Protecting Laredo, TX Infrastructure from Microbiologically Induced Corrosion

January 29, 2019

Van Young – ConShield Technologies, Inc.
McIntire Management Group

Angel Leon - City of Laredo Texas

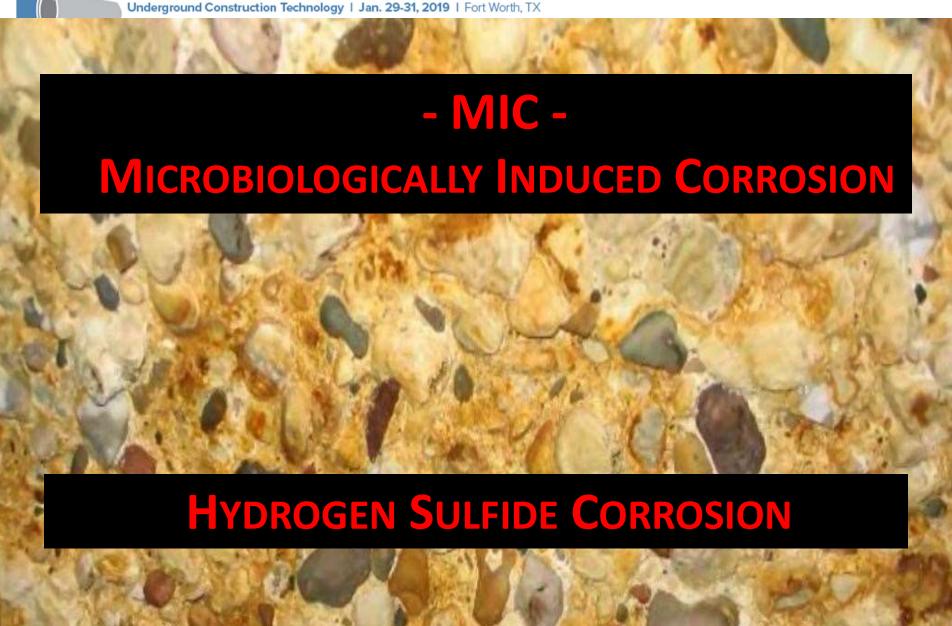








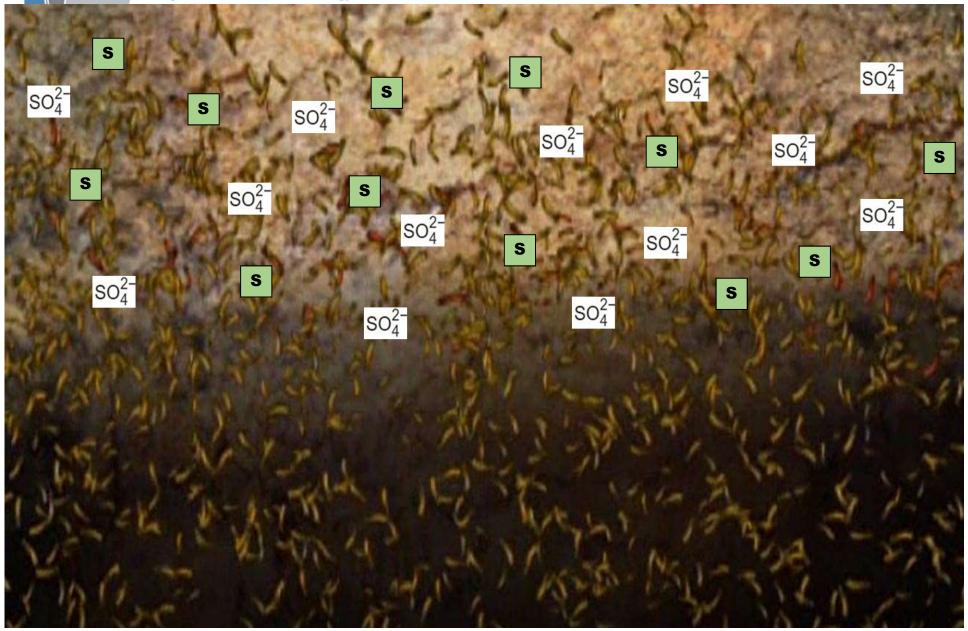














How do we Prevent the Sulfuric Acid from Corroding our Structures??

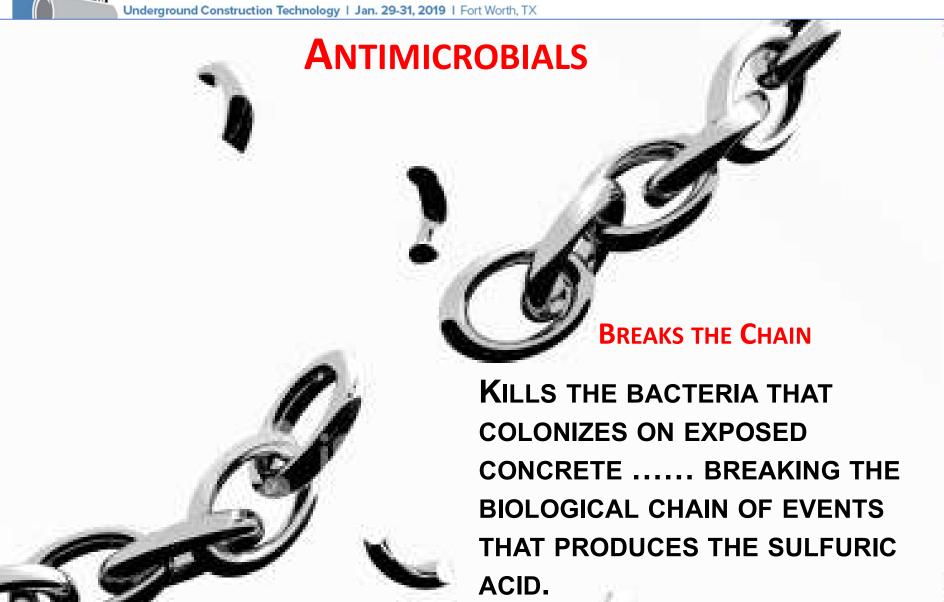




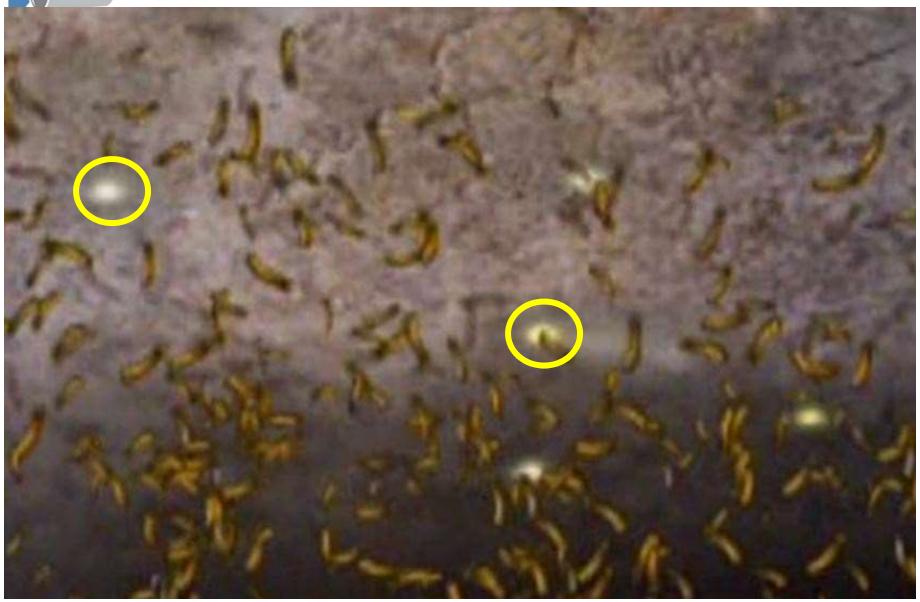


BARRIER COATINGS – POLYMER LININGS

EPOXIES & POLYURETHANES



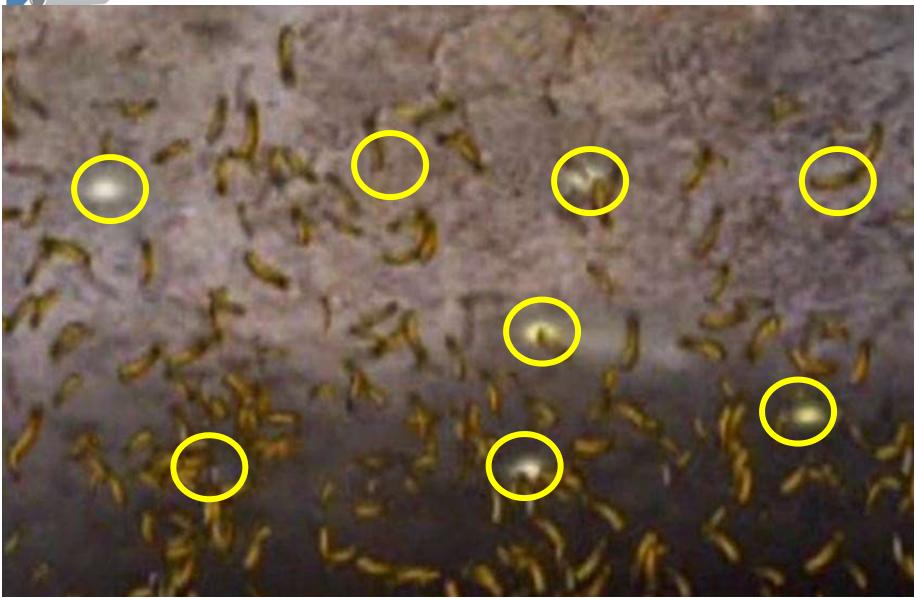














MICROBIOLOGICAL PRODUCTION OF ACIDS





FOOD SOURCE SUGARS SULPHUR/SULPHATES

BACTERIA STREPTOCOCCUS THIOBACILLUS

ACID LACTIC SULFURIC

QUATERNARY ORGANOSALINE

- QUATERNARY ORGANOSALINE
- Liquid Additive

- QUATERNARY ORGANOSALINE
- Liquid Additive
- Provides Electro Chemical Kill

- QUATERNARY ORGANOSALINE
- Liquid Additive
- Provides Bioelectric Kill
- PROTECTION IS PERMANENT

- QUATERNARY ORGANOSALINE
- Liquid Additive
- PROVIDES BIOELECTRIC KILL
- PROTECTION IS PERMANENT
- 20 YEAR PRODUCT HISTORY



Laredo, Texas

- Founded 1755
- Population 260,000
- Six WWTP
- 820 Miles of Sewer Lines
- 12,333 Manholes
- 71 Lift Stations



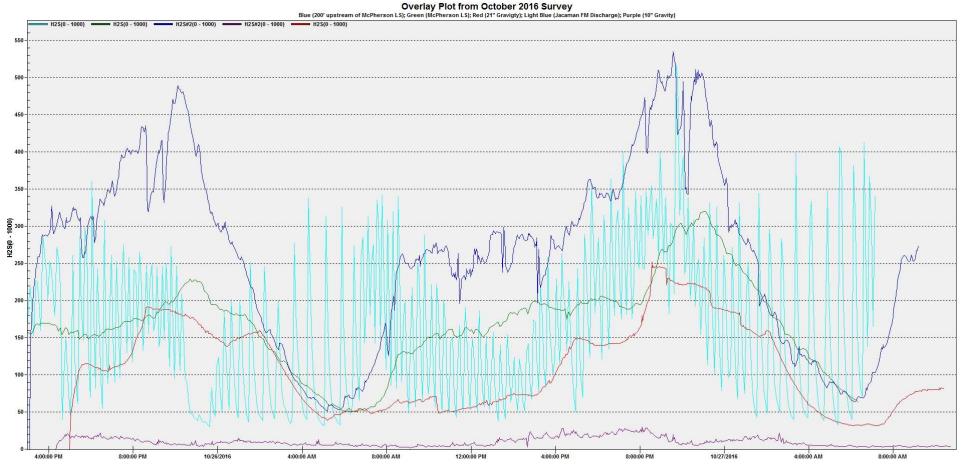






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High H₂S Concentrations



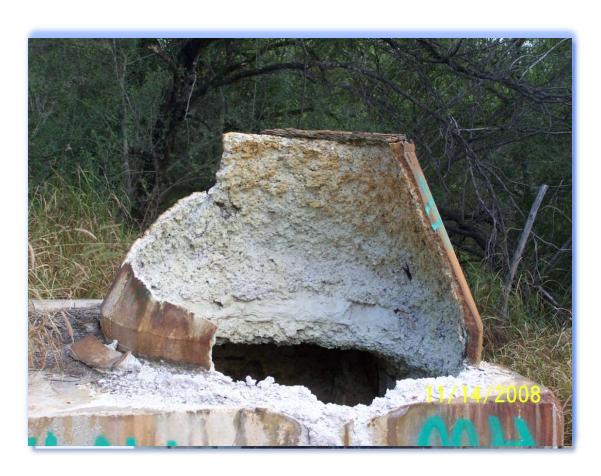


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Collapsed manholes were not uncommon



Manhole Rehabilitation Program started in 2009



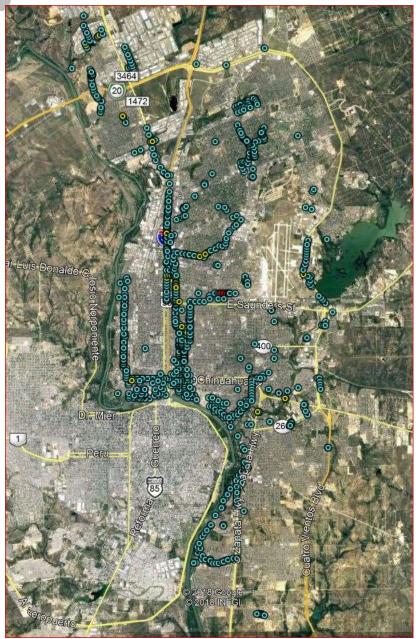
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Manhole Rehabilitation Program

Phase	Year	Qty	Line Size	Cost	Cost/LF
1	2009	20	36"	\$196,579.	\$881.52
2	2010	69	30"- 42"	\$778,530.	\$816.07
3	2010	41	8" & 36"	\$119,968.	\$306.20
5	2011	81	12" & 21"	\$305,735.	\$344.30
6	2012	83	12" – 30"	\$334,638.	\$376.84
	2012-2015	433	In-house epoxy & cement		\$205.30
	2016-2018	262	In-house Permacast & ConShield		\$153.26



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Total Manholes Rehabilitated – 1050

In-House - 695



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The Crew





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Equipment





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Angel Leon Wastewater Collection Superintendent City of Laredo

aleon@ci.laredo.tx.us

956-721-2022