RML
EXPERIENCE & INTEGRITY

CONFIDENCE IN

WELL INTEGRITY

RMI-2.0 SURFACE CASING PATCH

Proudly Canadian

www.revelmgt.com

https://www.linkedin.com/company/rml-revelmgt/

info@revelmgt.com

#214 61501 Highway 41, Bonnyville, AB, Canada

Overview

- Revelation Management LTD (RML) established at 2016.
- The founder - Don Slipchuk, President, CEO.
- Head quarter and facility- Bonnyville, AB, Canada.
- Main products – RML-2.0, RML-3.0, RML-5.0 Casing Patches, ALII Tool -2.0.
- Customers – Exxon Mobil, CNRL.
- Additional products and services:

VTS-100 Power Swivel, RML Rod Shear, Wireless Annular Pressure Gauge (TAG), Antitorque Polish Rod, Downhole Tool Sensor, RML HT Tubing Drain, Rodstring and Tubing Vibrator, Tubing Tong Hydraulic Backup Replacement, Union Air Hammer, Mud Motors for complex Workover Operations.

Customer needs a result!

Revelation Management is pleased to introduce the renewed

RML-2.0 Surface Casing Patch

It was specifically designed for sealing shallow casing failures.

Its unique design provides a large internal diameter for downhole access.

The RML 2.0 Surface Casing Patch is:

1. More cost-effective than cementing operations;
2. Eliminates the need to treat the casing failure by excavating the wellhead.
3. Demonstrating 100% success rate;
4. Ensuring long-term sealing reliability beyond what cementing can achieve.

Product Specifications

- Multiple sizes: 5” to 7” (127,0 mm to 177,8 mm)
- Elements tested to a pressure of 3150 psi (21.7 MPa)
- Can be dressed for an Element rating of 343 °C (650 °F) for Thermal Applications.
- Element stack will be determined by well/ field parameters (T, P, gas composition).
- Product Composition:
  - AISI 4130 HTSR/L-80, 80 KSI Min Yield.
  - AISI 4140 HTSR/P-110, 110 KSI Min Yield.
  - AISI 1018 Mild Steel, 50 KSI Min Yield.
  - AISI 1026 Mild Steel, 50 KSI Min Yield

RML-2.0 Surface Casing Patch Advantages:

- **Predictable installation time.** The Casing Patch installation takes 5.5–6 hours, which is less time than cementing technologies or repairs that require digging out the wellhead.
- **Long-term isolation.** Our mechanical sealing system delivers consistent, controlled setting and ensures long-term, dependable isolation for the full service life of the well.
- **Can be removed** from the well with minimal cost when required using standard fishing equipment.

Unlike competing technologies, it does not require

- **a bridge plug** (which later needs milling out),
- **corrugated pipe** (which has low collapse resistance),
- **cone-expanded end fittings** (which may fail to provide full casing contact or can get stuck during installation).
- **Inflatable packers** for pressure testing.

RML-2.0 Surface Casing Patch Technical Features

- Utilizes only hydraulic setting tool to set the Elements. No mechanical manipulation required for setting the Elements.
- By design the Surface Casing Patch Elements cannot be accidentally set under any circumstances.
- **Tested to 22.2 daN (50,000 lb) downward force** with zero force applied to the Elements.
- ID of 108.61 mm (4.275”) on the 127 mm x 168,3 mm (5 x 6 5/8”) Surface Casing Patch.
- Half-muled and beveled lower entry guide.
- Allows the Client to maintain well control via pumping of fluids down the annulus during RIH & Setting of Casing Patch.

RML-2.0 Surface Casing Patch

Upper Element

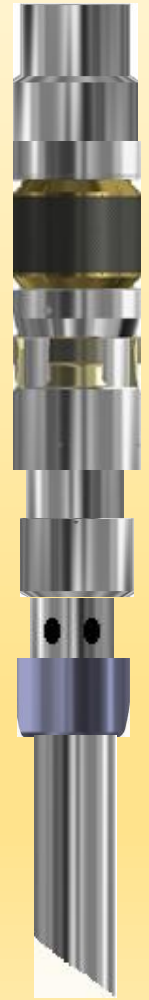
Upper Dognut

Ported Sleeve

Upper Element

Spacer Patch Pipe

Patch Pipe



Lower Element

Slips

Pressure Test Ports

Pressure Test Cup

Beveled Mule-shoe Guide

Lower Element w/ Slip Assembly

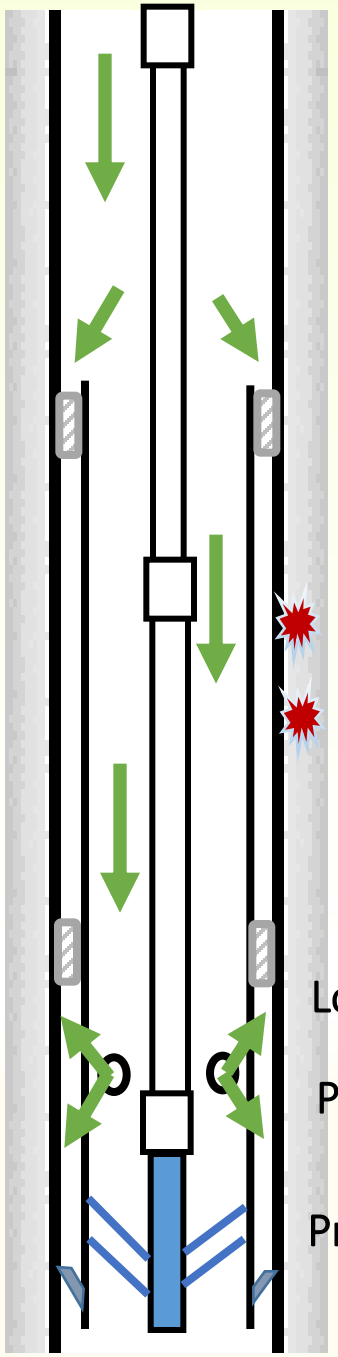
About Pressure Test Cup:

- The Pressure Test Cup model shown on the previous slide was specifically designed to reduce manufacturing costs and eliminate the need for a bridge plug and inflatable packers. Our equipment alone is sufficient to carry out the pressure test.

- Our Pressure Test Cup model does not require running an additional hydraulic setting tool to bring it into the operating position.

- At the same time, this model has limitations—a limited run-in depth, as it is suitable only for shallow applications.

Pressure Test Schematic



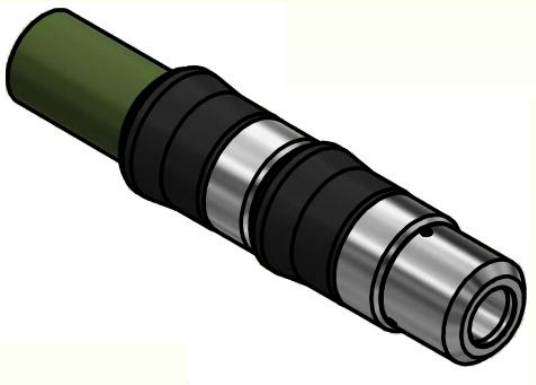
Upper Element

Failure

Lower Element

Pressure Test Holes

Pressure Test Cup



Flow direction

Cost Saving Analysis RML 2.0 Surface Casing Patch

Years	Cementing, $	Casing Patch, $
1	113 000	74 400
2	113 000	-
3	113 000	-
4	113 000	-
5	113 000	-
Total Cost	**565 000**	74 400
Savings	**488 700**	

Years	Cementing, $	Casing Patch, S
1	113 000	74 400
2		-
3	113 000	-
4		-
5		-
Total Cost	**226 000**	74 400
Savings	**149 700**	

*Data provided for as per current/specific Customer. Conditions may fluctuate as per Client`s situation

Cost Savings 5 year period

This estimate does not include oil (revenue) losses incurred during downtime while waiting for repairs, during the repair process itself, or production losses associated with bringing wells back to stable operation.

What Can RML-2.0 Surface Casing Patch do for you?

Benefits:

- **Can be removed** from the well with minimal cost when required using standard fishing equipment.
- **Predictable installation time.** The Casing Patch installation takes 5.5–6 hours, which is less time than cementing technologies or repairs that require digging out the wellhead.
- **Long-term isolation.** Eliminates the risks of re-cementing operations. Our mechanical sealing system delivers consistent, controlled setting and ensures long-term, dependable isolation for the full service life of the well.
- **Well control** via pumping of fluids down the annulus during RIH & Setting of Casing Patch.
- **Increased safety** to personnel.
- **Reduces costs** and minimizes production downtime. Eliminates costly cementing technology repairs.

With 5+ years of installation, durability and success, the Element design has been proven in 250+ wells with no equipment failure.

Questions & Answers Session

Thank You!

For more information about our technologies and services, please visit our website at:
www.revelmgt.com

dslipchuk@revelmgt.com
Don Slipchuk, President, CEO

pkrawiec@revelmgt.com
Pete Krawiec, Technical Director

kslipchuk@revelmgt.com
Kyle Slipchuk, Chief Operational Officer

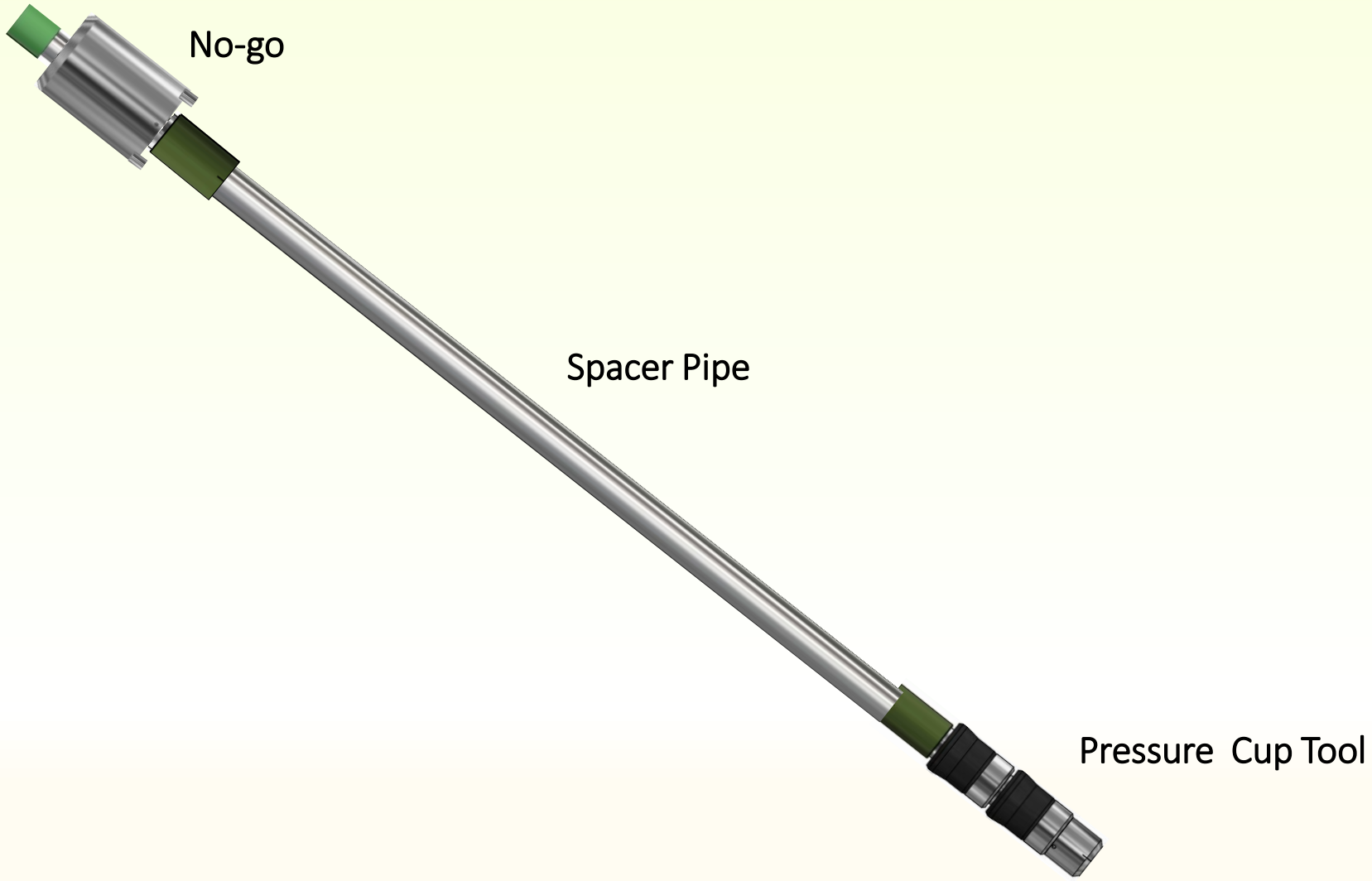
vnikitin@revelmgt.com
Vasilii Nikitin, Head of Technical Operations

DON SLIPCHUK | **PETE KRAWIEC** | **KYLE SLIPCHUK** | **VASILII NIKITIN**

Supplementary slides

in case these questions about the technology come up during or after the Presentation

Packer Cup Tool (for PT purpose)



RML Patch Slip Assembly

What do we do better than our competitors?

1. Patch slips have coarser teeth (10 vs. 13). It allows more area for debris. This helps to prevent debris from getting packed in and compromising the function of the teeth.

2. Patch has 3 slips (vs. 4 slips). Slip area is the same.
It allows better centralization within the casing and better contact points if the casing isn't perfectly round. (i.e. elliptical or egged).

3. 2 of the 3 slips of RML-2.0 Patch slip-cage have extra grooves and serrations milled into them. This makes the slip more aggressive in terms of biting into the casing and also allows extra room for debris. So, it doesn't interfere with the contact point of the teeth within the casing.

RML-3.0 Patch Slip Assembly

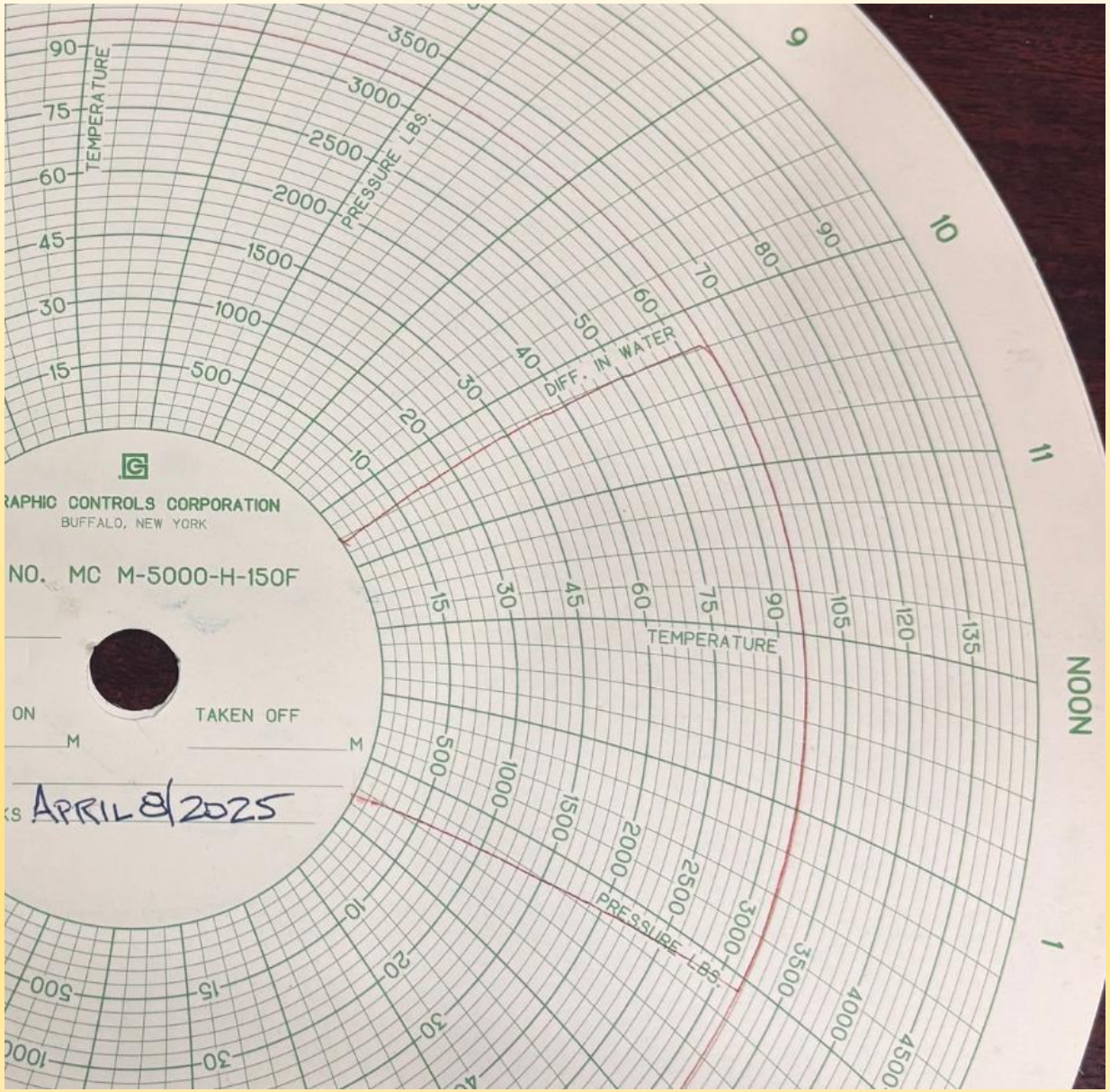
What do we do better than our competitors?

4. The RML Slips have been designed and tested for maximum contact within the casing wall when in the set position.

5. The slips feature a superior spring arm design with much stronger arms. This ensures that when the slips disengage from the tapered cone, they return to their original position and stay tight to the mandrel, completely eliminating the risk of casing contact during retrieval.

6. The RML Slips can easily disengage and fall into a neutral position when pulled, as it lacks shear screws to secure it. In contrast, the competitor's lower slip system is designed to resist the setting force, with a sheared design that prevents release during upward tool movement.

Pressure integrity testing of the Elements



MANUFACTURING
API & ISO 9001 CERTIFIED

API American Petroleum Institute

REGISTRATION NO. Q1-3192

Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

SABRE MACHINING LTD.
6602 - 56 Street
Lloydminster, AB
Canada

has been assessed by the American Petroleum Institute and found to be in conformance with the following:

API Spec Q1, 9th Edition

The scope of this registration and the approved quality management system applies to the

Contract Machining, Fabrication and Repair of Oilfield Equipment and Downhole Tools Per Customer Orders

API approves the organization's justification for excluding
Design and Development

Effective Date:	**JUNE 8, 2022**
Expiration Date:	**JULY 27, 2025**
Registered Since:	**JULY 27, 2016**

Q1 API Spec Q1 Registered ®

Senior Vice President of Global Industry Services

This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of API Spec Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*, and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system audits. This certificate has been issued from API offices located at 200 Massachusetts Avenue, NW Suite 1100, Washington, DC 20001-5571, U.S.A. It is the property of API and must be returned upon request. **To verify the authenticity of this certificate, go to www.api.org/compositelist.**

2021-164 | 11.21 | Digital

QMS REGISTERED

Certificate of Registration

APIQR® REGISTRATION NUMBER
3137

This certifies that the quality management system of

SABRE MACHINING LTD.
6602 - 56 Street
Lloydminster, AB
Canada

has been assessed by the American Petroleum Institute Quality Registrar (APIQR®) and found it to be in conformance with the following standard:

ISO 9001:2015

The scope of this registration and the approved quality management system applies to the

Contract Machining, Fabrication and Repair of Oilfield Equipment and Downhole Tools Per Customer Orders

APIQR® approves the organization's justification for excluding:

8.3 Design and Development of Products and Services

Effective Date:	**JUNE 8, 2022**
Expiration Date:	**JULY 27, 2025**
Registered Since:	**JULY 27, 2016**

Senior Vice President of Global Industry Services

Accredited by Member of the International Accreditation Forum Multilateral Recognition Arrangement for Quality Management Systems

This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of APIQR's Registration Program and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system audits. Further clarifications regarding the scope of this certificate and the applicability of ISO 9001 standard requirements may be obtained by consulting the registered organization. This certificate has been issued from APIQR offices located at 200 Massachusetts Avenue, NW Suite 1100, Washington, DC 20001-5571, U.S.A., it is the property of APIQR, and must be returned upon request. **To verify the authenticity of this certificate, go to www.api.org/compositelist.**

QUALITY REGISTRAR

2021-129 | 08.21 | PDF