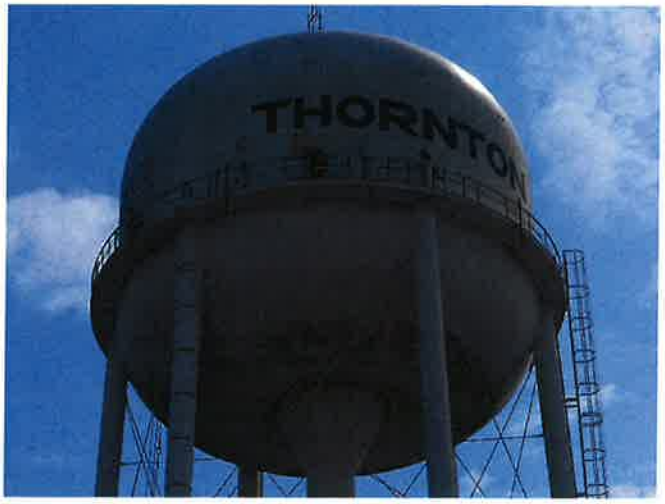
| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Insite antenna removal team from T-Mobil is on-site today removing their antennas with crane that arrived today. Municipal antennas and dishes are still scheduled to be removed April 4th. Contractor has been notified of delay in antenna removal.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |



# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 4-12-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 10:30 am | **59°**F | 55% | °F | **47°**F | 23 mph |

| **ABRASIVE BLASTING** | | **Notes** |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| **SURFACE PROFILE MEASUREMENTS (locations)** | **Min** | **Max** | **Average** | **Specified** | **Ok** |
|---|---|---|---|---|---|
| | | | | | |

| **Coatings Applied** | **Manufacturer & Type** | **Application Method** | **Batch #** | **Ok** |
|---|---|---|---|---|
| | | | | |

| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
|---|---|---|---|---|
| | | | | |

| **DFT 'S** | **DFT Before** | **Min** | **Max** | **Average** | **Specified DFT Range** | **Ok** |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Safety fencing is in place, and the portable facility is on-site. Testing of the temporary tanks was conducted yesterday, the test was successful, and tanks will continue to run until project is completed. Draining of the tower was started this morning and tank will be empty and ready for the painting crew to start on Monday Apr 15th. Ray's Welding crew has been working on site since Wed Apr 10th. They have been working on the roof corral installation, it will be completed today.

| **COATING APPLICATION CHECKLIST** | **YES** | **NO** | **N/A** |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |

DRAINING OF TOWER IN PROGRESS

DRAINING OF TOWER IN PROGRESS

NEW ROOF CORRAL INSTALLATION

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 4-16-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 9:10 am | **66°F** | 40% | °F | **41°F** | 15 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Painting crew is onsite today. Tank has been drained and the temporary tanks are working well, no issues have been noted. Painting crew is cleaning out the water left on the bottom of tank, getting it ready for blasting next week. Internal ladder detached from side wall to hatch opening will be removed from bottom of tank. Overflow top hat show excessive corrosion and should be replaced. The metal identification plaque on the tank was previously painted, the painting crew will try to remove existing paint. Tree branches on the east side of the tank will need to be cut back prior to painting crew setting up containment system.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |

OLD CP PORTS TO BE COVERED WITH WELDED PLATES

STIFFENER RING CORRODED AND DETACHED FROM TANK

OVERFLOW TOP HAT EXCESSIVE CORROSION

WET INTERIOR LADDER CORRODED AND DETACHED FROM WALL

TREE BRANCHES IN CONSTRUCTION AREA

ID PLAQUE PREVIOUSLY PAINTED

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 4-19-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 9:00 am | **48°F** | 45% | °F | **27°F** | 12 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Ray's Welding crew on-site. Crew is bringing up new sections of internal wet ladder to be installed from roof of tank to bottom of tank bowl, this is to replace old ladder that was corroded and detached from interior wall and laying down on bottom of tank bowl. Materials for catwalk railing extension are being brought up and staged for installation. Welding crew will be back on Monday to finish up with the interior wet area and installing extension on had railing. Paint crew left for the day due to too many people on-site, they will come out tomorrow (Saturday). The tree branches were cut back yesterday by Village employees to give access for containment system setup. New overflow flap gate has been fabricated.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


NEW OVERFLOW FLAP GATE



TREE LIMBS ARE CUT BACK

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 4-22-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 11:30 am | **64°**F | 30% | °F | **28°**F | 13 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Ray's Welding crew on-site. Crew is finishing up welding new sections of internal ladder and are installing the new extension of the catwalk railing. Painting crew is not on site, will return when welding crew is done. During construction observations there are a couple of issues noted. (1) collar with roof plate supports need replacing (2) interior portion of overflow pipe need replacing – all due to corrosion.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


CATWALK RAIL EXTENSION IN PROCESS


CATWALK RAIL EXTENSION IN PROCESS

TOP OF OVERFLOW PIPE CORROSION

CATWALK RAIL EXTENSION IN PROCESS

ROOF PLATE AND COLLAR SEVERELY CORRODED

OVERFLOW PIPE CORROSION

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 4-25-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 10:30 am | **52°**F | 54% | **°**F | **36°**F | 7 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

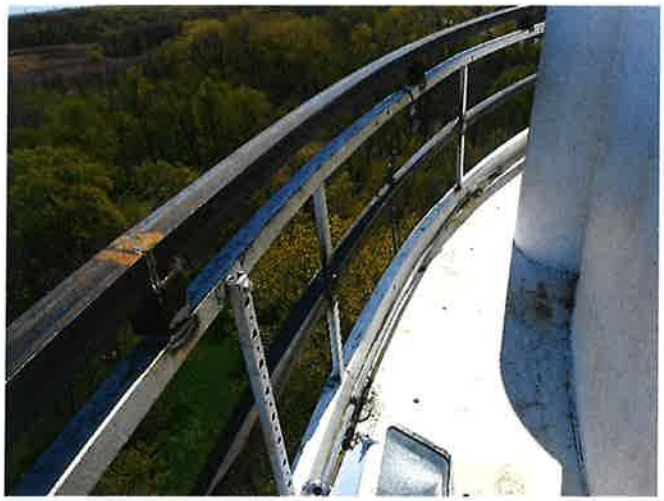
| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Ray's Welding has finished all repairs/installments on the tank – roof top corral install, catwalk rail raised to 42", interior wet ladder installed from floor of bowl to top hatch, stiffener ring repair, new overflow flap gate, 2 new posts for antennas mounted on the roof corral, removed corroded lip area off of the weir plate on overflow pipe, replaced hatch collar. Painting crew is on-site starting to assemble the containment outriggers on top of tank.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | | | X |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | | | X |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | | | X |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |



# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-01-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 10:30 am | **52°**F | 54% | **°**F | **36°**F | 7 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| | | | | |

| Color | Mixing Method | Thinning % | Thinner Type | Ok |
|---|---|---|---|---|
| | | | | |

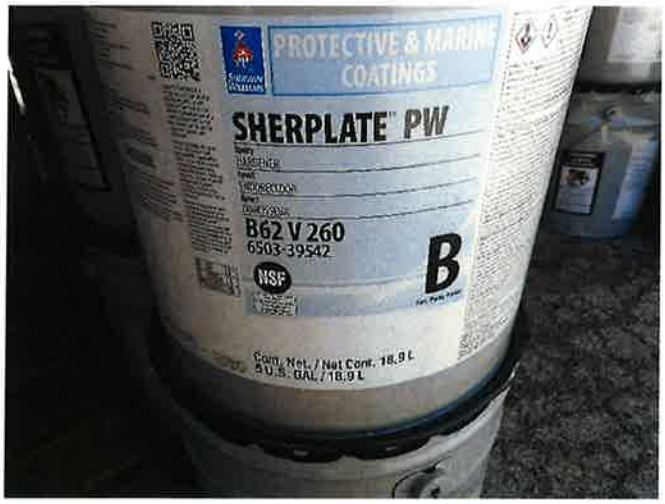
| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Painting crew is on-site today blasting the interior wet area of the tank. Questionable material was detected during the blasting process in and around the inlet pipe opening into the bowl area of the tank. Material was difficult to remove with blasting. Pieces of material will be sent out to identify what it's chemical makeup is. Spoke with village operator to see if records show what the mystery material is and when it might have been applied to tank. Nothing was found in records. Primer, intermediate and topcoat paint supply is on site. Dehumidifier is running throughout the evening hours to keep humidity levels low.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | | | X |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


PROTECTIVE & MARINE COATINGS
ZINC CLAD®
ZINC DUST
POLVO DE CINC
POUSSIÈRE DE ZINC
B69 D 210
6401-73837
F
Cont. Net. / Net Cont. 27,2 kg
60 lbs / 27.2 kg


PROTECTIVE & MARINE COATINGS
SHERPLATE® PW
B62 V 260
6503-39542
NSF
B
Cont. Net. / Net Cont. 18,9 L
5 U.S. GAL / 18,9 L

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-02-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 9::00 am | **61°F** | 56% | **62°F** | **48°F** | 10 mph |

| **ABRASIVE BLASTING** | | **Notes** |
|---|---|---|
| Type / Grade of Abrasive | Steel Shot | |
| Abrasive checked for cleanliness (Y/N) | Y | |

| **SURFACE PROFILE MEASUREMENTS (locations)** | **Min** | **Max** | **Average** | **Specified** | **Ok** |
|---|---|---|---|---|---|
| Throughout interior wet area | 4.5 | 11.4 | 8.1 | 2.0 – 3.0 | X |

| **Coatings Applied** | **Manufacturer & Type** | **Application Method** | **Batch #** | **Ok** |
|---|---|---|---|---|
| Primer | SW Zinc Clad | Air Spray | 2403CL | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| Gray | Air Agitator | | | |

| **DFT 'S** | **DFT Before** | **Min** | **Max** | **Average** | **Specified DFT Range** | **Ok** |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Painting crew is on-site today cleaning up the last of the blasting material in the interior wet area of the tank. Blasting profile was taken, readings of the profile are deeper than recommended, talked to foreman and will apply enough zinc primer to reach specification of 2.0 – 3.0 mil thickness. Crew will start applying the primer today and should be completed by tomorrow afternoon.

| **COATING APPLICATION CHECKLIST** | **YES** | **NO** | **N/A** |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


DFT READINGS LOW - HIGH

AIR AGITATOR FOR PAINT MIXING

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-06-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 8:50 am | **57°**F | 65% | °F | **55°**F | 7 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| Primer | SW Zinc Clad | Air Spray | 2403CL | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| Gray | Air Agitator | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | | | | | |

**WORK SUMMARY**

Painting crew worked on Saturday drilling holes for containment footings. Over weekend the area received heavy rains, holes had to be vacuumed to remove standing water prior to concrete arrival. There are a few areas that have structures too close to the tower making it difficult for crew to work around (fenced in area with equipment). Concrete delivered today to fill holes; anchors were set for containment system. Crew will continue to set up containment system (curtains etc.) and hook up scaffolding. Pully system was welded in place.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |


CASE

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-10-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 9:10 am | **57°F** | 82% | **63°F** | **51°F** | 1 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| Primer | SW Zinc Clad | Air Spray | 2403CL | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| Gray | Air Agitator | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| | | 3.58 | 11.91 | 8.21 | 2.0 – 3.0 mils | X |

**WORK SUMMARY**

Painting crew finished setting up the containment system Tue/Wed this week. Tower's exterior was power washed on Thursday, cleanliness text was performed and passed. Noticed paint runs on the tower legs from previous coating application. Several anchor bolts/nuts are corroded and may need to be replaced prior to coating application. Primer DFT readings were taken in the interior wet area, results are greater then specified but are uniform throughout.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | | | X |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | | | X |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | | | X |
| Are the containment joints sealed | | | X |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | | | X |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | | | X |
| Is all collected waste stored in approved containers | X | | |

TANK POWER WASHED

CLEANLINESS TEST PERFORMED ON POWER WASHING

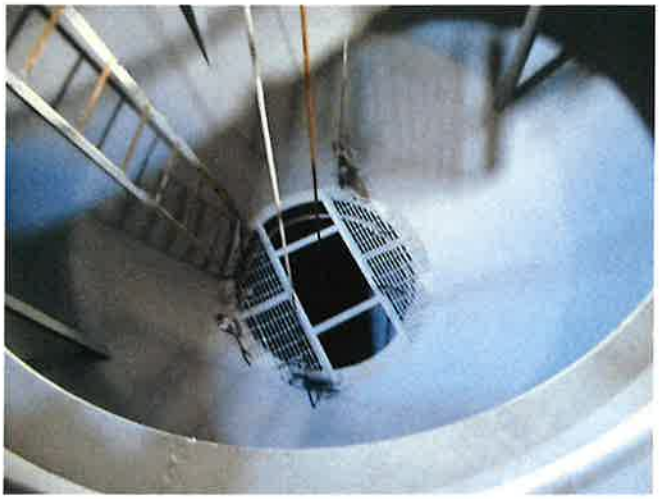
RUNS IN COATING PREVIOUS APPLICATION

RUNS IN COATING PREVIOUS APPLICATION

ZINC PRIMER APPLICATION

ZINC PRIMER APPLICATION

ZINC PRIMER APPLICATION



ZINC PRIMER APPLICATION


PRIMER DFT LOW AND HIGH READINGS

ZINC PRIMER APPLICATION

GENERAL CORROSION W/UNDERCUTTING

GENERAL CORROSION W/UNDERCUTTING

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-23-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 12:15 pm | **80°F** | 29% | **80°F** | **46°F** | 3 mph |

| **ABRASIVE BLASTING** | | **Notes** |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| **SURFACE PROFILE MEASUREMENTS (locations)** | **Min** | **Max** | **Average** | **Specified** | **Ok** |
|---|---|---|---|---|---|
| | | | | | |

| **Coatings Applied** | **Manufacturer & Type** | **Application Method** | **Batch #** | **Ok** |
|---|---|---|---|---|
| Intermediate | Acrolon 218 HS | Air Spray | GC0534WN | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| Gypsum | Air Agitator | | | |

| **DFT 'S** | **DFT Before** | **Min** | **Max** | **Average** | **Specified DFT Range** | **Ok** |
|---|---|---|---|---|---|---|
| 2.0 – 3.0 mils | | 6.4 | 15.8 | 10.92 | 6.0 – 10.0 mils | X |

**WORK SUMMARY**

Painting crew is on-site applying the intermediate coat to the upper portion of the tank (platform to roof). Lower section of the tank and legs have intermediate coating applied. DFT readings are in spec. Last week painting crew worked on spot sandblasting areas of corrosion on tank, fill pipe and anchor bolts, followed by an application of primer & epoxy coating. The crew then applied the tie-coat (pre-primer) to the entire structure prior to the intermediate coat application. The crew has also prepped, primed, and coated the metal bands and bars for T-Mobil's antenna equipment. Concrete areas around leg bases have been repaired and coated.

| **COATING APPLICATION CHECKLIST** | **YES** | **NO** | **N/A** |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | X | | |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | X | | |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | X | | |
| Are the containment joints sealed | X | | |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | X | | |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | X | | |
| Is all collected waste stored in approved containers | X | | |

SANDBLASTED CORROSION ON/AROUND ANCHOR BOLTS

SPOT SANDBLASTED AREAS OF CORROSION ON TANK EXTERIOR

BANDS FOR T-MOBIL EQUIPMENT

METAL BARS FOR T-MOBIL EQUIPMENT

ANCHOR BOLTS AFTER SANDBLASTING

CONCRETE AREAS AROUND BASES HAVE BEEN REPAIRED/COATED

INTERMEDIATE COAT COMPLETED

INTERMEDIATE COAT COMPLETED

INTERMEDIATE COAT COMPLETED

FULL CONTAINMENT

INSIDE OF FILL TUBE


DFT READINGS, LOW/HIGH/AVG

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-29-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 10:10 am | **68°F** | 56% | **74°F** | **52°F** | 3 mph |

| ABRASIVE BLASTING | | Notes |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| SURFACE PROFILE MEASUREMENTS (locations) | Min | Max | Average | Specified | Ok |
|---|---|---|---|---|---|
| | | | | | |

| Coatings Applied | Manufacturer & Type | Application Method | Batch # | Ok |
|---|---|---|---|---|
| Topcoat | **Fluorochem HS** | Air Spray | EM1074YC | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| Dark Green | Air Agitated | | | |

| DFT 'S | DFT Before | Min | Max | Average | Specified DFT Range | Ok |
|---|---|---|---|---|---|---|
| 2.0 – 3.0 mils | | 8.9 | 15.2 | 12.6 | 8.0 – 13.0 mils | X |

**WORK SUMMARY**

Painting crew is on-site applying the topcoat to the upper portion of the tank (platform to roof). Lower section of the tank and legs have dark green topcoat applied. DFT readings are in spec 8 – 13 mils.

| COATING APPLICATION CHECKLIST | YES | NO | N/A |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | X | | |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | X | | |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | X | | |
| Are the containment joints sealed | X | | |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | X | | |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | X | | |
| Is all collected waste stored in approved containers | X | | |


PosiTector
8.97


PosiTector
15.21

# INSPECTION REPORT

| | |
|---|---|
| **Site Location:** | Village of Thornton Elevated Leg Tank |
| **Project:** | 22-R0568.04 |
| **Date:** | 5-31-24 |
| **Inspector's Name:** | Renee Welter |
| **Signature:** | RSW |

**AMBIENT CONDITIONS**

| Time | Air Temperature | Relative Humidity | Steel Temperature | Dew Point | Wind Speed |
|---|---|---|---|---|---|
| 9:10 am | **63°F** | 100% | **75°F** | **63°F** | 10 mph |

| **ABRASIVE BLASTING** | | **Notes** |
|---|---|---|
| Type / Grade of Abrasive | | |
| Abrasive checked for cleanliness (Y/N) | | |

| **SURFACE PROFILE MEASUREMENTS (locations)** | **Min** | **Max** | **Average** | **Specified** | **Ok** |
|---|---|---|---|---|---|
| | | | | | |

| **Coatings Applied** | **Manufacturer & Type** | **Application Method** | **Batch #** | **Ok** |
|---|---|---|---|---|
| Topcoat | **Fluorochem HS** | Air Spray | EM3353JJ | |
| **Color** | **Mixing Method** | **Thinning %** | **Thinner Type** | **Ok** |
| White | Air Agitated | | | |

| **DFT 'S** | **DFT Before** | **Min** | **Max** | **Average** | **Specified DFT Range** | **Ok** |
|---|---|---|---|---|---|---|
| 2.0 – 3.0 mils | | 8.8 | 15.8 | 12.2 | 8.0 – 13.0 mils | X |

**WORK SUMMARY**

The topcoat on the upper portion of the tank's exterior was completed, DFT were taken – they are in spec 8.0 – 13.0 mils. The tank logo's were applied. The painting crew is on-site closing up the interior wet area in preparation for filling tank next week. DFT's were taken – they are in spec – 22.0 to 33.0 mils. Frost free roof vent has been coated and installed on tank.

| **COATING APPLICATION CHECKLIST** | **YES** | **NO** | **N/A** |
|---|---|---|---|
| Compressed air check satisfactory | X | | |
| Surrounding air cleanliness satisfactory | X | | |
| Recoat times & inter coat cleanliness satisfactory | X | | |
| Application equipment: AS / CS / B / R | AS | | |
| Stripe coat applied | | | X |
| Protective coverings in place | X | | |
| Adequate lighting | X | | |
| Free of application defects | X | | |
| **ENVIRONMENTAL CHECKLIST** | **YES** | **NO** | **N/A** |
| Does the containment comply with the spec | X | | |
| Are the containment joints sealed | X | | |
| Is the ventilation system functioning | X | | |
| Is the ground properly covered | X | | |
| Is all debris being captured for disposal | X | | |
| Is the area outside of containment free of debris | X | | |
| Is all collected waste stored in approved containers | X | | |


THORNTON


THORNTON

ETP Labs Inc.
638 Executive Drive Willowbrook IL 60527 Phone: 630.891.1392 Fax: 630.891.1394

# Certificate of Laboratory Analysis

Illinois Department of Public Health Certified # 17134

Thornton, Village of
115 E Margaret Street
Thornton, IL 60476
Bryan Roberts

Customer No: 1031

Report Number: 198981

Facility Number: IL-031-3090
Monitoring Start Date:
Monitoring End Date:
Sample Collector Name: BRYAN ROBERTS
Permit Number:
Original Sample No
Project:

These results are used for IEPA Compliance? N

Report Date 6/12/2024
Date Received: 06/11/2024
Time Received: 10:15:00
Relinquished By: CLIENT
Received By: EO
Date Started: 06/11/2024
Time Started: 14:30:00

| Sample No: | Site Number Address:: | Analyte | Reference | Sample Purpose: | Sample Type: | Sample Date: | Sample Time: | Free Cl: | Total Cl: | Colonies Read: | Pres Abs: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 198981001 | 321 E HARRIET ST | Coliform (Total) | SM9223 | SP | DIST | 06/11/2024 | 07:55:00 | 00.20 | 02.20 | | A |

E. Olear

M. Lenos, Project Manager

*I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true,complete and accurate*

| Facility No.: | Cycle No. (Group) |
|---|---|
| 0313090 | |
| **Facility Name:** VILLAGE OF THORNTON | |
| **Sampling Period:** 6-11-24 To | |
| Chlorine Exempt Supply ☐ Yes ☒ No | |

IDPH #17134

# E.T.P. Labs, Inc. / Envirotest Perry Laboratories, Inc.

638 Executive Drive • Willowbrook, IL 60527 • Phone: (630) 891-3392
**Email: mlenos@etplabs.com**

**Report No.** 136981

Date and Time Received: 6/11/24 10:15 Received by: ED
Analysis Start Date and Time: 6/11/24 14:30 Set by: ED
Analysis End Date and Time: 6/12/24 8:30 Read by: ED

**Samples must reach laboratory within 30 hours after collection.**

**1. Mail Water Supply Copy To:**
Name: VILLAGE OF THORNTON
Address: 115 E MARGARET ST
Post Office: THORNTON State: IL Zip Code: 60476

**2. Contact Person for Unsatisfactory Results:**
Name: BRYAN KOSMATH Phone: (include area code) 708/877-4462

**3. Date Collected:** 6-11-24

**4. Sample Collector:** BRYAN KOSMATH Delivered to lab by

**5. Sample Purpose** ☐ Routine ☒ Repair/ Maintenance ☐ Boil Order
☐ Other:
☐ Repeat ☐ Invalid Replacement
Orig. Smpl. Lab No. _____ Orig. Smpl. Date _____
Orig. Smpl. Lab No. _____ Orig. Smpl. Date _____
☐ New Construction (Permit No. _____)

**6. Bacteriological Sampling**

| Bottle Number | Sample Site No. | Address - Repeat Samples Only | Sample Type | Time Collected | Residual Chlorine F | Residual Chlorine T | 7. Col Read | 8 Total Coli | 9 Fecal E. Coli | 10. Opinion | 11. Sample Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 321 E | HARRIET ST | | 0755 | .20 | 2.20 | | A | | S | 01 |
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E. Olsen 6/12/24
Reported by Date Time

Person Notified Date Time:

| | |
|---|---|
| No. of Bottles Sent: | ☐ Sample more then 30 hoursold |
| Date Bottles Sent: | ☐ No Date/Time of Collection |
| Reason for Replacement: | ☐ Other: |

**SAMPLES ANALYZED by METHOD: COLILERT - PRESENCE/ABSENCE: 9223B-PA**

ETP Labs Inc.
638 Executive Drive Willowbrook IL 60527 Phone: 630.891.3392 Fax: 630.891-3394

# Certificate of Laboratory Analysis

Illinois Department of Public Health Certified # 17134

Thornton, Village of
115 E Margaret Street
Thornton, IL 60476
Bryan Roberts

Customer No: 1031

Report Number: 198996

Facility Number: IL-031-3090
Monitoring Start Date:
Monitoring End Date:
Sample Collector Name: BRYAN ROBERTS
Permit Number:
Original Sample No
Project:

These results are used for IEPA Compliance? Y

Report Date 6/14/2024
Date Received: 06/12/2024
Time Received: 09:15:00
Relinquished By: CLIENT
Received By: EO
Date Started: 06/12/2024
Time Started: 14:45:00

| Sample No: | Site Number Address:: | Analyte | Reference | Sample Purpose: | Sample Type: | Sample Date: | Sample Time: | Free Cl: | Total Cl: | Colonies Read: | Pres Abs: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 198996001 | 321 E HARRIET ST | Coliform (Total) | SM9223 | SP | DIST | 06/12/2024 | 07:45:00 | 00.76 | 01.09 | | A |

E. Olsen

M. Lenos, Project Manager

*I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true,complete and accurate*

| Facility No.: | Cycle No. (Group) |
|---|---|
| 0313090 | |
| **Facility Name:** VILLAGE OF THORNTON | |
| **Sampling Period:** 6-12-24 | |
| Chlorine Exempt Supply ☐ Yes ☒ No | |

IDPH #17134

# E.T.P. Labs, Inc. / Envirotest Perry Laboratories, Inc.

638 Executive Drive • Willowbrook, IL 60527 • Phone: (630) 891-3392

**Email: mlenos@etplabs.com**

**Report No.** 138936

Date and Time Received: 6/12/24 9:15 Received by: CD

Analysis Start Date and Time: 6/12/24 1445 Set by: CD

Analysis End Date and Time: 6/13/24 845 Read by: CD

**Samples must reach laboratory within 30 hours after collection.**

**1. Mail Water Supply Copy To:**
Name: VILLAGE OF THORNTON
Address: 115 E MARGARET ST.
Post Office: THORNTON State: IL Zip Code: 60476

**2. Contact Person for Unsatisfactory Results:**
Name: BRYAN ROGERS Phone: (include area code) 708/877-4462

**3. Date Collected:** 6-12-24

**4. Sample Collector:** BRYAN ROGERS Delivered to lab by:

**5. Sample Purpose** ☐ Routine ☒ Repair/ Maintenance ☐ Boil Order ☐ Other:

☐ Repeat ☐ Invalid Replacement
Orig. Smpl. Lab No. _____ Orig. Smpl. Date _____
Orig. Smpl. Lab No. _____ Orig. Smpl. Date _____
☐ New Construction (Permit No. _____)

**6. Bacteriological Sampling**

| Bottle Number | Sample Site No. | Address - Repeat Samples Only | Sample Type | Time Collected | Residual Chlorine F | Residual Chlorine T | 7. Col Read | 8. Total Coli | 9. Fecal/ E. Coli | 10. Opinion | 11. Sample Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 321 E HARRIET ST | | | 0745 | .76 | 1.09 | | A | | S | 01 |
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E. Green 6/13/24
Reported by Date Time:

Person Notified Date Time:

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|---|---|
| No. of Bottles Sent: | ☐ Sample more then 30 hoursold |
| Date Bottles Sent: | ☐ No Date/Time of Collection |
| Reason for Replacement: | ☐ Other: |

**SAMPLES ANALYZED by METHOD: COLILERT - PRESENCE/ABSENCE: 9223B-PA**

# SPECIAL PROVISIONS

# Table of Contents

# VILLAGE OF THORNTON, ILLINOIS
# GROUND STORAGE TANK & ELEVATED TANK REHABILITATION
# (IEPA #L17-1359)

## SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2022; the latest editions of the "Supplemental Specifications and Interim Special Provisions" and the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways"; the "Manual of Test Procedures for Materials" in effect on the date of the invitation for bids; the "Standard Specifications for Water and Sewer Main Construction in Illinois", current edition; the Division I General Requirements and Covenants, and the Division II Technical Specifications which apply to and govern the proposed improvement, and in case of conflict with any part, or parts, of said specifications, the said special provisions shall take precedence and shall govern.

However, the Division I General Requirements and Covenants of the specifications shall, in all cases and at all times, govern the work of this contract. Section 100 "General Requirements and Covenants" of the Standard Specifications for Road and Bridge Construction is specifically excluded from this contract.

## SCOPE OF WORK

This project will consist of work at two (2) different tank locations;

A. Ground Storage Tank – The Contractor shall furnish all materials, tools, equipment, and labor necessary for the repair, abrasive blasting, and painting of one (1) 500,000-gallon ground storage tank interior and exterior located next to the Village of Thornton's pumping station at 3502 Williams Street Thornton, IL 60476. All painting shall be done in accordance with the manufacturer's recommendations and shall be performed in a manner satisfactory to the Engineer.
B. Elevated Leg Tank – The Contractor shall furnish all materials, tools, equipment, and labor necessary for the waterjet cleaning, power tool cleaning and overcoating of the exterior, abrasive blasting, and recoating of the wet interior of one (1) 400,000-gallon elevated leg tank located next to the Village's Public Works Department at 321 East Harriet Street Thornton, IL 60476. All painting shall be done in accordance with the manufacturer's recommendations and shall be performed in a manner satisfactory to the Engineer.

## FUNDING LIMITS

This project will be funded with a IEPA State Revolving Fund (SRF) low interest loan. The Contractor shall abide by all the rules associated with IEPA SRF loans. The Owner has allotted a limited amount of funding for the project. The contract will be limited to the amount of funding available. The Village reserves the right to delete any part of the bid after the award is made to the Contractor.

## PREQUALIFICATION

The Contractor shall have sufficient experience, as determined by the Village and its representatives, in the field of water storage tank painting to justify release of the bid documents. The Contractor shall provide such documentation as is deemed necessary upon request.

If this information is not satisfactorily completed, the bid documents shall be withheld. The Contractor shall have completed a minimum of five (5) water storage tank paint projects within the last five (5) years, of which the contract was at least $750,000 of the contract value, to be considered eligible for this project. The Contractor shall supply documentation that a member of the paint crew for this project is CAS certified based on the requirements of SSPC ACS-1/NACE 13, a CAS certified

crew member shall be present on the job site during all coating operations. Bid documents will not be released until such documentation has been provided to the Engineer.

## WAGE RATES

This contract calls for the construction of a "public work," within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/.01 et seq. ("the Act"). The Act requires Contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the "prevailing rate of wages" (hourly cash wages plus fringe benefits) in the county where the work is performed. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor's website.

All Contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, including but not limited to, all wage, notice and record keeping duties.

The Contract also calls for meeting Davis Bacon wage provisions to meet all federal funding requirements.

## INSURANCE COVERAGE

The Insurance Requirements can be found in Section 7 of the General Requirements "Legal Relations and Responsibility to the Public". The Contractor and any Subcontractors shall obtain and thereafter keep in force for the term of the contract the insurance coverage specified in this section. The Contractor shall not commence work under the contract until all the insurance required by this section or any Special Provision has been obtained.

Section 7-2.02E Pollution Liability **WILL** be required as part of this project.

Section 7-2.02F Professional Liability **WILL** be required as part of this project.

## BID ACCEPTANCE

No bidder may withdraw a BID within 120 days after the date of the opening of bids. This shall supersede the 45 days stated in Division 1, Section 3. Award and Execution of Contract, Paragraph 3-2 Award of Contract.

## INTERPRETATIONS AND ADDENDA

All questions about the meaning or intent of the bidding documents are to be submitted to the Engineer in writing. Interpretations or clarifications considered necessary by the Engineer in response to such questions will be issued by written addenda delivered to all parties recorded by the Engineer as having received the bidding documents. Questions received fewer than five business days prior to the date for opening of bids will not be answered. Only questions answered by addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may be issued to clarify, correct, or change the bidding documents as deemed advisable by Village or Engineer. Questions relating to this project shall be directed to:

Greg Kamplain
Robinson Engineering, Ltd.
Phone: (815) 412-2016
Email: gkamplain@reltd.com

## PROJECT SCHEDULE

Time is of the essence with this contract. The Contractor shall schedule their work accordingly so that only one (1) tank is out of service at any given time, and to ensure all tank work and site restoration work is completed by the dates listed below.

A. Ground Storage Tank - 10/31/2023
B. Elevated Leg Tank - 6/19/2024

These dates can be subject to change if a written agreement between the Owner and the Contractor is reached. Failure by the Contractor to complete the work within the agreed upon time frame may result in the assessment of liquidated damages.

All documentation shall be given to the Engineer/Owner 30 days prior to the completion date. If the documentation is not correct or in order it will be returned to the Contractor and the project will not be completed until all documentation is correct and in order The project must be fully complete, including restoration, within 365 consecutive calendar days from the Notice to Proceed. Payment retention will be withheld until the project is 100% complete, including documentation.

It shall remain the Contractor's responsibility to ensure that the contract documents and insurance requirements are met in a timely manner after award as no work will be allowed until this information is received and correct. No adjustment to the project schedule will be made if this requirement is not met. Failure to complete the work on time will result in assessment of liquidated damages in accordance with the applicable section 8-9 of the Division I General Requirements and Covenants. The liquidated damage cost per day will be based upon the entire contract cost.

## PERMITS

The Contractor shall be responsible for completing all work in accordance with any permits or licensing required for this project, as well as the provisions of this contract including all necessary bonds and insurance required. Any and all costs associated with insurance and bonding requirements necessary to acquire permits will not be paid for separately but will be considered incidental to the contract.

## WORK HOURS

The Contractor may prosecute work between the hours of 7 a.m. to 7 p.m. Monday through Sunday. No work will be allowed on Holidays. Any hours of operation specifically applied by any of the permitting agencies will supersede these hours when doing work at the location covered by the aforementioned permit.

## SITE ACCESS

The Contractor shall notify the Owner and Robinson Engineering forty-eight (48) hours prior to starting any site work and shall adhere to the requirements in these special provisions.

## RECORD DOCUMENTS

The Contractor shall provide the Village/Engineer with documentation and field notes as described in these special provisions detailing the work. The cost for providing this information will be considered incidental to various pay items or to a specific pay item. Final payment will not be made to the Contractor until these records are reviewed and approved by the Village.

## PUBLIC AND RESIDENT NOTIFICATION

If the Contractor is required to shutoff existing utility service (i.e., water, sanitary, power, communications, and gas) for any reason during the course of this project, the Contractor shall provide 24-hour advance written notice to:

1) the Village of Thornton of the scheduled work,
2) those water customers with connections to the water sections affected by the work, and
3) any other water customers that may potentially be adversely affected by the construction operations.

The notification shall be of a form and method as approved by the Village of Thornton.

## WATER USE

The Contractor shall contact the Village to determine which hydrants will be available for water use. The Contractor shall conform with the ordinances of the municipality, as well as with the rules and regulations of the Water Department, including use of a Village-issued water meter, and will be held responsible for all damages to hydrants and water pipe used for the purposes of securing water. Pipe wrenches approved by the Water Department shall be utilized for opening and closing hydrants and other appurtenances.

When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

The Village wishes to keep accurate records of the amount of water used for construction purposes. The Contractor shall use an approved water meter supplied by the Village to record usage and shall report the total water used to the Public Works Superintendent at the end of each week. The Contractor will not be responsible for the cost of the water.

## VIDEO RECORDING OF CONSTRUCTION SITES

Prior to the start of any tank painting and rehabilitation, the Contractor shall video the existing conditions of the interior area of the construction. The video recording shall be done on Digital Video Format (i.e., mpeg or avi). The Contractor shall supply the Engineer with two (2) flash drives or external hard drives.

The video recordings shall also supply a continuous audio record of the location (preferably with address), all anticipated problem areas, items, and features for the complete area to be affected by the construction.

The video recording shall be made on a flash drive, external hard drive or other approved equal and shall conform to Japan Electronics and Information Technology Industries Association (JEITA) standards. The format of recording and type of media used shall remain the same throughout the project. When the recorded video information is replayed and reviewed, it shall be free of electrical interference.

The audio portion of the composite signal shall be sufficiently free of electrical interference, background noise, and heavy foreign or regional accents to provide an oral report that is clear and complete and easily discernible. The audio portion of the video report shall be recorded by the operating technician on the video as they are being produced and shall include references to the street address and type of construction to be performed at the site as specified in the plans. Audio comments pertaining to special circumstances, which may arise during the tank painting and rehabilitation, shall also be included. Dubbing the audio information onto the video tract after the video is completed will not be permitted.

Video recordings shall be enclosed in vinyl plastic containers, which shall clearly indicate the date the video was taken, the designated section(s) of construction contained on the tape, and labeled as follows;

A. "VILLAGE OF THORNTON GROUND STORAGE TANK PROJECT (REL PROJECT #22-R0568.01)".
B. "VILLAGE OF THORNTON ELEVATED LEG TANK PROJECT (REL PROJECT #22-R0568.01)".

The construction areas after completion of the tank rehabilitation shall be the same or better than the pre-construction site conditions as shown in the video. The work contained within this special provision shall not be paid for separately but shall be included in the cost of the various contract pay items.

## PROPERTY RESTORATION

It is anticipated that no public and/or private property shall be disturbed by this work. The Contractor shall take all precautions to avoid such damage and shall restore any public and/or private property, including landscaping, damaged and/or disturbed by the proposed work, to the satisfaction of the Owner, at no additional compensation.

If the Contractor encounters a situation where some private property or a public facility/infrastructure will suffer unavoidable damage or disturbance, the Contractor shall bring it to the Owner's attention for a specific authorization to proceed with such work before the task in question is performed.

## SUBMITTALS

The Contractor shall provide five (5) identical sets of submittal information to the Engineer for review and approval prior to commencement of construction activities. Requirements for 5 sets are waived if digital submittals are provided. Submittal information generally includes product information, catalog pages, manufacturer's instructions, product warranties, specifications, samples, shop drawings, and proposed substitutions. At a minimum, the following items shall require submittal to the Engineer:

- Project Schedule – The Contractor shall submit an initial project schedule. This schedule, along with percentage of completion, shall be revised and submitted along with each application for payment.

- Major Components – Specifications for all major components such as painting, overflow flap gate, frost free roof vent, cathodic protection system, access ladder, roof corral, and catwalk handrail. The Contractor shall provide submittals deemed necessary for successful project completion by the Engineer.

If a substitution is proposed, the Contractor shall provide sufficient information to allow the Engineer to determine that the material or equipment proposed is equivalent or equal to that named. However, the burden of proof as to the type, function, and quality of any such substitute material or equipment shall reside with the Contractor. The Engineer shall be the sole judge of whether the proposed substitution is equivalent to the named material or equipment.

## MATERIAL INSPECTION REPORTS

All materials incorporated in this contract are to be inspected according to the Project Procedures Guidelines (PPG) and the process and frequency of testing under the QC/QA specifications.

The Contractor shall be responsible for QC testing of these materials with the Engineer being notified at least forty-eight (48) hours in advance of the placement of any of these materials. The Local Agency shall be responsible for the QA testing of these materials on the job and at the plant per article 1030 of the Standard Specifications. Please note that the Contractor is required to submit a QC plan to the Engineer for approval per the referenced specifications.

The Contractor shall coordinate his work operations with the engineer to assure that the testing agencies can provide proper and sufficient notice to schedule their work. Also, all QC documentation is to be submitted to the Engineer, immediately following completion of this project. Five percent (5%) of the final contract amount due the Contractor will be withheld pending receipt of all documentation and approval of the Engineer's Final Payment Estimate.

Five percent (5%) of the final contract amount due the Contractor will be withheld pending receipt of all documentation and approval of the Engineer's Final Payment Estimate by the IEPA.

GUARANTEE

All materials and equipment shall be guaranteed for a period of one (1) year from date of written acceptance by the Village upon receipt of notice from the Village of failure of any part of the system during the guarantee period, new replacement parts shall be furnished and installed by the Contractor at no additional cost to the Village.

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Project Overview:
   1. Ground Storage Tank – The Village of Thornton owns and operates one (1) 500,000-gallon ground storage tank located next to the Village's pumping station at 3502 Williams Street (see attached Ground Storage Tank Limits of Project Site). The existing coating on the tank exterior is beyond its design life. The work will include installation of a full containment system, abrasive blasting of tank exterior to SSPC-SP6 followed by application of a three-coat zinc primer, urethane intermediate, fluoropolymer topcoat paint system. Abrasive blasting of the tank interior wet to SSPC-SP10 followed by application of a two-coat zinc primer, 100% solids low VOC epoxy topcoat paint system.
      a. Ground Storage Tank Repairs/Replacements
         - Seal weld existing cathodic protection covers
         - Install an overflow flap gate
         - Concrete foundation repair and coating application
   2. Elevated Leg Tank – The Village of Thornton owns and operates one (1) 400,000-gallon elevated leg tank located next to Public Works at 321 East Harriet Street (see attached Elevated Leg Tank Limits of Project Site). The existing coating on the tank exterior is beyond its design life. The work will include waterjet cleaning of tank exterior to SSPC-SP WJ3 and power tool cleaning any areas of corrosion to SSPC-SP11 followed by application of an epoxy spot primer, epoxy tie coat, urethane intermediate, fluoropolymer topcoat paint system. Abrasive blasting of the tank interior wet to SSPC-SP10 followed by application of a two-coat zinc primer, 100% solids low VOC epoxy topcoat paint system.
      a. Elevated Leg Tank Repairs/Replacements
         - Cathodic protection system upgrade
         - Seal weld existing cathodic protection covers
         - Raise catwalk handrail height
         - Install roof corral
         - Install a frost-free roof vent
         - Install an overflow flap gate
         - Repair the interior stiffener ring
         - Install a new interior wet access ladder

### 1.02 DEFINITIONS

| | | |
|---|---|---|
| A. | Contractor: | Successful bidder awarded the project |
| B. | Owner: | The Village of Thornton |
| C. | Engineer: | Robinson Engineering, Ltd. |
| D. | Exterior: | External surfaces of the tank that are exposed to the outside atmosphere |
| E. | Sidewall: | Vertical walls of tank up to bottom of the tank knuckle |
| F. | Roof: | Very top of tank, including top seam of sidewall |

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| G. | OSHA: | Occupational Health and Safety Administration |
| H. | SSPC: | The Society for Protective Coatings |
| I. | NACE: | National Association of Corrosion Engineers |
| J. | ASTM D-454: | Standard test method for pull off strength of coatings using portable testers |
| K. | ASTM-D4417: | Standard test method for field measurement of surface profile of steel |
| L. | AWWA-C652: | Standard for disinfection of water storage facilities |
| M. | AWWA-D100: | Standard for welded carbon steel tanks for water storage |
| N. | AWWA-D102: | Standard for coating steel water storage tanks |
| O. | SSPC-Guide 6: | Guide for containing surface preparation debris during paint removal operations |
| P. | SPC-Guide 7: | Guide to the disposal of lead contaminated surface preparation debris |

## 1.03 OMISSIONS/HIDDEN CONDITIONS

A. It is the intent of the specifications to detail all work and materials necessary for completion of the work specified herein. Any small or incidental items not specifically detailed in the specifications, but obviously a part of the work, are to be included in the work at no additional cost to the Owner. Any items in question should be brought to the Engineers attention prior to the bid opening.

## 1.04 PROTECTION OF PROPERTY

A. The Contractor is to take care to prevent damage to structures, utility services, storm and sanitary drainage systems, lawns, trees, plant material, fences, walks, drives, roadways, and other improvements in and adjacent to the area of work under the contract. Any damage to property resulting from the Contractor's operations shall be repaired or replaced by the Contractor without additional cost.

## 1.05 SCHEDULING

A. The Contractor shall submit a construction schedule to the Engineer for review at the preconstruction meeting. The Contractor shall perform painting work according to the contract construction schedule.
B. Scheduling shall not supersede temperature, humidity or other environmental requirements for surface preparation and coatings application included in these specifications.
C. Coordinate work of other trades and provide conditions for neat, clean, and dust-free work.
D. Working hours shall be Monday thru Friday, 7:00 a.m. till 8:00 p.m., no work is allowed on Saturday or Sunday, or holidays without 48-hour prior approval in writing from the Owner.
E. Hold point inspection requests shall be directed to the Engineer. All inspection requests shall have a 48-hour notice.
F. Both tanks can not be taken out of service at the same time. The Contractor shall plan their work accordingly to ensure that both tanks will not be taken out of service at the same time.

## 1.06 SUBMITTALS

A. The Contractor shall provide submittals for materials and/or systems proposed for use on this project to the Engineer for review.

B. Paint and Protective Coatings:
   1. Manufacturer Technical Data Sheets for all paints, coatings, solvents, detergents, and degreasers proposed as required by law.

2. Manufacturer Material Safety Data Sheets (MSDS) for all paints, coatings, thinners, solvents, detergents, degreasers, etc. proposed as required by law.
3. Color name and/or number with color chart for each specific coating product. Exterior color shall be chosen by the Owner.
4. Manufacturer's specific ventilation requirements for products used on interior surfaces. Ventilation requirements shall be provided to ensure adequate evacuation of solvents to prevent solvent entrapment, worker exposure to solvents above the OSHA PEL and provide for timely coating system cure.

C. Abrasive Blast Products:
Abrasive blast products shall conform to SSPC Abrasive Specification No. 1. "Mineral and Slag Abrasives", except that copper slag will not be permitted. Abrasive blast product submittals shall include, but not be limited to, the following:
1. Manufacturer's certification or laboratory analysis that the product proposed contains less than 1% free crystalline silica.
2. Laboratory analysis of blast material presenting results of blast material testing as required in SSPC-AB 1, Table 1 requirements for Chemical and Physical Properties of Abrasives, except that the conductivity test for water soluble contaminants in accordance with ASTM D-4940 shall not exceed 500 microsiemens (micromhos).
3. Material Safety Data Sheets.
4. Composition, mesh size, and bulk density.
5. Recommended application nozzle, air requirements, and pressure.

D. Various repair items
1. Shop drawings shall be submitted for various repair/replacement items such as frost-free vent, overflow flap gates, cathodic protection system, roof corral, access ladder, etc.

## 1.07 PRODUCT HANDLING

A. Delivery and Storage
1. All paints, coatings and related materials shall be delivered to the job site in original unopened containers with the product name, type and batch number, color, and manufacturer date clearly marked on each container.
2. All materials used on the job by the Contractor shall be stored in a single place provided by the Contractor or designated by the Engineer at the job site. On site and fabrication shop storage shall comply with OSHA requirements, recommendations of the National Fire Protection Association, Municipal fire codes, and manufacturer recommendations.
3. Oily or solvent-soaked rags and all waste shall be removed from the job site every night, and all necessary precautions shall be taken to reduce fire hazards to a minimum.

## 1.08 OWNER RESPONSIBILITY

A. The Owner shall drain a tank within seven (7) days after notice has been provided by Contractor. Unless unforeseen circumstances do not allow the action, such as drought conditions or system shortages.

B. Upon notification by the Contractor that the tank is ready to be returned to service, the Owner will conduct all operations involved with filling the tank.

## 1.09 WARRANTY

A. Approximately one (1) year from the date of completion, the tank will be inspected by the Owner and/or his representative.
B. The inspection will be performed in accordance with the applicable portions of AWWA D-102-11 Standard for Painting Steel Water Storage Tanks and industry standards.
C. The Owner will establish a date of inspection and shall notify the Contractor ten (10) days in advance. The Contractor's attendance will not be required.
D. Failure to schedule this inspection within thirteen (13) months after completion of the painting will be considered a waiver of this inspection.
E. Any failed work will be documented, and the Contractor will be notified of necessary repair (method and extent).
F. The Owner reserves the right to require inspection of the repair work. And possibly a second warranty inspection, dependent on degree of failure.
G. Cost for one (1) year warranty inspection will be the responsibility of the Owner.
H. Cost for a second warranty inspection will be the responsibility of the Contractor.

## 1.10 PROJECT MEETINGS

A. Preconstruction Meeting:
   1. A preconstruction conference shall be scheduled by the Engineer and is to be attended by Owner, Engineer, and Contractor. Prior to beginning any work, the Contractor shall provide the Owner and Engineer with work schedule for the project in a Gannt chart format.
   2. Once the project has begun, the Contractor shall carry it to completion as specified in the construction schedule.
B. Additional Meetings:
   1. Additional meetings may be scheduled by the Engineer and/or requested by the Contractor to address disputes, clarify tasks, etc.

## 1.11 SANITARY & HANDWASH FACILITIES

A. Temporary sanitary toilet facilities shall be provided by the Contractor at the work sites, which conform to state and local health and sanitation regulations for the specified number of Contractor's employees that will be onsite. These sanitary toilet facilities shall be maintained on a weekly basis to prevent nuisance conditions to the surrounding properties and/or residents.
B. The Contractor shall provide an OSHA approved hand wash facility with running water at the work site. Hot water is not required.
C. The facility shall be stocked with soap and towels and replenished as needed.
D. The Contractor shall properly dispose of water after the project is completed/or as needed.

## 1.12 SECURITY

A. The Contractor is responsible for the security of the work site.
B. The Contractor shall be responsible for loss or injury to persons or property where work is involved and shall provide security and take precautionary measures to protect Contractor's and Owner's interests.
C. The work site shall be secured by the Contractor following daily completion of work.

D. Contractor shall furnish and install a minimum 6-foot-high temporary chain link fencing around perimeter of the work area with a lockable gate. Provide a key for Engineer and the Owner.

## 1.13 PROJECT SITES

A. The project sites are shown in the attached "Ground Storage Tank Limits of Project Site" and "Elevated Leg Tank Limits of Project Site".
B. Contractor to limit parking to the project sites, no street parking will be allowed.

## 1.14 REMOVAL OF TEMPORARY MATERIALS AND EQUIPMENT

A. When no longer required the Contractor shall completely remove temporary material and equipment.
B. Any damage caused by the temporary installation or use of temporary facilities shall be cleaned/repaired by the Contractor.
C. Any existing or permanent facilities used for temporary services shall be restored by the Contractor to specified, or original condition.

## 1.15 BULLETIN BOARD DISPLAYS

A. It is the responsibility of the Contractor to secure all permits and meet the requirements of local, state, and federal agencies. This includes building, electrical, labor, OSHA, etc.
B. The Contractor shall display all permits and wage requirements on a temporary board at the project site.
C. Copies of other permits that do not require display shall be attached to the foreman's copy of the specifications and be onsite at all times.

## 1.16 CREW SIZE/COMMUNICATION

A. The Contractor shall provide the minimum crew size for completion of all work operations as defined in the project scope. The Contractor's resident superintendent shall be fluent in English to the level of competency to complete responsibilities of the Contractor. The superintendent shall also be fluent in or have access to a translator for the primary language of the majority of workers. Degree of fluency to be sufficient so that superintendent can adequately complete his duties.

## 1.17 CONTRACTOR STAFF REQUIREMENTS

A. The Contractor shall supply documentation that a member of the paint crew for this project is CAS certified based on the requirements of SSPC ACS-1/NACE 13. A CAS certified crew member shall be present on the job site during all coating operations. Work will not proceed, until proper documentation of this requirement is met.
B. The Contractor shall comply with the Illinois Preference Act, if applicable at the time the project commences.

## 1.18 SAFETY PLAN

A. Corporate Safety Program:
Implement and maintain programs and procedures that comply with the requirements of this specification. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the requirements of this Specification, follow the more restrictive requirements.

B. Identification of the items in this specification which are of specific interest to the Owner in no way relieves the Contractor of the responsibility to comply with all regulatory requirements, nor should it be constructed that the Owner, the EPA, OSHA, or state/local regulators are only interested in these items.

C. Acceptance Criteria:
Establish minimum standards for the content of programs, plans, procedures, and designs required by this specification for the performance of the contract. Acceptance criteria will be the basis for judging the responsiveness of Contractor's programs and will also be used as a basis for suspending work, if necessary.

D. Submittal Schedule:
Submit the following plans and programs to the Engineer and Owner. A minimum of twenty (20) days prior to mobilization to the project site.

E. Worker Protection Program:
Provide a project specific compliance program, prepared under the direction of, and signed by, a Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH), for the protection of Contractor and any subcontractor workers from all recognized and foreseeable hazards on the job in accordance with 29 CFR 1926 and 29 CFR 1910, as applicable, as well as the requirements of this specification. Update the plan at least annually, or as conditions warrant.

F. Worker Protection Program Acceptance Criteria:
To be acceptable, the Contractor's Worker Protection Program must provide procedures addressing each applicable element of the following, at a minimum:

1. General Safety and Health Provisions – in accordance with applicable sections of Subpart C of 29 CFR 1926 including safety training and education, first aid and medical attention, housekeeping, and control of site access at a minimum.
2. Occupational Health – in accordance with applicable sections of Subparts D and Z of 29 CFR 1926 including occupational noise; gases, fumes, dusts, and mists; hazard communication; lead, cadmium, arsenic, chromium, and other toxic metals.
3. Fire Protection and Prevention, and Emergency Response – in accordance with the requirements of 29 CFR 1926.24 and 1926.150 for the control, storage, and handling of flammable and combustible materials, including a site-specific Emergency Response Plan in accordance with the requirements of 1926.65(q) at a minimum.
4. Electrical Safety – in accordance with 29 CFR 1926.400, 1926.403 and all applicable provisions of 29 CFR 1926, Subpart K.
5. Lock-out/Tag-out Plan – in accordance with 29 CFR 1910.147 and 1910.333 that will be followed for lock-out/tag-out of existing electrical utilities within containment or other work areas as appropriate. Include provisions for coordinating lock-out/tag-out activities with the Owner.
6. Scaffolds, Work Platforms and Fall Protection – in accordance with applicable sections of Subparts L an M of 29 CFR 1926.
7. Confined Space Entry - in accordance with 29 CFR 1929.21(b)(6) and 1910.146.

G. Do not construe Owner review of Contractor submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety. Review of the programs does not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of this specification, or to adequately protect the health and safety of all workers involved in the project including any members of the public who may be affected by the project.

H. The Owner has the right to examine the site of any accident and to question any person having knowledge of any such accidents. The Owner has the right, but not a duty, to inspect the site to ensure that the safety and health requirements under this contract are being implemented and fulfilled. If inspections reveal deficiencies, the Contractor shall immediately take action as may be required to correct the deficiencies. If Contractor fails or

refuses to correct an unsafe or unhealthful condition, the Owner has the right to stop all, or part of work performed until satisfactory corrective action has been taken. The Owner will not be subject to claims by Contractor, its employees, or its subcontractors as a result of this stop work order. The Owner maintains the right, but not the obligation, to remove any person(s) from the site if, in the opinion of the Owner, the person(s) endangers the safety or health of others.

I. Reference Material:
   1. Adley, D.P., "Safety and Health in the Protective coatings Industry" Chapter 8 of Good Painting Practice, SSPC Painting Manual, Vol. 1. 4th edition. Pittsburgh, PA: SSPC, 2002.
   2. AIHA Guideline No. 4, "Health and Safety Requirements in Construction Contract Documents, "Fairfax, VA: American Industrial Hygiene Association, 2005.
   3. Compliance Directive CPL 2.0-124, Multi-Employer Citation Policy, US Dept. of Labor, Occupational Safety and Health Administration, December 10, 1999.
   4. SSPC Guide 17 (latest edition) "Guide to Developing a Corporate Safety Program for Industrial Painting and Coating Contractors, "Pittsburgh, PA: SSPC.
   5. U.S. Code of Federal Regulations, Title 29, Part 1910 (latest revision), "Occupational Safety and Health Standards." (All CFRs are available online at http://www.gpoaccess.gov/cfr/index.html.)
   6. U.S. Code of Federal Regulations, Title 29 Part 1915 (latest revision), "Occupational Safety and Health Standards for Shipyard Employment."
   7. U.S. Code of Federal Regulations, Title 29, Part 1926 (latest revision), "Safety and Health Standards for Construction."

## 1.19 ENVIRONMENTAL COMPLIANCE

A. Contractor shall be aware of and in compliance with all environmental regulations, including those concerning contamination of soil, air, and water in the immediate project area.
B. Contractor must prepare a plan for compliance with all environmental conditions, including air quality monitoring of the site perimeter during surface preparation and painting operations in accordance with SSPC-Guide 6, SSPC-Technology Guide 7 and SSPC-TU7.

## 1.20 TEMPORARY ELECTRIC AND LIGHTING

A. Contractor shall supply temporary lighting sufficient to enable workers to safely access and perform work in all areas. Lighting shall be in conformance with SSPC-Guide 12, Guide to Illumination of Industrial Coating Projects. It is the responsibility of the Contractor to supply a temporary power source capable of powering all of their necessary equipment.

## 1.21 DAMAGE TO EXISTING PROPERTY

A. Contractor is responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.
B. Owner has the option of contracting for such work and having cost deducted from contract amount if the Contractor is not qualified to complete repairs or fails to act in a timely manner.

## 1.22 TEMPORARY FIRE PROTECTION

A. Provide and maintain in working order a minimum of two (2) fire extinguishers and such other fire protective

equipment and devices as would be reasonably effective in extinguishing fires.

## 1.23 PROTECTION OF SEWERS

A. Take adequate measures to prevent impairment of operation of existing storm sewer system. Prevent construction material, pavement, concrete, earth, or other debris from entering storm sewer or storm sewer structure. Contractor to provide a basket insert to storm structures that may receive contaminants.

## 1.24 PROTECTION OF WATERWAYS

A. Observe rules and regulations of local, state, and federal government agencies prohibiting pollution of any lake, stream, river, or wetland by dumping of refuse, rubbish, dredge material, or debris therein.
B. Provide containment that will divert flows, including storm flows and flows created by construction activity, to prevent loss of residues and excessive silting of waterways or flooding damage to property.
C. Comply with procedures outlined in U.S. EPA manuals entitled "Guidelines for Erosion and Sedimentation Control Planning and Implementation," Manual EPA-72-015 and "Process, Procedures, and Methods to Control Pollution Resulting from all Construction Activity, "Manual EPA 43019-73-007.
D. Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit to Owner and Engineer 7 days prior to construction start.

## 1.25 DISPOSAL OF EXCESS EXCAVATED AND OTHER WASTE MATERIALS

A. Dispose waste material in accordance with federal and state codes, and local zoning ordinances. Copies of waste disposal manifests are to be supplied to Owner and Engineer prior to final payment.
B. Unacceptable disposal sites include, but are not limited to, sites within wetland or critical habitat, and sites where disposal will have detrimental effect on surface water or groundwater quality.
C. Make arrangements for disposal subject to submission of proof to Engineer that Owner(s) of proposed site(s) has a valid fill permit issued by appropriate government agency and submission of haul route plan, including map of proposed route(s).
D. Provide watertight conveyance for liquid, semi-liquid, or saturated solids, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.
E. Waste generated by abrasive blast cleaning is detailed in SSPC-Guide 6.

## 1.26 PROTECTION OF AIR QUALITY

A. Contain paint aerosols and VOCs by acceptable work practices.
B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by Contractor and encouraging shutdown of motorized equipment not actually in use.
C. Trash burning not permitted on construction site.
D. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

## 1.27 PROTECTION FROM FUEL AND SOLVENTS

A. Submit plans and photos, or drawings of all containment structures, planned paint storage procedures, planned paint mixing (as it relates to possible spillage), and paint waste disposal.

B. All required material must be submitted prior to the preconstruction meeting. No equipment may be delivered to the site without approval of submittals.
C. The Owner reserves the right to restrict equipment location.
D. Protect the ground from spills of fuel, oils, petroleum distillates, or solvents by use of containment systems.
   1. Total paint, thinner, oils, and fuel delivered to and stored on-site cannot exceed supplied capacity of spill containment provided (i.e., fuel in compressor must have secondary containment to catch both fuel and oil to be sized to exceed possible spill).
   2. Do not leave nozzle while fueling.
   3. Provide a different containment unit under fuel tank and oil reservoirs for all equipment and fuel storage tanks.
   4. Barrels of solvents, even for cleaning, are prohibited. Do not deliver paint thinners in containers greater than five (5) gallons.
E. Disposal of waste fluids shall be in conformance with federal, state, and local laws and regulations.

## 1.28 USE OF CHEMICALS

A. Chemicals used during project construction or furnished for project operations, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification must show approval of U.S. EPA, U.S. Department of Agriculture, state, or another applicable regulatory agency.
B. Use of such chemicals and disposal of residues shall be in conformance with manufacturer's written instructions and applicable regulatory requirements.

## 1.29 NOISE CONTROL

A. Conduct operations to cause least annoyance to residents in vicinity of work and comply with applicable local ordinances.
B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
C. Equip gasoline or oil operated equipment with silencers or mufflers on intake and exhaust lines.
D. Route vehicles carrying material over such streets as will cause least annoyance to public and do not operate on public streets on weekdays between hours of 8:00 p.m. and 7:00 a.m., or on Saturdays or Sundays, or legal holidays unless approved by Owner.

## 1.30 HAZARDOUS MATERIALS

A. Applicable Regulations
   1. RCRA, 1976 – Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage, and disposal of hazardous waste nationally.
B. To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper).
C. Federal, state, and local laws and regulations may apply to the storage, handling, and disposal of hazardous materials and waste.

## 1.31 BARRIERS AND ENCLOSURES

A. The Contractor shall furnish, install, and maintain as long as necessary, and remove no longer required adequate barriers, warning signs or lights at all dangerous points throughout the work for protection of property, workers,

and the public. The Contractor shall hold the Owner harmless from damage or claims out of any injury or damage that may be sustained by any person or persons as a result of the work under the contract.

## 1.32 TANK I.D. PLATES

A. Prior to any exterior work being performed, the Contractor shall remove the existing tank I.D. plate (if applicable).
B. Following the completion of all exterior work, the Contractor shall reinstall the tank I.D. plate with new stainless-steel fasteners.

# PART 2 – GROUND STORAGE TANK PRODUCTS

## 2.01 COATINGS

A. Painting and Coatings
   1. The following paint/coating manufacturers are approved for this project: Sherwin Williams and Tnemec.
   2. No substitutions by other manufacturers and products will be considered unless a written request for approval is received by the Engineer/Owner at least ten (10) days prior to the bid date.
      It is the Contractor's responsibility that the substitution is of equal or better quality. The decision regarding approval or disapproval of the substitution by the Owner will be considered final.
   3. The Contractor shall supply the Engineer/Owner with a color chart to allow for ample time for color selection. Colors are to be as follows:
      a. When multiple coats are required, coatings shall be alternating colors.
      b. Interior final coat shall be white.
      c. Exterior final coat shall be selected by the Owner.
   4. All coating materials and required thinners for each tank shall be manufactured by the same single source coating manufacturer.
   5. All interior wet coatings shall meet all National Sanitation Foundation certification standards for potable water contact.

## 2.02 ZINC/EPOXY – 2 COAT SYSTEM – WET INTERIOR

A. Two (2) coat zinc/epoxy system meeting all National Sanitation Foundation certification standards for potable water contact.
B. Approved suppliers and systems:
   Manufacturer System
   Sherwin Williams Galvapak 1k/Sherplate P.W.
   Tnemec Series 94 H2O/Series 22

## 2.03 ZINC / URETHANE / FLUOROPOLYMER – 3 COAT SYSTEM – EXTERIOR

A. Three (3) coat zinc / urethane / fluoropolymer system.
B. The Contractor is advised to follow all rules for safety while using isocyanates.
C. Ultraviolet protection additives mixed at factory only. There will be no tinting or addition of any material other than the manufacturer's thinners.
D. Approved suppliers and systems:
   Manufacturer System

Sherwin Williams Galvapak 1k/Acrolon 218HS/Fluorokem HS
Tnemec Series 94 H2O/Series 73/Series V700

## 2.04 METALS REPAIRS

A. Steel plating and other structural repairs shall comply with ASTM – A36.
B. If any significant metal loss (more than ¼") is uncovered during surface preparation operations, the Contractor shall notify the Engineer to determine the necessary repair method.

## 2.05 REPAIR OF CONCRETE STRUCTURES

A. Foundation Repair
   1. Mortar Clad, Series 218 by Tnemec Co.
   2. Sika Gard 75 EpoCem.
B. Grout Repair
   1. The standard to fill holes is an epoxy grout Sika 212 Grout as manufactured by Sika Corporation.
   2. Where backer rod is required, use ITP standard closed cell polyethylene foam manufactured by Industrial Thermo Polymers, Ltd., 2316 Delaware Ave., Suite 216, Buffalo, NY 14216, 1-800-387-3847.

## 2.06 EPOXY / EPOXY – 2 COAT SYSTEM – CONCRETE FOUNDATION

A. The coating shall be a two (2) coat epoxy polyamide system.
B. Approved suppliers and manufacturers:
   Manufacturer System
   Sherwin Williams Macropoxy 5000/Macropoxy 646
   Tnemec N69/N69

## 2.07 EPOXY CAULKING

A. Epoxy caulking shall be flexible, NSF approved for use in contact with potable water and compatible with the epoxy coating system used in the tank.
B. Caulk will be two component, polyamine or polyamide cured and 100% solids.
C. The Coatings manufacturer and caulk material manufacturer shall confirm, in writing, that the internal epoxy coating system is compatible with the 100% solids epoxy caulk material.
D. Any conditions for, or surface preparation requirements of the epoxy caulk material shall be included in the written confirmation of material compatibility.
E. An acceptable product for this Project is "Aquatapoxy A7", manufactured by Raven Lining Systems, Tulsa, Oklahoma.

## 2.08 HAZARDOUS MATERIAL

A. The tanks existing coatings do not contain levels of Lead and Chromium that are above the toxicity leachate levels.

## 2.09 ABRASIVE BLAST ALTERNATIVES

A. Contractor may request an alternative to the abrasive blast material specified in section 2.14. Alternative blast material specifications shall be submitted to Engineer in writing for review and approval prior to use.

## 2.10 DUST COLLECTORS – AIR FILTRATION UNITS

A. Furnish and use a dust collector during all blasting work.
B. Units to be equal in filtration capacity to Eagle Industries dust collectors. Other units may be used, but their substitution will be evaluated on efficiency at 0.5-micron size and airflow movement.
C. Use 60,000 cfm minimum.
D. Furnish HEPA filters for dust collection.
E. Number of dust collectors shall be sufficient to supply a 50ft./minute downward draft at most areas. An average may be considered. Determination of actual containment plan will be the deciding factor. Calculations of airflow shall be included in the containment submittal for Engineer review. Type and sizing of dust collection equipment shall be in accordance with SSPC-Guide 16.
F. Use only new filters or filters certified clean.
G. Contractor is responsible for power for air filtration units.

## 2.11 GROUND TARPS

A. Use impermeable ground tarps, 20 mils thick.
B. Use ground tarps able to withstand the anticipated construction traffic without tearing or separating.
C. Ground tarps shall extend a minimum of three (3) feet outside of containment.
D. Ground tarps that are impervious to the abrasive blast media, paint debris dusts, and process water and shall be placed on the ground around the tank to prevent contamination of the ground, storm waters and surface waters due to run-off.

## 2.12 EQUIPMENT COVERING

A. Use material that is 8-10 mils thick, and 100% impermeable.
B. Use material resistant to tear and/or rip by mechanical action from abrasive blasting during blasting operations.
C. Make coverings airtight by use of duct tape at the openings, or other suitable measures.

## 2.13 AIR DRYER FOR COMPRESSOR

A. Use air dryers sufficient to remove 98% of the moisture from the compressed air. Size the dryers on total cfm using manufacturer supplied charts. Upon request, supply charts to Engineer for verification.
B. If the fan is not operable, cease all blasting until the dryer is replaced or repaired.

## 2.14 ABRASIVE BLAST MATERIAL

A. The coal slag shall be 20-40 grade, or 30-60 grade.
B. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.
C. The abrasive shall be stored and covered to prevent moisture contamination.
D. All leaking or spilling bags shall be removed, and affected areas properly cleaned.

E. All slag abrasive shall meet the requirements of SSPC-AB1 "Mineral and Slag Abrasive" June 1, 1991-Grade 3.
F. The use of silica sand, flint sand, and glass beads is prohibited.
G. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the Engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint, and impart the required surface profile.

## PART 2.1 – NOT USED

## PART 2.2 – ELEVATED LEG TANK PRODUCTS

### 2.2.01 COATINGS

A. Painting and Coatings
   1. The following paint/coating manufacturers are approved for this project: Sherwin Williams and Tnemec.
   2. No substitutions by other manufacturers and products will be considered unless a written request for approval is received by the Engineer/Owner at least ten (10) days prior to the bid date.
      It is the Contractor's responsibility that the substitution is of equal or better quality. The decision regarding approval or disapproval of the substitution by the Owner will be considered final.
   3. The Contractor shall supply the Engineer/Owner with a color chart to allow for ample time for color selection. Colors are to be as follows:
      a. When multiple coats are required, coatings shall be alternating colors.
      b. Interior final coat shall be white.
      c. Exterior final coat shall be selected by the Owner.
   4. All coating materials and required thinners for each tank shall be manufactured by the same single source coating manufacturer.
   5. All interior wet coatings shall meet all National Sanitation Foundation certification standards for potable water contact.

### 2.2.02 ZINC / EPOXY – 2 COAT SYSTEM – WET INTERIOR

A. Two (2) coat zinc/epoxy system meeting all National Sanitation Foundation certification standards for potable water contact.
B. Approved suppliers and systems:

| Manufacturer | System |
|---|---|
| Sherwin Williams | Galvapak 1k/Sherplate P.W. |
| Tnemec | Series 94 H2O/Series 22 |

### 2.2.03 EPOXY / EPOXY / URETHANE / FLUOROPOLYMER – 4 COAT SYSTEM – EXTERIOR

A. Four (4) coat epoxy/epoxy/urethane/fluoropolymer system.
B. The Contractor is advised to follow all rules for safety while using isocyanates.
C. Ultraviolet protection additives mixed at factory only. There will be no tinting or addition of any material other than the manufacturer's thinners.
D. Approved suppliers and systems:

| Manufacturer | System |
|---|---|
| Sherwin Williams | Macropoxy 646/Macropoxy 929 Pre-Prime/Acrolon 218HS/Fluorokem HS |

Tnemec Series 135/F.C. Typoxy Series 27/Series 73/Series V700

## 2.2.04 METALS REPAIRS

A. Steel plating and other structural repairs shall comply with ASTM – A36.
B. If any significant metal loss (more than ¼") is uncovered during surface preparation operations, the Contractor shall notify the Engineer to determine the necessary repair method.

## 2.2.05 REPAIR OF CONCRETE STRUCTURES

**A.** Foundation Repair
   1. Mortar Clad, Series 218 by Tnemec Co.
   2. Sika Gard 75 EpoCem.

**B.** Grout Repair
   1. The standard to fill holes is an epoxy grout Sika 212 Grout as manufactured by Sika Corporation.
   2. Where backer rod is required, use ITP standard closed cell polyethylene foam manufactured by Industrial Thermo Polymers, Ltd., 2316 Delaware Ave., Suite 216, Buffalo, NY 14216, 1-800-387-3847.

## 2.2.06 EPOXY / EPOXY – 2 COAT SYSTEM – CONCRETE FOUNDATION

A. The coating shall be a two (2) coat epoxy polyamide system.
B. Approved suppliers and manufacturers:

| Manufacturer | System |
|---|---|
| Sherwin Williams | Macropoxy 5000/Macropoxy 646 |
| Tnemec | N69/N69 |

## 2.2.07 ABRASIVE BLAST ALTERNATIVES

A. Contractor may request an alternative to the abrasive blast material specified in section 2.30. Alternative blast material specifications shall be submitted to Engineer in writing for review and approval prior to use.

## 2.2.08 GROUND TARPS

A. Use impermeable ground tarps, 20 mils thick.
B. Use ground tarps able to withstand the anticipated construction traffic without tearing or separating.
C. Ground tarps shall extend a minimum of three (3) feet outside of the work area.
D. Ground tarps that are impervious to the abrasive blast media, paint debris dusts, and process water and shall be placed on the ground around the tank to prevent contamination of the ground, storm waters and surface waters due to run-off.

## 2.2.09 EQUIPMENT COVERING

A. Use material that is 8-10 mils thick, and 100% impermeable.
B. Use material resistant to tear and/or rip by mechanical action from abrasive blasting during blasting operations.
C. Make coverings airtight by use of duct tape at the openings, or other suitable measures.

### 2.2.10 AIR DRYER FOR COMPRESSOR

A. Use air dryers sufficient to remove 98% of the moisture from the compressed air. Size the dryers on total cfm using manufacturer supplied charts. Upon request, supply charts to Engineer for verification.
B. If the fan is not operable, cease all blasting until the dryer is replaced or repaired.

### 2.2.11 ABRASIVE BLAST MATERIAL

A. The coal slag shall be 20-40 grade, or 30-60 grade.
B. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.
C. The abrasive shall be stored and covered to prevent moisture contamination.
D. All leaking or spilling bags shall be removed, and affected areas properly cleaned.
E. All slag abrasive shall meet the requirements of SSPC-AB1 "Mineral and Slag Abrasive" June 1, 1991-Grade 3.
F. The use of silica sand, flint sand, and glass beads is prohibited.
G. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the Engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint, and impart the required surface profile.

## PART 3 – GROUND STORAGE TANK EXECUTION

### 3.01 COATING APPLICATION REQUIREMENTS

A. Tank Interior Humidity and Temperature
   1. During abrasive blast cleaning and painting operations, the relative humidity of the interior air shall not exceed fifty percent (50%). Relative humidity shall be measured by a sling psychrometer or other appropriate psychometric measuring equipment.
   2. The interior air temperature and surface temperature of surfaces to be coated shall be between 50˚F and 120˚F and at least 5°F above the dew point or as otherwise required by the manufacturer.
   3. The Contractor shall achieve the required conditions for interior air conditions through the use of dehumidification equipment.
      a. The dehumidification equipment shall supply dry, fresh (not recirculated) air within 12 inches of the tank bottom from a system of duct work and blowers. This ventilation system shall operate 24 hrs./day throughout the entire coating cure process.
      b. Dehumidification shall be maintained until abrasive cleaning operations, coating operations, and coating cure are complete, but not less than ten (10) days.
B. Tank Exterior Humidity and Temperature
   1. No coating shall be applied to wet or damp surfaces or in rain, snow, fog, or mist.
   2. No coatings shall be applied when it is expected that the ambient air temperature will fall below 50˚F or within 5˚F of the dew point within 6 hours after application of coatings or paints.
   3. No coating shall be applied when the relative humidity will exceed 85%, or as specified in the coating manufacturer's product data sheet. Relative humidity and dew point shall be measured by use of a sling psychrometer in conjunction with US. Department of Commerce Weather Bureau Psychometric Tables. If the above conditions are exceeded, coating or painting operations shall be delayed until conditions are favorable.
   4. The ambient conditions and surface temperature of the surfaces being coated must be between 50˚F and 120˚F. The surface temperature shall be at least 5˚F above the dew point or within the manufacturer's recommendations.

## 3.02 DUST CONTAINMENT

A. The Contractor shall do everything within industry standards to minimize dust as a nuisance, both from site and painting operations.
B. The Contractor shall complete any additional measures required in these specifications for dust containment. There will be no negotiations for extra compensation for nuisance complaints and corrective measures.
C. The Contractor shall fully inspect the area, land use, and other pertinent local conditions prior to bidding exterior work.
D. The Contractor shall not permit dust, abrasive, or paint chips to fall beyond the property line or ground cover.
E. The Contractor shall protect existing storm sewer inlet(s) by placing a drop-in inlet filter which shall be removed upon completion of painting operations. The inlet filter shall be in accordance with Section 280 of the IDOT Standard Specifications. The storm sewer inlets must be protected within 30 feet of the base of the tank.
F. The Contractor shall not permit any visual dust release when transferring media from either the interior or exterior of the structure to the dumpster. Suppress all dust with tarps or water, or other preapproved method.
G. The Contractor shall utilize vacuum attachments on all power tools during exterior surface preparation work performed.

## 3.03 CONTAINMENT DURING EXTERIOR SURFACE PREPARATION

A. The Contractor shall furnish and install a total containment system to be used during all dust generating work during exterior surface preparation, which conforms to Section 4.2.2.2 of SSPC Guide 6, SSPC Guide 7, SSPC Guide 16 and SSPC-TU-7
B. Paint chips shall be contained to an area immediately around the structure. Release outside the structure will not be permitted.
C. The containment system shall be erected on all sides of the tank for 360-degree coverage, or a moveable system may be utilized.
D. The roof shall be covered with the containment system. There will be separate vertical tarps from the roof or sidewalls to allow waste from the roof to slip down the sidewalls.
E. The containment systems shall be supported by temporary braces attached to the roof and ground. Leave space to allow rigging and equipment to be used within the shields. The bracing shall be secured by cables to the ground by use of deadmen.
F. Any damaged shrouds shall be repaired/replaced immediately. The Contractor shall discontinue work operations until the damaged shrouds are repaired or replaced.
G. The Contractor shall use air impenetrable walls and roof with either rigid or flexible framing.
H. All seams shall be sealed by a 2-foot overlap. The Contractor shall completely seal all seams by stitching, taping, caulking, or other sealing measures.
I. Containment shroud material and superstructure shall be non-penetrating, nylon rip-stop material manufactured by Eagle Industries, or written approved equal. Approval of alternate material will be based on density, weight, support strength, stitching, reinforcement, home office experience, and staff assistance.
J. The Contractor shall design a containment system for containing and controlling emissions, debris and protecting the air, ground and soil from contaminants resulting from surface preparation and painting operations.
K. The containment system shall provide a safe working environment and provide for control of emissions.
L. The containment system shall be maintained free of defects through the course of the project.
M. The Contractor is responsible for the containment system design, bracing, shields, etc. depending on the size of the structure, availability of space, prevailing wind forces, and local restrictions.

N. Proposed changes and modifications to the containment system during the course of the work must be submitted in writing and reviewed by the Engineer. The submittal shall address the operational and technical reasons for containment modifications.
O. Payment is incidental to ground storage tank exterior repaint with full containment.

## 3.04 CONTAINMENT SYSTEM TANK CONNECTIONS

A. The Contractor shall request approval of all welding and cutting on the tank for any tank connections.
B. All approved holes into the tank shall be cut with rounded corners.
C. The Contractor shall use a welder certified to complete the type and position weld necessary for attachment.
D. Payment is incidental to ground storage tank exterior repaint with full containment.

## 3.05 CONTAINMENT SYSTEM OPENINGS

A. The Contractor shall design a means of ingress and egress of the containment structure. Access shall be through an overlapped door on each side of the chamber.
B. The size of the opening structure shall be 8' x 8' x 6' high. Minimum clear walking height shall be 54-inches. Minimum width shall be 42-inches. The structure shall be fabricated from scaffolding and covered with overlapping tarps that are secured in-place. The chamber shall be constructed out of 6-foot-high scaffold sections and installed so the majority of the scaffold is extended out from the containment.
C. An opening for air piping exhaust shall be constructed with a minimum 18-inch-long tunnel securely attached. Maintain the exhaust piping in as straight a line as possible to avoid restricting airflow. Exhaust air attachments may be elsewhere other than the entryway.
D. An operating HEPA vacuum shall be supplied in the entryway to vacuum off workers leaving the containment. The vacuum shall be clean and serviced.
E. Payment is incidental to ground storage tank exterior repaint with full containment.

## 3.06 CONTAINMENT SYSTEM GROUND COVER

A. Ground tarps shall be provided for the area inside the containment system and a 3-foot diameter around the outside of the containment. Ground tarps shall be impermeable, 20 mils thick that can withstand construction traffic without tearing or separating.
B. All ground tarps shall be lapped a minimum of 2-feet. Lap the inside ground tarps up 2-feet on the outside of the containment system. Lap the outside ground tarps 2-feet under the inside tarps with slots for cables. This will prevent loss of abrasive material between the ground tarp and vertical containment system.
C. Payment is incidental to ground storage tank exterior repaint with full containment.

## 3.07 PRE-SURFACE PREPARATION

A. The Contractor shall low pressure water clean at 4,000 psi all surfaces and appurtenances to remove sediment, minerals, soot, and other contaminants.
B. Staining may remain in place prior to abrasive blast cleaning. Engineer to approve cleanliness.

## 3.08 WET INTERIOR – NEAR WHITE METAL (SSPC-SP10) DRY BLAST

A. The Contractor shall abrasive blast clean all surfaces and appurtenances to a near white finish (SSPC-SP10), current edition.
B. Maintain a surface profile of 2.0 – 3.0 mils on abrasive blast cleaned surfaces.
C. Prior to any primer application, all prepared interior abrasive blast surfaces to be coated must have dust removed by vacuuming or cleaned by an alternative method acceptable to the Engineer.
D. Once an area is acceptable for painting, apply all coats and allow coating to cure to touch prior to resumption of blasting or blast the entire tank before painting, use dehumidification to hold the blast.
E. The Contractor is responsible for supplying heat and or dehumidification to maintain blast conditions prior to primer application.

## 3.09 EXTERIOR – COMMERCIAL (SSPC-SP6) DRY BLAST

A. The Contractor shall abrasive blast all surfaces of the tank structure to a commercial (SSPC-SP6) finish.
B. Maintain a surface profile of 2.0-3.0 mils on the abrasive blast cleaned surfaces.
C. Prior to coating application, all prepared surfaces to be coated shall be cleaned of blast media and dust, to a condition acceptable to the Engineer.

## 3.10 PROTECTION OF SURFACES

A. The Contractor shall protect all surfaces, which are not to be painted, from overblasting, spraying, over spray, spatters, or spillage of paint.

## PART 3.1 – NOT USED

## PART 3.2 – ELEVATED LEG TANK EXECUTION

## 3.2.01 COATING APPLICATION REQUIREMENTS

A. Tank Interior Humidity and Temperature
   1. During surface preparation and painting operations, the relative humidity of the interior air shall not exceed fifty percent (50%). Relative humidity shall be measured by a sling psychrometer or other appropriate psychometric measuring equipment.
   2. The interior air temperature and surface temperature of surfaces to be coated shall be between 50˚F and 120˚F and at least 5°F above the dew point or as otherwise required by the manufacturer.
   3. The Contractor shall achieve the required conditions for interior air conditions through the use of dehumidification equipment.
      a. The dehumidification equipment shall supply dry, fresh (not recirculated) air within 12 inches of the tank bottom from a system of duct work and blowers. This ventilation system shall operate 24 hrs./day throughout the entire coating cure process.
      b. Dehumidification shall be maintained until abrasive cleaning operations, coating operations, and coating cure are complete, but not less than ten (10) days.
B. Tank Exterior Humidity and Temperature
   1. No coating shall be applied to wet or damp surfaces or in rain, snow, fog, or mist.

2. No coatings shall be applied when it is expected that the ambient air temperature will fall below 50˚F or within 5˚F of the dew point within 6 hours after application of coatings or paints.
3. No coating shall be applied when the relative humidity will exceed 85%, or as specified in the coating manufacturer's product data sheet. Relative humidity and dew point shall be measured by use of a sling psychrometer in conjunction with US. Department of Commerce Weather Bureau Psychometric Tables. If the above conditions are exceeded, coating or painting operations shall be delayed until conditions are favorable.
4. The ambient conditions and surface temperature of the surfaces being coated must be between 50˚F and 120˚F. The surface temperature shall be at least 5˚F above the dew point or within the manufacturer's recommendations.

### 3.2.02 DUST CONTAINMENT

A. The Contractor shall do everything within industry standards to minimize dust as a nuisance, both from site and painting operations.
B. The Contractor shall complete any additional measures required in these specifications for dust containment. There will be no negotiations for extra compensation for nuisance complaints and corrective measures.
C. The Contractor shall fully inspect the area, land use, and other pertinent local conditions prior to bidding exterior work.
D. The Contractor shall not permit dust, abrasive, or paint chips to fall beyond the property line or ground cover.
E. The Contractor shall protect existing storm sewer inlet(s) by placing a drop-in inlet filter which shall be removed upon completion of painting operations. The inlet filter shall be in accordance with Section 280 of the IDOT Standard Specifications. The storm sewer inlets must be protected within 30 feet of the base of the tank. Payment is incidental to the contract.
F. The Contractor shall not permit any visual dust release when transferring media from either the interior or exterior of the structure to the dumpster. Suppress all dust with tarps or water, or other preapproved method.
G. The Contractor shall utilize vacuum attachments on all power tools during exterior surface preparation work performed.

### 3.2.03 PRE-SURFACE PREPARATION

A. The Contractor shall low pressure water clean at 4,000 psi all surfaces and appurtenances to remove sediment, minerals, soot, and other contaminants.
B. Staining may remain in place prior to abrasive blast cleaning. Engineer to approve cleanliness.

### 3.2.04 WET INTERIOR – NEAR WHITE METAL (SSPC-SP10) DRY BLAST

A. The Contractor shall abrasive blast clean all surfaces and appurtenances to a near white finish (SSPC-SP10), current edition.
B. Maintain a surface profile of 2.0 – 3.0 mils on abrasive blast cleaned surfaces.
C. Prior to any primer application, all prepared interior abrasive blast surfaces to be coated must have dust removed by vacuuming or cleaned by an alternative method acceptable to the Engineer.
D. Once an area is acceptable for painting, apply all coats and allow coating to cure to touch prior to resumption of blasting or blast the entire tank before painting, use dehumidification to hold the blast.
E. The Contractor is responsible for supplying heat and or dehumidification to maintain blast conditions prior to primer application.

### 3.2.05 EXTERIOR – BARE METAL (SSPC-SP11) POWER TOOL CLEAN

A. The Contractor shall power tool clean any areas of corrosion on the tower exterior to a bare metal finish (SSPC-SP11).
B. Maintain a surface profile of 1.0-2.0 mils on power tool cleaned surfaces.
C. Prior to coating application, all prepared surfaces to be coated shall be cleaned of blast media and dust, to a condition acceptable to the Engineer.

### 3.2.06 PROTECTION OF SURFACES

A. The Contractor shall protect all surfaces, which are not to be painted, from overblasting, spraying, over spray, spatters, or spillage of paint.

## PART 4 – COATING SYSTEM APPLICATION

### 4.01 GENERAL OBJECTIVE

A. The object of these specifications is to provide the material and workmanship necessary to produce quality coating systems. All painting work shall be implemented in strict accordance with the manufacturer's instructions and shall be performed in a manner satisfactory to the Engineer.

### 4.02 QUALITY OF PAINT

A. The paint mentioned in the following specifications are set up as standards of quality. The standard "or equal" clause shall apply. No substitution will be considered unless a written request for approval has been received by the Engineer at least 10 days prior to the date for receipt of bids. Each such request shall include the name of the specified material for which a substitute is being requested; the name of the proposed substitute material and a complete description of the proposed substitute including performance and test data and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitute is upon the proposer. The decision of the Engineer regarding approval or disapproval of the proposed substitution shall be final.
B. All material shall be brought to the job site in the original sealed and labeled containers of the paint manufacturer and shall be subject to inspection by the Engineer. Colors, where not specified, shall be selected by the Owner.
C. The Contractor shall submit to the Engineer, immediately upon completion of the job, certification from the paint manufacturer indicating that the quantity of each coating purchased was sufficient to coat all surfaces in accordance with the specifications and manufacturer's recommendations.

### 4.03 APPLICATION OF PAINT

A. The Contractor shall apply each coating in accordance with these specifications and the paint manufacturer's recommendations. The coating shall be applied at the specified thickness. If the specified thickness is not obtained, an additional coat(s) of paint shall be applied.
B. All paint shall be applied in strict accordance with the applicable manufacturer's printed data sheet and container label outlining recommended minimum and maximum surface and air temperatures required for application. Paint shall not be applied to wet or damp surfaces and shall not be applied in rain, snow, fog, or mist, or when the relative humidity exceeds 85%.

C. No paint shall be applied when it is expected that the relative humidity will exceed 85% and/or the air temperature will drop below recommended levels within 12 hours after paint application. Dew or moisture condensation should be anticipated, and if such conditions are prevalent, painting shall be delayed until certain that the surfaces are dry.
D. Painting should be completed well in advance of the probable time of day when condensation will occur in order to permit the film an appropriate drying time prior to the formation of moisture on the surface.

## 4.04 DRY FILM THICKNESS

A. Dry film thickness shall be measured in accordance with current SSPC PA2, "Dry Paint Thickness with Magnetic Gauges".

## 4.05 CONTAINMENT / DISPOSAL REQUIREMENTS

A. The entire tank and structures shall be enclosed, and surface preparation debris contained. Refer to SSPC-Guide 6 (CON), "Guide for Containing Debris Generated During Paint Removal Operations". The containment will serve to contain overspray during coating operations from vehicles, building, and other appurtenances.
B. The painting Contractor shall cut, and grind flush all exterior containment structure lugs and prepare and paint areas as described in the exterior painting section of these specifications.
C. Upon removal of the exterior lugs, the painting Contractor shall also repair any damaged interior coating by methods described in the interior painting section of these specifications. Abrasive blasting to bare metal (SSPC-SP10) will be required in the damaged areas.
D. Paint debris shall be classified as hazardous if after testing for toxic characteristics using the Toxicity Characteristic Leaching Procedure (TCLP) test methods, the leachate contains any of the elements in concentrations at or greater than those listed in 40 CFR 261 or applicable state or local regulations. In any circumstances, the most stringent jurisdictional regulations governing the project location shall apply. The cost for providing this testing will be considered incidental to various pay items or to a specific pay item.

## 4.06 VENTILATION AND CURE TIMES

A. Adequate ventilation that will effectively remove solvent vapors shall be provided for proper drying of paint on interior surfaces. Following final coat applications, the tank shall not be disinfected or filled until the coating system is fully cured. Refer to applicable product data sheet(s) for dry time / temperature requirements.

## 4.07 AMERICAN WATER WORKS ASSOCIATION

A. All work shall be implemented in accordance with the American Water Works Association's Standard D102-21.

## 4.08 NSF CERTIFICATION

A. All coatings in contact with potable water or applied to the inside wet area of the tanks shall be listed by NSF International or UL under ANSI/NSF Standard 61, Section 5, Protective (Barrier) Materials - Potable Water Tank Coatings.

## 4.09 GROUND STORAGE TANK WET INTERIOR REPAINT

A. The Contractor shall apply a two (2) coat high build epoxy paint system with a zinc primer to all prepared surfaces and appurtenances.
B. Surface preparation and paint requirements have been previously defined.
C. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Primer - Corothane/Galvapak 1k | 2.0 | 3.0 |
| Topcoat - Sherplate PW | 20.0 | 30.0 |
| TOTAL | 22.0* | 33.0* |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Primer - Series 94 H2O | 2.5 | 3.5 |
| Topcoat - Series 22 | 20.0 | 30.0 |
| TOTAL | 22.5* | 33.5* |

*Total does not include stripe coat.

D. Stripe coat to be applied to all welds, angles, and sharp edges throughout the structure, including above the high-water line and all roof beams, etc.
E. Each full coat shall be a different color from the previous coat and is to be approved by the Engineer. No color bleed-through should occur if proper application rates are observed.
F. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.
G. Allow a minimum of twenty-four (24) hours between coats (including stripe coat). Additional time may be necessary if low temperatures require an increase in the necessary cure time.
H. Maintain forced ventilation for a minimum of four (4) days after topcoat application, time required for cure is dependent on the coating manufacturer and temperature. Record variations of the standard procedures (roof hatch closure because of rain, etc.), and submit to the Engineer. Heat is required if, in the opinion of the Engineer, the integrity of the coating is endangered by cold weather, or if additional cure time will delay the project beyond the substantial completion date.
I. Maintain internal air movement at 20 ft., at 10 ft., and at 1 ft. above the floor for seven (7) days after painting. Suspend 2,500 cfm fans from the safety grabs at each elevation, at completion of painting.
J. Payment is a separate line item "GROUND STORAGE TANK WET INTERIOR REPAINT" which the Owner reserves the right to delete.

## 4.10 GROUND STORAGE TANK EXTERIOR COATING REPAINT WITH FULL CONTAINMENT

A. The Contractor shall apply a three (3) coat zinc, urethane, fluoropolymer paint system to all exterior steel prepared surfaces and appurtenances.
B. Surface preparation and paint requirements have been previously defined.
C. Apply all coatings by brush and roller. Spray application is prohibited unless the containment system is in place.
D. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Primer - Corothane Galvapak 1k | 2.0 | 3.0 |

| | | |
|---|---|---|
| Intermediate - Acrolon 218 HS | 3.0 | 4.0 |
| Topcoat - Fluorokem HS | 2.0 | 3.0 |
| TOTAL | 7.0 | 10.0 |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Primer - Series 94 H2O | 2.5 | 3.0 |
| Intermediate - Series 73 | 2.0 | 3.0 |
| Topcoat - Series V700 | 2.0 | 3.0 |
| TOTAL | 6.5 | 9.0 |

E. Each full coat to be a different color from the previous coat and is to be approved by the Engineer. No color bleed-through should occur if proper application rates are observed.
F. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.
G. Allow a minimum of twenty-four (24) hours between coats. Additional time may be necessary if low temperatures require an increase in the necessary cure time.
H. Payment is a separate line item "GROUND STORAGE TANK EXTERIOR REPAINT WITH FULL CONTAINMENT" which the Owner reserves the right to delete.

## 4.11 GROUND STORAGE TANK CONCRETE FOUNDATION REPAIR AND COATING APPLICATION

A. The Contractor shall remove all loose, soft, or mottled grout from the top of the foundation on the exterior of the tank. Removal of grout shall be by hand, hammer, or chisel.
B. The Contractor shall pressure wash the grout using a minimum nozzle tip pressure of 2,000 psi on the exterior of the tank. All surfaces shall be free of all standing water or frost in accordance with the manufacturer's recommendations. Surface to be saturated surface dry (SSD).
C. Properly and thoroughly mix the grout in accordance with the manufacturer's recommendations as a dry mix.
D. Force the grouting material into the annular space to ensure there are no voids. Make flush with the baseplate on the exterior of the tank.
E. The Contractor shall apply a two (2) coat epoxy system to all prepared concrete foundation areas.
F. All foundations are to be water cleaned. Remove dirt 3" below grade around the entire foundation prior to coating, backfill once topcoat is dry to the touch. Apply topsoil and seed to disturbed areas as specified in section 8.02 Site Restoration.
G. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Primer - Macropoxy 5000 | 1.0 | 1.5 |
| Topcoat - Macropoxy 646 | 5.0 | 10.0 |
| TOTAL | 6.0 | 11.5 |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Primer - Series N69 | 3.5 | 5.5 |
| Topcoat - Series N69 | 3.5 | 5.5 |
| TOTAL | 7.0 | 11.0 |

H. Allow the manufacturer's minimum time between coatings.

I. Payment is a separate line item "GROUND STORAGE TANK CONCRETE FOUNDATION REPAIR AND COATING APPLICATION" which the Owner reserves the right to delete.

## 4.12 GROUND STORAGE TANK LOGO

A. The Contractor shall paint two (2) logos in the same style as the current logos (see attached Ground Storage Tank Logo Example). The logo color and orientation is to be confirmed by the Owner, prior to application.

B.

| Manufacturer | System |
|---|---|
| Sherwin Williams | Fluorochem HS |
| Tnemec | V700 |

C. Apply lettering and logo coating at 2.0 to 3.0 mils.

D. Payment is incidental to ground storage tank exterior repaint with full containment.

## 4.13 ELEVATED LEG TANK WET INTERIOR REPAINT

A. The Contractor shall apply a two (2) coat high build epoxy paint system with a zinc primer to all prepared surfaces and appurtenances.

B. Surface preparation and paint requirements have been previously defined.

C. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Primer - Corothane/Galvapak 1k | 2.0 | 3.0 |
| Topcoat - Sherplate PW | 20.0 | 30.0 |
| TOTAL | 22.0* | 33.0* |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Primer - Series 94 H2O | 2.5 | 3.5 |
| Topcoat - Series 22 | 20.0 | 30.0 |
| TOTAL | 22.5* | 33.5* |

*Total does not include stripe coat.

D. Stripe coat to be applied to all welds, angles, and sharp edges throughout the structure, including above the high-water line and all roof beams, etc.

E. Each full coat shall be a different color from the previous coat and is to be approved by the Engineer. No color bleed-through should occur if proper application rates are observed.

F. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.

G. Allow a minimum of twenty-four (24) hours between coats (including stripe coat). Additional time may be necessary if low temperatures require an increase in the necessary cure time.

H. Maintain forced ventilation for a minimum of four (4) days after topcoat application, time required for cure is dependent on the coating manufacturer and temperature. Record variations of the standard procedures (roof hatch closure because of rain, etc.), and submit to the Engineer. Heat is required if, in the opinion of the Engineer, the integrity of the coating is endangered by cold weather, or if additional cure time will delay the project beyond the substantial completion date.

I. Maintain internal air movement at 20 ft., at 10 ft., and at 1 ft. above the floor for seven (7) days after painting. Suspend 2,500 cfm fans from the safety grabs at each elevation, at completion of painting.

J. Payment is a separate line item "ELEVATED LEG TANK WET INTERIOR REPAINT".

## 4.14 ELEVATED LEG TANK EXTERIOR OVERCOAT

A. The Contractor shall apply a four (4) coat epoxy/epoxy/urethane/fluoropolymer paint system to all exterior steel prepared surfaces and appurtenances.
B. Surface preparation and paint requirements have been previously defined.
C. Apply all coatings by brush and roller. Spray application is prohibited unless the containment system is in place.
D. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Spot Prime - Macropoxy 646 | 3.0 | 5.0 |
| Tie-Coat - Macropoxy 929 PrePrime | 1.0 | 2.0 |
| Intermediate - Acrolon 218 HS | 2.0 | 3.0 |
| Topcoat - Fluorokem HS | 2.0 | 3.0 |
| TOTAL | 8.0 | 13.0 |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Spot Prime - Series 135 | 3.0 | 4.0 |
| Tie-Coat - F.C. Typoxy Series 27 | 2.0 | 6.0 |
| Intermediate - Series 73 | 2.0 | 3.0 |
| Topcoat - Series V700 | 2.0 | 3.0 |
| TOTAL | 9.0 | 16.0 |

E. Each full coat to be a different color from the previous coat and is to be approved by the Engineer. No color bleed-through should occur if proper application rates are observed.
F. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.
G. Allow a minimum of twenty-four (24) hours between coats. Additional time may be necessary if low temperatures require an increase in the necessary cure time.
H. Payment is a separate line item "ELEVATED LEG TANK EXTERIOR OVERCOAT" which the Owner reserves the right to delete.

## 4.15 ELEVATED LEG TANK CONCRETE FOUNDATION REPAIR AND COATING APPLICATION

A. The Contractor shall remove all loose, soft, or mottled grout from the top of the foundation on the exterior of the tank. Removal of grout shall be by hand, hammer, or chisel.
B. The Contractor shall pressure wash the grout using a minimum nozzle tip pressure of 2,000 psi on the exterior of the tank. All surfaces shall be free of all standing water or frost in accordance with the manufacturer's recommendations. Surface to be saturated surface dry (SSD).
C. Properly and thoroughly mix the grout in accordance with the manufacturer's recommendations as a dry mix.
D. Force the grouting material into the annular space to ensure there are no voids. Make flush with the baseplate on the exterior of the tank.
E. The Contractor shall apply a two (2) coat epoxy system to all prepared concrete foundation areas.

F. All foundations are to be water cleaned. Remove dirt 3" below grade around the entire foundation prior to coating, backfill once topcoat is dry to the touch. Apply topsoil and seed to disturbed areas as specified in section 8.02 Site Restoration.

G. Apply each coat at the following rates:

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Sherwin Williams | D.F.T. mils | D.F.T. mils |
| Primer - Macropoxy 5500 | 1.0 | 1.5 |
| Topcoat - Macropoxy 646 | 5.0 | 10.0 |
| TOTAL | 6.0 | 11.5 |

| Manufacturer | Minimum | Maximum |
|---|---|---|
| Tnemec | D.F.T. mils | D.F.T. mils |
| Primer - Series N69 | 3.5 | 5.5 |
| Topcoat - Series N69 | 3.5 | 5.5 |
| TOTAL | 7.0 | 11.0 |

H. Allow the manufacturer's minimum time between coatings.

I. Payment is incidental to elevated leg tank exterior overcoat.

## 4.16 ELEVATED LEG TANK LOGO

A. The Contractor shall paint two (2) logos in the same style as the current logos (see attached Elevated Leg Tank Logo Example). The logo color and orientation is to be confirmed by the Owner, prior to application.

B.

| Manufacturer | System |
|---|---|
| Sherwin Williams | Fluorochem HS |
| Tnemec | V700 |

C. Apply lettering and logo coating at 2.0 to 3.0 mils.

D. Payment is incidental to elevated leg tank exterior overcoat.

# PART 5 – METAL EQUIPMENT REPAIR AND REPLACEMENT

## 5.01 REFERENCES

A. AWWA D100 Weld Standard

B. AWS Weld Standard

C. API 650 Standard

## 5.02 OMISSIONS

A. The specifications include all work and materials necessary for completion of the work. Any incidental item(s) of material, labor, or detail(s) required for the proper execution and completion of the work are included.

## 5.03 DEFINITIONS

A. Ground Flush: Ground even with adjacent metal, no transition.

B. Ground Smooth: Ground welds to the point that no cuts or scratches occur when rubbing your gloved hand over the weld. Rebuild any holes or cavities discovered during grinding with additional weld.

## 5.04 WELDER QUALIFICATION

A. Certified for type of weld specified.
B. Welder shall be experienced in industrial or heavy commercial welding and experienced in elevated work.

## 5.05 SUBMITTALS

A. Safety Data Sheets for all job materials as required by OSHA.
B. Welders certification.
C. Materials list.

## 5.06 DESIGN SUBMITTALS

A. All modifications that may be considered structural, as determined by the Board of Professional Engineers, State of Illinois, shall be designed and sealed by a Structural Engineer registered in the State of Illinois. This includes replacement of existing steel, which includes but is not limited to all roof designs and appurtenances, girders, balconies, ladders, and manways/hatches. The cost for providing this information will be considered incidental to various pay items or to a specific pay item.
B. Drawings included for Part 6 work are included for conceptual design and/or to establish minimal dimensions only. Contractor should verify all dimensions prior to submittal preparations and installation.

## 5.07 STEEL PLATING AND OTHER STRUCTURAL SHAPES

A. ASTM – A36.

## 5.08 BOLTS AND NUTS

A. Stainless Steel
   1. ASTM F594G – 316 stainless steel bolts
   2. ASTM F594G – 316 stainless steel nuts
B. Galvanized Steel
   1. ASTM A307 Grade A zinc coated steel bolts
   2. ASTM A307 Grade A zinc coated nuts

## 5.09 WELDS

A. FINAL – E70XX electrodes
B. Root – E60XX electrodes
C. Wire – ER70S electrodes

## 5.10 CATHODIC CLIPS

A. Cathodic system clips and coupling for interior, submerged cathodic protection system.

## PART 6 – EXECUTION – WORK ITEMS

### 6.01 ELEVATED LEG TANK FROST FREE ROOF VENT

A. The Contractor shall provide a frost-free roof vent that is designed to operate if the screens frosts over.
B. Screens shall be reinforced with polypropylene frames designed to lift off the bearing surfaces in the event the screens frost over and either positive or negative tank pressure is experienced. Screen blowout provisions during frost conditions shall not be provided. Vent shall be weather-protected type. Entrance of rain or snow shall be prevented by overhanging and overlapping protective cap protruding down to the bottom of the course screens.
C. Polypropylene mesh screens shall be provided by the Contractor.
D. See material specification for 24" vent.
E. Vent shall have flanged bottom to bolt down onto a new installed vent assembly welded to the tank shell. (See Figure 5-1)
F. Payment is a separate line item "ELEVATED LEG TANK FROST FREE ROOF VENT" which the Owner reserves the right to delete.

### 6.02 OVERFLOW FLAP GATES

A. The Contractor shall construct and install a new overflow flap gate. All welds shall be continuous.
Flap shall allow for closed positioning during non-flow conditions, and open operation during overflow conditions.
B. The Contractor shall field verify existing overflow pipe dimensions. Lever arm configuration near hinge may vary if prior written approval is granted by the Engineer.
C. Use a non-ferrous or stainless-steel screen material with a minimum opening of 1/4 in. x 1/4 in., and a maximum opening of 3/8 in. x 3/8 in. (See Figure 5-2).
D. Payment is a separate line item "GROUND STORAGE TANK OVERFLOW FLAP GATE" which the Owner reserves the right to delete.
E. Payment is a separate line item "ELEVATED LEG TANK OVERFLOW FLAP GATE" which the Owner reserves the right to delete.

### 6.03 WELD CATHODIC COVERS

A. The Contractor shall weld plates over the cathodic protection access holes in tank roof. (See Drawing 5-8).
B. Contractor shall complete all welding work prior to any surface preparation or coating application.
C. Payment is a separate line item "GROUND STORAGE TANK SEAL WELD CATHODIC COVERS" which the Owner reserves the right to delete.
D. Payment is a separate line item "ELEVATED LEG TANK SEAL WELD CATHODIC COVERS" which the Owner reserves the right to delete.

### 6.04 SEAM SEAL ROOF PLATE LAP JOINTS

A. The Contractor shall apply a seam seal on all roof lap seams on the interior wet area on both tanks after the topcoat is dry to the touch. Seal using a caulking gun filling all cracks less than 1 in. separation. Tool sealant as required.
B. Payment is incidental to ground storage tank wet interior repaint.
C. Payment is incidental to elevated leg tank wet interior repaint.

## 6.05 REPLACE MANWAY GASKETS

A. The Contractor shall remove all existing manway gaskets on both tanks and replace with new gaskets.
B. Payment is incidental to ground storage tank wet interior repaint.
C. Payment is incidental to elevated leg tank wet interior repaint.

## 6.06 GROUND STORAGE TANK CATHODIC PROTECTION SYSTEM UPGRADE

A. Remove existing equipment in tank interior wet.
B. Install cathodic clips and pressure fitting for new submerged cp system.
C. Install new submerged cp system and rectifier. Contractor to supply material and installation submittal.
D. Corrpro is the approved cathodic protection equipment supplier.
E. Contractor shall complete all welding work prior to any surface preparation or coating application.
F. Payment is a separate line item "GROUND STORAGE TANK CATHODIC PROTECTION SYSTEM UPGRADE" which the Owner reserves the right to delete.

## 6.07 ELEVATED LEG TANK CATHODIC PROTECTION SYSTEM UPGRADE

A. Remove existing non-functioning equipment in tank interior wet.
B. Install cathodic clips and pressure fitting for new submerged cp system.
C. Install new submerged cp system and rectifier. Contractor to supply material and installation submittal.
D. Corrpro is the approved cathodic protection equipment supplier.
E. Contractor shall complete all welding work prior to any surface preparation or coating application.
F. Payment is a separate line item "ELEVATED LEG TANK CATHODIC PROTECTION SYSTEM UPGRADE" which the Owner reserves the right to delete.

## 6.08 ELEVATED LEG TANK WET INTERIOR ACCESS LADDER

A. Contractor to replace existing broken interior wet access ladder with a new steel ladder complying with OSHA standards.
B. Ladder shall have siderails not less than 2 inches x 3/8 inch, with a spacing between siderails of not less than 16 inches and rungs not less than 3/4-inch round (non-slip) or square, spaced 12 inches apart on centers.
C. Ladder shall extend the full height of the tank interior.
D. Contractor shall provide a submittal drawing stamped by a structural engineer licensed in the state of Illinois.
E. Contractor shall complete all welding work prior to any surface preparation or coating application.
F. Payment is a separate line item for "ELEVATED LEG TANK WET INTERIOR ACCESS LADDER" which Owner reserves the right to delete.

## 6.09 ELEVATED LEG TANK ROOF CORRAL

A. Provide a circular roof handrail to encompass all centrally located roof appurtenances.
B. Install a 42-inch-high railing, 20 feet in diameter and shall include a top rail, intermediate rail, and toe rail on the tank roof. (See Figure 5-5 and 5-6)
C. Contractor shall relocate the Aviation light to new roof handrail.
D. Contractor shall relocate antenna mounts and antenna to new roof handrail.
E. Contractor shall complete all welding work prior to any surface preparation or coating application.

F. Payment is a separate line item "ELEVATED LEG TANK ROOF CORRAL" which the Owner reserves the right to delete.

## 6.10 ELEVATED LEG TANK RAISE CATWALK HANDRAIL

A. Contractor shall furnish material and raise the existing catwalk handrail from its current height to 42 inches accordance with OSHA, AWWA and NFPA code requirements.
B. Contractor shall furnish and install an intermediate handrail per OSHA, AWWA code requirements.
C. Contractor shall use 2.5-inch x 2.5-inch x ¼ inch angle iron for vertical posts, supports for new top rail and intermediate rail on balcony.
D. Contractor shall provide a submittal drawing stamped by a structural engineer licensed in the state of Illinois.
E. Contractor shall complete all welding work prior to any surface preparation or coating application.
F. Payment is a separate line item for "ELEVATED LEG TANK RAISE CATWALK HANDRAIL" which Owner reserves the right to delete.

## 6.11 ELEVATED LEG TANK INTERIOR STIFFENER RING REPAIR

A. Contractor shall furnish material and labor to repair the damaged section of the interior stiffener ring.
B. Contractor shall furnish and install new stiffener ring section to match the existing stiffener ring in kind.
C. Contractor shall field verify any necessary measurements and dimensions.
D. Contractor shall complete all welding work prior to any surface preparation or coating application.
E. Payment is a separate line item for "ELEVATED LEG TANK INTERIOR STIFFENER RING REPAIR" which Owner reserves the right to delete.

## 6.12 TANK INTERIOR ACCESS DOOR

A. If the Contractor elects to access the ground storage tank interior by cutting an access door into the sidewall of the tank the Contractor shall submit the following for review and approval by the Engineer prior to any work commencing:
    1. Tank plan drawing showing proposed location of tank opening.
    2. Tank profile drawing showing proposed opening configuration prepared by a structural engineer licensed in the State of Illinois who has designed at least five (5) tank access openings in the past three (3) years.
    3. Specifications detailing type of reinforcing, cutting methods, welding procedures, weld x-ray verification procedures, prepared by a structural engineer licensed in the State of Illinois who has specified five (5) projects of the same type in the past three (3) years.
B. Payment is incidental to the contract.

# PART 7 – INSPECTION, TESTING & RECORD KEEPING

## 7.01 INSPECTION, TESTING & RECORD KEEPING

A. The Contractor shall schedule and coordinate his work with the Engineer to allow for expeditious inspection by the Owner or their designated representative, including the use of ladders, scaffolds, lighting, and lifts to provide regular access for inspections.
B. All surfaces ready to receive a coating must be approved by the Engineer before the application of the next succeeding specified coat. The Contractor may, at the direction of the Engineer be required to remove and/or recoat all such work at no additional cost to the Owner.

C. Wet film thickness readings shall be made by the painting Contractor at least once every thirty (30) minutes to make certain that proper film thickness is being achieved. More frequent checks may be required by the Engineer at his direction.
D. The Owner reserves the right to perform low voltage holiday tests on the exterior and interior coatings.
E. The Contractor shall record temperature, humidity, and dew point into a log including date and time reading obtained. The records shall be entered into a Windows compatible file such as Excel and a hard copy submitted with monthly pay requests for those months when coatings are applied. A complete coating summary report for the project is to be furnished to the Engineer at the end of the project, or in the interim, if requested.
F. Paint films showing sags, checks, blisters, teardrops, curtains, fisheyes, or fat edges will not be accepted. Films exhibiting any of these defects shall be entirely removed and the surface recoated at no additional cost to the Owner.

## PART 8 – SITE CLEAN-UP & RESTORATIONS

### 8.01 SITE CLEAN-UP

A. The Contractor shall maintain the construction site(s) in a neat and orderly manner throughout the duration of the project. Any issues brought to the attention to the Contractor shall be addressed immediately.

### 8.02 SITE RESTORATIONS

A. The Contractor shall restore the work site(s) to the original site condition.
B. The Contractor is to report any damaged ground at the construction sites in writing prior to mobilization of equipment, otherwise all repairs to the damaged ground will be the responsibility of the Contractor.
C. Refill all holes, ruts etc. and level area around the construction sites to the original grade.
D. Fill material to be clean soil, no gravel, rocks, or construction debris is to be used as fill material without the Owner's consent.
E. Bring soil to a friable condition by disking, harrowing, or otherwise loosening and mixing to a depth of 3 in. – 4 in. Thoroughly break all lumps and clods.
F. Rake areas to be seeded. Sow seed at a minimum rate of 220 lbs./acre. Use seed intended for the climate.
G. Work to be completed to the Owner's satisfaction.
H. Any imported topsoil shall meet IDOT standard specifications for road and bridge construction section 211 and 1081.05(a).
I. Payment is incidental to the contract.

## PART 9 – DISINFECTION

### 9.01 DISINFECTION

A. The Contractor shall disinfect the ground storage tank and elevated leg tank interiors following the completion of the work in accordance C652 Chlorination Method No.2 or 3.
B. Furnish the material and labor necessary to disinfect the structures in the required manner. Promptly repair any defects in the work that may appear.
C. The Contractor shall hire a third-party that is licensed and certified in the state of Illinois to conduct the field sampling and laboratory analysis. All costs associated with the third-party sampling and analysis are the responsibility of the Contractor.

D. Do not allow water to enter the distribution system until the structure is proven chemically and bacteriologically safe.
E. Water vented to waste may not contain any substances in concentrations that can adversely affect the natural environment. Water discharged to the surface shall not contain any measurable total residual chlorine.
F. The Contractor will be responsible to pay any and all additional expenses if it is necessary to repeat the testing and disinfection procedure as a result of defective work or defective testing.
G. A minimum of seven (7) days prior to disinfection the Contractor shall submit in writing for approval the disinfection method to be performed including:
    1. Schedule of when the samples will be taken
    2. Where the samples will be taken from
    3. Contact information for the third-party that will be collecting and analyzing the samples. If Method No.3 is selected the Contractor shall include in their submittal the calculations of the weight of disinfectant to be added.
H. Payment is incidental to the contract.

# Project Exhibits

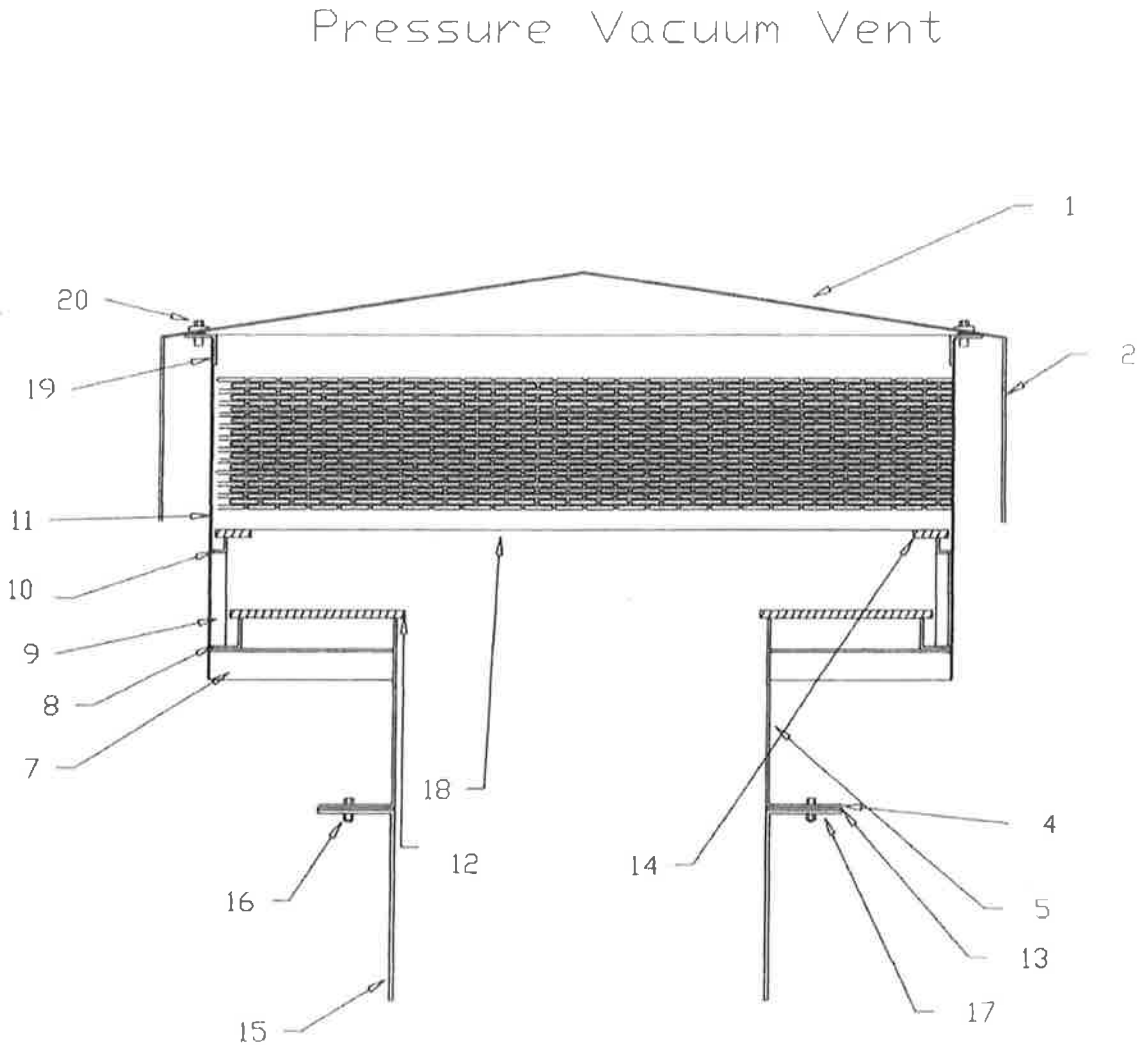



**FIGURE 5–1**

**Material Specification for 24" Vent**

1. 1/8" x 54 3/4" plate coned to 1" in 12" min.
2. 1/8" x 12" plate rolled to 54 3/8" I.D.
4. 24" I.D. x 34" O.D. x 3/16" plate, Bolt circle (8) 7/16" dia. Holes @ 15" rad.
5. 12" x 3/16" plate rolled to 24" I.D.
7. (6) 2" x 2" x 3/16" angle 11 7/8" long
8. 2" x 2" x 3/16" angle rolled leg out to 48" O.D.
9. (6) 1" x 1" x 6" angle
10. 1" x 1" x 3/16" angle rolled leg out to 48" O.D.
11. 1/8" x 22" plate with integrated bird screen rolled to 48" I.D.
12. Linear high-density poly-ethylene vacuum pallet 45 1/2" O.D. x 23" I.D. 1/2" tk.
13. 1/8" red rubber gasket 24" I.D. 34" O.D.
14. Linear high-density poly-ethylene pressure pallet 47 1/2" O.D. 43" I.D. 1/2" tk.
15. 1/4" x 12" steel plate rolled to 24" I.D.
16. 3/8" x 1" polypropylene bolt and nut
17. 1/4" steel plate 24 1/2" I.D. x 34" O.D.
18. 16 x 16 x .018 316 polypropylene screen 47 1/2" O.D.
19. 2" x 2" x 3/16" angle rolled leg out to 47 5/8" I.D.
20. 3/8" x 1 1/4" polypropylene bolt and 3/8" wedge washer

***All material is 3003 or 5052 aluminum unless noted otherwise**
***All screen and fastener material are to be made of polypropylene**
**All dimensions +/- 1/8" in tolerance**

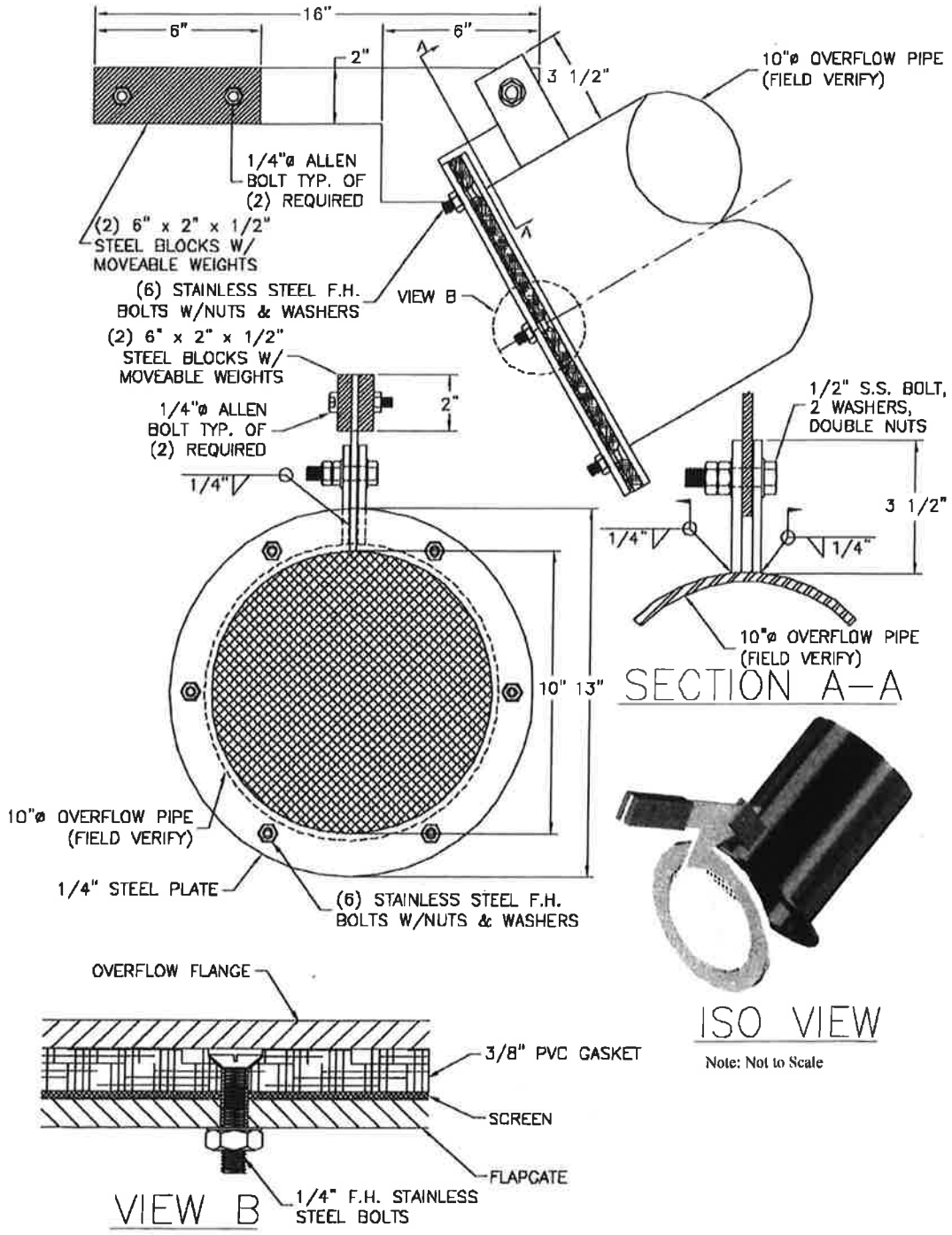

16"
6"
6"
2"
3 1/2"
10"ø OVERFLOW PIPE
(FIELD VERIFY)
1/4"ø ALLEN
BOLT TYP. OF
(2) REQUIRED
(2) 6" x 2" x 1/2"
STEEL BLOCKS W/
MOVEABLE WEIGHTS
(6) STAINLESS STEEL F.H.
BOLTS W/NUTS & WASHERS
VIEW B
(2) 6" x 2" x 1/2"
STEEL BLOCKS W/
MOVEABLE WEIGHTS
1/4"ø ALLEN
BOLT TYP. OF
(2) REQUIRED
2"
1/4"
1/2" S.S. BOLT,
2 WASHERS,
DOUBLE NUTS
3 1/2"
1/4"
1/4"
10"ø OVERFLOW PIPE
(FIELD VERIFY)
SECTION A-A
10" 13"
10"ø OVERFLOW PIPE
(FIELD VERIFY)
1/4" STEEL PLATE
(6) STAINLESS STEEL F.H.
BOLTS W/NUTS & WASHERS
ISO VIEW
Note: Not to Scale
OVERFLOW FLANGE
3/8" PVC GASKET
SCREEN
FLAPGATE
1/4" F.H. STAINLESS
STEEL BOLTS
VIEW B

**FIGURE 5–2**

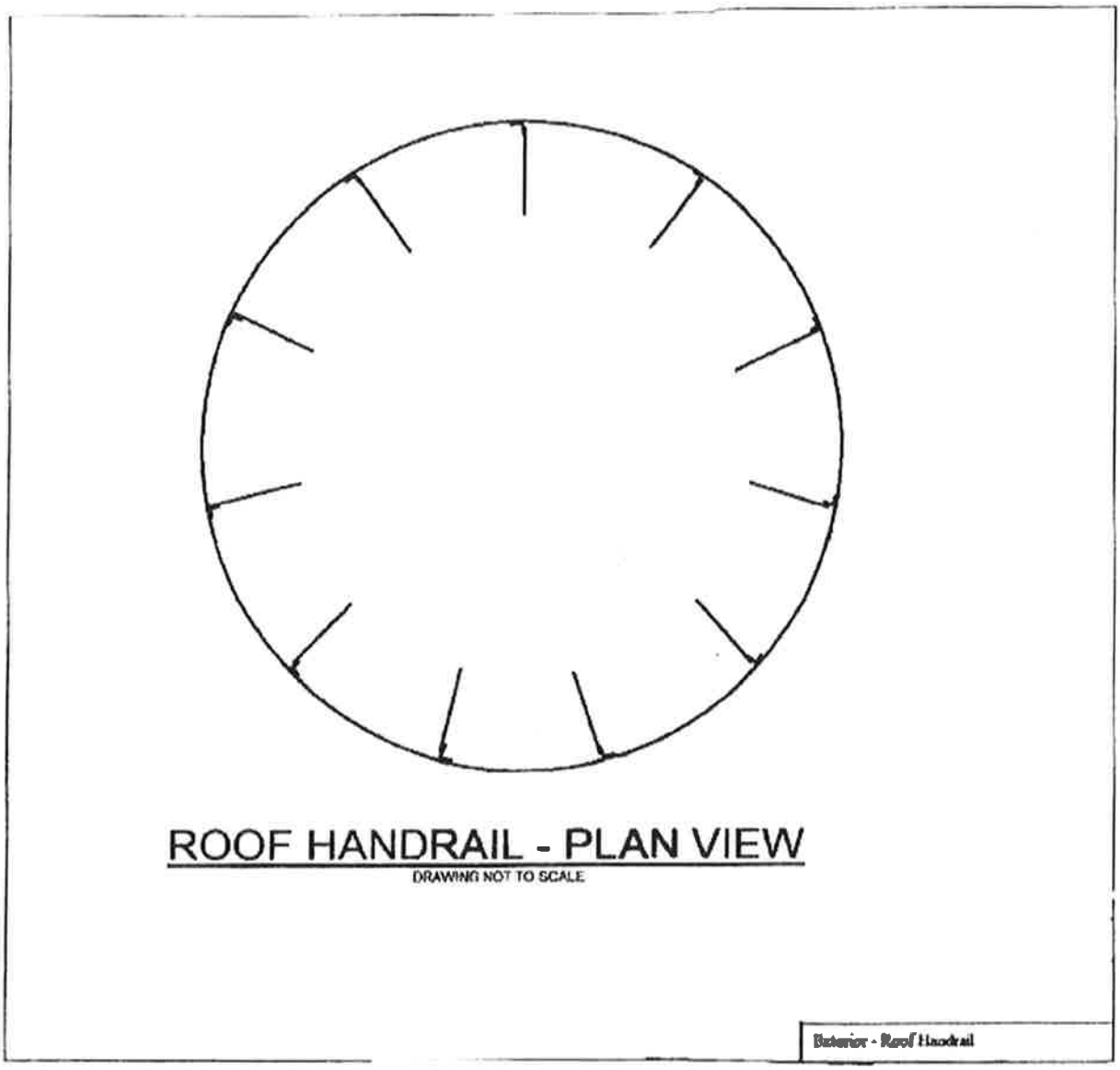

ROOF HANDRAIL - PLAN VIEW
DRAWING NOT TO SCALE
Exterior - Roof Handrail

FIGURE 5–5

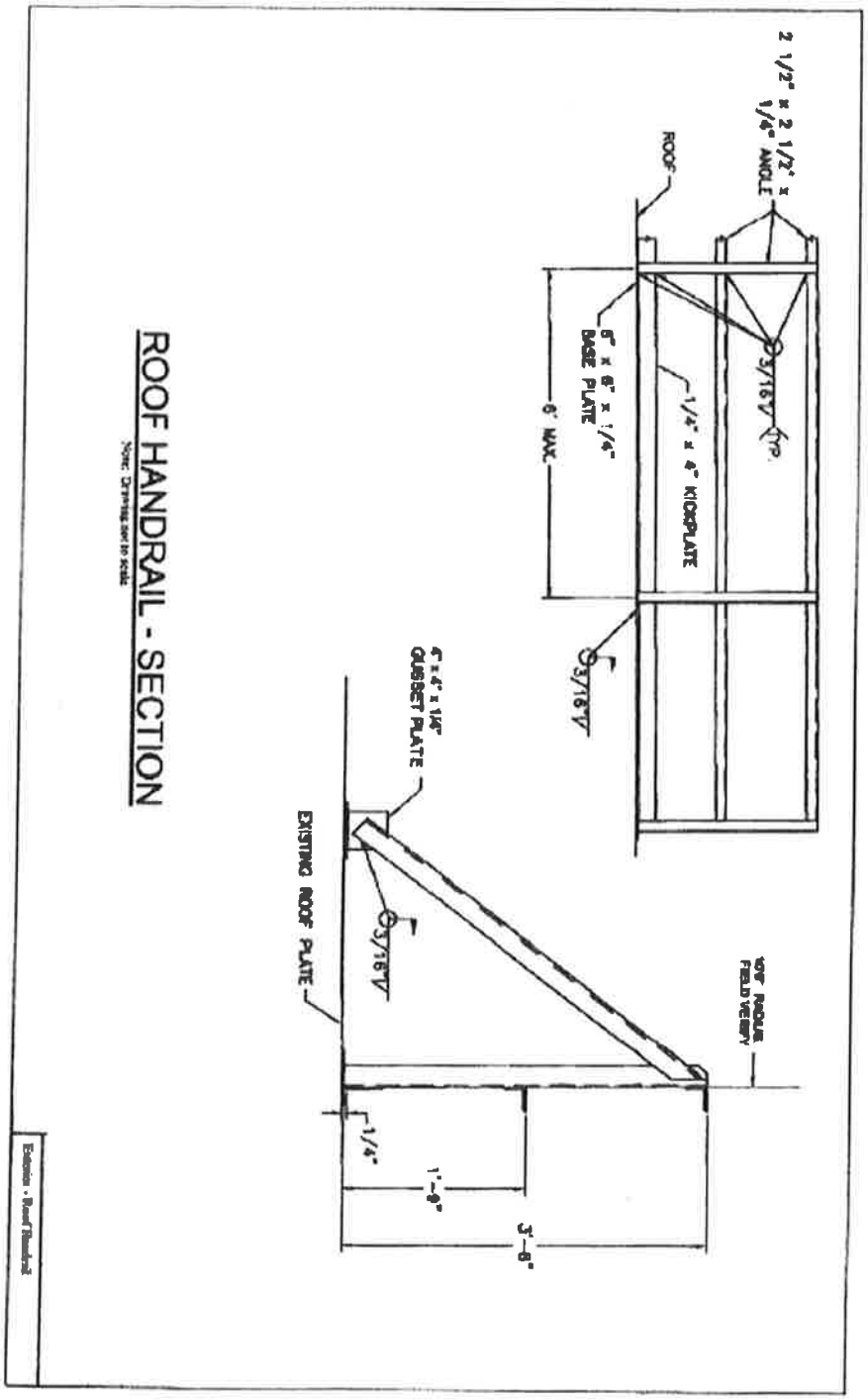
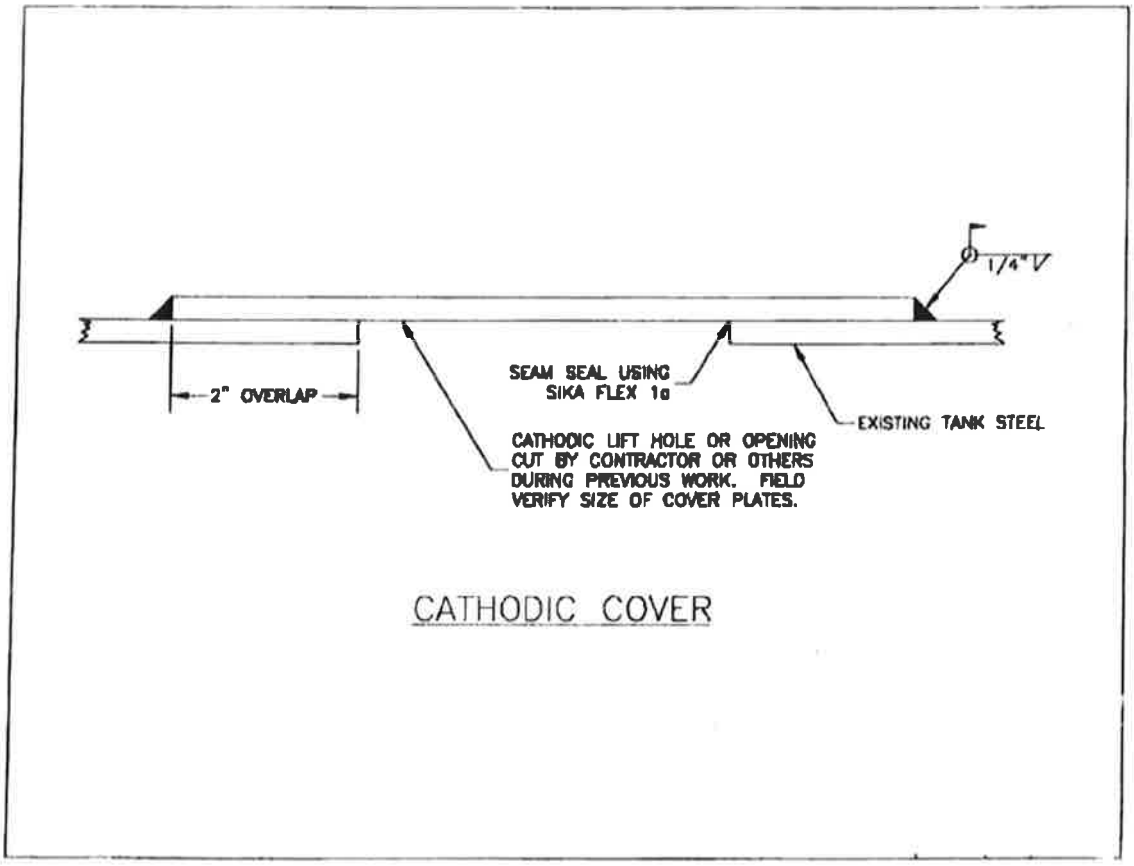

ROOF HANDRAIL - SECTION
2 1/2" x 2 1/2" x 1/4" ANGLE
ROOF
6" x 6" x 1/4" BASE PLATE
6" MAX.
3/16"V TYP.
1/4" x 4" KICKPLATE
3/16"V
6" x 6" x 1/4" GUSSET PLATE
EXISTING ROOF PLATE
3/16"V
VIF FIELD VERIFY
1/4"
1'-9"
3'-6"

FIGURE 5-6

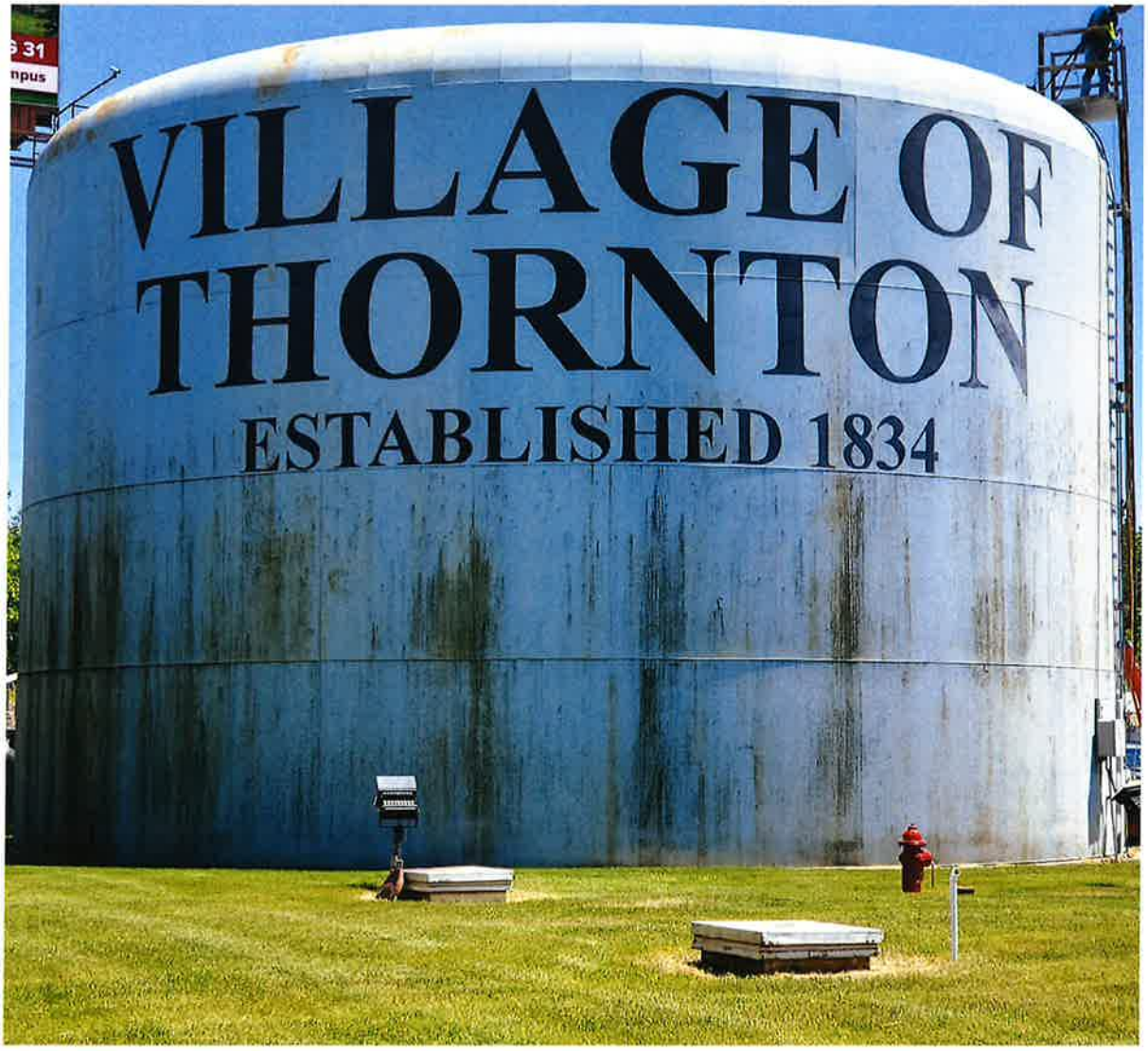

1/4"V
2" OVERLAP
SEAM SEAL USING
SIKA FLEX 1a
EXISTING TANK STEEL
CATHODIC LIFT HOLE OR OPENING
CUT BY CONTRACTOR OR OTHERS
DURING PREVIOUS WORK. FIELD
VERIFY SIZE OF COVER PLATES.
CATHODIC COVER

**DRAWING 5-8**

22-R0568.01
Village of Thornton
IEPA # L17-1359

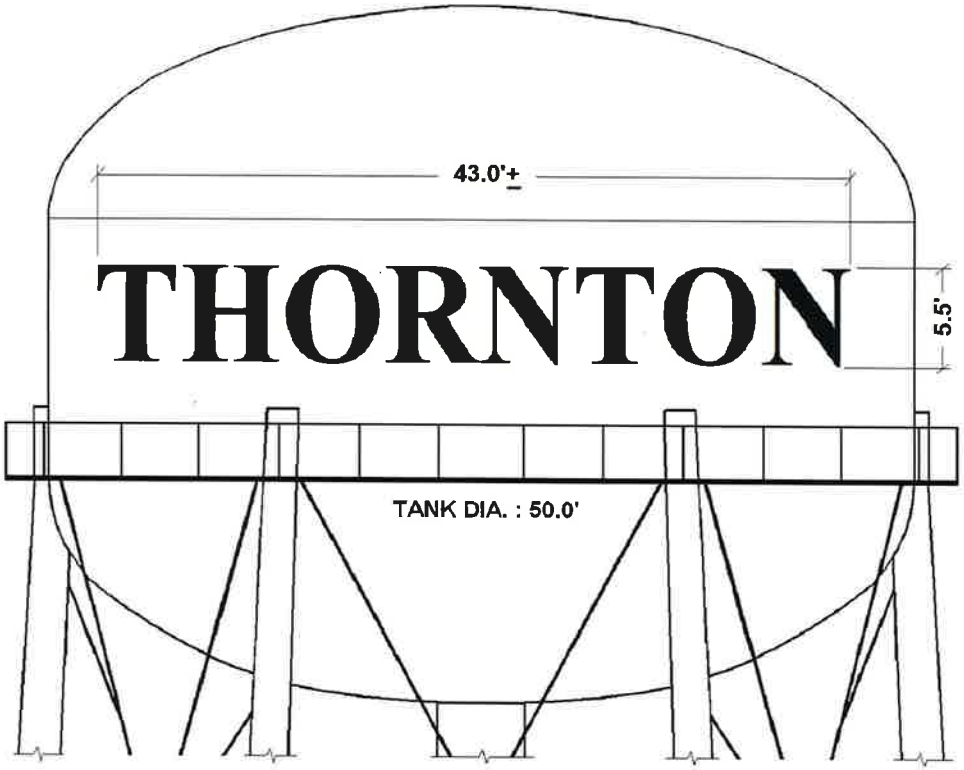
# Project Sites

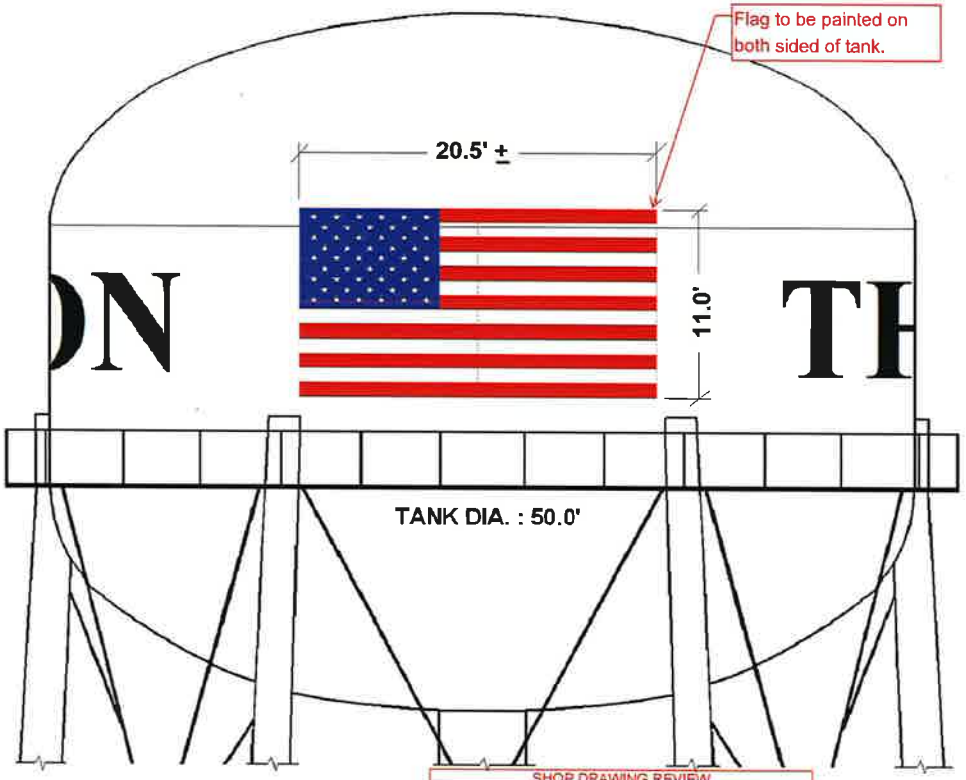
**22-R0568.01**
**Village of Thornton**
**IEPA # L17-1359**




## Ground Storage Tank Logo Example


## Elevated Leg Tank Logo Example




**Village of Thornton IL**
**400,000 gal ELEVATED TANK PAINTING**
**ARTWORK AND SIZE MOCKUP**

COLORS ARE FOR DISPLAY PURPOSES ONLY. MAY NOT REPRESENT FINAL COLORS

**Notice:**
Colors shown are close approximations. Printer and media variations may distort colors from actual paint colors slightly. Renderings are approximate and are provided for a visual aid. Field verify tank shell height before installing patterns.

SHOP DRAWING REVIEW

This review is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications nor departures therefrom. Contractor remains solely responsible for the quantities and dimensions, for selecting fabrication processes, techniques of assembly, connection to related components, and for performing his work in a safe manner.

- ☐ No Exceptions Taken
- ☒ Comments As Noted
- ☐ Revise & Resubmit
- ☐ Rejected-See Remarks

Robinson Engineering, LTD
By GAK
Date 3/6/2024
Project No. 22-R0568.04

American Flag to be painted on both sides of tank.

# PRODUCT INFORMATION

Protective & Marine Coatings

Certified to NSF/ANSI/CAN 61

Meeting Health Effects Requirements of NSF/ANSI/CAN 600

# COROTHANE® I GALVAPAC 1K ZINC PRIMER

**B65G11** GRAY
**B65RW11** RED

Revised: July 31, 2024

## PRODUCT INFORMATION

5.14

### PRODUCT DESCRIPTION

**COROTHANE I GALVAPAC 1K ZINC PRIMER** is a moisture curing urethane zinc-rich primer. Designed for low temperature application to steel surfaces.

- Low temperature application - down to 20°F (-7°C)
- NSF approved to Standard 61/600 for potable water
- Abrasion and chemical resistant
- Easy to apply and recoat
- Usable for immersion service with recommended topcoated
- Resistant to mudcracking
- Meets Class B requirements for Slip Coefficient and Creep Resistance, .54
- Enhanced coating strength and edge protection with micaceous iron oxide addition

### PRODUCT CHARACTERISTICS

**Finish:** Flat
**Color:** Gray and Red
**Volume Solids:** 67% ± 2%
**Weight Solids:** 91.7% ± 2%
**VOC (calculated):** Unreduced: <300 g/L; 2.5 lb/gal
Reduced 9% with R7K216: <340 g/L; 2.8 lb/gal
**Zinc Content in Dry Film:** 85% minimum by weight

**Recommended Spreading Rate per coat:**

| | Standard Min. | Standard Max. | AWWA Min. | AWWA Max. |
|---|---|---|---|---|
| **Wet mils** (microns) | **4.5** 112 | **6.8** 170 | **3.0** 75 | **6.0** 150 |
| **Dry mils** (microns) | **3.0** 75 | **4.0** 100 | **2.0** 50 | **4.0*** 100* |
| **~Coverage sq ft/gal** ($m^2$/L) | **268** 6.5 | **358** 8.8 | **268** 6.5 | **536** 13.1 |

Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil/25 micron dft: **1072** (26.2)

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

*See Recommended Systems on reverse side

**Drying Schedule @ 5.0 mils wet (125 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C 50% RH | @ 100°F/38°C |
|---|---|---|---|
| **To touch:** | 45 minutes | 20 minutes | 10 minutes |
| **To recoat:** | | | |
| minimum. atmospheric: | 8 hours | 4-6 hours | 1 hour |
| minimum. immersion: | 24 hours | 12 hours | 10 hours |
| maximum: | 12 months | 12 months | 12 months |
| **To cure:** | | | |
| atmospheric: | 5 days | 3 days | 1 day |
| immersion: | 14 days | 7 days | 5 days |

*If maximum recoat time is exceeded, abrade surface before recoating.*
*Drying time is temperature, humidity, and film thickness dependent.*
For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.

**Shelf Life:** 12 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C).
**Flash Point:** 94°F (34°C), PMCC
**Reducer*:** Reducer No. 15 (R7K15), Polane Retarder (R7K216), or
*VOC exempt:* Reducer No. 111 (R7K111)
**Clean Up**:** VOC Restricted areas (≤25 g/L, or ≤3%): Acetone or MEK

*Reducer No. 111 (R7K111) and Polane Retarder (R7K216) cannot be used for NSF applications. Reducer No. 15 (R7K15) is potable water approved up to 10% by volume.

**Other VOC areas (>25 g/L, or >3%): use Acetone, MEK, R7K15, R7K216 or R7K111. Choose a solvent that is compliant in your area. Confirm compliance with state and local air quality rules before use.

### RECOMMENDED USES

- **Immersion Service - potable water**: Meets NSF Standard 61/600 for use in potable water storage.
  - 250,000 gallon untopcoated
  - 20,000 gallon minimum topcoated
- Meets requirements of SSPC Paint Spec No. 40, Type I and Type II, for zinc rich moisture cure urethane primer
- Meets requirements of SSPC Paint 20, Level 1
- As a primer in a urethane coating system for bridges, tanks, chemical, and marine structures
- Ideal for priming water assisted abrasive blasted surfaces where flash rusting or blooming limits the use of conventional zinc rich coatings
- Acceptable for use with cathodic protection with select topcoats
- Conforms to AWWA D102 Inside Coating System #3 (ICS-3), Inside Coating System #5 (ICS-5), Inside Coating System #6 (ICS-6), Outside Coating System #2 (OCS-2), Outside Coating System #3 (OCS-3), Outside Coating System #4 (OCS-4), and Outside Coating System #6 (OCS-6)
- A component of INFINITANK

### PERFORMANCE CHARACTERISTICS

**Substrate***: Steel
**Surface Preparation***: SSPC-SP5
**System Tested***:
1 ct. Corothane I GalvaPac 1K Zinc Primer @ 3.5 mils (88 microns) dft
1 ct. Corothane I MIO-Aluminum @ 3.0 mils (75 microns) dft
*unless otherwise noted below

| Test Name | Test Method | Results |
|---|---|---|
| **Abrasion Resistance** | ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load | 45 mg loss |
| **Adhesion (GalvaPac only)** | ASTM D4541; ASTM D3359 | 1943 psi (ASTM D4541); 5B (ASTM D3359) |
| **Corrosion Weathering** | ASTM D5894, 15 cycles, 5000 hours | Rating 10 per ASTM D610 Rusting (field); Rating 10 per ASTM D714 Blistering |
| **Direct Impact Resistance (Galva-Pac only)** | ASTM G14 | 160 in. lb. |
| **Dry Heat Resistance** | ASTM D2485 | 300°F (149°C) continuous, 350°F (177°C) intermittent |
| **Flexibility** | ASTM D522, 180° bend, 1/4" mandrel | Passes |
| **Immersion (Galvapac/2 cts Macropoxy 646 NSF)** | 5 year potable water | Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering |
| **Moisture Condensation Resistance (GalvaPac only)** | ASTM D4585, 100°F (38°C), 4000 hours | Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering |
| **Pencil Hardness** | ASTM D3363 | 2H (zinc only) |
| **Salt Fog Resistance (GalvaPac only)** | ASTM B117, 5000 hours | Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering |
| **Slip Coefficient* (GalvaPac only)** | AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts | Class B, .54, tension and creep <.005" |
| **Wet Heat Resistance** | Non-immersion | 190°F (88°C) |

*Consult your Sherwin-Williams Representative regarding this product's Slip Certification document



continued on back

Protective & Marine Coatings

Certified to NSF/ANSI/CAN 61

Meeting Health Effects Requirements of NSF/ANSI/CAN 600

# COROTHANE® I GALVAPAC 1K ZINC PRIMER

**B65G11** GRAY
**B65RW11** RED

Revised: July 31, 2024

## PRODUCT INFORMATION

5.14

## RECOMMENDED SYSTEMS

| | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|
| **Immersion Service (Potable Water), Steel:** | | |
| *AWWA D102: Inside Coating System No. 5 | | |
| minimum AWWA | 10.0 | (250) |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 2.0 | (50) |
| 2 ct. SherPlate 600 | 4.0 | (100) |
| **Immersion Services (Potable Water), Steel:** | | |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 3.0-4.0 | (75-100) |
| 2 cts. SherPlate 600 | 3.0-18.0 | (75-450) |
| **Immersion Services (Potable Water), Ductile Iron Pipe:** | | |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 3.0-4.0 | (75-100) |
| 2 cts. SherPlate 600 | 3.0-18.0 | (75-450) |
| **Immersion Service (Non-Potable Water), Steel:** | | |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 3.0-4.0 | (75-100) |
| 2 cts. Corothane I Coal Tar | 5.0-7.0 | (125-175) |
| **Atmospheric Service,Steel:** | | |
| *AWWA D102 Outside Coating System No.2 | | |
| minimum AWWA | 7.5 | (188) |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 3.0 | (75) |
| 1 ct. Corothane Ironox B | 3.0 | (75) |
| 1 ct. Corothane I HS | 1.5 | (40) |
| **Atmospheric Service,Steel:** | | |
| *AWWA D102: Outside Coating System No. 6 | | |
| minimum AWWA | 6.0 | (150) |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 2.0 | (50) |
| 1 ct. SherPlate 600 | 2.0 | (50) |
| 1 ct Acrolon 218HS | 2.0 | (50) |
| **Atmospheric Service,Steel:** | | |
| 1 ct. Corothane I GalvaPac 1K Zinc Primer | 3.0-4.0 | (75-100) |
| 1 ct. Sher-Loxane 800 | 4.0-6.0 | (100-150) |

The systems listed above are representative of the product's use, other systems may be appropriate.

## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel
- Atmospheric: SSPC-SP6, 2 mil (50 micron) profile preferred
- Immersion, with recommended topcoat: SSPC-SP10/NACE 2, 2 mil profile

Ductile Iron Pipe:
- Atmospheric: NAPF 500-03-03 Power Tool Cleaning
- Buried & Immersion: NAPF 500-03-04 Abrasive Blast Cleaning
- Cast Ductile Iron Fittings: NAPF 500-03-05 Abrasive Blast Cleaning

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## TINTING

Do not tint.

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | |
| air and surface | 20°F (-7°C) minimum, 120°F (49°C) maximum |
| material: | 45°F (7°C) minimum |
| | Do not apply over surface ice |
| Relative humidity: | 30% minimum, 99% maximum |

Refer to product Application Bulletin for detailed application information.

## ORDERING INFORMATION

| | |
|---|---|
| Packaging: | 3 gallon (11.3L) container |
| Weight: | 28.5 ± 0.2 lb/gal ; 3.42 Kg/L |

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

Protective & Marine Coatings

Certified to NSF/ANSI/CAN 61

Meeting Health Effects Requirements of NSF/ANSI/CAN 600

# COROTHANE® I GALVAPAC 1K ZINC PRIMER

**B65G11** GRAY
**B65RW11** RED

Revised: July 31, 2024

## APPLICATION BULLETIN

5.14

## SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Iron & Steel, Immersion Service:**
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Iron & Steel, Atmospheric Service:**
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Ductile Iron Pipe, Atmospheric Service:**
Minimum surface preparation is Power Tool Clean per NAPF 500-03-03. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

**Ductile Iron Pipe, Buried and Immersion Service:**
Minimum surface preparation is Abrasive Blast Cleaning per NAPF 500-03-04. Ductile iron pipe external surfaces, in some cases, can be damaged by excessive abrasive blast cleaning beyond this standard. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

**Ductile Iron Fittings:**
Minimum surface preparation is Abrasive Blast Cleaning of Cast Ductile Iron Fittings per NAPF 500-03-05. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | |
| air and surface | 20°F (-7°C) minimum, 120°F (49°C) maximum |
| material: | 45°F (7°C) minimum |
| | Do not apply over surface ice |
| Relative humidity: | 30% minimum, 99% maximum |

## APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

**Reducer*** ..... Reducer No. 15 (R7K15), Polane Retarder (R7K216), or Reducer No. 111 (R7K111)
**Clean Up**** ..... VOC Restricted areas (≤25 g/L, or ≤3%): Acetone or MEK

*Reducer No. 111 (R7K111) and Polane Retarder (R7K216) *cannot* be used for NSF applications. Reducer No. 111 (R7K111) *can* be used for VOC exempt applications. Reducer No. 15 (R7K15) is potable water approved up to 10% by volume.

**Other VOC areas (>25 g/L, or >3%): use Acetone, MEK, R7K15, R7K216 or R7K111. Choose a solvent that is compliant in your area. Confirm compliance with state and local air quality rules before use.

**Airless Spray**

| | |
|---|---|
| Pump | 30:1 |
| Pressure | 2500 - 3000 psi |
| Hose | 1/4" ID |
| Tip | .017" - .019" |
| Filter | 60 mesh |
| Reduction | see footnote below*** |

**Conventional Spray**

| Unit | Graco | Binks |
|---|---|---|
| Gun | 900 | 95 |
| Fluid Nozzle | 070 | 66/65 |
| Air Nozzle | 947 | 66PR |
| Atomization Pressure | 60-70 psi | 60-70 psi |
| Fluid Pressure | 15-20 psi | 15-20 psi |
| Reduction | see footnote below*** | |

**Brush**

| | |
|---|---|
| Brush | Natural bristle |
| Reduction | see footnote below*** |

**Roller**

| | |
|---|---|
| Cover | 3/8" natural or synthetic with solvent resistant core |
| Reduction | see footnote below*** |

***As needed up to 10% by volume with R7K215 or R7K111, and up to 9% by volume with R7K216

If specific application equipment is not listed above, equivalent equipment may be substituted.



continued on back

Protective & Marine Coatings

Certified to NSF/ANSI/CAN 61

Meeting Health Effects Requirements of NSF/ANSI/CAN 600

# COROTHANE® I GALVAPAC 1K ZINC PRIMER

**B65G11** GRAY
**B65RW11** RED

Revised: July 31, 2024

## APPLICATION BULLETIN

5.14

## APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix material thoroughly prior to use with a low speed power agitator until completely uniform. After mixing, pour through a 30-60 mesh filter.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

| | Standard Min. | Standard Max. | AWWA Min. | AWWA Max. |
|---|---|---|---|---|
| **Wet mils** (microns) | **4.5** 112 | **6.8** 170 | **3.0** 75 | **6.0** 150 |
| **Dry mils** (microns) | **3.0** 75 | **4.0** 100 | **2.0** 50 | **4.0*** 100* |
| **~Coverage sq ft/gal** ($m^2$/L) | **268** 6.5 | **358** 8.8 | **268** 6.5 | **536** 13.1 |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil/25 micron dft | **1072** (26.2) | | | |

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

*See Recommended Systems on reverse side

**Drying Schedule @ 5.0 mils wet (125 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C *50% RH* | @ 100°F/38°C |
|---|---|---|---|
| **To touch:** | 45 minutes | 20 minutes | 10 minutes |
| **To recoat:** | | | |
| minimum. atmospheric: | 8 hours | 4-6 hours | 1 hour |
| minimum. immersion: | 24 hours | 12 hours | 10 hours |
| maximum: | 12 months | 12 months | 12 months |
| **To cure:** | | | |
| atmospheric: | 5 days | 3 days | 1 day |
| immersion: | 14 days | 7 days | 5 days |

*If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.*

For potable water service, consult www.nsf.org for details on recoat and dry times at indicated temperature. Sterilize and rinse per AWWA C652.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

## CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Acetone, MEK, Reducer No. 15 (R7K15), Reducer No. 111 (R7K111), or Polane Retarder (R7K216). Clean tools immediately after use with Acetone, MEK, Reducer No. 15 (R7K15), Reducer No. 111 (R7K111), or Polane Retarder (R7K216). Follow manufacturer's safety recommendations when using any solvent.

## DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

## PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Acetone, MEK, Reducer No. 15 (R7K15), Reducer No. 111 (R7K111), or Polane Retarder (R7K216).

Pour a small amount of Reducer No. 15 (R7K15), Reducer No. 111 (R7K111), or Polane Retarder (R7K216) over the top of the paint in the can to prevent skinning or gelling.

Place a temporary cover over the pail to keep excessive moisture, condensation, fog, or rain from contaminating the coating.

It is recommended that partially used cans not be sealed/closed for use at a later date.

An intermediate coat is recommended to provide a uniform appearance of the topcoat.

Not for use with cathodic protection except as indicated under the recommended systems.

Corothane I KA Accelerator is acceptable for use (except NSF applications). See data page 5.98 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

# SHERPLATE PW EPOXY
## WITH OPTI-CHECK OAP TECHNOLOGY

Protective & Marine Coatings

Certified to NSF/ANSI/CAN 61 Meets Health Effects Requirements of NSF/ANSI/CAN 600

| | | |
|---|---|---|
| PART A | B62W260 | WHITE |
| PART A | B62L260 | BLUE |
| PART B | B62V260 | HARDENER |
| PART B | B62V265 | OAP HARDENER |

Revised: April 5, 2024

# PRODUCT INFORMATION

4.82

## PRODUCT DESCRIPTION

**SherPlate PW Epoxy** is an edge retentive, ultra high solids epoxy amine coating engineered for immersion service in potable water pipes and storage tanks. The rapid return to service and high build, edge retentive properties of this coating provide superior protection.

- One or two coat protection
- Fast return to service
- Low odor
- Dry to walk-on within four hours
- Designed for plural-component application equipment
- Edge retention of greater than 70% can be obtained utilizing B62V260 hardener only
- Potable water epoxy lining certified through NSF in accordance with NSF/ANSI/Can Std.61 and the extractions requirements of NSF/ANSI/CAN 600 for potable water tanks greater than 100 gallons and Pipe ID greater than or equal to 6 inches

## PRODUCT CHARACTERISTICS

| | |
|---|---|
| **Finish:** | Gloss |
| **Color:** | White-Base and Blue (OAP Hardener can be used with either color) |
| **Volume Solids:** | 100%, mixed |
| **Weight Solids:** | 100%, mixed |
| **VOC (EPA method #24):** | <85 g/L; 0.71 lb/gal, mixed |
| **Mix Ratio:** | 1:1 by volume |

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Tank Lining mils** (microns) | **16.0** (400) | **50.0** (1250) |
| **Pipe Lining mils** (microns) | **16.0** (400) | **50.0** (1250) |
| **~Coverage sq ft/gal** ($m^2$/L) | **100** (2.5) | **32** (0.8) |
| **Theoretical coverage sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1604** (39.4) | |

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

**Drying Schedule @ 20.0-50.0 mils wet (500-1250 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C *50% RH* | @ 100°F/38°C |
|---|---|---|---|
| **To touch:** | 6 hours | 1 hour | 35 minutes |
| **To handle:** | 8-12 hours | 3 hours | 55 minutes |
| **To recoat:** | | | |
| **minimum:** | 6 hours | 1 hour | 35 minutes |
| **maximum:** | 14 days | 14 days | 14 days |
| **Foot traffic:** | 8-12 hours | 3 hours | 1 hour |
| **To cure:** | 36 hours | 24 hours | 12 hours |

*If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.*

Sterilize and rinse per AWWA C652.

| | |
|---|---|
| **Pot Life:** | 7 minutes |
| **Sweat-in-Time:** | None required |

| | |
|---|---|
| **Shelf Life:** | 24 months<br>Store indoors at 40°F (4.5°C) to 100°F (38°C). |
| **Flash Point:** | 230°F (110°C), PMCC, mixed |
| **Reducer:** | Not recommended |
| **Clean Up:** | MEK (R6K10) or Reducer R7K104 |

## RECOMMENDED USES

For use over prepared steel or masonry surfaces for water including potable water.

- Where rapid return to service and edge protection film build properties are required
- Part B Hardener available with OAP (optically active pigment)
- Meets or exceed the requirements of AWWA C210-15
- Meets or exceeds AWWA D102
- A component of INFINITANK
- Suitable for use in the Mining & Minerals Industry
- Meets MIL-PRF-23236, Type VII, Class 9/18 requirements for single coat application in potable water tanks
- Refer to www.nsf.org website for allowable tank size listing

## PERFORMANCE CHARACTERISTICS

**System Tested:**
1 ct. SherPlate PW Epoxy @ 30.0 mils (750 microns) dft

| Test Name | Test Method | Results |
|---|---|---|
| **Abrasion Resistance** | ASTM D4060 | 22.4 mg loss |
| **Adhesion** | ASTM D4541 | >2,000 psi |
| **Cathodic Disbondment** | ASTM G8 | Passes AWWA C210-15 requirements ; 7.7 mm (average) |
| **Edge Retention** | MIL-PRF-23236C | 80%+ (average) |
| **Elongation** | ASTM D638 | 3.3% |
| **Flexibility** | ASTM D522 | 1/2" (24 hour cure) |
| **Flexural Modulus** | ASTM D790 | 2560 psi |
| **Flexural Strength** | ASTM D790 | 7458 psi |
| **Moisture Condensation Resistance** | ASTM D4585, 2000 hours | Passes |
| **Pencil Hardness** | ASTM D3363 | 3H |
| **Shore D Hardness** | ASTM D2240 | 83 |
| **Water Vapor Permeance** | ASTM D1653, Method B, Condition C | 0.259 ± 0.380 grains/ (hr $ft^2$ in Hg) |

**Immersion (ambient temperature) for the following:**

- Deionized Water*.....No effect
- Fresh Water.....Recommended
- Potable Water.....Recommended
- Salt Water.....Recommended
- Sulfuric Acid @ 1% by wt.*.....No effect
- Sodium Hydroxide @ 1% by wt.*.....No effect
- 1% Solution of Sodium Hypochlorite.....Recommended
- AWWA C210-15 Chemical Solutions.....Recommended

*30 days @ ambient (passes AWWA C210-15)

Epoxy coatings may darken or yellow after application and curing.



continued on back

Protective & Marine Coatings

# SHERPLATE PW EPOXY
## WITH OPTI-CHECK OAP TECHNOLOGY

| | | |
|---|---|---|
| PART A | B62W260 | WHITE |
| PART A | B62L260 | BLUE |
| PART B | B62V260 | HARDENER |
| PART B | B62V265 | OAP HARDENER |

Revised: April 5, 2024

## PRODUCT INFORMATION

4.82

## RECOMMENDED SYSTEMS

| | | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|---|
| **Steel, Immersion (AWWA C210-15):** | | | |
| 1-2 cts. | SherPlate PW Epoxy | 16.0-50.0 | (400-1250) |
| **Steel, Immersion (AWWA D102):** | | | |
| 1 ct. | Optional Primer | * | |
| 1-2 cts. | SherPlate PW Epoxy | 20.0-50.0 | (500-1250) |
| **Steel, Immersion/Vapor Space (AWWA D102):** | | | |
| 1 ct. | Corothane I GalvaPac (optional) | 2.5-4.0 | (63-100) |
| 1 ct. | SherPlate PW Epoxy | 12.0-20.0 | (300-500) |
| **Concrete, Immersion:** | | | |
| 1 ct. | Primer | ** | |
| 1-2 cts. | SherPlate PW Epoxy | 20.0-50.0 | (500-1250) |
| **Steel, Atmospheric:** | | | |
| 1-2 cts. | SherPlate PW Epoxy | 20.0-50.0 | (500-1250) |

***Acceptable Primers for Steel:**
Macropoxy 5500LT Primer
Corothane I Gavapac 1K Zinc Primer
Corothane I Galvapac 2K Zinc Primer
Dura-Plate UHS Primer
Zinc Clad PCP Ultra
Sherplate 600

****Acceptable Primers for Concrete:**
Macropoxy 240
Corobond 100
Corobond HS
Dura-Plate 235
Dura-Plate UHS Primer
Sherplate 600

The systems listed above are representative of the product's use, other systems may be appropriate.

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## DISCLAIMER

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## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel:
- Atmospheric: SSPC-SP6/NACE 3, 2 mil (50 micron) sharp and angular profile [Medium (G) (ISO 8503-2)] or SSPC-SP12/NACE No. 5, WJ-3/SC-2
- Immersion: SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) sharp and angular profile [Medium (G) (ISO 8503-2)] or SSPC-SP12/NACE No. 5, WJ-2/SC-2

Concrete & Masonry:
- Atmospheric: SSPC-SP13/NACE 6, or ICRI 310.2R CSP2-4
- Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 310.2R CSP2-4

**Surface Preparation Standards**

| Condition of Surface | | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## TINTING

Do not tint.

## APPLICATION CONDITIONS

Temperature:
- air and surface: 40°F (4.5°C) minimum, 110°F (43°C) maximum

For application at 35°F (1.7°C) to 40°F (4.5°C), specific guidelines are required:
- Air & Surface temperature conditions must be expected to remain stable or improve for a period of four hours
- Environmental controls (dehumidication, heating, forced-air ventilation) are recommended to maintain acceptable application conditions

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

## ORDERING INFORMATION

Packaging
- Part A: 5 gallon (18.9L) pails and 50 gallon (189L) drums*
- Part B: 5 gallon (18.9L) pails and 50 gallon (189L) drums*

*White (Part A) and Standard Hardener (Part B) only

Cartridge: 300 x 300 mL and 750 x 750 mL

Weight: 11.71 ± 0.3 lb/gal ; 1.4 Kg/L, mixed

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

# SHERPLATE PW EPOXY
## WITH OPTI-CHECK OAP TECHNOLOGY

| | | |
|---|---|---|
| PART A | B62W260 | WHITE |
| PART A | B62L260 | BLUE |
| PART B | B62V260 | HARDENER |
| PART B | B62V265 | OAP HARDENER |

Revised: April 5, 2024

## APPLICATION BULLETIN

4.82

## SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Iron & Steel (atmospheric service)**
Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3 or SSPC-SP12/NACE No. 5. For surfaces prepared by SSPC SP6/NACE 3, first remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). For surfaces prepared by SSPC-SP12/NACE No. 5, all surfaces shall be cleaned in accordance with WJ-3/SC2. Pre-existing profile should be approximately 2 mils (50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Iron & Steel (immersion service)**
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2, or SSPC-SP12/NACE No. 5. For SSPC-SP10/NACE 2, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). For SSPC-SP12/NACE No.5, all surfaces to be coated shall be cleaned in accordance with WJ-2/SC2 standards. Pre-existing profile should be approximately 2 mils (50 microns). Remove all weld spatter. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Concrete and Masonry**
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 2-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required. For surface preparation of Concrete, Immersion Service, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-3.

**Follow the standard methods listed below when applicable:**
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## APPLICATION CONDITIONS

Temperature:
air and surface: 40°F (4.5°C) minimum, 110°F (43°C) maximum

For application at 35°F (1.7°C) to 40°F (4.5°C), specific guidelines are required:
- Air & Surface temperature conditions must be expected to remain stable or improve for a period of four hours
- Environmental controls (dehumidication, heating, forced-air ventilation) are recommended to maintain acceptable application conditions

The material should be 85°F-130°F / 29°C-54°C (vary as needed) at the mixing block for optimal atomization based on tip size and pump pressure..**Do not heat above 140°F (60°C).**

Relative humidity: 85% maximum

## APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

**Reduction** ..... Not recommended
**Clean Up** ..... MEK (R6K10) or R7K104

**Plural Component Equipment:**
Pump ..... WIWA DUOMIX 1:1, Graco Extreme Mix, or Graco XP70
Pressure ..... 4000 psi
Hose ..... 3/8" ID
Tip ..... .021" - .025"
Pump heater setting ..... 110°F-130°F (43°C-54°C)*
Material temperature at gun tip ..... 110°F-130°F (43°C-54°C), vary as needed

**Brush** ..... For stripe coating and repair only
Brush ..... Nylon/Polyester or Natural Bristle

**Roller** ..... For stripe coating and repair only
Cover ..... 3/8" woven with solvent resistant core

*Material should be preheated to 110°F (43°C) prior to spraying.

If specific application equipment is not listed above, equivalent equipment may be substituted.


continued on back

Protective & Marine Coatings

# SHERPLATE PW EPOXY
## WITH OPTI-CHECK OAP TECHNOLOGY

Certified to NSF/ANSI/CAN 61 Meets Health Effects Requirements of NSF/ANSI/CAN 600

| | | |
|---|---|---|
| PART A | B62W260 | WHITE |
| PART A | B62L260 | BLUE |
| PART B | B62V260 | HARDENER |
| PART B | B62V265 | OAP HARDENER |

Revised: April 5, 2024

## APPLICATION BULLETIN

4.82

### APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mixing Instructions: Mix contents of each component thoroughly using low speed power agitation. Make certain no pigment remains on the bottom or the sides of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation.

To ensure that no unmixed material remains on the sides or bottom of the cans after mixing, visually observe the container by pouring the material into a separate container.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Tank Lining mils** (microns) | **16.0** (400) | **50.0** (1250) |
| **Pipe Lining mils** (microns) | **16.0** (400) | **50.0** (1250) |
| **~Coverage sq ft/gal** ($m^2$/L) | **100** (2.5) | **32** (0.8) |
| **Theoretical coverage sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1604** (39.4) | |

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

**Drying Schedule @ 20.0-50.0 mils wet (500-1250 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C *50% RH* | @ 100°F/38°C |
|---|---|---|---|
| **To touch:** | 6 hours | 1 hour | 35 minutes |
| **To handle:** | 8-12 hours | 3 hours | 55 minutes |
| **To recoat:** | | | |
| **minimum:** | 6 hours | 1 hour | 35 minutes |
| **maximum:** | 14 days | 14 days | 14 days |
| **Foot traffic:** | 8-12 hours | 3 hours | 1 hour |
| **To cure:** | 36 hours | 24 hours | 12 hours |

*If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.*

Sterilize and rinse per AWWA C652.

| | |
|---|---|
| **Pot Life:** | 7 minutes |
| **Sweat-in-Time:** | None required |

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

### CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with MEK, R6K10. Clean tools immediately after use with MEK, R6K10. Follow manufacturer's safety recommendations when using any solvent.

### DISCLAIMER

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### PERFORMANCE TIPS

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross-coat spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.
No reduction of material is recommended as this can affect film build, appearance, and adhesion.

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

**Remove and solvent clean tip housing every 20-30 minutes.**

**For Immersion Service:** (if required) Holiday test in accordance with NACE SP0188.

OAP fluorescent pigment can be used as a one or two coat system. When using OAP in a two coat system, use OAP hardener in first coat.

Refer to Product Information sheet for additional performance characteristics and properties.

### SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

### WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

***Protective & Marine Coatings***
PRODUCT DATA SHEET

# MACROPOXY® 646
## FAST CURE EPOXY MASTIC

Revised: May 8, 2024

## PRODUCT DESCRIPTION

**MACROPOXY 646** Fast Cure Epoxy Mastic is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

## INTENDED USES

- Recommended for marine applications, refineries, offshore platforms, fabrication shops, chemical plants, tank exteriors, power plants, water treatment plants, and mining and minerals industry
- Factory ground formulas are available for subsea/immersion service. For a full list of shades please consult Sherwin-Williams

## PRODUCT DATA

**Finish:** Semi-Gloss

**Colors:** Mill White, Black and a wide range of colors available through tinting

**Volume Solids:** 72% ± 2%, mixed, Mill White

**VOC (mixed):** <250 g/L; 2.08 lb/gal

**Mix Ratio:** 1:1 by volume

**Typical Thickness:**

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **7.0** (175) | **13.5** (338) |
| **Dry mils** (microns) | **5.0*** (125) | **10.0** (250) |
| **~Coverage sq ft/gal** ($m^2$/L) | **115** (2.9) | **230** (5.8) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1152** (28.2) | |

*May be applied at 3.0-10.0 mils (75-250 microns) dft as an intermediate in a multicoat system.

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

**Shelf Life:** 36 months, unopened
Store indoors at 40°F (4.5°C) to 110°F (43°C).

**Flash Point:** 91°F (33°C), TCC, mixed

**Reducer/Clean Up**[1]: VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100

**Weight:** 12.9 ± 0.2 lb/gal ; 1.55 Kg/L, mixed, may vary by color

[1]Other areas (<340 g/L): use Reducer #111, Oxsol 100, Reducer #15, Reducer #58, or MEK up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

**Average Drying Times @ 7.0 mils (175 microns) wet:**

| | 35°F (1.7°C) *50% RH* | 77°F (25°C) *50% RH* | 100°F (38°C) *50% RH* |
|---|---|---|---|
| **Touch:** | 4-5 hours | 2 hours | 1.5 hours |
| **Handle:** | 48 hours | 8 hours | 4.5 hours |
| **Recoat:** | | | |
| **minimum:** | 48 hours | 8 hours | 4.5 hours |
| **maximum:** | 1 year | 1 year | 1 year |
| **Cure to service:** | | | |
| **atmospheric:** | 10 days | 7 days | 4 days |
| **immersion:** | 14 days | 7 days | 4 days |

**Average Drying Times as intermediate @ 5.0 mils (125 microns) wet:**

| | | | |
|---|---|---|---|
| **Touch:** | 3 hours | 1 hour | 1 hour |
| **Handle:** | 48 hours | 4 hours | 2 hours |
| **Recoat:** | | | |
| **minimum:** | 16 hours | 4 hours | 2 hours |
| **maximum:** | 1 year | 1 year | 1 year |

*If maximum recoat time is exceeded, abrade surface before recoating.*
*Drying time is temperature, humidity, and film thickness dependent.*
*Paint temperature must be 40°F (4.5°C) minimum.*

| | | | |
|---|---|---|---|
| **Pot Life:** | 10 hours | 4 hours | 2 hours |
| **Sweat-in-time:** | 30 minutes | 30 minutes | 15 minutes |

## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

***Minimum recommended surface preparation:***

| | |
|---|---|
| Iron & Steel: | Atmospheric: SSPC-SP2/3/ ISO8501-1:2007 St 2 or SSPC-SP WJ-3 / NACE WJ-3L<br>Immersion: SSPC-SP10 / NACE 2/ ISO8501-1:2007 Sa 2.5, 2-3 mil (50-75 micron) profile or SSPC-SP WJ-2/NACE WJ-2L |
| Stainless Steel: | Atmospheric: SSPC-SP16, 1 mil (25 micron) profile |
| Aluminum & Galvanizing: | SSPC-SP1. If surface has not be weathered for more than 6 months, follow SSPC-SP1 then SSPC-SP16. For fire proofing projects, consult a Sherwin-Williams representative for surface preparation requirements. |
| Concrete & Masonry: | Atmospheric: SSPC-SP13/NACE 6, or ICRI No. 310.2R CSP 1-3<br>Immersion: SSPC-SP13/NACE 6-4.3.1 |
| Ductile Iron Pipe: | Atmospheric: NAPF 500-03-03 Power Tool Cleaning<br>Buried & Immersion: NAPF 500-03-04 Abrasive Blast Cleaning<br>Cast Ductile Iron Fittings: NAPF 500-03-05 Abrasive Blast Cleaning |

# MACROPOXY® 646
## FAST CURE EPOXY MASTIC

## APPLICATION

**Airless Spray***
Pump ..... 30:1
Pressure ..... 2800-3000 psi (193-206 bar)
Hose ..... 1/4" ID (6.3 mm)
Tip ..... .017"-.023" (0.43-0.58 mm)
Filter ..... 60 mesh
Reduction ..... As needed up to 10% by volume

**Conventional Spray***
Gun ..... DeVilbiss MBC-510
Fluid Tip ..... E
Air Nozzle ..... 704
Atomization Pressure ..... 60-65 psi (4.1-4.5 bar)
Fluid Pressure ..... 10-20 psi (0.7-1.4 bar)

**Brush***
Brush ..... Nylon/Polyester or Natural Bristle

**Roller***
Cover ..... 3/8" woven with solvent resistant core

**Plural Component Spray** .... Acceptable

*Reduction[1] ..... VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100

[1]Other areas (<340 g/L): use Reducer #111, Oxsol 100, or Reducer #15 up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

If specific application equipment is not listed above, equivalent equipment may be substituted.

## RECOMMENDED SYSTEMS

| Dry Film Thickness / ct. | Mils | (Microns) |
|---|---|---|
| **Steel & Ductile Iron, Immersion & Atmospheric** | | |
| 2 Cts. Macropoxy 646 | 5.0-10.0 | (125-250) |
| **Steel, Organic Zinc Primer, Atmospheric** | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) |
| 1 Ct. Macropoxy 646 | 5.0-10.0 | (125-250) |
| **Steel, Inorganic Zinc Primer, Atmospheric** | | |
| 1 Ct. Zinc Clad II (85) | 2.0-4.0 | (50-100) |
| 1 Ct. Macropoxy 646 | 5.0-10.0 | (125-250) |
| **Steel, Organic Zinc/Epoxy/Urethane Topcoat** | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) |
| 1 Ct. Macropoxy 646 | 3.0-10.0 | (75-250) |
| 1 Ct. Acrolon 7300 | 2.0-4.0 | (50-100) |
| **Steel, Inorganic Zinc/Epoxy/Urethane Topcoat** | | |
| 1 Ct. Zinc Clad II (85) | 2.0-4.0 | (50-100) |
| 1 Ct. Macropoxy 646 | 3.0-10.0 | (75-250) |
| 1 Ct. Acrolon 7300 | 2.0-4.0 | (50-100) |
| **Steel, Organic Zinc/Epoxy/Polysiloxane Topcoat, Atmospheric** | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) |
| 1 Ct. Macropoxy 646 | 3.0-10.0 | (75-250) |
| 1-2 Cts. Sher-Loxane 800 | 4.0-6.0 | (100-150) |
| **Steel: Norsok M501 System 7B/Subsea** | | |
| 2 Cts. Macropoxy 646 | 7.0 | (175) |
| **Concrete/Masonry, Smooth, Immersion & Atmospheric** | | |
| 2 Cts. Macropoxy 646 | 5.0-10.0 | (125-250) |

The systems listed above are representative of the product's use, other systems may be appropriate.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## APPLICATION CONDITIONS

**Temperature:**
Air: 35°F (1.7°C) minimum, 120°F (49°C) maximum
Surface*: 35°F (1.7°C) minimum, 250°F (120°C) maximum
Material: 40°F (4.5°C) minimum
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

*Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative.

## APPROVALS

- Suitable for use in USDA inspected facilities
- Acceptable for use in Canadian Food Processing facilities, categories: D1, D2, D3 (Confirm acceptance of specific part numbers/rexes with your SW Sales Representative)
- Conforms to AWWA D102 OCS #5
- Conforms to MPI # 108
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities
- Meets Class A requirements for Slip Coefficient, 0.36 @ 6 mils / 150 microns dft (Mill White only)
- Approved intermediate for NEPCOAT System B
- Approved to Norsok M501 system 7B (limited colors)
- ISO 12944:2018 approved for C2 to CX

## ADDITIONAL NOTES

Tint Part A with Maxitoners at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

Can be used as a metalizing sealer. Consult your Sherwin-Williams Representative regarding Product Bullentin: "Sealers for Thermal Spray Metalizing".

Quick-Kick Epoxy Accelerator is acceptable for use. See data page for details.

Acceptable for concrete floors.

Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.

Topcoating: It is recommended to apply a thinned-down, low wet film thickness mist coat over zinc rich primers to help avoid outgassing. Allow it to tack up and seal the surface. Then apply a full wet film thickness coat as directed.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

## HEALTH AND SAFETY

Refer to the SDS sheet before use.
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# Protective & Marine Coatings

# MACROPOXY® 920 PRE-PRIME
## PENETRATING EPOXY PRE-PRIMER

**PART A** B58T101 — **TRANSPARENT**
**PART B** B58V10 — **HARDENER**

Revised: July 26, 2022

## PRODUCT INFORMATION

4.50

### PRODUCT DESCRIPTION

**MACROPOXY 920 PRE-PRIME** is a 100% solids, penetrating epoxy primer designed for use over marginally prepared steel or concrete surfaces.

- A penetrating sealer for tight rusted surfaces
- A penetrating sealer for concrete and masonry surfaces
- Low viscosity
- Barrier coat for hot solvent topcoats

### PRODUCT CHARACTERISTICS

**Finish:** Medium Sheen

**Color:** Transparent

**Volume Solids:** 100%, calculated, mixed
70%, ASTM D2697,
(Helium Pycnometer)

**VOC (EPA Method 24):** <340 g/L; 2.8 lb/gal, mixed

**Mix Ratio:** 2 components, 3:1 ratio

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **1.5** (40) | **2.0** (50) |
| **Dry mils** (microns) | **1.5** (40) | **2.0** (50) |
| **~Coverage sq ft/gal** ($m^2$/L) | | |
| Steel | **800** (19.6) | **1050** (25.7) |
| Concrete | **400** (9.8) | **500** (13.0) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1600** (39.2) | |

**Drying Schedule @ 2.0 mils wet (50 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C *50% RH* | @ 120°F/49°C |
|---|---|---|---|
| **To touch:** | 18 hours | 9.5 hours | 7 hours |
| **Tack-free:** | 32 hours | 17 hours | 14 hours |
| **To recoat:** | | | |
| **minimum:** | 36 hours | 12 hours | 12 hours |
| **maximum:** | 30 days | 30 days | 30 days |

*Drying time is temperature, humidity, and film thickness dependent.*

**Pot Life:** 8-10 hours | 4 hours | 3-4 hours
**Sweat-in-Time:** None required

**Shelf Life:** 12 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C).
**Flash Point:** 152°F (67°C), PMCC, mixed
**Reducer:** Not recommended
**Clean Up:** Reducer #54, R7K54

### RECOMMENDED USES

For use as a primer / sealer over prepared steel or concrete surfaces.

- Petrochem exploration and offshore platforms
- Over white rusted and zinc rich coatings
- Chalky surfaces in atmospheric conditions
- Industrial applications
- Marine applications
- Over marginally prepared steel when abrasive cleaning is not possible
- Suitable for use in USDA inspected facilities
- Nuclear Power Plants
- DOE Nuclear Fuel Facilities
- Nuclear fabrication shops
- DOE Nuclear Weapons Facilities
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.

* Nuclear qualifications are NRC license specific to the facility.

### PERFORMANCE CHARACTERISTICS

- Designed for industrial and marine environments
- Penetrates existing, tightly adhered rust to provide a "tight" substrate prior to subsequent coats
- Can also be used as a high performance primer/sealer for masonry surfaces
- Not for immersion service
- Dry heat resistance up to 200°F (93°C)

| Test Name | Test Method | Results |
|---|---|---|
| **Critical Radiant Flux*** | NFPA 253 | 1.02 W/$cm^2$ |
| **Surface Burning**** | ASTM E84/NFPA 255 | Flame Spread Index 15; Smoke Development Index 55 |
| **Surface Burning***** | ASTM E84/NFPA 255 | Flame Spread Index 20; Smoke Development Index 85 |

*System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1 mil (25 microns) dft
Cor-Cote HP Epoxy @ 51 mils (1,275 microns) dft

**System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1.1 mils (27.5 microns) dft
Macropoxy 646 @ 19.8 mils (495 microns) dft

***System tested (Report No. IM54.1157-02-01):
Macropoxy 920 Pre-Prime @ 1.2 mils (30 microns) dft
Phenicon HS Epoxy Phenolic @ 18.8 mils (470 microns) dft

Epoxy coatings may darken or yellow following application and curing.


continued on back

Protective & Marine Coatings

# MACROPOXY® 920 PRE-PRIME
## PENETRATING EPOXY PRE-PRIMER

**PART A** B58T101 — **TRANSPARENT**
**PART B** B58V10 — **HARDENER**

Revised: July 26, 2022

## PRODUCT INFORMATION

4.50

## RECOMMENDED SYSTEMS

| | | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|---|
| **Steel:** | | | |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |
| 2 cts. | Macropoxy HS | 3.0-6.0 | (75-150) |
| **Steel, zinc rich primer:** | | | |
| 1 ct. | Zinc Clad IV | 3.0-5.0 | (75-125) |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |
| 1 ct. | Macropoxy HS | 3.0-6.0 | (75-150) |
| 1 ct. | Acrolon 218 HS Acrylic Polyurethane | 3.0-6.0 | (75-150) |
| **Masonry and Concrete:** | | | |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |
| 1-2 cts. | Tile-Clad Hi-Solids | 2.5-4.0 | (63-100) |
| **Previously Painted Surfaces:** | | | |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |

Acceptable topcoats:
- Acrolon 218 HS
- Pro Industrial DTM Acrylic
- Epo-Plex Multi-Mil Epoxy
- Hi-Solids Polyurethane
- Macropoxy 646
- Macropoxy HS
- Sher-Cryl HPA
- Sher-Loxane 800
- Tile-Clad HS

**FIRETEX M89/02, M90, M90/02, and M93/02:**

| | | | |
|---|---|---|---|
| **Steel Substrates being primed for FIRETEX only:** | | | |
| 1 ct. | Zinc Clad IV | 3.0-5.0 | (75-125) |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |
| **Steel Substrates being primed for FIRETEX only:** | | | |
| 1 ct. | Zinc Clad II | 2.0-4.0 | (50-100) |
| 1 ct. | Macropoxy 920 Pre-Prime | 1.5-2.0 | (40-50) |

The systems listed above are representative of the product's use, other systems may be appropriate.

## DISCLAIMER

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## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:
- Iron & Steel: SSPC-SP2
- Masonry / Concrete: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
- Previously Painted: SSPC-SP1

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## TINTING

May be shaded with up to 2 oz of Maxitoner Colorants per gallon. Not controlled for tint strength.

## APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

## ORDERING INFORMATION

Packaging:
- Part A: 3 quarts (2.8L) in a 1 gallon (3.78L) container
  3 gallons (11.3L) in a 5 gallon (18.9L) container
- Part B: 1 quart (0.94L) and 1 gallon (3.78L)
  1 gallon (3.78L) and 4 gallons (15.1L) mixed

Weight: 8.47 ± 0.2 lb/gal ; 1.0 Kg/L, mixed

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

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## WARRANTY

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Protective & Marine Coatings

# MACROPOXY® 920 PRE-PRIME
## PENETRATING EPOXY PRE-PRIMER

| | | |
|---|---|---|
| PART A | B58T101 | TRANSPARENT |
| PART B | B58V10 | HARDENER |

Revised: July 26, 2022

## APPLICATION BULLETIN

4.50

## SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Iron & Steel**
Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1.0-2.0 mils / 25-50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

**Concrete and Masonry**
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910.

**Follow the standard methods listed below when applicable:**
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

**Previously Painted Surfaces:**
If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this products attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | 40°F (4.5°C) minimum, 120°F (49°C) maximum<br>(air, surface, and material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

## APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

**Reducer** ..... Not recommended

**Clean-Up** ..... Reducer #54, R7K54

**Airless Spray (see note on next page)**
Pressure..... 2200 - 2500 psi
Hose..... 1/4" ID
Tip ..... .015"
Filter ..... 60 mesh

**Conventional Spray**
Gun ..... Binks 95
Tip ..... 66
Cap ..... 63 PB
Atomization Pressure..... 50 psi
Fluid Pressure..... 10 psi

**Brush**
Brush..... Natural Bristle

**Roller**
Cover ..... 1/4"-3/8" woven with solvent resistant core

If specific application equipment is not listed above, equivalent equipment may be substituted.



continued on back

Protective & Marine Coatings

# MACROPOXY® 920 PRE-PRIME
## PENETRATING EPOXY PRE-PRIMER

| | | |
|---|---|---|
| PART A | B58T101 | TRANSPARENT |
| PART B | B58V10 | HARDENER |

Revised: July 26, 2022

## APPLICATION BULLETIN

4.50

### APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Use low speed mechanical agitation to mix Part A and Part B separately, then add 1 part by volume of Part B to 3 parts by volume of Part A. Mix the combined parts using low speed power agitation for at least 5 minutes. Mixed material will generate heat and should be handled appropriately, using all material before pot life expiration, and cleaning lines and equipment immediately after use. Higher temperatures will decrease working pot life, while lower temperatures will increase it.

If reducer solvent is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **1.5** (40) | **2.0** (50) |
| **Dry mils** (microns) | **1.5** (40) | **2.0** (50) |
| **~Coverage sq ft/gal** ($m^2$/L) | | |
| Steel | **800** (19.6) | **1050** (25.7) |
| Concrete | **400** (9.8) | **500** (13.0) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1600** (39.2) | |

**Drying Schedule @ 2.0 mils wet (50 microns):**

| | @ 40°F/4.5°C | @ 77°F/25°C *50% RH* | @ 120°F/49°C |
|---|---|---|---|
| **To touch:** | 18 hours | 9.5 hours | 7 hours |
| **Tack-free:** | 32 hours | 17 hours | 14 hours |
| **To recoat:** | | | |
| **minimum:** | 36 hours | 12 hours | 12 hours |
| **maximum:** | 30 days | 30 days | 30 days |
| *Drying time is temperature, humidity, and film thickness dependent.* | | | |
| **Pot Life:** | 8-10 hours | 4 hours | 3-4 hours |
| **Sweat-in-Time:** | | None required | |

### CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #54, R7K54. Clean tools immediately after use with Reducer #54, R7K54. Follow manufacturer's safety recommendations when using any solvent.

### DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

### PERFORMANCE TIPS

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

No reduction of material is recommended as it can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #54, R7K54.

For better performance in severely corrosive environments, or over heavily rusted/pitted steel or pourous concrete and masonry, two coats may be required.

Roll out any puddles.

Airless spray is acceptable for application; however, the product should be back-rolled to eliminate excessive millage and puddles.

Gloss may vary depending on substrate and film thickness.

Can be used as a metalizing sealer. Consult your Sherwin-Williams Representative regarding Product Bulletin: "Sealers for Thermal Spray Metalizing".

Refer to Product Information sheet for additional performance characteristics and properties.

### SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

### WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

# ACROLON™ 218 HS
## ACRYLIC POLYURETHANE

| | | |
|---|---|---|
| PART A | B65-600 | GLOSS SERIES |
| PART A | B65-650 | SEMI-GLOSS SERIES |
| PART B | B65V600 | HARDENER |

Revised: October 11, 2023

# PRODUCT INFORMATION

5.22

## PRODUCT DESCRIPTION

**ACROLON 218 HS** is a polyester modified, aliphatic, acrylic polyurethane formulated specifically for in-shop applications. Also suitable for industrial applications. A fast drying, urethane that provides color and gloss retention for exterior exposure.

- Can be used directly over organic zinc rich primers (epoxy zinc primer and moisture cure urethane zinc primer)
- Color and gloss retention for exterior exposure
- Fast dry
- Outstanding application properties

## PRODUCT CHARACTERISTICS

| | |
|---|---|
| **Finish:** | Gloss or Semi-Gloss |
| **Color:** | Wide range of colors available |
| **Volume Solids:** | 65% ± 2%, mixed, may vary by color |
| **Weight Solids:** | 78% ± 2%, mixed, may vary by color |
| **VOC (EPA Method 24):** | Unreduced: <300 g/L; 2.5 lb/gal |
| mixed | Reduced 10% with R7K15: <340 g/L; 2.8 lb/gal |
| mixed | Reduced 9% with MEK, R6K10: <340 g/L; 2.8 lb/gal |
| **Mix Ratio:** | 6:1 by volume, 1 gallon or 5 gallon mixes premeasured components |

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **4.5** (112.5) | **9.0** (225) |
| **Dry mils** (microns) | **3.0** (75) | **6.0** (150) |
| **~Coverage sq ft/gal** ($m^2$/L) | **175** (4.3) | **346** (8.5) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1040** (25.5) | |

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

**Drying Schedule @ 6.0 mils wet (150 microns):**

| | @ 35°F/1.7°C | @ 77°F/25°C *50% RH* | @ 120°F/49°C |
|---|---|---|---|
| **To touch:** | 4 hours | 1 hour | 20 minutes |
| **To handle:** | 18 hours | 9 hours | 4 hours |
| **To recoat:** | | | |
| **minimum:** | 18 hours | 8 hours | 6 hours |
| **maximum:** | 3 months | 3 months | 3 months |
| **To cure:** | 14 days | 7 days | 5 days |
| **Pot Life:** (reduced 5% with Reducer R7K15) | 4 hours | 2 hours | 45 minutes |
| **Sweat-in-Time:** | | None | |

*Drying time is temperature, humidity, and film thickness dependent.* Paint temperature must be at least 40°F (4.5°C) minimum.

| | |
|---|---|
| **Shelf Life:** | Part A* - 36 months, unopened<br>Part B - 24 months, unopened<br>Store indoors at 40°F (4.5°C) to 100°F (38°C). |
| *Aluminum (Part A, Rex # B65SW655) has a shelf life of 24 months. | |
| **Flash Point:** | 55°F (13°C), Seta, mixed |
| **Reducer/Clean Up:** | |
| Spray: | Reducer R7K15, MEK R6K10, R7K111, Reducer #58 |
| Brush / Roll: | Reducer #132, Reducer #58, R7K111 |

## RECOMMENDED USES

Specifically formulated for in-shop applications.
For use over prepared metal and masonry surfaces in industrial environments such as:

- Structural steel
- Rail cars and locomotives
- Conveyors
- Bridges
- Wind Towers - onshore and offshore
- Offshore platforms - exploration and production
- Tank exteriors
- Pipelines
- Ships
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102 Outside Coating Systems #4 (OCS-4), #5 (OCS-5) & #6 (OCS-6)
- Conforms to MPI# 72 and MPI# 174
- Acceptable for use in high performance architectural applications
- Acceptable for use over and/or under Loxon S1 and Loxon H1 Caulking
- A component of INFINITANK
- Over FIRETEX® hydrocarbon systems
- Suitable for use in the Mining & Minerals Industry
- Approved topcoat for NEPCOAT System B

## PERFORMANCE CHARACTERISTICS

**Substrate***: Steel

**Surface Preparation***: SSPC-SP10/NACE 2

**System Tested***:

1 ct. Macropoxy 646 @ 6.0 mils (150 microns) dft
1 ct. Acrolon 218 HS Gloss @ 4.0 mils (100 microns) dft
*unless otherwise noted below

| Test Name | Test Method | Results |
|---|---|---|
| **Abrasion Resistance**[1] | ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load | 43 mg loss |
| **Adhesion**[3] | ASTM D4541 | 1976 psi |
| **Corrosion Weathering**[3] | ASTM D5894, 27 cycles, 9072 hours | Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering |
| **Direct Impact Resistance**[1] | ASTM D2794 | 70 in. lb. |
| **Dry Heat Resistance**[1,4] | ASTM D2485, Method A | 200°F (93°C) Continuous 250°F (121°C) Intermittent |
| **Flexibility**[1] | ASTM D522, 180° bend, 1/8" mandrel | Passes |
| **Humidity Resistance**[2] | ASTM D4585, 100°F (38°C), 1500 hours | Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering |
| **Pencil Hardness** | ASTM D3363 | 3H |
| **Salt Fog Resistance**[3] | ASTM B117, 15,000 hours | Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering |

**Meets the requirements of SSPC Paint No. 36, Level 3 for white and light colors. Dark colors may require a clear coat.**

**Complies with ISO 12944-5 C5I and C5M requirements.**

*Footnotes:*
[1] *Finish coat only tested*
[2] *Primer — Zinc-Clad II Plus; Intermediate — Macropoxy 646; Finish — Acrolon 218 HS*
[3] *Primer — Zinc-Clad III HS*
[4] *Slight color and/or gloss changes may occur above 200°F (93°C)*


continued on back

Protective & Marine Coatings

# ACROLON™ 218 HS
## ACRYLIC POLYURETHANE

| | | |
|---|---|---|
| PART A | B65-600 | GLOSS SERIES |
| PART A | B65-650 | SEMI-GLOSS SERIES |
| PART B | B65V600 | HARDENER |

Revised: October 11, 2023

# PRODUCT INFORMATION

5.22

## RECOMMENDED SYSTEMS

| | | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|---|
| **Steel:** | | | |
| 1 ct. | Macropoxy 646 | 5.0-10.0 | (125-250) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Zinc Clad II Plus | 2.0-4.0 | (50-100) |
| 1 ct. | Macropoxy 646 | 3.0-10.0 | (75-250) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Zinc Clad IV | 3.0-5.0 | (75-125) |
| *or* | Zinc Clad 4100 | 3.0-5.0 | (75-125) |
| 1 ct. | Macropoxy 646 | 3.0-10.0 | (75-250) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Zinc Clad IV | 3.0-5.0 | (75-125) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Corothane I-GalvaPac Zinc Primer | 3.0-4.0 | (75-100) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Epoxy Mastic Aluminum II | 6.0 | (150) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Steel:** | | | |
| 1 ct. | Recoatable Epoxy Primer | 4.0-6.0 | (100-150) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Concrete/Masonry:** | | | |
| 1 ct. | Kem Cati-Coat HS Epoxy Filler/Sealer | 10.0-20.0 | (250-500) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |
| **Aluminum/Galvanizing:** | | | |
| 1 ct. | DTM Wash Primer | 0.7-1.3 | (18-32) |
| 1-2 cts. | Acrolon 218 HS Polyurethane | 3.0-6.0 | (75-150) |

**FIRETEX ONLY:**

**Finish Coat for FIRETEX Hydrocarbon Systems:**

1 ct. Acrolon 218 HS Polyurethane*

*Consult FIRETEX PFP Specialist for recommended dft range

The systems listed above are representative of the product's use, other systems may be appropriate.

## DISCLAIMER

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## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

* Iron & Steel: SSPC-SP6/NACE 3, 1-2 mil (25-50 micron) profile
* Galvanizing: SSPC-SP1
* Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
* Primer required

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## TINTING

Tint Part A with Maxitoner Colorants.

- Extra white tints at 100% tint strength
- Ultradeep base tints at 150% tint strength

Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | 35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface)<br>40°F (4.5°C) minimum, 120°F (49°C) maximum (material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

Refer to product Application Bulletin for detailed application information.

## ORDERING INFORMATION

| Packaging: | 1 gallon (3.78L) mix: | 5 gallon (18.9L) mix: |
|---|---|---|
| Part A: | .86 gal (3.25L) | 4.29 gal (16.2L) |
| Part B: | .14 gal (0.53L) | 0.71 gal (2.7L) |
| (premeasured components) | | |

Weight: 11.2 ± 0.2 lb/gal ; 1.3 Kg/L mixed, may vary with color

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

# ACROLON™ 218 HS
## ACRYLIC POLYURETHANE

| | | |
|---|---|---|
| PART A | B65-600 | GLOSS SERIES |
| PART A | B65-650 | SEMI-GLOSS SERIES |
| PART B | B65V600 | HARDENER |

Revised: October 11, 2023

## APPLICATION BULLETIN

5.22

## SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Iron & Steel**
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Aluminum**
Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

**Galvanized Steel**
Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs. Primer required.

**Concrete and Masonry**
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

**Follow the standard methods listed below when applicable:**
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature: | 35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface)<br>40°F (4.5°C) minimum, 120°F (49°C) maximum (material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

## APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

**Reducer/Clean Up:**
Spray.....Reducer R7K15, MEK, Reducer #58, or R7K111
Brush/Roll .....Reducer #132, R7K132, Reducer #58, or R7K111
If reducer is used, reduce at time of catalyzation.

**Airless Spray**
Pressure.....2500 - 2800 psi
Hose.....3/8" ID
Tip.....013" - .017"
Filter.....60 mesh
Reduction.....As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

**Conventional Spray**
Gun .....Binks 95
Cap .....63P
Atomization Pressure.....50 - 70 psi
Fluid Pressure.....20 - 25 psi
Reduction.....As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

**Brush**
Brush.....Natural Bristle
Reduction.....As needed up to 10% by volume*

**Roller**
Cover .....3/8" woven with solvent resistant core
Reduction.....As needed up to 10% by volume*

If specific application equipment is not listed above, equivalent equipment may be substituted.

* Note: Reducing more than maximum recommended level will result in VOC exceeding 340g/L


continued on back

Protective & Marine Coatings

# ACROLON™ 218 HS
## ACRYLIC POLYURETHANE

| | | |
|---|---|---|
| PART A | B65-600 | GLOSS SERIES |
| PART A | B65-650 | SEMI-GLOSS SERIES |
| PART B | B65V600 | HARDENER |

Revised: October 11, 2023

# APPLICATION BULLETIN

5.22

## APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine six parts by volume of Part A with one part by volume of Part B (premeasured components). Thoroughly agitate the mixture with power agitation. Re-stir before using.

If reducer is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **4.5** (112.5) | **9.0** (225) |
| **Dry mils** (microns) | **3.0** (75) | **6.0** (150) |
| **~Coverage sq ft/gal** ($m^2$/L) | **175** (4.3) | **346** (8.5) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **1040** (25.5) | |

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.*

**Drying Schedule @ 6.0 mils wet (150 microns):**

| | @ 35°F/1.7°C | @ 77°F/25°C *50% RH* | @ 120°F/49°C |
|---|---|---|---|
| **To touch:** | 4 hours | 1 hour | 20 minutes |
| **To handle:** | 18 hours | 9 hours | 4 hours |
| **To recoat:** | | | |
| **minimum:** | 18 hours | 8 hours | 6 hours |
| **maximum:** | 3 months | 3 months | 3 months |
| **To cure:** | 14 days | 7 days | 5 days |
| **Pot Life:** (reduced 5% with Reducer R7K15) | 4 hours | 2 hours | 45 minutes |
| **Sweat-in-Time:** | | None | |

*Drying time is temperature, humidity, and film thickness dependent.*
Paint temperature must be at least 40°F (4.5°C) minimum.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

## CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #132, R7K132. Clean tools immediately after use with Reducer #132, R7K132. Follow manufacturer's safety recommendations when using any solvent.

## DISCLAIMER

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## PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15 or MEK, R6K10.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

If maximum recoat time is exceeded, a light abrasion may be necessary to roughen the surface to promote adhesion before recoating.

Refer to Product Information sheet for additional performance characteristics and properties.

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

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## WARRANTY

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Protective & Marine Coatings

# FLUOROKEM® HS 100

| | | |
|---|---|---|
| **Part A** | **B65-1560** *and B65-560* | **Satin** *Satin* |
| **Part A** | **B65-1570** *and B65-570* | **Semi-Gloss** *Semi-Gloss* |
| **Part A** | **B65-1580** *and B65-580* | **Gloss** *Gloss* |
| **Part B** | **B65V1580** **B65V00012** | **Hardener** **Accelerator** |

Revised: April 17, 2023

## PRODUCT INFORMATION

5.39

### PRODUCT DESCRIPTION

**FLUOROKEM HS 100** is a premium, ultra-durable ambient cured high solids fluoropolymer urethane finish. It provides unparalleled color and gloss performance.

- Superior exterior durability
- Fast dry
- Less than 100 g/l VOC
- Chemical and abrasion resistant
- Airless, conventional spray, and brush and roll application
- Ambient temperature cure
- Graffiti resistant

### PRODUCT CHARACTERISTICS

| | |
|---|---|
| **Finish:** | Gloss, Semi-Gloss, Satin |
| **Color:** | Wide range of colors available |
| **Volume Solids:** | 61% ± 2%, mixed, may vary by color |
| **Weight Solids:** | 71% ± 2%, mixed, may vary by color |
| **Mix Ratio:** | 4:1 by volume |
| **VOC (unreduced):** | <100 g/l ; 0.83 lb/gal, mixed, may vary by color |

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **3.0** (75) | **5.0** (125) |
| **Dry mils** (microns) | **2.0** (50) | **3.0** (75) |
| **~Coverage sq ft/gal** ($m^2$/L) | **325** (8.0) | **490** (12) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **978** (24) | |

**Drying Schedule @ 4.0 mils wet (100 microns):**

| | @ 30°F/-1°C | @ 40°F/4°C | @ 50°F/10°C *50% RH* | @ 77°F/25°C | @ 120°F/49°C |
|---|---|---|---|---|---|
| **To touch:** | 8 hours[2] | 8 hours[1] | 8 hours | 2 hours | 1 hour |
| **To handle:** | 24 hours[2] | 24 hours[1] | 24 hours | 5 hours | 2 hours |
| **To recoat:** | | | | | |
| **minimum:** | 24 hours[2] | 24 hours[1] | 24 hours | 5 hours | 2 hours |
| **maximum:** | | | 45 days | 45 days | 45 days |
| **To cure:** | | | 10 days | 7 days | 5 days |

*If maximum recoat time is exceeded, abrade surface before recoating.*

*Drying time is temperature, humidity, and film thickness dependent.*

| | | | | | |
|---|---|---|---|---|---|
| **Pot Life:** | 2 hours[2] | 2 hours[1] | 2.5 hours | 2 hours | <1 hour |
| **Sweat-in-Time:** | None required | | | | |

[1]40°F/4°C data above is with 1 oz./gal of B65V00012 accelerator**

[2]30°F/-1°C data above is with 2 oz./gal of B65V00012 accelerator**

**VOC Restricted Areas (<100 g/L): Do not use the accelerator above 75°F (24°C) if reducing with R7K77.

### PRODUCT CHARACTERISTICS (CONT'D)

| | |
|---|---|
| **Shelf Life:** | 24 months, unopened<br>Store indoors at 40°F (4.5°C) to 100°F (38°C). |
| **Flash Point:** | 40°F (4.5°C), PMCC or SETA, mixed |
| **Reducer:** | |
| Below 75°F (24°C): | R7K111 (up to 15% by volume) |
| Between 75°F (24°C) and 90°F (32°C): | R7K77 (up to 5%-10% by volume) |
| Above 90°F (32°C): | R7K77 (up to 15% by volume) |
| **Clean Up*:** | VOC Restricted Areas (≤25 g/L, or ≤3%): use Oxsol 100 or High Solids Compliant Thinner #1 - Fast. |

*Other areas (>25 g/L, or >3%): use Oxsol 100, High Solids Compliant Thinner #1 – Fast, or Reducer #15 (R7K15). Choose a solvent that is compliant in your area. Confirm compliance with state and local air quality rules before use.

### RECOMMENDED USES

Interior or exterior exposure where extreme weather durability is required.

- Water tanks
- Storage tank exteriors
- Bridges
- Marine
- Municipal building
- Fascias
- Iconic structures
- Stadiums
- Sports complexes
- Museums
- Schools
- High visibility areas
- Logos

### PERFORMANCE CHARACTERISTICS

**Substrate***: Blasted Steel

**Surface Preparation***: SSPC-SP10/NACE 2

**System Tested***:

Corothane I GalvaPac 1K Zinc Primer @ 2.5 mils (63 microns) dft
Acrolon 218 HS @ 2.0 mils (50 microns) dft
Fluorokem HS 100 @ 2.0 mils (50 microns) dft

*unless otherwise noted below

| Test Name | Test Method | Results |
|---|---|---|
| **Adhesion** | ASTM D4541 | 2,655 psi |
| **Corrosion Resistance** | ASTM B117 | 3,000 hours |
| **Direct Impact Resistance** | ASTM G14 | 80 in. lb. |
| **Dry Heat Resistance** | ASTM D2485 | 200°F (93°C) |
| **EMMAQUA** | ASTM D4141 | Pass |
| **Flexibility** | ASTM D522, 180° bend, 1/8" mandrel | Pass |
| **Humidity Resistance** | ASTM D4585 | 3,000 hours |
| **Pencil Hardness** | ASTM D3363 | F |



continued on back

Protective & Marine Coatings

# FLUOROKEM® HS 100

| | | |
|---|---|---|
| **Part A** | **B65-1560** *and B65-560* | **Satin** *Satin* |
| **Part A** | **B65-1570** *and B65-570* | **Semi-Gloss** *Semi-Gloss* |
| **Part A** | **B65-1580** *and B65-580* | **Gloss** *Gloss* |
| **Part B** | **B65V1580** | **Hardener** |
| | **B65V00012** | **Accelerator** |

Revised: April 17, 2023

## PRODUCT INFORMATION

5.39

## RECOMMENDED SYSTEMS

| | | Dry Film Thickness / ct. Mils | (Microns) |
|---|---|---|---|
| **Steel, Atmospheric:** | | | |
| 1 ct. | Corothane I GalvaPac | 3.0-4.0 | (75-100) |
| 1 ct. | Acrolon 218 HS | 3.0-6.0 | (75-150) |
| or | Hi-Solids Polyurethane 250 | 3.0-5.0 | (75-125) |
| or | Sher-Loxane 800 | 4.0-6.0 | (100-150) |
| 1-2 cts. | FluoroKem HS 100 | 2.0-3.0 | (50-75) |
| 1 ct. | Dura-Plate 235 | 4.0-8.0 | (100-200) |
| or | Macropoxy 646 Fast Cure | 5.0-10.0 | (125-250) |
| or | Epoxy Mastic Aluminum II | 4.0-6.0 | (100-150) |
| 1 ct. | Acrolon 218 HS | 3.0-6.0 | (75-150) |
| or | Hi-Solids Polyurethane 250 | 3.0-5.0 | (75-125) |
| 1-2 cts. | FluoroKem HS 100 | 2.0-3.0 | (50-75) |
| 1 ct. | Macropoxy 646 Fast Cure | 5.0-10.0 | (125-250) |
| 1-2 cts. | FluoroKem HS 100* | 2.0-3.0 | (50-75) |

*For full coverage and performance, Sherwin-Williams recommends applying 2 coats of FluoroKem HS 100 over Macropoxy 646 Fast Cure primer.

NOTE: AWWA D102 does not recommend a Zinc/Epoxy/Fluoropolymer system, but instead recommends a Zinc/Aliphatic Urethane/Fluoropolymer system for external water tanks.

| | | | |
|---|---|---|---|
| **Concrete/Masonry - Smooth:** | | | |
| 1 ct. | Macropoxy 646 Fast Cure | 5.0-10.0 | (125-250) |
| 1 ct. | Acrolon 218 HS | 3.0-6.0 | (75-150) |
| or | Hi-Solids Polyurethane 250 | 3.0-5.0 | (75-125) |
| 1-2 cts. | FluoroKem HS 100 | 2.0-3.0 | (50-75) |

The systems listed above are representative of the product's use, other systems may be appropriate.

## DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

## SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Minimum recommended surface preparation:

| | |
|---|---|
| *Iron & Steel: | SSPC-SP6/NACE 3 |
| *Concrete & Masonry: | SSPC-SP13/NACE 6 or ICRI No. 310.2R, CSP 1-3 |

*Prime with recommended primers as needed.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | SSPC | NACE |
|---|---|---|---|---|
| White Metal | | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | SP 3 | - |

## TINTING

Do not tint. Custom color matches are available through the Rapid Response Program. Contact your Sherwin-Williams representative for additional information.

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature*: | 30°F (-1°C) minimum, 120°F (49°C) maximum<br>(Air, surface, and material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

*reference the Drying Schedule tables on pages 1 and 4

## ORDERING INFORMATION

| | |
|---|---|
| Packaging: | |
| Part A: | 1 gallon (3.78L) and 5 gallon (18.9L) containers |
| Part B: | Quart (0.94L) and 1 gallon (3.78L) containers |
| Weight (varies by color): | 10.3-12.8 ± 0.2 lb/gal ; 1.23-1.53 Kg/L |

## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.
Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

# FLUOROKEM® HS 100

| | | |
|---|---|---|
| Part A | B65-1560 *and B65-560* | Satin *Satin* |
| Part A | B65-1570 *and B65-570* | Semi-Gloss *Semi-Gloss* |
| Part A | B65-1580 *and B65-580* | Gloss *Gloss* |
| Part B | B65V1580 | Hardener |
| | B65V00012 | Accelerator |

Revised: April 17, 2023

## APPLICATION BULLETIN

5.39

## SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Iron & Steel**

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

**Concrete and Masonry**

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

**Follow the standard methods listed below when applicable:**

ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

**Surface Preparation Standards**

| | Condition of Surface | ISO 8501-1 BS7079:A1 | Swedish Std. SIS055900 | SSPC | NACE |
|---|---|---|---|---|---|
| White Metal | | Sa 3 | Sa 3 | SP 5 | 1 |
| Near White Metal | | Sa 2.5 | Sa 2.5 | SP 10 | 2 |
| Commercial Blast | | Sa 2 | Sa 2 | SP 6 | 3 |
| Brush-Off Blast | | Sa 1 | Sa 1 | SP 7 | 4 |
| Hand Tool Cleaning | Rusted | C St 2 | C St 2 | SP 2 | - |
| | Pitted & Rusted | D St 2 | D St 2 | SP 2 | - |
| Power Tool Cleaning | Rusted | C St 3 | C St 3 | SP 3 | - |
| | Pitted & Rusted | D St 3 | D St 3 | SP 3 | - |

## APPLICATION CONDITIONS

| | |
|---|---|
| Temperature*: | 30°F (-1°C) minimum, 120°F (49°C) maximum<br>(Air, surface, and material)<br>At least 5°F (2.8°C) above dew point |
| Relative humidity: | 85% maximum |

*reference the Drying Schedule tables on pages 1 and 4

## APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

**Reducer:**

Below 75°F (24°C):.....Reducer #111 (R7K111), up to 15% by volume
Between 75°F (24°C) and 90°F (32°C):.....R7K77, up to 5%-10% by volume
Above 90°F (32°C): .....R7K77, up to 15% by volume

**Clean Up*:** .....VOC Restricted Areas (≤25 g/L, or ≤3%): use Oxsol 100 or High Solids Compliant Thinner #1 - Fast.

*Other areas (>25 g/L, or >3%): use Oxsol 100, High Solids Compliant Thinner #1 – Fast, or Reducer #15 (R7K15). Choose a solvent that is compliant in your area. Confirm compliance with state and local air quality rules before use.

**Airless Spray**

Pump.....45:1 at 1gpm or greater
Pressure.....1500-2500 psi
Hose.....1/4" ID
Tip.....013" - .017"
Filter.....60 mesh
Reduction.....see Reducer options above

**Brush**

Brush.....Natural Bristle
Reduction.....see Reducer options above

**Roller**

Cover..... 3/8" woven with solvent resistant core
Reduction.....see Reducer options above

If specific application equipment is not listed above, equivalent equipment may be substituted.



continued on back

Protective & Marine Coatings

# FLUOROKEM® HS 100

| | | |
|---|---|---|
| Part A | B65-1560 *and B65-560* | Satin *Satin* |
| Part A | B65-1570 *and B65-570* | Semi-Gloss *Semi-Gloss* |
| Part A | B65-1580 *and B65-580* | Gloss *Gloss* |
| Part B | B65V1580 B65V00012 | Hardener Accelerator |

Revised: April 17, 2023

## APPLICATION BULLETIN

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## APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part A with 1 part by volume of Part B. Thoroughly agitate the mixture with slow speed power agitation for 2-3 minutes.

If reducer solvent is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

| | Minimum | Maximum |
|---|---|---|
| **Wet mils** (microns) | **3.0** (75) | **5.0** (125) |
| **Dry mils** (microns) | **2.0** (50) | **3.0** (75) |
| **~Coverage sq ft/gal** ($m^2$/L) | **325** (8.0) | **490** (12) |
| Theoretical coverage **sq ft/gal** ($m^2$/L) @ 1 mil / 25 microns dft | **978** (24) | |

**Drying Schedule @ 4.0 mils wet (100 microns):**

| | @ 30°F/-1°C | @ 40°F/4°C | @ 50°F/10°C *50% RH* | @ 77°F/25°C | @ 120°F/49°C |
|---|---|---|---|---|---|
| **To touch:** | 8 hours[2] | 8 hours[1] | 8 hours | 2 hours | 1 hour |
| **To handle:** | 24 hours[2] | 24 hours[1] | 24 hours | 5 hours | 2 hours |
| **To recoat:** | | | | | |
| **minimum:** | 24 hours[2] | 24 hours[1] | 24 hours | 5 hours | 2 hours |
| **maximum:** | | | 45 days | 45 days | 45 days |
| **To cure:** | | | 10 days | 7 days | 5 days |
| **Pot Life:** | 2 hours[2] | 2 hours[1] | 2.5 hours | 2 hours | <1 hour |
| **Sweat-in-Time:** | | | None required | | |

*If maximum recoat time is exceeded, abrade surface before recoating.*
*Drying time is temperature, humidity, and film thickness dependent.*

[1]40°F/4°C data above is with 1 oz./gal of B65V00012 accelerator**

[2]30°F/-1°C data above is with 2 oz./gal of B65V00012 accelerator**

**VOC restricted areas (<100 g/L): Do not use the accelerator above 75°F (24°C) if reducing with R7K77.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

## CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #15 (R7K15), R7K111, or Oxsol 100. Clean tools immediately after use with Reducer #15 (R7K15), Reducer #111 (R7K111), or Oxsol 100. Follow manufacturer's safety recommendations when using solvent.

## DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

## PERFORMANCE TIPS

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, over thinning, climate conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended down time with Reducer #15 (R7K15), Reducer #111 (R7K111), or Oxsol 100.

Drying time is temperature, humidity, and film thickness dependent.

Always test adhesion by applying a test patch of 2-3 square feet. Allow to dry one week before checking adhesion.

This product is moisture sensitive. Avoid moisture contamination.

Temperatures above 77°F (25°C) will shorten pot life.

NOTE: AWWA D102 does not recommend a Zinc/Epoxy/Fluoropolymer system, but instead recommends a Zinc/Aliphatic Urethane/Fluoropolymer system for external water tanks.

Refer to Product Information sheet for additional performance characteristics and properties.

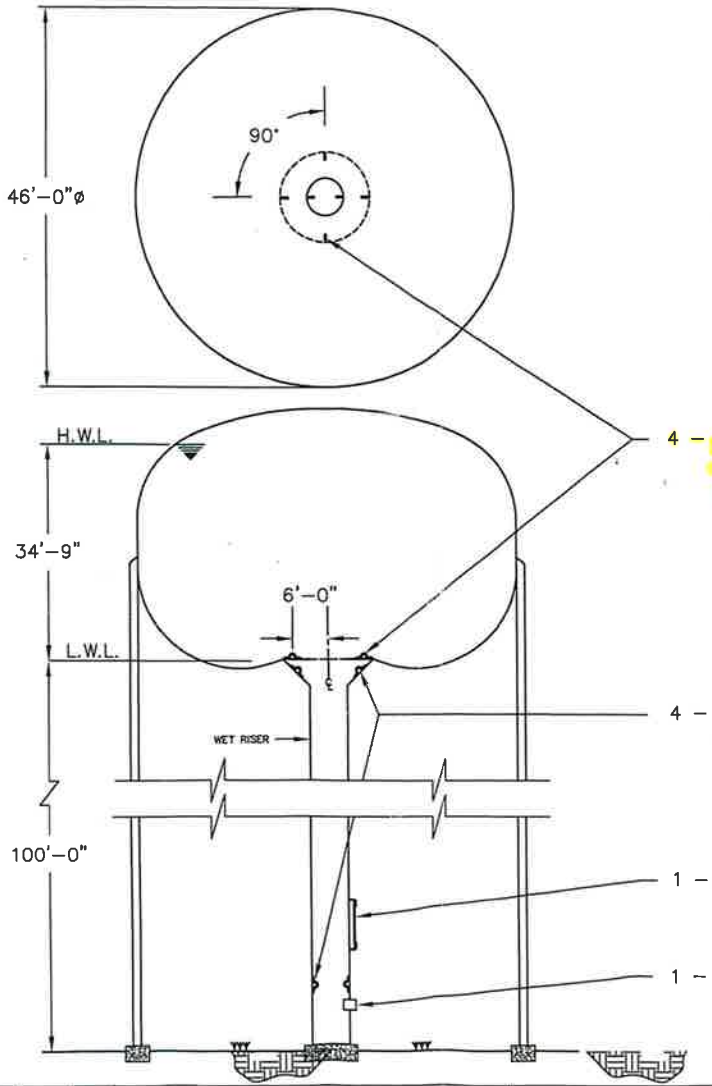
## SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

## WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



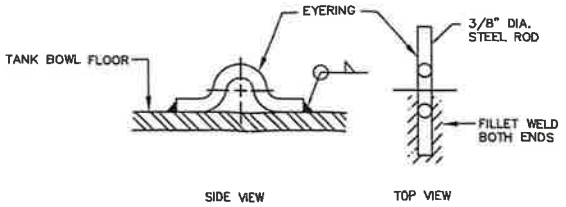

MODIFICATIONS MAY BE MADE TO MEET FIELD CONDITIONS

4 – NEW STEEL EYERINGS WELDED TO TANK ONE LOCATED EVERY 90 DEGREES ON A 6'–0"RADIUS, SEE DETAIL THIS SHEET

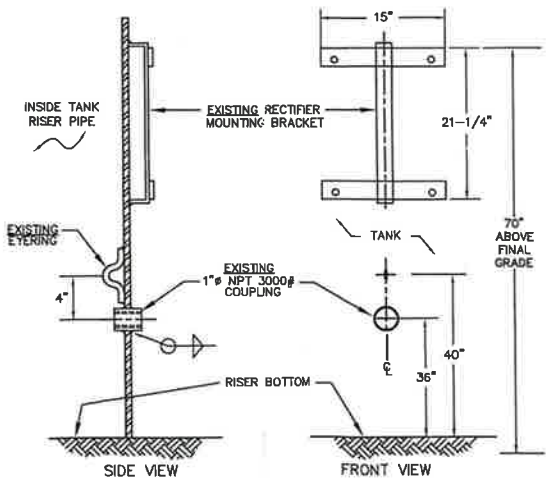
4 – EXISTING STEEL EYERINGS WELDED TO RISER 2 – WELDED AT TOP OF RISER 6 INCHES DOWN FROM BOWL, 180 DEGREES APART AND 2 – LOCATED IN RISER, 40 INCHES ABOVE BOTTOM, 180 DEGREES APART

1 – EXISTING RECTIFIER MOUNTING BRACKET

1 – EXISTING 1" NPT 3000# COUPLING




EYE RING WELD DETAIL




RECTIFIER MOUNTING DETAIL

NOTE: CP HARDWARE TO BE PAINTED IN ACCORDANCE WITH PROJECT SPECIFICATION

| NO. | DATE | BY | REVISION |
|---|---|---|---|
| | | | CORRPRO SYSTEM NO. 53137 |

REFERENCE DRAWINGS

VILLAGE OF THORNTON, ILLINOIS

CATHODIC PROTECTION SYSTEM
400,000 GALLON ELEVATED WATER STORAGE TANK
EAST HARRIET STREET
HARDWARE LAYOUT DETAIL

| | |
|---|---|
| DRAWN BY | S.C. |
| DESIGNED BY | CORRPRO |
| DATE | 6.9.23 |
| SCALE | NONE |
| SHEET | 2 OF 3 |
| DWG. No. | 53137–2 |

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CORRPRO WATERWORKS
1055 West Smith Road | Medina, OH 44256
Ph: 330.725.6681 | www.corrpro.com

# INTERNAL CATHODIC PROTECTION DESIGN SUBMITTAL

*project name & location:*

**500,000 GALLON RESERVOIR**
**WILLIAMS STREET**
**VILLAGE OF THORNTON,**
**ILLINOIS**

*prepared for:*

**ERA VALDIVIA CONTRACTORS, INC.**

*prepared by:*

**CORRPRO WATERWORKS**
**1055 West Smith Road**
**Medina, Ohio 44256**
**330.725.6681**
**www.corrpro.com**

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Drinking Water System Components,
Additives and Treatment Units

# Drinking Water Products

Underwriters Laboratories, Inc.®

# Directory

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An independent, not-for-profit organization testing for public safety

CORRPRO WATERWORKS — MANUFACTURE REFERENCE No. MH17837
COMPANY NAME

1055 West Smith Road — CERTIFICATE No. _____
ADDRESS

Medina, OH 44256
CITY, STATE, ZIP CODE

The above company is qualified under the Classification and Follow-up Service of Underwriters Laboratories Inc. to furnish Drinking Water Treatment Components Classified with respect to Standard ANSI/NSF 61.

The above mentioned company is therefore authorized to issue this Certificate for the bulk shipment of material described below as it's representation that such material is manufactured in compliance with requirements established by Underwriters Laboratories Inc. for this class of product. This Certificate does not indicate proper application or use of the material and does not apply to other material, which may be used at the location specified.

**-- SEE U L PLUMBING AND ASSOCIATED PRODUCTS DIRECTORY --**

TRADE DESIGNATION: _____ CATEGORY Mechanical Devices

USE LEVEL: 25,000 Gallon Tanks or Larger

CLASSIFIED UL WATER QUALITY

## DRINKING WATER SYSTEM COMPONENTS

## ANSI / NSF 61

## 7N53

Date of Issuance of Certificate: _____

Date Material Supplied: _____

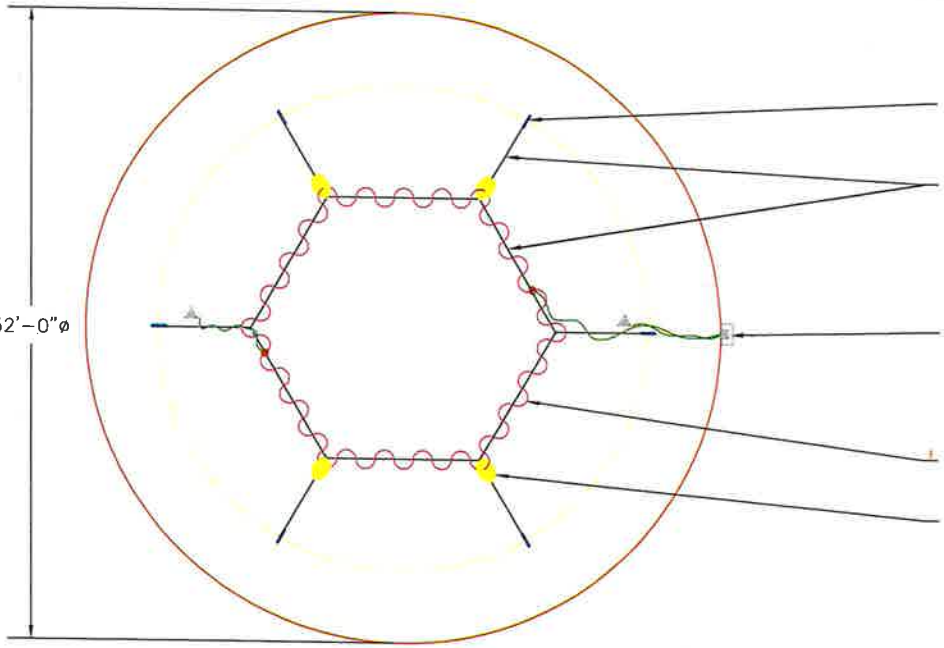
Carrier: Waterworks Crew City/State _____

Description of Container: Corrpro Waterworks Crew

Bill of Lading No. N/A

Shipped To: _____ City/State _____

Signature of Authorized Person : _____




6 – EXISTING EYERINGS WELDED TO TANK FLOOR EVERY 60 DEGREES ON A 20'–0" RADIUS

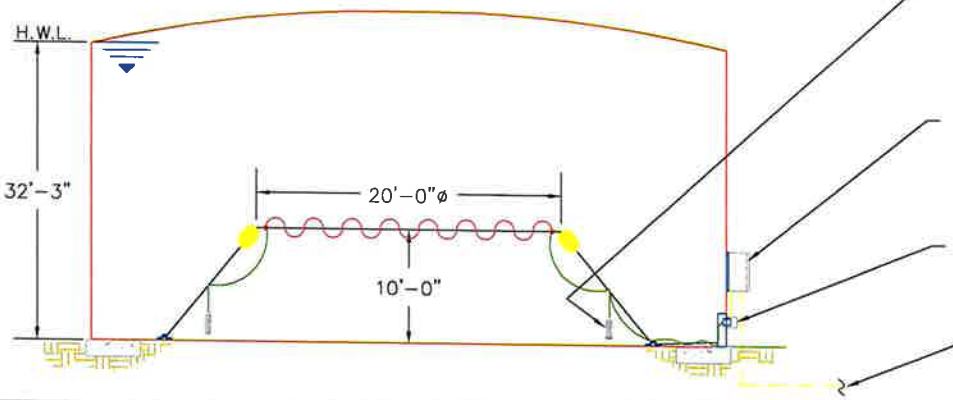
6 – NEW 5/16"ø BRAIDED POLYESTER ROPE SUPPORTS AND ANODE SUPPORT HARNESS

1 – NEW 1" WIRE PRESSURE ENTRANCE FITTING & PVC JCT. BOX UTILIZE EXISTING 1.5" NPT 3000# COUPLING

1 – NEW .062"ø 20mA TITANIUM MIXED METAL OXIDE ANODE ASSEMBLY WITH #12 AWG RHW CABLE

4 – NEW PVC FLOTATION BUOYS

MODIFICATIONS MAY BE MADE TO MEET FIELD CONDITIONS




2 – NEWY CORRPRO IHRP 801–CT REFERENCE ELECTRODES WITH #14 AWG HMW CABLE, FIELD LOCATED FOR BEST RESULTS

1 – NEW 30 VDC @ 8 ADC AUTOMATICALLY CONTROLLED T.A.S.C. RECTIFIER IN NEMA 4X FRP ENCLOSURE WITH EXTERNAL ALARM LIGHTS

1 – NEW 1" WIRE PRESSURE ENTRANCE FITTING & PVC JCT. BOX UTILIZE EXISTING 1.5" NPT 3000# COUPLING

EXISTING 120 V, 60Hz, 1ø A.C. SUPPLY RE–CONNECTED TO NEW RECTIFIER, BY CORRPRO WATERWORKS

CORRPRO SYSTEM NO. 53136

| NO. | DATE | BY | REVISION |
|---|---|---|---|

REFERENCE DRAWINGS

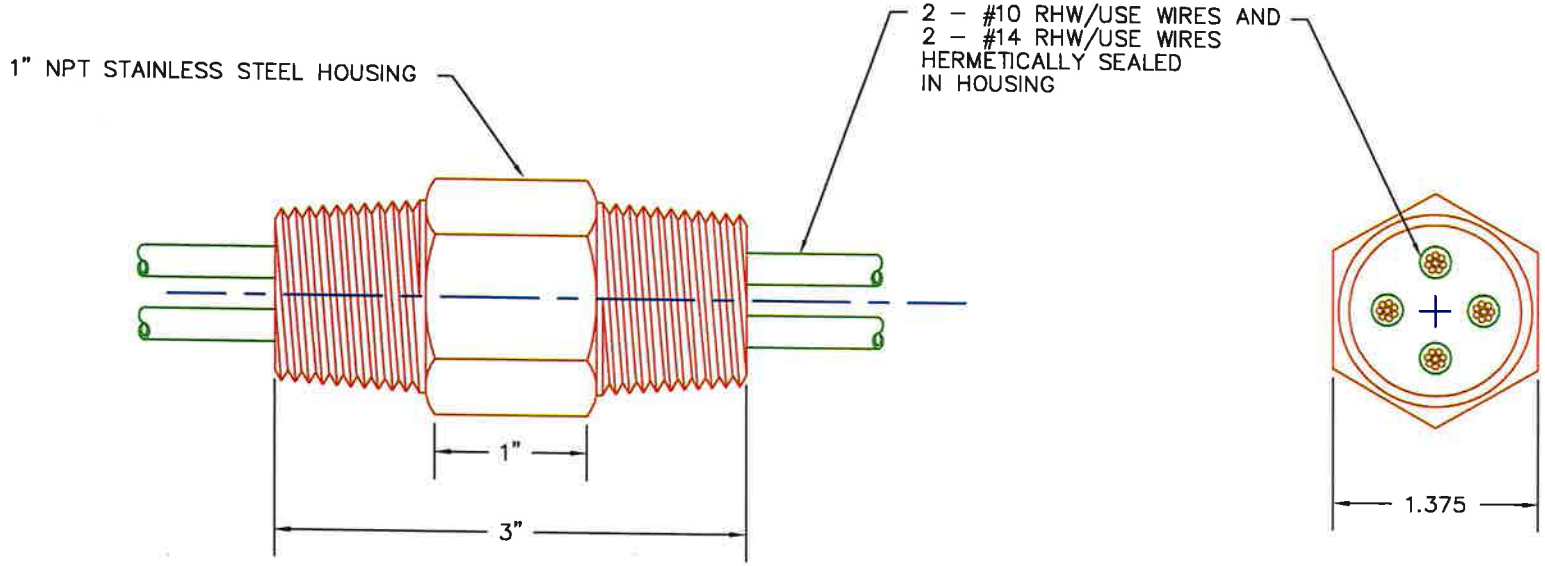
VILLAGE OF THORNTON, ILLINOIS

CATHODIC PROTECTION SYSTEM
500,000 GALLON RESERVOIR
52'–0"ø X 32'–3" H.W.L.
WILLIAMS STREET
SYSTEM LAYOUT DRAWING

| | |
|---|---|
| DRAWN BY | S.C. |
| DESIGNED BY | CORRPRO |
| DATE | 5.31.23 |
| SCALE | NONE |
| SHEET | 1 OF 1 |
| DWG. No. | 53136 |

CLEVELAND • ATLANTA • CHICAGO
HOUSTON • NEW ORLEANS • OKLAHOMA CITY
PHILADELPHIA • SAN FRANCISCO

corrpro®
1055 W. SMITH RD MEDINA, OH 330.725.6681




SPECIFICATION:

WATER TEMPERATURE RANGE: 32° TO 190° F
AMBIENT TEMPERATURE RANGE: MINUS 20° TO 120° F
VOLTAGE RATING: NO. 10 AWG – 600 VOLTS @ 30 AMPS
VOLTAGE RATING: NO. 14 AWG – 600 VOLTS @ 15 AMPS
PRESSURE RATING: 150PSI
NSF 61 CLASSIFIED

FOR USE IN POTABLE WATER:
HIGH CONCENTRATION OF CHLORINE DURING DISINFECTION
COULD REACH LEVELS OF 200–mg/L AVAILABLE CHLORINE

#10 AWG RHW/USE – ANODE CIRCUITS
#14 AWG RHW/USE – REFERENCE ELECTORDES

| NO. | DATE | BY | REVISION |
|---|---|---|---|
| | | | JDE # 54056312 |

REFERENCE DRAWINGS

1" WIRE PRESSURE ENTRANCE FITTING 4 WIRE RHW TYPICAL

CATHODIC PROTECTION SYSTEM

| | |
|---|---|
| DRAWN BY | S.C. |
| DESIGNED BY | CORRPRO |
| DATE | 2015 |
| SCALE | NONE |
| SHEET | 1 OF 1 |
| DWG. No. | JDE54056312 |

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# MIXED METAL OXIDE ANODES

## De Nora LIDA® Wire Anodes



LIDA wire anodes are copper titanium wire with a mixed metal oxide coating. The mixed metal oxide is a crystalline, electrically conductive coating that activates the titanium and enables it to function as an anode.

LIDA wire anodes are manufactured in two diameters, 1.5 millimeter and 3.0 millimeter.

When applied on titanium the coating has an extremely low consumption rate measured in terms of milligrams per year. As a result of this low consumption rate, the wire diameter remains nearly constant during the life of the anode.

The low consumption rate of the mixed metal oxide coating at the recommended operating current densities result in projected anode lifetimes from 15 to 20 years. Longer or shorter lifetimes may be obtained by varying the current output per foot per wire.

**Anode Coating** — The coating used on wire is suitable for most cathodic protection applications, but output varies with application.

LIDA mixed metal oxide coating demonstrates a very high chemical stability, even in environments with very low pH values.

Unlike other impressed current anodes, the LIDA® coating is not affected by the generation of chlorine.

**Lead Wire Connection** — A typical connection between the LIDA wire anode and a header cable, have been used successfully In canistered anodes since 1987.

**Applications**

- Canistered anodes
- Continuous horizontal groundbeds
- Discontinuous horizontal groundbeds
- Shallow vertical groundbeds
- Deep anode groundbeds
- Above ground storage tanks
- Underground storage tanks
- Fresh water
- Electrical cable shielding
- Water storage tanks
- Water treatment equipment

**Resistivity Versus Length** — Proper current distribution is an important factor in the design and proper use of an anode wire for each application.

For example, if a wire voltage drop of 10% or less is desired for proper current distribution in 1000 ohm-cm water, anode segments of 50 feet should not be exceeded between electrical connections to a header cable with the 1.5 mm diameter wire. By comparison, use of the 3.0 mm diameter wire will permit the use of 110 foot segments, while still allowing the desired 10% voltage drop.

As with all electrical conductors, the operating temperature of the wire effects the resistance. The table below, shows this effect by assuming the wire will operate at the temperature of the surrounding electrolyte. The change in resistivity also changes the maximum ampacity of the wire.

**Savings** — In many cases, LIDA mixed metal oxide wire anodes offer savings over competitive anodes on an installed cost basis. This is possible by balancing the high current density capability of mixed metal oxide coatings and the ability to tailor to desired lifetimes.

**Flexibility of Use** — LIDA wire anodes can be used in a wide variety of cathodic protection applications. Their lightweight and malleability allow forming to complex configurations. The copper core provides high conductivity resulting in better current distribution along the entire length of the wire.

| Standard Dimensions | | | | | |
|---|---|---|---|---|---|
| Anode | Nominal Dimensions | | | | Current* Rating mA/ft |
| | Ø | | Length | | |
| | in | mm | ft | m | |
| Special | 0.062 | 1.5 | 1000 | 304.8 | 20 |
| Standard | 0.062 | 1.5 | 1000 | 304.8 | 100 |
| XL | 0.062 | 1.5 | 1000 | 304.8 | 200 |
| *Bases on 20 year design life in calcined petroleum grade coke | | | | | |

| Dimensions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nom Wire Size | | Diameter Tolerance | | Titanium | | Copper | | Active Surface Area | | Weight | |
| mm | inches | mm | inches | % by Wt | % by Vol | % by Wt | % by Vol | $ft^2$/ft of length | $m^2$/m of length | lbs/ft | g/m |
| 1.5 | 0.062 | +0.15 | +0.007 | 36.1 | 52.7 | 63.9 | 47.3 | 0.017 | 5.1E-03 | 0.009 | 13.7 |
| | | -0.0 | -0.0000 | | | | | | | | |
| 3.0 | 0.118 | +0.28 | 0.010 | 17.1 | 29.0 | 82.9 | 71.0 | 0.033 | 1.0E-02 | 0.042 | 82.5 |
| | | -0.00 | -0.000 | | | | | | | | |

| Wire Size mm | 1.5 |
|---|---|
| Electrical RES.ohm/m @ 25°C | 0.0174 |
| Electrical RES.ohm/m @70°C | 0.0204 |
| Max. Wire Amperage @ 25°C, Amps | 21 |
| Max. Wire Amperage @ 70°C, Amps | 7 |

# CORRPRO® PERMACELL® REFERENCE CELLS

## Permacell 801 Permanent Reference Cells



### For Accurate Readings in Fresh Water Environments

Routine monitoring is an important part of any cathodic protection maintenance program. To simplify this testing procedure, different types of permanent reference cells can be used. For structures located in fresh water, Corrpro offers the Permacell 801 copper/copper sulfate cell. The cell is made using a 99.99% pure copper coiled element, which is surrounded by a supersaturated paste of copper sulfate. To ensure a low-resistance connection, a lead wire is mechanically bonded and soldered to the copper element. This electrical junction is then encapsulated by a moisture-resistant shrink sleeve for a truly sealed connection. Electrical contact to the electrolyte is accomplished through a filtering plug at the end of the reference electrode. The plug allows accurate potential measurements to be obtained while preventing cell contamination.

In order for a reference to be effective, it must remain electrically stable over time. Corrpro's 801 reference cell delivers unsurpassed stability due to strict quality control procedures implemented during the manufacturing process. Deionized water is used to create the supersaturated solution of copper sulfate, and the copper element is treated with a special cleansing agent before it is installed into the cell's plastic housing. Each cell is also tested for resistance and electrical potential, and the values obtained are recorded and marked on shipping tags attached to the cells. These extra quality steps give the Permacell 801 a 30-year design life and the ability to maintain an electrical potential of within ±5 millivolts.

### Typical Applications

The Permacell 801 is ideal for use in cathodic protection systems operated in fresh water environments. This includes elevated water storage tanks, clarifiers, traveling screens, pasteurizers, locks, dams, and fresh water dock structures. The cell can be operated at temperatures of up to 135°F, but should not be used in waters containing high concentrations of chloride ions.

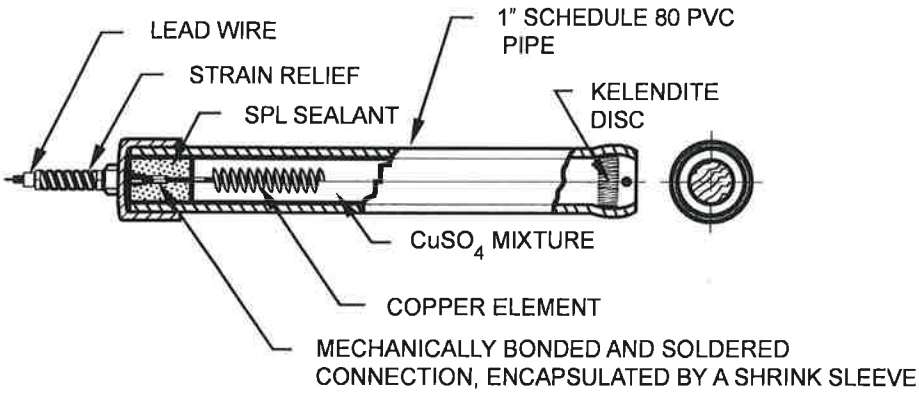
### Ordering Procedure

Permacell 801 is provided standard with fifty feet of insulated lead wire, but it can also be custom manufactured to meet the customer's specifications. To order this reference cell for your particular application, indicate that you need a Corrpro Permacell 801 permanent reference cell, and specify the quantity desired and the lead wire length, size, and insulation, if different from the standard provided. An example is included to illustrate this process.

| Ordering Procedure Example | |
|---|---|
| Quantity | 10 |
| Product | Permanent Reference Cell |
| Permacell Model | 801 |
| Lead Wire: Length 50 ft = Standard | 50 ft |
| Size #14 AWG = Standard | 14 AWG |
| Insulation HMWPE = Standard | HMWPE |

*Custom assemblies available, able to use #16, #14, #20, #10, or 8 wires for these assemblies.*

*Permacell 801 Permanent Reference Cell*




**Product Specifications**

| Nominal Dimensions Ø Length | Weight | | Electrical Stabililty | Maximum Temperature | | Design Life |
|---|---|---|---|---|---|---|
| | lbs | kg | | °F | °C | |
| 1" X 11" (25.4mm x 279.4mm) | 2 | 0.91 | ±5 millivolts with 3.0 microamp load | 135 °F | 57.2 °C | 30 Years |



1-866-267-7776

Specification: RHW-2/USE-2
Issue Date: 02/15/11
Supersedes: 02/08/11


**Kris-Tech Wire Co.**

921 Seneca St. • PO Box 4377 • Rome, NY 13442-4377 USA
Telephone 315-339-5268 • Fax 315-339-5277
WWW.KRISTECHWIRE.COM


**1.0 Scope:** This specification describes single conductor crosslinked polyethylene (XLP or XLPE) Type RHW-2 and USE-2 for use at 600 volts or less **RoHS** compliant. It is approved per the NEC for **DIRECT BURIAL,** general-purpose lighting, and power applications at a maximum continuous operating temperature of 90 degrees C in wet and dry locations. Suitable for use in low leakage circuits requiring a dielectric constant of 3.5 or less. **Note:** Sunlight Resistant and VW-1 **available when required**.

**2.0 Applicable Standards:**

2.1 ASTM B-1, B-3, B-33 and B-8 for copper conductors.

2.2 ICEA S-95-658/NEMA WC70, ICEA S-66-524/NEMA WC7 Cross Linked Polyethylene Insulated Wire&Cable, UL 854 for Service Entrance Cables (incl. Para. 854-38.7 for 300 hr. sunlight resistance) and UL 44 for Thermoset Insulated Wires & Cables, Fed Spec J-C-30B, FAA L-824 Type C 600V

**3.0 Conductors:** The single copper conductors shall be solid or stranded annealed or hard, coated or uncoated copper per UL83 and ASTM requirements.

**4.0 Insulation:** The conductor shall be insulated with XLP or XLP-VW-1 as specified and applied tightly to the conductor in a concentric manner. These conductors are "Oil and Gasoline Resistant II". All black insulation is rated and identified "Sunlight Resistant". Other colors of Sunlight Resistant are available upon request. The minimum at any point shall not be less than 90% of the specified average thickness in compliance with UL 44.

**5.0 Identification:** The wire shall be identified in compliance with UL requirements by surface marking indicating the manufacturer, conductor size, voltage rating, UL symbol, type designation.

**6.0 Packaging:** Standard length spools have 500 or 2500 feet. Custom lengths are available.

**7.0 Testing:** The wire shall be continuously spark tested at 7500 Volts DC. Other electrical and mechanical tests shall be in accordance with UL 44, UL 854 and UL 1581.

| AWG | Standard Number of Strands | Extra Flexible Stranding | Insulation Thickness Mils | Nominal Overall Diameter – Inches (standard strands) | Approx. Shipping Wgt. (Lbs./Mft.) |
|---|---|---|---|---|---|
| 14 | Solid or 7 | 41 | 45 | 0.16"/0.17"" | 21 |
| 12 | Solid or 7 | 65 | 45 | 0.18"/019" | 30 |
| 10 | Solid or 7 | 37 or 105 | 45 | 0.20"/0.21" | 44 |
| 8 | 7 | 1, 19, 133 | 60 | 0.27" | 70 |
| 6 | 7 | 1, 19, 133 | 60 | 0.31" | 106 |
| 4 | 7 | 1, 19, 133 | 60 | 0.35" | 161 |
| 2 | 7 | 19, 133 | 60 | 0.41" | 246 |
| 1 | 19 | 133 | 80 | 0.49" | 318 |
| 1/0 | 19 | 133 | 80 | 0.53" | 389 |

**Non-standard STRANDING, COLORS, and CUSTOM PACKAGING are available by quotation.**

# CABLE

## Corrpro® HMWPE Direct Burial Cable



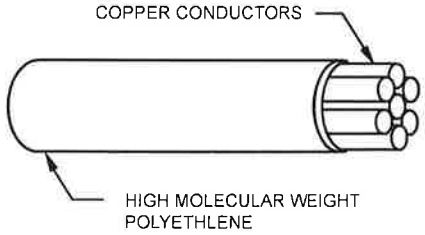
### Multi-Purpose Cathodic Protection Cable

Selecting the right cable for connecting anodes, power supplies, and structures is an important part of cathodic protection design. Corrpro makes this selection process easy by offering a cable manufactured specifically for the cathodic protection industry. It is composed of copper wire, which is covered by high-molecular weight polyethylene (HMWPE).The copper wire is stranded and annealed to permit extra flexibility. Because the polyethylene on the cable is approximately twice as thick as on conventional HMWPE wire, it serves as both electrical insulator and mechanical cover for the conductor. This provides Corrpro's cathodic protection cable with outstanding dielectric strength and moisture resistance. During installation, the cable can withstand considerable mechanical abuse without risk of damage to the copper electrical conductor. The polyethylene cover is also chemically resistant, and protects against most substances.

Corrpro's HMWPE cable is manufactured according to strict quality control standards. The polyethylene coating is made to meet American Society for Testing Materials Standard D-1248 for plastic molding and extruded materials. In addition, routine tests are performed to ensure that the cable possesses certain mechanical and electrical properties.

### Applications

HMWPE cable is offered in a variety of sizes. It can be used as a header cable on cathodic protection systems, or to make anode-lead or negative-return connections. The thick polyethylene cover permits direct burial of the cable in native soils or submersion in fresh water. The cable exhibits superior flexibility and can be bent without risk of notch propagation. It is not recommended for use in environments containing chlorine, hydrochloric acid or petroleum hydrocarbons.




**HMWPE Order Information**

| Wire Size AWG | Number of Strands | Insulation Thickness | | Nominal O.D. | |
|---|---|---|---|---|---|
| | | in | mm | in | mm |
| 14 | 7 | 0.11 | 2.794 | 0.299 | 7.59 |
| 12 | 7 | 0.11 | 2.794 | .031 | 7.87 |
| 10 | 7 | 0.11 | 2.794 | 0.34 | 8.64 |
| 8 | 7 | 0.11 | 2.794 | 0.36 | 9.14 |
| 6 | 7 | 0.11 | 2.794 | 0.41 | 10.41 |
| 4 | 7 | 0.11 | 2.794 | 0.46 | 11.68 |
| 2 | 7 | 0.11 | 2.794 | 0.52 | 13.21 |
| 1 | 19 | 0.125 | 3.175 | 0.59 | 14.99 |
| 1/0 | 19 | 0.125 | 3.175 | 0.63 | 16.00 |
| 2/0 | 19 | 0.125 | 3.175 | 0.67 | 17.02 |
| 4/0 | 19 | 0.125 | 3.175 | 0.78 | 19.81 |

GLADDING
BRAIDED PRODUCTS

MADE IN THE USA SINCE 1816


# GLADDING

Braided Products, LLC
One Gladding Street
South Otselic, NY 13155
315-653-7211 (fax 4492)


# *5/16" Round Polyester Braided Rope*

**Gladding Part Number #10ESTYBX1000**

## Specification sheet

Gladding's double braided polyester ropes combine high-tenacity polyester yarns into a unique firm round braided rope. The unique construction first twists the yarns in opposite directions and then braids those twisted strands into a stable braided core. Next, the braided core is inserted inside a braided sleeve/jacket made from the same twisted yarns. This twisting process adds stability to the rope resulting in a rope that will not twist and kink. The twisted yarns in both the core and sleeve add excellent abrasion resistance because the twisted fibers aligned with the axis of the rope. This unique rope combines the 100% polyester yarns into a rope that features high strength, low stretch, easy splicing, and excellent abrasion resistance.

| | |
|---|---|
| Raw Material (Sleeve and core) | 100% Polyester |
| Cover Braid | Sleeve 12 PPI ( per 4.5mm) |
| Core Braid | 100% polyester 8c |
| Diameter | 5/16" |
| Circumference | 1" |
| Approx weight per 100 ft. | 3.5 |
| Approx average Breaking Strength in pounds | 3,270 |
| Braided construction | Non rotating balanced braid |
| Specific Gravity | 1.38 |

# SPLICING KITS

## Scotchcast™ In-line Resin Splicing Kit:

### 82A Series, Voltage Rating Up to 5 kV Non-shielded, UL 486D Listed, File #EI 02356

Use 82A series kits to insulate and moisture-seal single conductor, non-shielded cables through 5kV and multi-conductor cables through 1000V. Each kit contains a snap-together mill body which fits around the splice, two funnels, tape for sealing mold ends, and Scotchcast 4 epoxy electrical einsulating resin in a Unipak™ container for clean and easy handling. These kits may be used for above ground or direct buried applications.

| Product Specifications | | | | |
|---|---|---|---|---|
| Product UPC | Voltage Rating (Max) | Conductor Size | Max Cable O.D. | Max Conn O.D. Sleeve Type |
| 82-A 25016 | 5 kV | 10 - 2 AWG 6 - 30 mm) | 0.750" (19 mm) | 0.406" (10 mm) |
| 82-A1 25024 | 5 kV | Up to 2 AWG (30 mm) | 0.625" (16 mm) | 0.406" (10 mm) |
| 82-A2 25032 | 5 kV | 2 3/0 AWG (35 - 80 mm) | 1.0" (25 mm) | 0.625" (16 mm) |
| 82-A3 25040 | 5 kV | 3/0 AWG - 400 kcmil (90 - 200 mm) | 1.438" (40 mm) | 1.0" (25 mm) |

## Scotchcast™ Wye Resin Splicing Kit: 82-B1, Voltage Rating Up to 5 kV Non-sheilded

82-B1 kit insulates and moisture seals wye splices on non-shielded cable through 5 kV and on multi-conductor cables through 1000V. Its rigid two-part transparent molds snap around splices for a tailor-made field splice. Within 30 minutes after the resin is poured, the splice is ready for a long, reliable life. The kit contains Scotchcast 4 electrical insulating resin. This kit may be used for above ground or direct buried applications.

| Product Specifications | | | | |
|---|---|---|---|---|
| Product UPC | Voltage Rating (Max) | Connector Split Bolt (Max) | Connector Crimped (Max) | Max Cable O.D. |
| 82-B1 25057 | 5kV Single Con 1000V Multlipe Cond | 4 AWG | 2 AWG (19 mm) | 0.250" - 0.625" (6 - 16 mm) |

## Scotchcast™ Flexible Power Cable Splicing Kit: 82-BF1, Voltage Rating Up to 1000V

Scotchcast flexible power cable tape splicing kit 82-BF1 is a permanent splice for use on non-shielded portable power cables and cords with copper conductors rated up to 1000V. It can be used on single conductor or multiple conductor cables using a compression "C" tap connector. The kit contains one piece removable mold tape for sealing mold ends, abrasive cloth and Scotchcast 2130 compound in the Unipak™ container for clean and easy handling. The completed splice is designed for use in weather exposed, direct bury or submerged locations.

| Product Specifications | | | |
|---|---|---|---|
| Product UPC | Voltage Rating (Max) | Connector Size Range | Number of Conductors |
| 82-BF1 08309 | 1000 | Up to 1/0 AWG (50 mm) | 1 |
| | 1000 | - | Multi |

# SPLICING KITS

## Scotchcast™

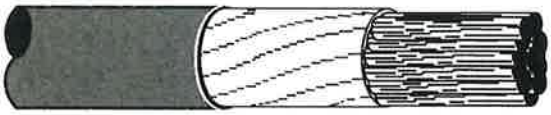


### Scotchcast™ Wye Resin Splicing Kit: 90-B1, Voltage Rating Up to 1000V

90-B1 insulates and moisture-seals wye splices made with the split-bolt type connectors on cable rated through 1000V. Each kit contains a snap-together mold body which fits around the splice, two funnels, tape for sealing mold ends, and Scotchcast 4 epoxy electrical insulating resin in a Unipak™ container for clean and easy handling. These kits may be used for above ground or dried buried applications

| Product Specifications | | | | |
|---|---|---|---|---|
| Product UPC | Voltage Rating (Max) | Connector Split Bolt (Max) | Connector Crimped (Max) | Max Cable O.D. |
| 90-B1<br>25115 | 1000 | 1/0 AWG | 2/0 AWG<br>(19 mm) | run 0.50" - 812"<br>(13 - 21 mm)<br>tap max 0.375"<br>(10 mm) |

Single Conductor Cable

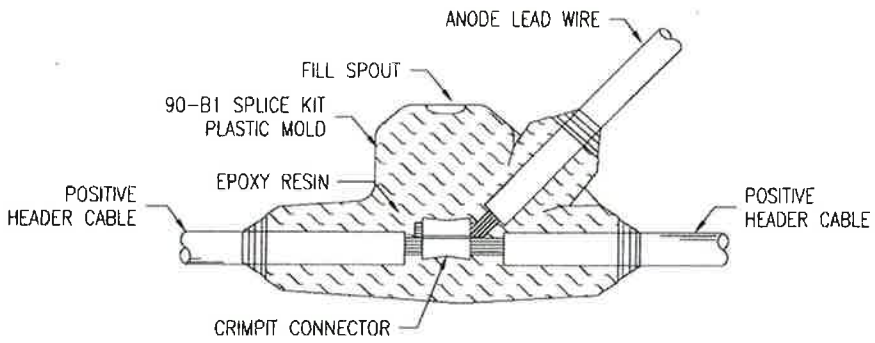


Multiple Conductor, to 1000 Volt Cable

### Scotchcast™ Multi-Mold Resin Splicing Kit for Non-Shielded Cable 85 Series, Voltage Rating Up to 1000 V

Scotchcast 85 Series versatile kits are used to electrically insulate and moisture-seal odd-sized and odd-shaped splices on cables rated through /000V. The flexible plastic mold forms easily around splices and within 30 minutes after the resin is poured, the splice is ready for direct bury or above ground service.

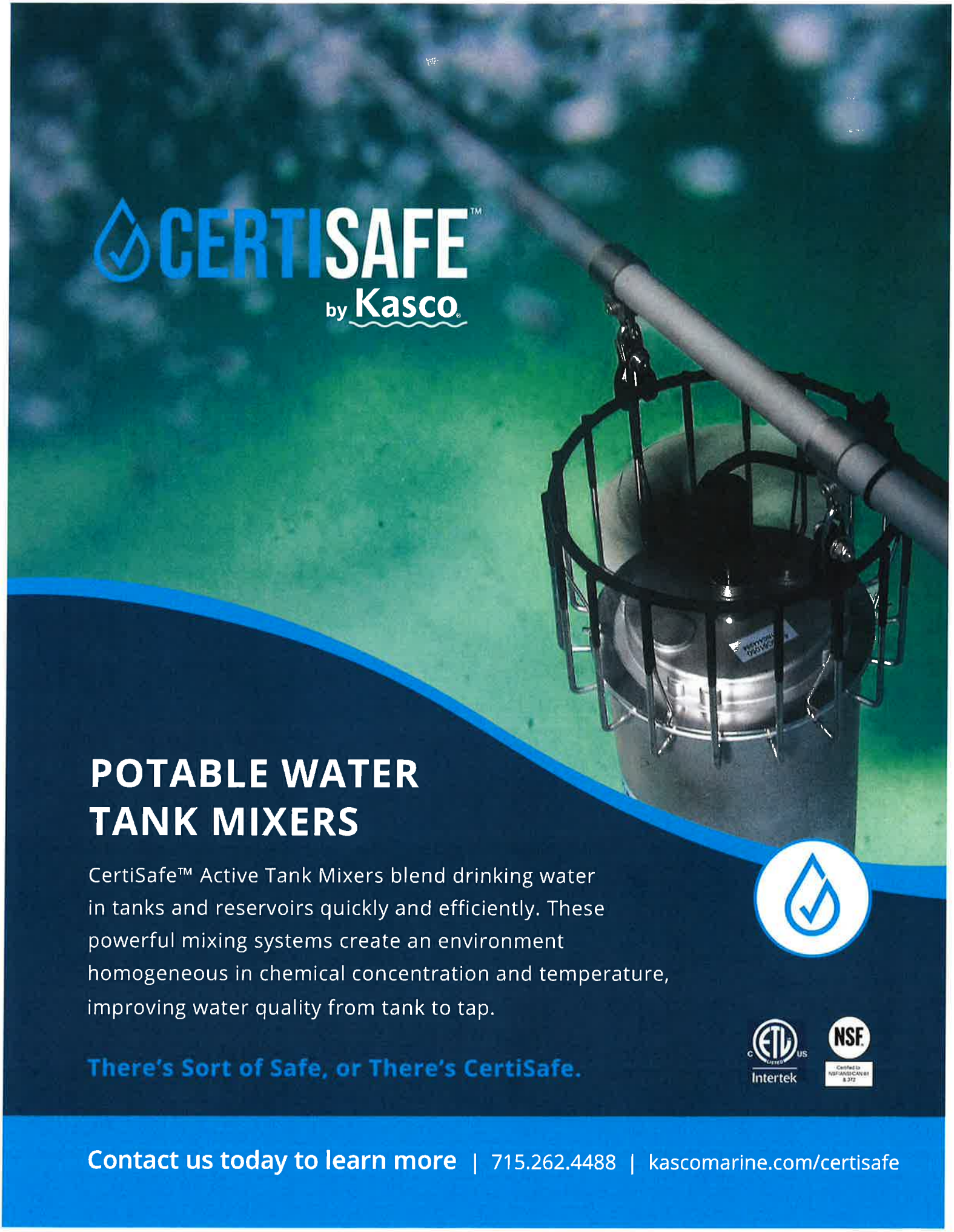
| Product Specifications | | | |
|---|---|---|---|
| Product UPC | Voltage Rating (Max) | Connector Type | Max Conductor Size |
| 85-10<br>11846 | 1000 | Split bolt compression<br>H or C tap | 8 AWG str<br>4 AWG str |
| 85-12<br>11847 | 1000 | Split bolt compression<br>H or C tap | 1 AWG str<br>2/0 AWG str |
| 85-14<br>11848 | 1000 | Split bolt compression<br>H or C tap | 2/0 AWG str<br>4/0 AWG str |
| 85-16<br>02403 | 1000 | Inline compression split bolt | 750 kcmil str.<br>250 kcmil (run):<br>2/0 AWG str. (tap) |
| | | Compression<br>H or C tap | 500 kcmil (run)<br>4/0 AWGH str. (tap) |




| Scotchcast Ordering Information | | |
|---|---|---|
| Kit Number | Typical Use | Maximum Conductor Size AWG (mm) |
| 85-10 | Multi-mold Odd Shaped Connections | #4 Stranded (25) |
| 85-12 | Multi-mold Odd Shaped Connections | 2/0 Stranded (70) |
| 85-14 | Multi-mold Odd Shaped Connections | 4/0 Stranded (120) |
| 85-16 | Multi-mold Odd Shaped Connections | 750 kcml (400) |
| 82-A1 | Inline Splices | #2 Stranded (35) |
| 82-A2 | Inline Splices | #2 - 3/0 Stranded (35 - 95) |
| 82-A3 | Inline Splices | 3/0 - 400 kcml (85 - 203) |
| 82-B1 | Wye Splices | #2 Stranded (35) |
| 82-B2 | Wye Splices | 2/0 Stranded (70) |



1-866-267-7776


CERTISAFE™
by Kasco
POTABLE WATER
TANK MIXERS
CertiSafe™ Active Tank Mixers blend drinking water in tanks and reservoirs quickly and efficiently. These powerful mixing systems create an environment homogeneous in chemical concentration and temperature, improving water quality from tank to tap.
There's Sort of Safe, or There's CertiSafe.
Intertek
NSF
Contact us today to learn more | 715.262.4488 | kascomarine.com/certisafe

# CERTISAFE™ TANK MIXERS

## A NEW MOVEMENT IN WATER

### WATER QUALITY CHALLENGES

When drinking water is not mixed quickly, evenly, and continuously, it can fall out of EPA compliance, putting the health and safety of your community in danger. Common problems include:

- Thermal and chemical stratification
- Residual loss
- Biofilm buildup
- Nitrification
- Disinfection by-products
- Development of ice caps
- Sediment accumulation


### CERTISAFE IS THE SOLUTION

By creating strong, consistent circulation, CertiSafe™ Tank Mixers quickly and evenly move water while eliminating common water quality problems. Available in several HP sizes, multiple mounting orientations, and various control panels, there is a CertiSafe Mixing solution for nearly every size and style of tank. See back page for mounting option and control panel information.

HP

1/2, 3/4, 1, & 2HP Available

120V, 208-240V, & Solar-Powered Options

3-Year Warranty
*Optional 5-year Extended Warranty*

ETL Listed to CSA and UL Standards

NSF/ANSI/CAN 61 & 372 Certified

kascomarine.com/certisafe | 715-262-4488

### FASTEST BLEND TIMES

Complete blending in 30 mins - 4 hrs.

### LONGEST LASTING MOTORS

Food-grade mineral oil keeps motors cooler so they last longer.

### ENGINEERED TO PERFORM

Each HP uses a specific prop to maximize performance.

### DURABLE & REBUILDABLE

Units are rebuildable and repairable, keeping costs to a minimum.

## CERTISAFE™ SPECIFICATIONS

| TANK SIZE | SUPPLY / VOLTAGE | PHASE / HZ | UNIT SIZE (HP) | MIXER MODEL | CABLE LENGTH (FT) | CABLE GAUGE | AMPS | LOCK ROTOR AMPS | THRUST (LBS) |
|---|---|---|---|---|---|---|---|---|---|
| Up to 1MG | 120 | 1 / 60HZ | 1/2 | 2400C61 | 50 | 16 | 5.7 | 12 | 31 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | 14 | | | |
| | | | | | 150 | **12** | | | |
| | | | | | 200 | **12** | | | |
| Up to 2.5MG | 120 | 1 / 60HZ | 3/4 | 3400C61 | 50 | 16 | 7 | 18 | 36 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | 14 | | | |
| | | | | | 150 | **12** | | | |
| | | | | | 200 | **12** | | | |
| | 208-240 | 1 / 60HZ | 3/4 | 3400HC61 | 50 | 14 | 3.5 | 9 | 36 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | 14 | | | |
| | | | | | 150 | **12** | | | |
| | | | | | 200 | **12** | | | |
| Up to 5MG | 120 | 1 / 60HZ | 1 | 4400C61 | 50 | 14 | 9.1 | 40 | 44 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | **12** | | | |
| | | | | | 150 | **10** | | | |
| | | | | | 200 | **10** | | | |
| | 208-240 | 1 / 60HZ | 1 | 4400HC61 | 50 | 14 | 4.5 | 20 | 44 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | 14 | | | |
| | | | | | 150 | **12** | | | |
| | | | | | 200 | **12** | | | |
| 5MG & Over | 208-240 | 1 / 60HZ | 2 | 8400C61 | 50 | 14 | 9 | 40 | 56 |
| | | | | | 75 | 14 | | | |
| | | | | | 100 | **12** | | | |
| | | | | | 150 | **12** | | | |
| | | | | | 200 | **12** | | | |

**Product Notes:**

1. Cable gauges in bold indicate quick disconnect included on power cable.
2. Mounting option and control panel sold separately. See next page for details.

## CONTROL & MONITOR

Monitor your CertiSafe™ Mixer with various control panels that feature H-O-A control, indicator LED, and SCADA I/O for remote operation.


CS-100 / CS-200


CS-150 / CS-250

## MOUNTS

Several mounting options to fit your tank, tower, or reservoir needs.

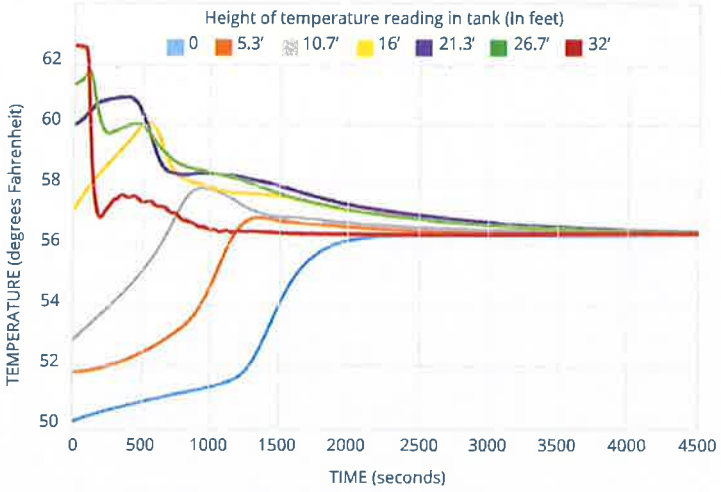
Floor Mount

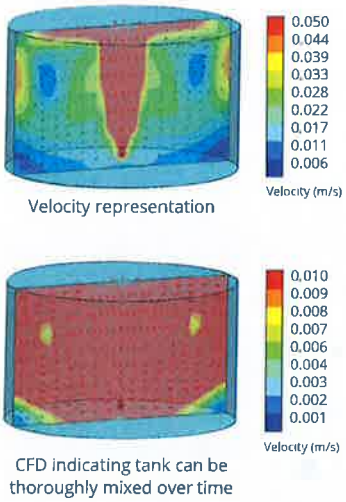
Pipe Mount

Suspended Mount

## MIXING CAPABILITIES

Computational fluid dynamics (CFD) and test results using a 3/4HP CertiSafe unit to mix a .5-million-gallon tank show complete mixing in under an hour.




Velocity representation

CFD indicating tank can be thoroughly mixed over time

## KASCO KNOWS WATER

For more than 50 years, Kasco has developed and deployed water circulators that run reliably in the toughest conditions. The CertiSafe™ Tank Mixer is built on this foundational platform and continues the Kasco tradition of innovation, performance, and excellence in the water quality industry.

CERTISAFE by Kasco