

Rami Izhiman

From: Khalil- CORTEC ME <kabed@cortec-me.com>
Sent: Sunday, September 1, 2013 12:37 PM
To: Abdelkader A. Meroufel
Cc: amalik@swcc.gov.sa
Subject: RE: Cortec Corrologic technology for protection of tank bottoms
Attachments: Corrosion Inhibition of Stress Corrosion Cracking and Localized corrosion.pdf

Dear Dr. Abdelkader,

It was indeed a great pleasure to meet you last Thursday and thank you for the below email.

Regarding the research collaboration between SWADRI and Cortec Middle East on the subject "Study of the effect of Cortec Vapor phase Corrosion Inhibitors (VpCI) on localized corrosion of Carbon steel", please find attached technical paper on this subject in which Cortec Vapor phase Corrosion Inhibitors were tested to study their effect on localized corrosion inhibitors:

1. "Corrosion Inhibition of Stress Corrosion Cracking and Localized Corrosion of Turbo-Expander and Steam/Gas Turbines Materials

I will be glad to hear from you on your proposal and collaboration agreement to move things forward.

Regards,

Khalil Abed
Business Development Manager
KSA, Levant and North Africa
CORTEC Middle East
P.O. Box 115133 Dubai / United Arab Emirates
Tel.: +971-4-434 0669
Mobile: +971-50- 5576150
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From: Abdelkader A. Meroufel [mailto:AMeroufel@swcc.gov.sa]
Sent: Thursday, August 29, 2013 2:28 PM
To: kabed@cortec-me.com
Subject: RE: Cortec Corrologic technology for protection of tank bottoms

Dear Mr. Khalil,

It was nice to meet you and discuss your VCI product. Regarding the subject that I proposed, if you can send me all published studies about your product that I consider it in the proposal writing. Of course, it will be a scientific collaboration beneficial for all parties giving strong argument to sell your product and confirm SWCC choice as solution for tank bottom corrosion. I will start to prepare the proposal as well as the agreement which will regulate this collaboration.

Waiting for your reply, please accept my Best Regards.



Saline Water Desalination Research Institute
Kingdom of Saudi Arabia
Dr. Abdelkader Meroufel
Corrosion Specialist

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Mobile: (+966)5 95480019

From: kabed@cortec-me.com [<mailto:kabed@cortec-me.com>]

Sent: Monday, August 26, 2013 10:54 PM

To: Anees U. Malik

Cc: Saleh A. AlFozan; Abdelkader A. Meroufel; aneesmalik1972@gmail.com

Subject: Re: Cortec Corrologic technology for protection of tank bottoms

Dear Dr. Malik,

Thank you for the confirmation.

Please find attached my passport copy for your reference.

Looking forward to meeting you.

Regards,
Khalil

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From: "Anees U. Malik" <AMalik@swcc.gov.sa>

Date: Sun, 25 Aug 2013 10:45:11 +0300

To: Khalil- CORTEC ME<kabed@cortec-me.com>

Cc: Saleh A. AlFozan<SAlFozan@swcc.gov.sa>; Abdelkader A. Meroufel<AMeroufel@swcc.gov.sa>;
<aneesmalik1972@gmail.com>

Subject: RE: Cortec Corrologic technology for protection of tank bottoms

Dear Mr. Khalil Abed

Thanks for your letter.

I conform 29th August 2013(Thursday) 11.00 Am at my office in SWDRI. If anybody accompanying you kindly send his affiliation it shall be required for gate pass at the security .The location map is attached,

Best Regards

Dr. Anees U. Malik
Head, Corrosion Department
SWDRI

From: Khalil- CORTEC ME [<mailto:kabed@cortec-me.com>]

Sent: Wednesday, August 21, 2013 9:21 AM

To: Anees U. Malik

Cc: Saleh A. AlFozan; Abdelkader A. Meroufel; 'Iyad Alami Outside'
Subject: RE: Cortec Corrologic technology for protection of tank bottoms

Dear Dr. Malik,

Thank you for your positive feedback.

I would like to schedule a meeting on Thursday August 29th at 11:00 am at Seawater Desalination Research Institute (SWDRI), please send me the location map.

Regards,

Khalil Abed
Business Development Manager
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From: Anees U. Malik [<mailto:AMalik@swcc.gov.sa>]
Sent: Tuesday, August 20, 2013 12:47 PM
To: Khalil- CORTEC ME
Cc: Anees U. Malik; Saleh A. AlFozan; Abdelkader A. Meroufel
Subject: RE: Cortec Corrologic technology for protection of tank bottoms

Khalil Abed
Business Development Manager
KSA, Levant and North Africa
CORTEC Middle East
P.O. Box 115133 Dubai / United Arab Emirates

Subject: Cortec Corrologic technology for protection of tank bottoms

Dear Mr. Khalil Abed,
Thanks for your letter and attachments of technical papers concerning with the subject.

I went through the papers and found Cortec Corrologic technology promising for application in above ground storage tanks in SWCC. Of course I am quite familiar to Cortec as we did one project on Migratory Corrosion Inhibitor long back. We have quite a busy schedule next week after Eid holidays but you are welcome to visit Seawater Desalination Research Institute (SWDRI) for discussion with our Research Staff on the above subject.
Please suggest the date and time of your visit next week preferably in the morning .

Best Regards

Prof. Dr. Anees U. Malik;
Head, Corrosion Department
Saline Water Desalination Research Institute (SWDRI)
AL-JUBAIL 31951
Kingdom of Saudi Arabia

From: Khalil- CORTEC ME [<mailto:kabed@cortec-me.com>]
Sent: Monday, August 19, 2013 12:28 PM
To: Anees U. Malik
Cc: 'Iyad Alami Outside'
Subject: Cortec Corrologic technology for protection of tank bottoms

Dear Mr. Malik,

Further to the telephone conversation we have just had regarding the above attached technical paper that you co-authored in 2005, I would like to thank you for your interest in Cortec CorroLogic® system for mitigation of soil side corrosion of Aboveground Storage Tank bottoms.

Cortec VpCI® Technology is cost effective and practical. It can be applied on CP protected and unprotected new tanks, in-service tanks and also out of service tanks. We also have design solutions for the tanks that have oily/bituminous sand and asphalt pad beneath the floors and can innovate different systems as needed . Our Corrosion Engineering and Field services (CEFS) team has a long history and strong track record in successfully implementing this technology in the united states for more than 300 tanks and more recently in the Middle East. Our Technology is comprehensive and includes a system for introducing the VpCI®, a system for monitoring the corrosion rate and a system for future replenishment, when needed.

In this regard, I would like to share with you couple of technical articles that discuss the challenges of CP systems in providing the anticipated protection for the tank bottoms and the positive impact of using Vapor phase corrosion inhibitors for this application.:

1. **“Evaluation of the Tank Bottom Corrosion and CP Effectiveness at Saudi Aramco Crude Oil Tank Farm”**. The paper highlights the inevitable reason for the malfunctioning of CP in some areas of the tank bottom, which is the gaps between the bottom plates and the sand due to foundation settlement, high density repair patches and the filling-refilling cycles. Other reasons also thought to exacerbate soil side corrosion are; the use of the oily sand and ingress of moisture/water from the periphery of the tank. The use of Vapor phase Corrosion Inhibitors is one of the recommendations in this paper.
2. **Mitigating Soil-Side Corrosion on Crude Oil Tank Bottoms Using Volatile Corrosion Inhibitors**”. This NACE paper describes a pilot project that was conducted in 2011 on an aboveground storage tank (AST) at Saudi Aramco crude oil tank farm. This project was designed to evaluate the procedures for application of volatile corrosion inhibitor VpCI® beneath selected areas of the tank floor and then evaluate the effectiveness of the VpCI® in reducing the corrosiveness of the environment under the tank floor.
3. **Material Performance article on ASTs**: This article describes VpCI® chemistry and presents several case histories of VCI usage in these spaces. It also shows how the application of vapor phase corrosion inhibitor VpCI® chemistry, combined with a corrosion rate monitoring system, provides an excellent method to mitigate and monitor corrosion within the interstitial spaces of aboveground storage tank bottoms.

I hope to follow this email with a meeting next week at your office to discuss further details about this technology and how SWCC can benefit from it in extending the service life of the tanks and minimize the cost associated with maintenance.

Looking forward to hearing from you soon.

Regards,

Khalil Abed
Business Development Manager

قد تحتوي هذه الرسالة و مرفقاتها على معلومات سرية تتمتع بحماية وحصانة قانونية. إذا لم تكن الشخص المعني بهذه الرسالة يجب عليك تنبيه المرسل بخطأ وصولها إليك، و حذف الرسالة و مرفقاتها (إن وجدت) من الحاسب الآلي الخاص بك. ولا يجوز لك نسخ هذه الرسالة أو مرفقاتها (إن وجدت) أو أي جزئ منها، أو البوح بمحتوياتها لأي شخص أو استعمالها لأي غرض. علماً بأن الإفادات و الآراء التي تحويها هذه الرسالة تعبر فقط عن رأي المرسل و ليس بالضرورة رأي المؤسسة العامة لتحلية المياه المالحة، جميع التعاميد والأوامر الرسمية يتم اعتمادها بنسخة ، كما أن المؤسسة العامة لتحلية المياه المالحة لا تتحمل أي مسؤولية عن الأضرار الناتجة عن أي ورقية من الشخص المخول له ذلك في المؤسسة ، فيروسات قد يحملها هذا البريد.

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