

News about corrosion and the corrosion industry produced quarterly for members of NACE International in the Calgary area

NACE Annual Dinner a great success!

More than 130 people participated in this year's annual dinner. They enjoyed a renowned entertainer, a luscious meal, and a fun opportunity to mix and mingle with colleagues and friends.



The dinner took place on June 4 at the Calgary Chamber of Commerce. It is becoming so popular that NACE Calgary may have to move to a larger venue next year to accommodate the growing interest in this fun and entertaining event.



Award winning entertainer Wayne Lee provided a highly interactive hypnosis show throughout the evening that was as unique as it was hilarious. One participant said of the entire dinner experience that "This was one of the funnest events I have ever attended!"

Of Courses...

- ▶ **Designing for Corrosion Control** - August 9-13 – [Click here](#) for more information and to register
- ▶ **Basic Corrosion** – October 25-29 – [Click here](#) for more information and to register.
- ▶ **Basic Corrosion** – November 1-5 – [Click here](#) for more information and to register.
- ▶ **Internal Corrosion for Pipelines – Basic** November 1-5 – [Click here](#) to register with NACE International.
- ▶ **CP4 – Cathodic Protection Specialist** – late fall, 2010 - Watch for details.



Chair's Column

In my last address to our membership, I would like to express my deepest appreciation and respect for those members who have actively participated with me on the Calgary NACE Executive Committee, as well as on the 2010 Western Conference Organizing Committee.

What an impressive accumulation of talent and enthusiasm we have to draw from, which is the direct reason why Calgary holds the distinction of being one of the most successful NACE Sections in North America. I am also honored to recognize some additional members for their individual accomplishments and commitment to the Calgary NACE Section...

25 & 35 year service award recipients:

- Ron Hazelwood – 25 Years
- Dale Grey – 25 Years
- Graham Trone – 35 Years

For their special dedication to education as NACE Instructors:

- Jerry Bauman
- Pat Teevens

For his strong commitment to "corrosion education", representing NACE Calgary Section at the Annual Youth Science Fair:

- J. H. (Joe) Schulz

SAIT Bursaries

Our association is dedicated to the advancement of education in corrosion sciences, and it is with great pride that I recognize our five SAIT Student recipients of the \$1000 NACE Bursaries in 2010:

- Miles Nicholson – Power Engineering Technology
- Murray Hollman – Welding Engineering Technology
- Eric Smith – Chemical Engineering Technology
- Travis Hamilton – Petroleum Engineering Technology
- Padmini Popuri – Chemical Laboratory Technology

Finally, as my last official act, I would like to sincerely thank all NACE Calgary members for your ongoing support, with a special thanks to all of our industry employers and corporate sponsors who share in our success as individual professionals and as a professional association.

Sincerely,

Douglas Kellow
Chairman, Calgary NACE Section

SAIT Bursary Recipients...



Eric Smith



Padmini Popuri



Miles Nicholson



Travis Hamilton

Estevan Integrity Management Seminar

This seminar held in Estevan, Saskatchewan on April 22, was highly successful and helped to raise the profile of NACE in Saskatchewan. [Click here](#) to view conference papers.



NACE Calgary Golf Tournament

The annual NACE Calgary golf tournament has provided NACE Calgary members and colleagues with an opportunity to network in an enjoyable environment for more than 20 years.

The tournament will once again take place this year on **Friday, August 20** at **Elbow Springs Golf and Country Club in Calgary**.

Extensive sponsorships make this event affordable for all and enable everyone to receive a prize of some kind.

The Registration site will be available soon. Watch for an enews with the registration link. In the meantime, contact arrangements1@nacecalgary.ca for more information.

Upcoming Conferences...

- ▶ **Northern Area Eastern Conference 2010**, Montreal, QC, Canada, October 17-19, 2010. [Click here](#) for information.
- ▶ **Northern Area Western Conference 2011**, Regina, Saskatchewan, February 6-8, 2010 [Click here](#) for information about the Call for Papers.

NACE Calgary Member Survey

Every two years the NACE Calgary Executive Committee conducts an online survey in order to gather the views and ideas of members to assist in planning for events, courses and communications to members.

The Executive created a benchmark survey four years ago and this will be the third time they have reached out to members to tap their expertise.

The survey will soon be available online. Members will receive the link via email.



Several NACE Calgary members were honored at the annual dinner. Left to right: Patrick Teevens, NACE instructor; Graham Trone, 35 year NACE member; Dale Grey, 25 year NACE member; J. H. (Joe) Schulz, corrosion education through Calgary Science Fair.

Incoming Chair's Comments



This coming September, I will be inheriting a very sound ship, both from an organizational and financial standpoint.

A large part of the recent success of the Calgary section has to be attributed to our current leader, Doug Kellow. Doug has dedicated many hours of his personal and professional life to making our group a strong one, ensuring the right people were in the proper positions, making the best decisions.

I am pleased to say that Doug will be continuing on at the Northern Area Regional level as the Calgary Section Trustee, where I

am sure he will make a great impact on the organization.

The list of great things Doug has done for our group is too long to mention in detail, but one in particular that I think he is proud of is building a process to properly recognize individuals and companies who support NACE. That occasional pat on the back and recognition that efforts have not gone unnoticed is a powerful tool when it comes to companies and individuals within NACE Calgary.

I'm quite excited about the group Doug has built and I look forward to continuing to address our Section's goal of protecting people, assets and the environment from the ongoing effects of corrosion.

*Evan Bloomfield
Incoming Chair
NACE Calgary Section*



DOUG KELLOW
NACE CALGARY EXECUTIVE CHAIR
2008-2010

In Appreciation of Outstanding Service and Education
From the NACE Calgary Section



Trophy winner shows great promise

By J.H. (Joe) Schulz, Bio-Chem Consulting Services (1980) Ltd

It gives me great pleasure to announce that the winner of the NACE Calgary Section Trophy at the 2010 Calgary Youth Science Fair is Evan Lambie.

Evan just completed Grade 6 at Rundle College Elementary. His project was "Just Sit Back, Relax and Rust". His objective was to illustrate which of the metals he selected for his study would be most resistant to corrosion when exposing the specimen to different liquids.

Evan describes his project as follows:

My metals were copper, aluminum, black iron and galvanized steel and the liquids I used were fresh, salt, basic and acidic water. I did this experiment by taking metals, which I had four of each, and dipping one of each metal in a specific liquid. I dipped the metals every morning before I went to school and every night. I recorded my observations every night before I dipped the metals. My observations estimated what percent of the metal surface area I thought was covered in corrosion. I repeated this for 13 days and I took pictures every few days to keep a record of what the metals looked like throughout the 13 days. I dipped the metals during my experiment because metal needs air to corrode and a liquid to speed up the process. At the end of my experiment I graphed the percent corrosion against the number of days to determine which metal corroded the least. Aluminum ended up as the least corroded metal confirming that my hypothesis was correct. My experiment can help people by showing which metal should be used in certain environments.

As is standard procedure at the Calgary Youth Science Fair, all submitted projects are vetted in the morning and then the top projects are recommended for afternoon judging, with a view to identifying all projects that are worthy of various scholarships, bursaries and trophies.

Evan's project met all criteria very easily. His subject knowledge, combined with his genuine enthusiasm, made it very easy for the judging committee to recommend him for our NACE Calgary 2010 award.

As the team leader of the panel of Science Fair judges designated to select major award recipients in the area of Physical Sciences, I would also like to congratulate Evan on his intuitive presentation style and his deep understanding of the material he presented.

A great opportunity for mentorship!

The Science Fair, largely organized by the Calgary public school boards, primarily encourages Grade 5 & 6 students to participate, while some students in Grades 7 to 12 – usually very gifted – also participate, because they enjoy showcasing their projects and their often vast science knowledge. Many of these young scientists become leaders in their chosen profession.

Each year, the top 10 projects from each of the regional science fairs are invited to participate in the National Science Fair, held on a rotating basis in all parts of our nation on an annual basis.

Mentorship of young people is such a critical component of their schooling process and I encourage all our NACE Calgary members to participate in the process of working with our young people, either at home with their own children, at the school level or perhaps even at the science fairs as judges.

On an entirely personal note...

I would like to thank my peers at NACE Calgary for recently honoring me at the Annual Dinner for my "commitment to education in corrosion sciences". I was honored to be recognized and thank everyone for the thoughtfulness extended to me.

Are you interested in being a Science Fair judge?
[Click here for more information.](#)

For Your Information...

Featuring some of the worst corrosion related failures recorded around the world, along with historical references and lessons learned.

Assembled by *Thaier Al-Issa, SulfaTreat Canada*

Rupture and fire on two natural gas pipelines at Station 30 on TransCanada Pipelines property near Rapid City, Manitoba 29 July 1995

"At 05:42 EST, on 29 July 1995, an initial rupture and a fire occurred on the TransCanada PipeLines Limited (TCPL) 1,067-mm (42-inch) natural gas pipeline at Kilometre Post Main Line Valve 30-4 + 0.220 km near Rapid City, Manitoba. At 06:34 EST, a second rupture and a fire occurred on the 914-mm (36-inch) natural gas pipeline at Kilometre Post Main Line Valve 30-3 + 0.245 km, adjacent to the first rupture, at the same location. The 1,219-mm (48-inch) natural gas pipeline at Kilometre Post Main Line Valve 30-5 + 0.347 km, passing under the location of the first and second pipeline ruptures, was exposed to the fire but did not rupture." (www.tsb.gc.ca/eng/rapports-reports/pipeline/1995/p95h0036/p95h0036.asp)



TCPL Compressor Station 30 (TransCanada, 2005)



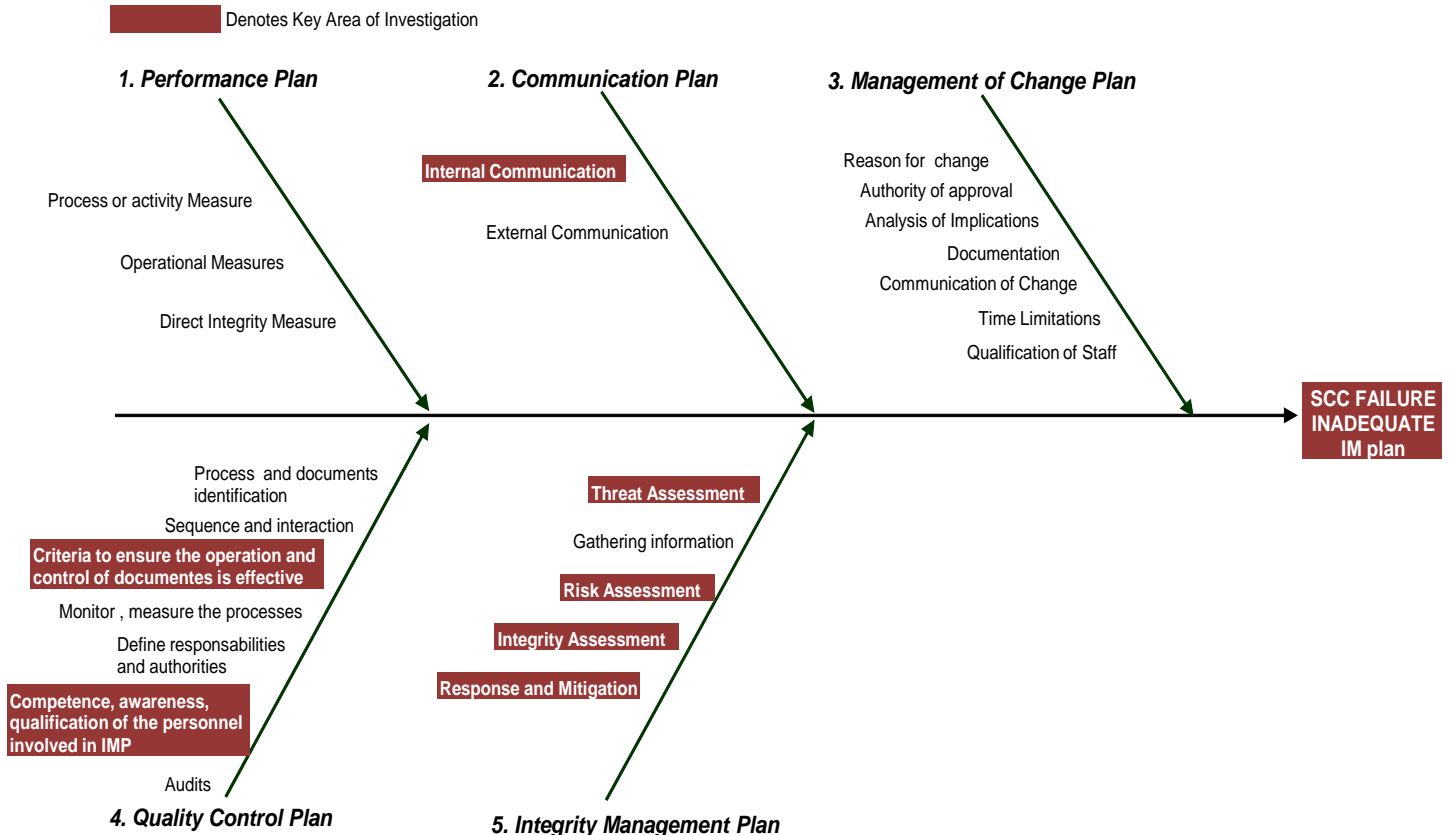
Ruptured Lines 100-3 and 100-4

Incident failure investigation and results:

- Line 100 – 4 rupture was caused by a fracture located at the toe of a longitudinal seam (DSAW - Double submerged arc welding) as a result of external **Stress Corrosion Cracking**. (Metal loss of 81% of WT) in a transition piece of pipe. The fracture had initiated from a pre-existing defect.
- Line 100 – 3 rupture was caused by heat overload as a result of failure of Line 100 – 4 due to an inadequate horizontal spacing between lines.
- Programming errors in the SCADA system resulted in failure of ESD systems
- Inadequate process and procedures to address areas susceptible to SCC." (Team -1 presentation – ENME 619.55 IMP, U of Calgary, winter 2008)

Root Cause – Fish Bone Analysis

Analyses of the Manitoba Pipeline Rupture Vs ASME B31.8s - 2004 Pipeline Integrity Management Program Requirements



(Team -1 presentation – ENME 619.55 IMP, U of Calgary, Winter 2008)

Canadian Regulatory & Industry Response

- Change and acceleration of the scope and depth of the SCC Management Program in Western Canada.
- National Energy Board’s public Inquiry into SCC occurrence on Canadian oil and gas pipeline systems. The report contains 27 recommendations.
- Revision of the design and redundancy of SCADA systems communication.
- Design ESD systems to automatically isolate the lines in an event of failure.
- Revision of local ESD procedures.
- Revision of standard for Horizontal and Vertical separation of adjacent pipeline” (Team -1 presentation – ENME 619.55 IMP, U of Calgary, winter 2008)

Lessons learned

1. SCC is a serious factor in safe & profitable pipeline systems. SCC became a major component of each & every preventive maintenance program in the Oil & Gas Industry as well as other industries that involve material handling & equipment operations.
2. Development of Integrity Management Programs (IMP) as an important tool to identify, plan, monitor & mitigate risks including SCC in pipeline systems to maintain maximum outcome from these systems that are carrying valuable commodities.
3. Public awareness is one of the factors in setting higher safety measurements by O&G operators into their design, construction & operation practices.
4. Development of standards & regulations to control design & construction of O&G facilities are vital to secure proper, safe & environment friendly operations.
5. Proper training of management and staff responsible for developing and executing the integrity management program & setting qualifications of consultants and contractors involved with the integrity management program.

6. Development of records of management system allowing timely access, by section, to records regarding the pipeline system.
7. Pipeline condition monitoring to be a comprehensive, proactive, consistent, process where various components of the process are reviewed on an ongoing basis and updated as necessary.
8. There should be alternative control system to identify shortcomings in the existing control system and correct any fault and one system like this is fault-tree analysis which could be applied to an existing SCADA/ESD system. (Team -1 presentation – ENME 619.55 IMP, U of Calgary, winter 2008)

References

- ENME 619.55 IMP, U of Calgary, winter 2008, *Rapid City, Manitoba Pipeline Rupture*, Development of Pipeline Integrity Management Programs, Team -1 presentation.
- Transportation Safety Board of Canada. (2002). *Pipeline Reflexions Magazine*. Retrieved January 14, 2009, from http://www.tsb.gc.ca/eng/publications/reflexions/pipeline/2002/numero-issue_3/pipeline-numero-issue-3-sec1.asp
- Transportation Safety Board of Canada. (n.d.). *Pipeline Reports – 1995 – P95H0036*. Retrieved January 14, 2009, from <http://www.tsb.gc.ca/eng/rapports-reports/pipeline/1995/p95h0036/p95h0036.asp>
- National Energy Board. (1996). *Report of the inquiry: Stress Corrosion Cracking on Canadian Oil and Gas Pipelines*. Calgary, Alberta, Canada: NEB
- The American Society of Mechanical Engineers – ASME. (2004). *ASME B31.8s – 2004 Managing System Integrity of Gas Pipelines*. New York, USA.
- National Energy Board of Canada. (n.d.). Guidance notes for the onshore pipeline regulations. Retrieved January 28, 2009 from http://www.neb-one.gc.ca/clf-nsi/rpblctn/ctsndrgltn/rrggnmgpnbnshrppln/gdncntsfrthnshrpplnrgltn-eng.html#pipeline_integrity

Note: As soon as more information and sufficient analysis is available, we hope to feature in this column the **Deepwater Horizon oil spill** in the **Gulf of Mexico**, considered to be the worst in US history.



The logo for NACE Calgary Section News. It features the word "NACE" in a large, bold, blue sans-serif font. Below "NACE" is the text "CALGARY SECTION" in a smaller, blue, all-caps sans-serif font. Below that is the word "NEWS" in a large, bold, blue sans-serif font, matching the size of "NACE".

NACE News is produced four times a year by the Executive Committee of NACE Calgary Section, in December, March, June and September.

To provide feedback or to submit an article or story idea, email: nacenews@nacecalgary.ca.