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- ◆ **20 years experience in corrosion field**
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- ◆ **8 years with EUB in Compliance/Operations Branch, Pipeline Section – Technical Specialist**
- ◆ **4<sup>th</sup> Class power engineer**
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# ***Medicine Hat Failure Statistics and New Pipeline Regulation 91 / 2005***

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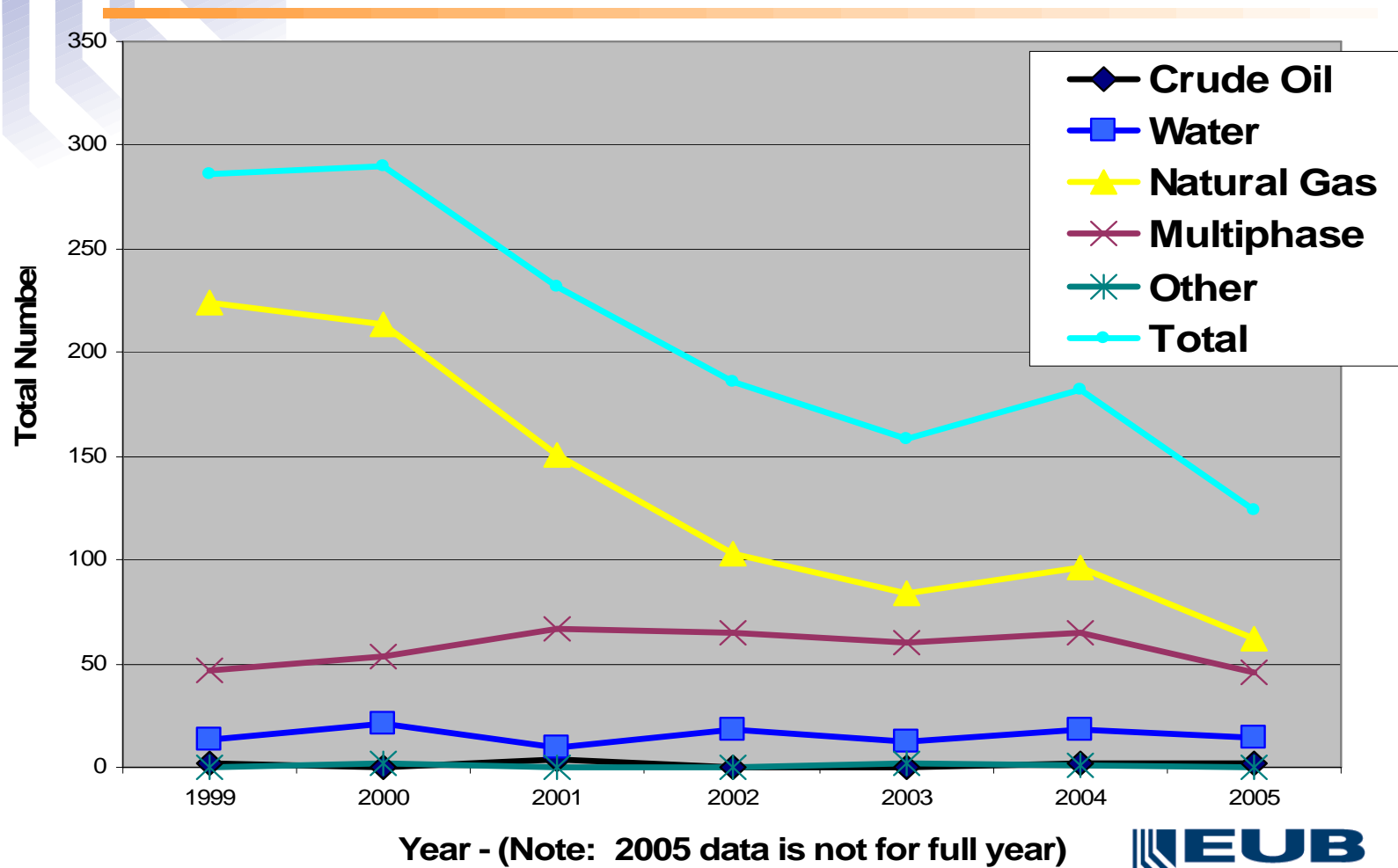


## ***Outline of today's talk***

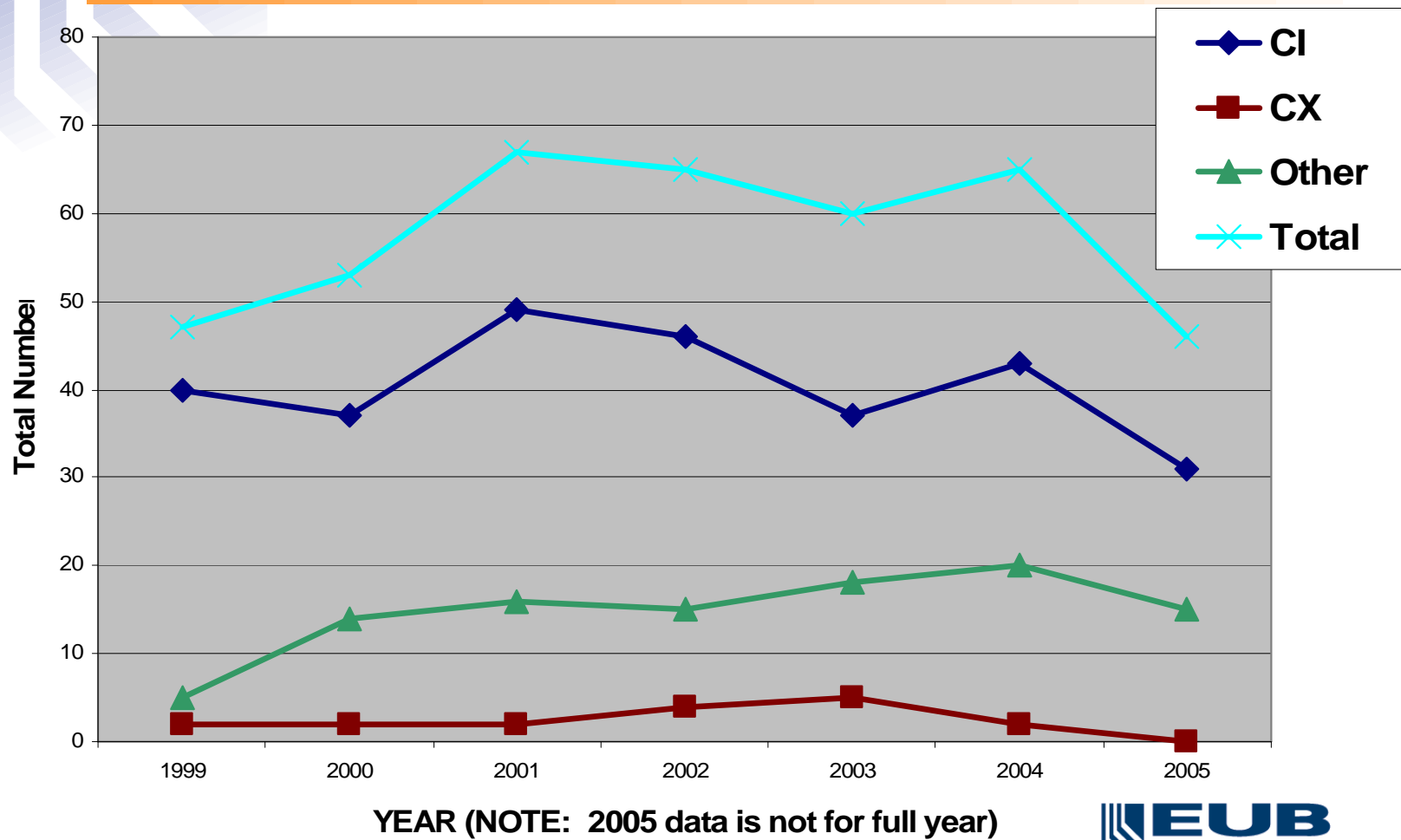
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- ◆ **Brief summary of Medicine Hat area pipeline performance 1999 - 2005**
  - ◆ **Totals by various products**
  - ◆ **Failure causes for multiphase**
  - ◆ **Failure causes for natural gas**
- ◆ **Introduction to new *Pipeline Regulation* 91-2005**
- ◆ **Highlights of new Regulation**

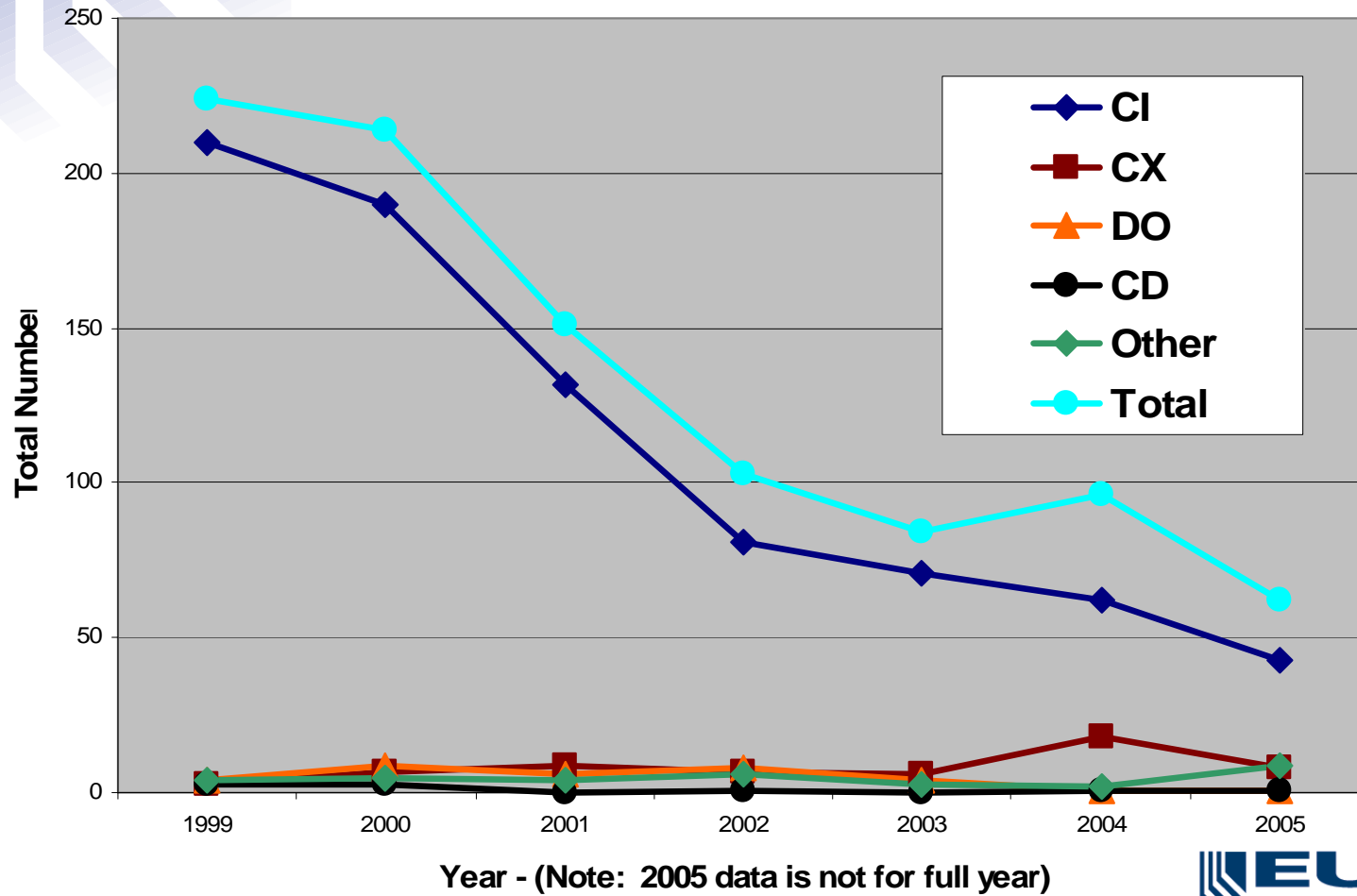
# All Operating Failures - Medicine Hat



# Multiphase Failure Causes - Medicine Hat



## Natural Gas Failure Causes - Medicine Hat



# ***Objectives of the Regulation review***

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- ◆ Update the current *Regulation* which was enacted in 1987
- ◆ Improve readability, clarity, and ease of use
- ◆ Address arising technical issues
- ◆ **Improve discontinuance and abandonment practices**
- ◆ Address the recommendations of the *Public Safety and Sour Gas Committee*, which recommended **enhancements to third party damage prevention, inspection, and corrosion control for existing pipelines**
- ◆ Prepare for the integration of **Pipeline Integrity Management Programs**, which will be described in CSA Z662 later this year

# Part 1: Administration

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- ◆ 1(4) Pipeline or piping carrying gas, steam, or HVP, and wholly on lease, is not considered to be pipeline. **As these products are “compressible fluids” their design/registration is considered under the jurisdiction of ABSA (Safety Codes Act).**
  - ◆ Note that pipelines for other products, and wholly on lease, *would* be considered pipeline under EUB jurisdiction and would be expected to have CSA Z662 design and construction; **however they do not require a licence unless they leave the lease (see S. 3(3)(b)).**
- ◆ 1(5) A natural gas pipeline carrying low-pressure distribution specification gas (not over 5 ppm H<sub>2</sub>S) used to provide fuel or gas in connection with an EUB licensed facility **IS** considered to be a pipeline under our Act. **Therefore it will require licensing with the EUB; not the Utilities Branch, as would normally be the case for a low-pressure pipeline.**

## ***Part 1: Administration***

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- ◆ **3(3) No application required for any pipeline wholly on lease. Licence is required if pipeline leaves the lease. Pipeline usually stops at first valve but would include pig barrels where equipped.**
- ◆ **7 Requires licensee to have manual of operations, maintenance, repair, corrosion control and integrity management processes. Requires consideration of stress corrosion cracking. Requires regular updates and demonstration of compliance. (Further guidance on integrity management expected in fall 2005.)**

## ***Part 1: Administration***

## ***Part 2: Materials and Design***

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- ◆ **8 Requires emergency response planning to follow Directive 71 requirements. Also requires sour water or sour OE operators to calculate an EPZ. If surface development exists in that EPZ, a site-specific ERP must be done.**
- ◆ **22(2) Allows minor (5%) operating pressure differences (due to design variances) to exist without adding pressure control systems – so a system designed to CSA with design pressure of 4960 kPa can be joined to a system previously designed to ASME pressures (for example, 5000 kPa) without needing pressure control equipment. 5% of 4960 is 248 kPa, thus that much mismatch is allowable.**

## ***Part 4: Inspection and Records***

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- ◆ 43(1) Requires pipeline r-o-w having water crossings or unstable ground to be inspected **at least once annually**
- ◆ 43(2) Requires ALL pipeline to have r-o-w inspection at least once annually **OR** at intervals determined by the company's established and documented integrity management plan – **intervals can be determined according to assessment of risk**
- ◆ 45 For sour gas (>10 moles H<sub>2</sub>S), HVP, and LVP pipelines, new requirement for daily inspection of surface construction taking place in controlled area of pipeline. **Inspection not required to be continuous; a brief visit once daily is sufficient. Surface construction is work being done in the controlled area but NOT qualifying as a ground disturbance**

## ***Part 4: Inspection and Records***

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- ◆ **53 All steel or aluminum pipelines are to have an inspection or test to determine effectiveness of external corrosion control done annually, or prior to any resumption if it was discontinued or abandoned. This inspection or test is not required on conduit pipe unless it is used as secondary containment.**
- ◆ **54 An evaluation, inspection, or test is to be done annually on any operating or discontinued metallic pipelines to determine the necessity for and/or effectiveness of internal corrosion control, or prior to any resumption. Evaluation shall examine, as necessary, production records, operating experience, monitoring data and inspection data.**

## ***Part 5: Ground Disturbance***

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- ◆ **59 Requires all pipeline licensees to register pipelines with Alberta One-Call, both retroactively and prior to operating any new pipelines**
- ◆ **60(2) Requires excavators to contact Alberta One-Call when conducting ground disturbance in controlled area of pipeline**
- ◆ **63(1)(b) Licensee's representative inspecting a ground disturbance shall have a copy of any written approvals**

## ***Part 5: Ground Disturbance***

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- ◆ **63(1)(c) Licensee's representative inspecting ground disturbance shall have certification of having supervisory level ground disturbance training.**
- ◆ **66 Expands the list of vehicles which may cross pipeline r-o-w without licensee approval to off-highway vehicles and private passenger vehicles (as defined by the Traffic Safety Act). Quads, motorcycles, snowmobiles, and passenger vehicles no greater than  $\frac{3}{4}$  ton are allowable. Farming vehicles are still allowable.**
- ◆ **66 also clarifies that an undeveloped road allowance is considered to be a road, but must have a structurally upgraded surface before permission to cross pipeline is not required.**

## ***Part 10: Discontinuance/Abandonment***

- ◆ 82(1) Requires that pipeline **not having active flowing service in the last 12 months be discontinued or abandoned or returned to “service”**.
- ◆ 82(3) Discontinuance requires:
  - disconnection or isolation in a manner that ensures the **remaining active pipeline is not left with traps for stagnant fluids**, (could corrode and leak), **OR**
    - scheduled monitoring of any such trap site, **OR**
    - confirmation that pipeline environment is not corrosive.
  - line to be purged with water, air or inert gas, inhibition is permissible
  - line to be protected against internal and external corrosion
  - line to be left in safe condition.
- ◆ **Intended to maintain line without further degradation.**

# ***Part 10: Discontinuance / Abandonment***

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- ◆ 82(4) Any pipeline not meeting disc/abandonment criteria may not be discontinued or abandoned, but **shall remain licensed as operating and therefore will be subject to the overall corrosion mitigation and integrity management programs. 89(5) applies this requirement to old pipelines retroactively, after May 2006.**
- ◆ 82(5) Abandonment requires:
  - ◆ disconnection or isolation in a manner that ensures **active pipeline is not left with traps for stagnant fluids**, (could corrode and leak), OR
    - scheduled monitoring of any such trap site, OR
    - confirmation that pipeline environment is not corrosive
  - ◆ **cutting off pipeline at pipeline grade, tagging, and removal of pipeline riser and other pipeline-associated surface facilities, (unless other operating facilities still exist)**
  - ◆ Abandonment requires inert media, termination of cathodic protection - **concept is that abandonment should be final except under exceptional circumstances.**

## ***Going Forward***

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- ◆ **AR 91 / 2005 came into force May 31, 2005**
- ◆ **Certain sections allow licensees six months to comply**
- ◆ **Certain sections allow licensees 12 months to comply**
  - ◆ ***(See Bulletin 2005-12 for details)***
- ◆ **Current Guide 66 is still to be used for inspection and enforcement until a revised G66 is published**
- ◆ **New requirements are not yet being enforced**
- ◆ **New *Regulation* can be printed from EUB website:  
[www.eub.gov.ab.ca](http://www.eub.gov.ab.ca)**

# ***Pipeliner's Motto: Let's keep the I.D. inside the O.D.!***

