Enbridge Energy, Limited Partnership

LAKEHEAD PLAN

Prepared for and Submitted to the

Pipeline and Hazardous Materials Safety Administration (PHMSA)

Revision 2, January 25, 2013

CPF No. 3-2012-5017H

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Executive Summary

On July 27, 2012, a pipeline failure was discovered on Enbridge Energy, Limited Partnership's (EELP) Line 14, approximately four miles downstream of Adams Station near Milepost (MP) 232 in Adams County, Wisconsin. The pipeline was immediately shutdown, isolated and repaired in accordance with regulatory requirements and Company procedures. Line 14 is operated by Enbridge Liquids Pipelines Business Unit (Enbridge LP) on behalf of EELP. In response to the release the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a Corrective Action Order (as amended, the "CAO") on July 30, 2012. On August 1, 2012, EELP submitted a Restart Plan for consideration by PHMSA in accordance with the CAO.

In a letter dated August 1, 2012, PHMSA issued an Amendment to the CAO (Amendment) that specified various additional requirements that EELP needs to fulfill before returning Line 14 to service. The Amendment requires that EELP submit for review and approval, a written plan that outlines specific actions and timelines for safety improvements to the Lakehead Pipeline System (System). EELP hereby submits this Lakehead Plan (Plan) in response to the CAO Amendment.

The Plan details the specific initiatives, milestones and completion dates for the CAO Amendment Item 13, sections (a) – (l) as follows:

a) Organizational issues, safety culture and safety management system;
b) Facilities Response Plan;
c) Control Room Management;
d) Priorities for pipe replacement;
e) Training;
f) In-line inspection result interpretation;
g) Current engineering and probability of failure modeling;
h) Leak detection systems and sensor and flow measuring;
i) Valve placement;
j) Integrity verification;
k) Quality management system;
l) Other safety improvements.

EELP will complete the actions required in the CAO and progress initiatives in accordance with the Plan and has retained an independent pipeline expert to assess and monitor EELP's adherence to this Plan.

EELP will comply with the CAO's requirement to have the independent pipeline expert oversee the creation, execution and implementation of the actions identified in the Plan which we believe will improve Enbridge's record of safety on the Lakehead Pipeline System. We believe that this Plan will also benefit the pipeline industry, as Enbridge also commits to participate in various industry initiatives to advance industry knowledge, tools, and standards as set out in more detail in the Plan in relation to integration of ILI results, probability of failure modeling, safety culture/safety management and

Emergency Response Planning. The Scope of Work proposed by the independent pipeline expert is attached as Appendix B.

Furthermore, Enbridge commits to address any deficiencies or risks identified in the pipeline expert's assessment. In order to properly address any such deficiencies or risks, additional discussion among PHMSA, the independent pipeline expert, and Enbridge may be warranted to ensure appropriate interests and issues are taken into account.

EELP believes these measures, in combination with self-initiated actions under various phases of implementation in response to recommendations from the July 2012 National Transportation Safety Board Final Report, meet the intent of the Amendment. Since 2011 EELP has implemented many improvements to its procedures and processes which are outlined in and attached as Appendix A. Those are incremental to the action items set out in the Plan.

EELP believes the Plan satisfies PHMSA's requirements and is prepared to discuss any aspects of either in greater detail, as required.

Plan Initiatives - Lakehead Plan

A. Organization, Safety Culture and Safety Management System

Enbridge Inc. and its affiliates (Enbridge) espouse three core organizational values: Integrity, Safety, and Respect, and all Enbridge employees demonstrate those values in support of our communities, the environment, and each other. Enbridge management is committed to reducing releases and safety incidents towards a goal of zero incidents and communicates that objective on a regular basis across the organization. Enbridge also places great value on a culture of continual learning in order to improve upon safety, compliance, and processes. Lessons learned are shared with and between employee groups through bulletins, meetings, and forums and with industry through association committees and regulatory workshops.

Development and Implementation of an Integrated Management System
Enbridge commenced an Integrated Management System (IMS) review process in 2010 through an independent consultant. Since 2010, Enbridge, through its work with the independent consultant, has been designing an IMS framework to best suit the activities of its operations. The IMS, when completed, will be the authoritative source of information for all levels in the organization on how Enbridge conducts its business. The principles upon which this IMS is built and its structure are designed to ensure that the Enbridge vision, business strategies, and values are implemented in a consistent and comprehensive manner throughout the entire Enbridge organization. The IMS comprises the standard for all the policies, processes, and practices throughout the organization and provides transparency and line-of-sight management of systems, policies, processes, and practices.

The overall IMS is developed in alignment with ISO standards and all applicable regulatory standards. Once operating, the IMS will improve on compliance and safety as it will standardize investigations of incidents to ensure lessons learned are communicated appropriately to employees, and contract workers, and shared with industry. Additionally, lessons learned from such investigations will be used to create corrective actions, which may include procedural improvements within the various management systems.

<u>Specific Actions and Milestones with Completion Dates</u>

1) Core Elements of the Overall IMS Projects
   a) Development of the IMS management system
   b) Organizational design and alignment
   c) Identification and documentation of core business process
   d) Development of the individual elements of the overall IMS system as set out below

2) Specific Elements in the Development of the IMS
   a) Define metrics (recast and structured based on reorganization)
      - Action: Metric Development Rollout - High Level Metrics

- Objective: Metrics guide employee behavior in relation to safety and compliance
- Approach: Enbridge to have metrics that continue to guide employee behavior to continually improve in relation to safety and compliance
- Deliverable: Provide document outlining high level metrics and their rollout Original Completion Date: Q3 2012
- Target Completion Date: Q1 2013

b) IMS-01 Management System (Governance Guidelines)
- Action: IMS-01 development and rollout
- Objective: The IMS-01 is a governance document that establishes key policies and processes to guide business activities. All management systems will align with the IMS-01 for consistency and clarity. The objective is to have a series of management systems that comprehensively address the key business processes in a manner to ensure business objectives are met.
- Approach: IMS-01 will be a governance document that is being prepared with multi-disciplinary input and the expertise of an independent consultant. An Integrated Management department will be accountable to ensure the management systems are designed to cover the key business processes and to ensure that processes are in place so that the management systems and processes evolve so that the processes are continually being improved upon and audited regularly.
- Deliverable: Provide IMS-01
- Original Completion Date: Q4 2012
- Target Completion Date: Q1 2013

c) Management Systems Standards and Style Guide
- Action: Create Management Systems Standards and Style Guide
- Objective: Consistency and uniformity requirements for all management systems
- Approach: The Management Systems Standards and Style Guide are guidance documents that assist employees with the process to create management systems and sub-management systems. This will allow for consistency and uniformity.
- Deliverable: Provide guide
- Original Completion Date: Q3 2012
- Target Completion Date: Q1 2013

d) Training and Coaching (Orientation, Managing by Metrics, etc.)
    - Action: Initial training
    - Objective: Enhance knowledge base of employees in relation to metrics, management systems and their purpose to guide employee activities.
    - Approach: Ongoing training to be delivered to employees. An independent consultant has been retained to assist with preparation of the materials.
    - Deliverable: Provide training documentation.
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q1 2013

e) Core Business Process Development
    - Action: Core Business Process definition and improvement
    - Objective: Identify and codify key business processes for clarity of roles, accountabilities and process requirements.
    - Approach: Enbridge has an Integrated Management System Executive Committee that guides the prioritization of management system and core business process development improvements. The selected management systems and core business processes will be developed with multi-disciplinary department inputs.
    - Deliverable: Provide a summary of the 2013 management system prioritization status at the end of Q1 2013
    - Original Completion Date: Ongoing
    - Target Completion Date: Q1 2013

f) Individual Management System Development
    - Action: Individual Management System development
    - Objective: To manage management system development in a manner that continually improves the processes and management systems in a manner that ensures clarity and accountability throughout LP.
    - Approach: Enbridge has an Integrated Management System Executive Committee (IMSEC) that guides the prioritization of management system development and improvement. The Integrated Management Department works with multi-disciplinary departments to develop each management system. The management systems are then reviewed and approved by IMSEC prior to implementation.
    - Deliverable: Document summarizing the prioritization of core business processes and management systems for 2013.
    - Original Completion Date: Ongoing
    - Target Completion Date: Q1 2013

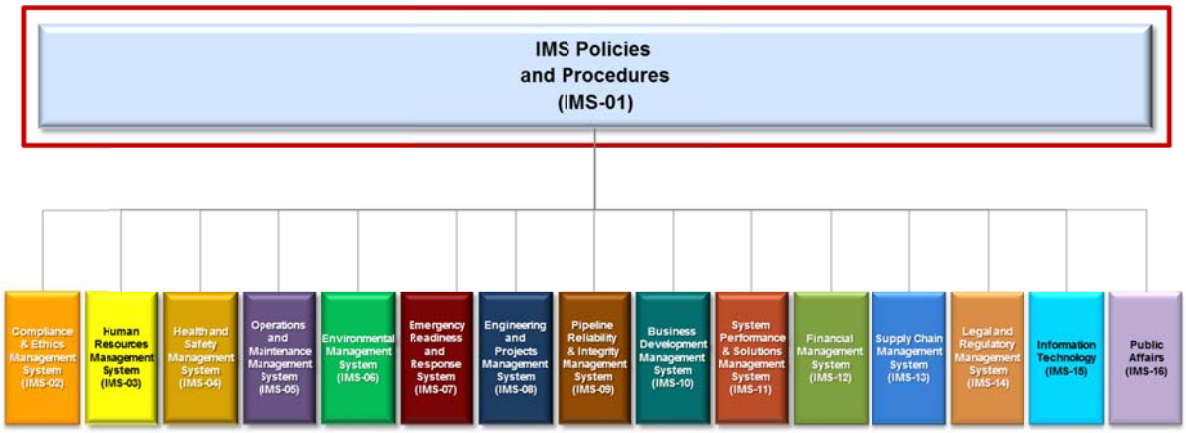
g) Environmental Management System
   - Action: Environment Management System rollout
   - Objective: To clarify roles and accountabilities in relation to environmental management
     Approach: Environmental Department with the assistance of the Integrated Management Department and an independent consultant have revised the EMS. The EMS will be approved by IMSEC and training / roll out has commenced within the Environmental Department. Training and rollout of the EMS to employees will occur in early 2013.
   - Deliverable: Provide presentation and rollout material
   - Original Completion Date: Q3 2012
   - Target Completion Date: Q3 2012

h) Compliance and Ethics Management System
   - Action: Compliance and Ethics Management System (CEMS) rollout
   - Objective: To clarify roles and accountabilities in relation to compliance and ethics management.
   - Approach: The Ethics & Compliance Officer (ECO) department, with the assistance of the Integrated Management Department and an independent consultant, has compiled the various existing processes into a codified CEMS. The ECO held a Compliance Summit to commence roll-out of the CEMS in November, 2012. Further roll-out across Enbridge will occur throughout 2013.
   - Deliverable: November 2012 Compliance Summit CEMS presentation.
   - Original Completion Date: Q3 2012
   - Target Completion Date: Q1 2013

i) Prioritization of Management System Development
   - Action: Prioritization of Management System development
   - Objective: Manage the change in relation to management system development and deployment.
   - Approach: The Integrated Management Department was created to manage the processes to develop and continually improve the IMS-01 and various management systems. The Integrated Management System Executive Committee meets regularly to discuss management system matters and to prioritize the order in which management systems and core business processes will be developed and implemented.
   - Deliverable: Provide a document describing the 2013 Management System prioritization.
   - Original Completion Date: Q3 2012
   - Target Completion Date: Q1 2013

j) Safety Management System (SMS)

- Action: Safety Management System development
- Objective: Revise and expand the Enbridge Safety Management System to include a systemic approach to managing safety risk.
- Approach: Enbridge's approach to revising its SMS is to work with industry in both the U.S. and Canada, and to reassess its current SMS initiatives to assure the inclusion of best practices. Enbridge is on a working group with the American Petroleum Institute (API) for drafting a Recommended Practice for safety management. The work group along with API has set a goal of completing the RP by Q4, 2013. Enbridge has agreed to participate in an NEB industry forum to share safety management strategies in June of 2013. Finally, Enbridge has hired a 3rd party consultant to assist in its revisions to its SMS. Input from the aforementioned sources will be used to help construct Enbridge's next revision to its SMS.
- Deliverable: Provide a document summarizing details on the Safety System development.
- Original Completion Date: N/A
- Target Completion Date: Q3 2013



Training

The overall training program is designed to inform the organization at appropriate levels and use of the key elements of the Integrated Management Systems. Key training programs for leaders are planned to include:

- Introduction to the Integrated Management System
- Managing within Your Own Management System
- Administering the Management System
- Department Specific Processes & Practices
- Departmental Risk Management & Planning
- Managing By Metrics
- Establishing the Process Baseline

- Root Needs Identification (Voice of Customer)
- Process Metrics
- Process Performance Analysis
- Developing Process Solutions
- Implementing Process Improvements

Detailed Organizational Re-Design

As part of the integrated management system process, Enbridge's Liquids Pipelines Business Unit (Enbridge LP) announced organizational structure changes on July 19, 2012. As part of the process to achieve this reorganization, a detailed process is underway to focus on organizational mandate definition, critical departmental interfaces and relationships as well as functional clarification and accountability definition by department.

Specific Actions and Milestones with Completion Dates

1) Re-design of Organizational Structure
    - Action: High-level re-design
    - Objective: Review and assess opportunities to align functions within a modified organizational framework
    - Approach: An independent consultant was retained to assist Human Resources and a team of executive members reviewed and recommended the organization structure which was approved by the Enbridge LP President.
    - Deliverable: Provide the proposed high level re-design organization chart
    - Original Completion Date: July 2012
    - Target Completion Date: Q1 2013
2) Define department mandates
    - Action: Review and revise department mandates
    - Objective: To clarify department mandates based on the new organizational structure
    - Approach: Human Resources, the integrated management department and an independent consultant met with senior managers to clarify each senior manager's department mandates.
    - Deliverable: Provide document outlining new mandates
    - Original Completion Date: Q3 2012
    - Target Completion Date: Q4 2012
3) Review department functions
    - Action: Validate department functions
    - Objective: To clarify the functions of Enbridge LP departments to align with the mandates and organizational functions.
    - Approach: Human Resources, the integrated management department and an independent consultant met with senior

managers to map out department functions in order to align with mandates and organizational structure.
- Deliverable: Provide document outlining scope and functions
- Original Completion Date: Q3 2012
- Target Completion Date: Q1 2013

4) Department level organization structure
   - Action: Design/refine the organization structure at a departmental level
   - Objective: To align department level organizational structure with function maps, mandates and Enbridge LP organizational structure
   - Approach: Human Resources, Integrated Management department and an independent consultant assist departments with clarifying and modifying organizational structures.
   - Deliverable: Provide refined organizational chart for department level
   - Original Completion Date: Q4 2012
   - Target Completion Date: At a high-level these will be completed in Q1 2013

5) Determine functional accountabilities
   - Action: Clarify functional accountabilities
   - Objective: To update and clarify functional accountabilities to align with functional maps, mandates and organizational structure
   - Approach: Human Resources, the Integrated Management department and an independent consultant met with senior managers to define functional accountabilities that align with the functional department maps, mandates and organizational structure.
   - Deliverable: Provide document summarizing accountabilities
   - Original Completion Date: Q4 2012
   - Target Completion Date: At a high-level this will be complete Q1, 2013, further detailed work will be ongoing.

6) Establish staffing requirements and job descriptions
    - Action: Staffing requirements and job descriptions
    - Objective: To review and align staffing requirements and job descriptions to align with the functional accountabilities, mandates and organizational structure
    - Approach: This work is being prioritized and is a joint effort that includes Human Resources, Integrated Management, department leaders and an independent consultant.
    - Deliverable: Provide list of resource requirements with descriptions
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q1 2013

7) Organization Re-Design Training
    - Action: Communicate and train employees and contract workers, as appropriate, in relation to organization structure, mandates/roles/responsibilities, functional accountability and management of change.
    - Objective: Ensure employees understand the Enbridge LP organization structure, their department mandates and functional accountabilities. As appropriate, employees should understand the management of change process and how this can assist with objectives in relation to safety, integrity, and compliance.
    - Approach: Provide the following: Orientation training for Organization Structure Awareness training for mandates and roles and responsibilities Functional Accountability Management Training (RASCI Management) Management of Change orientation and implementation training.
    - Deliverable: Provide a copy of the training materials and a snapshot of the elink management system site.
    - Original Completion Date: NA
    - Target Completion Date: Q3 2014

Safety Culture and Revisions to the Safety Management System

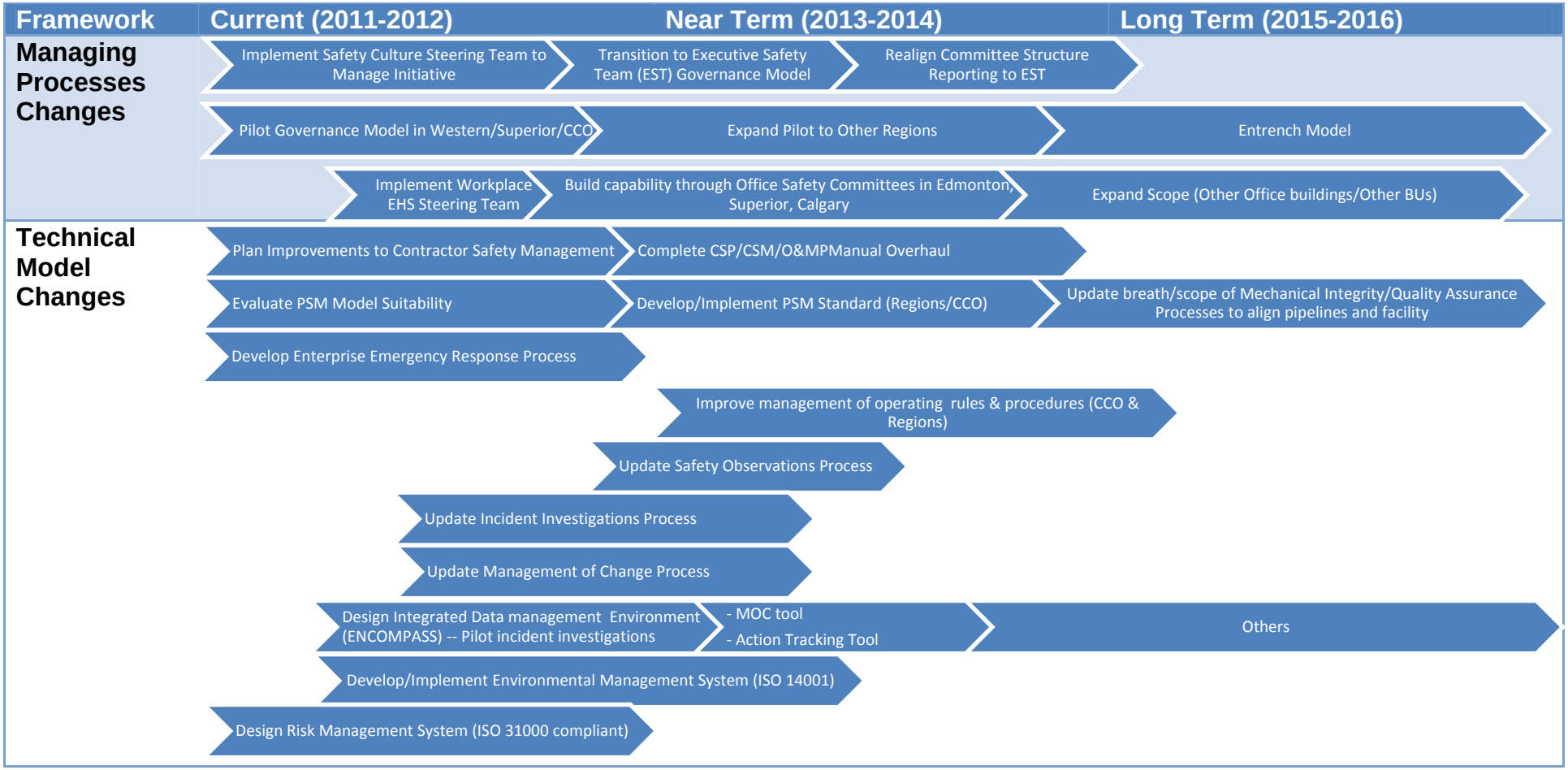
Safety Culture

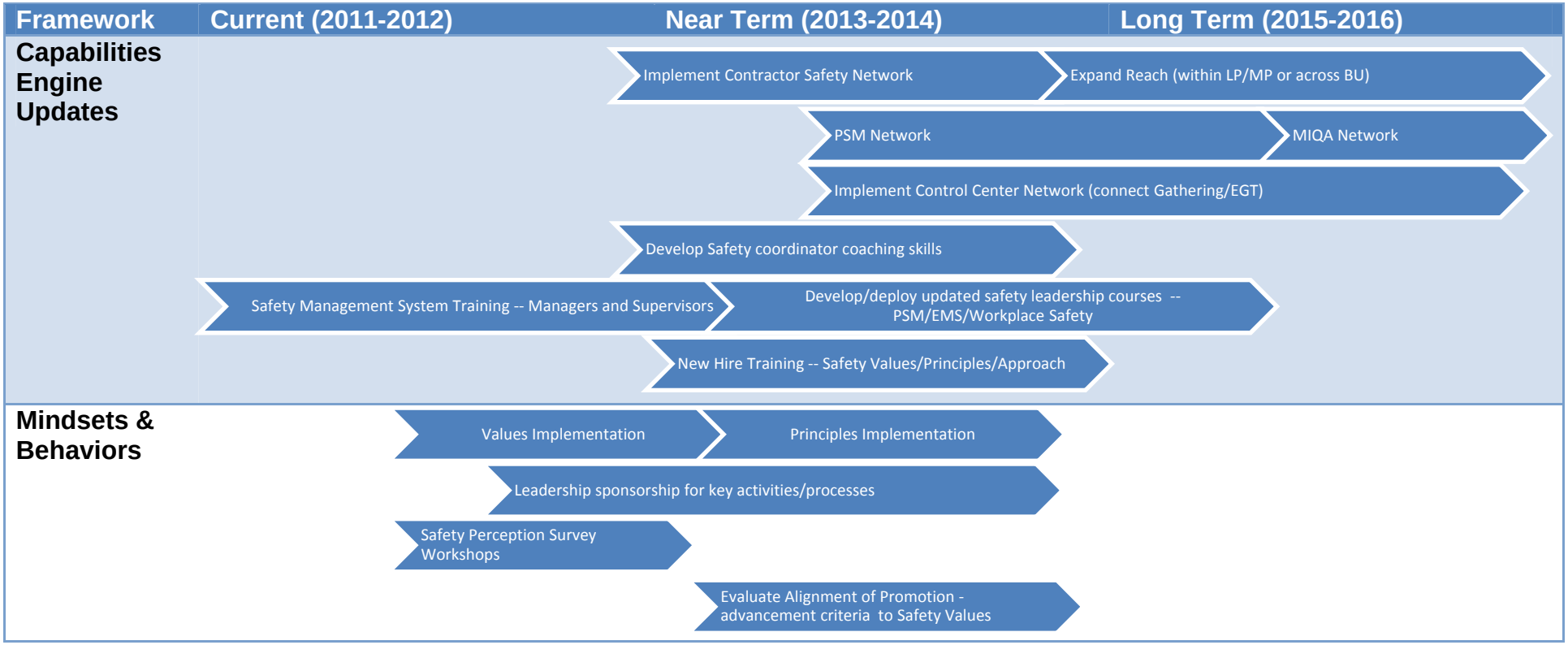
In 2008, Enbridge recognized the need to understand and improve our safety culture. We undertook a benchmark assessment, utilizing the services of DuPont Sustainable Solutions – specialists in the implementation of organizational and individual change management processes that can transform safety culture. The benchmark assessment showed areas where Enbridge LP was strong and also areas needing improvement. In 2010, the safety culture transformation began – with a scope of work that would build on strengths and address areas needing improvement.

Enbridge is committed to protecting the safety and health of our employees, our contractors, and the public. Enbridge is committed to a goal of zero injuries, incidents, or occupational illnesses. Striving for anything other than "zero" can lead to the false belief that injuries, incidents, and occupational illnesses are acceptable. In every instance, adherence to company policies and procedures is required to protect the health and safety of workers and the public. The goal of the safety culture transformation is to develop a consistently high value for safety across Enbridge, reflected in the collective movement toward an interdependent safety culture – a place where employees and contract workers are looking out for one another and working together. Following the 2011 DuPont Safety Perception survey, Enbridge further defined specific initiatives to improve safety culture. The basic strategy behind the safety culture improvement is to improve upon the elements that DuPont uses to define safety culture. Improving upon these elements drives operating discipline, improves processes, further engages employees and management in driving improvements in safety, and creates a more informed safety culture.

While this is a long-term initiative, Enbridge will continue with its safety culture improvement plan and reassess its position on the Bradley curve in Q3 2013. The status of Enbridge's safety culture initiatives is as follows:

Safety Culture Priorities/Initiatives (revised based on current accomplishments at the start of Q4 2012)


Framework
Current (2011-2012)
Near Term (2013-2014)
Long Term (2015-2016)
Managing Processes Changes
Implement Safety Culture Steering Team to Manage Initiative
Transition to Executive Safety Team (EST) Governance Model
Realign Committee Structure Reporting to EST
Pilot Governance Model in Western/Superior/CCO
Expand Pilot to Other Regions
Entrench Model
Implement Workplace EHS Steering Team
Build capability through Office Safety Committees in Edmonton, Superior, Calgary
Expand Scope (Other Office buildings/Other BUs)
Technical Model Changes
Plan Improvements to Contractor Safety Management
Complete CSP/CSM/O&MPManual Overhaul
Evaluate PSM Model Suitability
Develop/Implement PSM Standard (Regions/CCO)
Update breath/scope of Mechanical Integrity/Quality Assurance Processes to align pipelines and facility
Develop Enterprise Emergency Response Process
Improve management of operating rules & procedures (CCO & Regions)
Update Safety Observations Process
Update Incident Investigations Process
Update Management of Change Process
Design Integrated Data management Environment (ENCOMPASS) -- Pilot incident investigations
- MOC tool
- Action Tracking Tool
Others
Develop/Implement Environmental Management System (ISO 14001)
Design Risk Management System (ISO 31000 compliant)



For more information see:

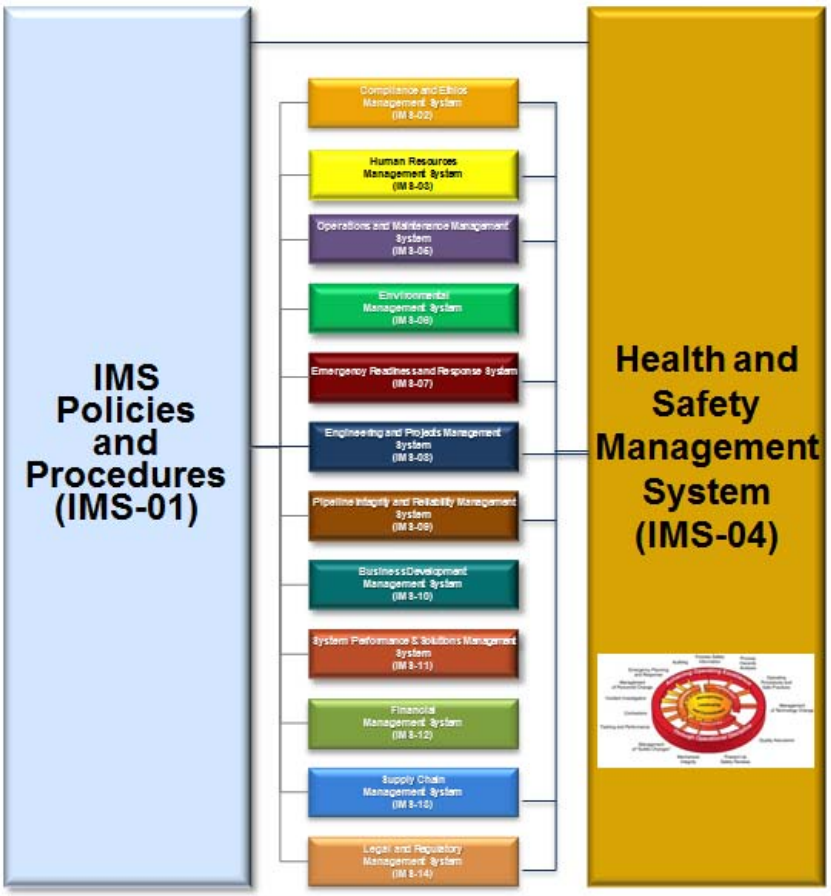
Enbridge Pipelines Safety Culture Plan (2012-2016), DATE: September 03, 2012

Safety Management System
Enbridge is in the early stages of redefining its Safety Management System (SMS) to expand on occupational health and safety and further include elements that have traditionally been referred to as process or pipeline safety (i.e., mechanical integrity, management of change, etc.). The next version of the safety management system will serve as the governing document with respect to how Enbridge manages safety risk. Enbridge has started by adopting the definition that the NTSB provided regarding SMS's for the aviation industry.

"SMS is the formal, top-down business approach to managing safety risk, which includes a systemic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures." (Order VS 8000.367)

In our efforts to define scope, policy, organizational structure, roles & responsibilities, etc. for Enbridge's SMS, we have engaged consultants, industry, and internal expertise.

Interliance was hired prior to issuance of the Corrective Action Order to assist Enbridge in preparing an Integrated Management System that includes all aspects of how we manage our business including safety. In the original model, the revisions proposed to Enbridge's existing SMS was focused on enhancements to occupational health and safety, and aspects of pipeline safety, such as mechanical integrity, were governed by functionally specific management systems. We're revisiting the proposed structure of integrated management to provide increased accountability on the SMS, the governing management system for all aspects of occupational health and safety and pipeline safety.

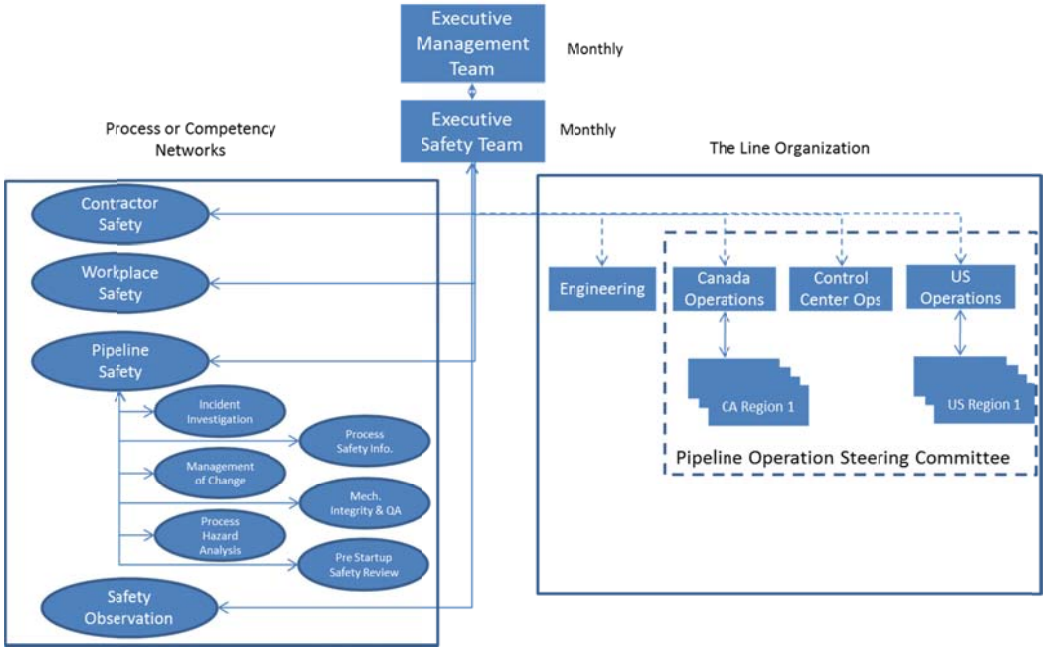


Process safety will be referenced in IMS-04, but elements will be housed in the appropriate management systems.

Process safety elements referenced in IMS-04 will be hot linked to the appropriate IMS page.

In addition to Interliance's work in drafting our management systems, Enbridge has retained DuPont to assist Enbridge in bettering our safety performance through improving our safety culture. This work includes revisions to our organizational structure and organizing teams to research and improve safety specific competencies, such as management of change, leadership training, process hazard assessments, and contractor safety.

The following structure has been put in place to begin improving our safety competencies and governance.



The scope of work that is being led by DuPont is specific to improving the organizations competency and governance of safety management. Since the SMS document is in an early stage of adopting pipeline safety elements, Enbridge has begun targeting specific areas for improvement that will later be incorporated into the revised SMS.

In addition to internal efforts to revise its safety management system, Enbridge has been actively engaging with industry and our regulators to ensure the application of best practices.

In Canada, Enbridge met with the National Energy Board (NEB) on November 16, 2012 to discuss the proposed scope of safety management within Enbridge and further agreed to participate in an industry forum in Calgary on this topic in June 2013. In the United States Enbridge met with API on October 4, 2012 and agreed to participate in developing a recommended practice for Safety Management Systems. A team of industry representatives has been assembled and our work with API kicked off in Washington, D.C. on December 18, 2012.

The development of a formal SMS to serve as a "top-down business approach to managing safety risk, which includes a systemic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures" has begun. Enbridge's approximate schedule for completing the SMS is the following:

Q4 2012 & Q1 2013

- Initiate engagement with industry to develop scope of the SMS.
- Initiate engagement with consultants to define scope of the SMS.
- Through process improvement teams begin assessing our competencies associated with fundamental safety concepts such as management of change, hazard assessments, incident investigations, and training.

Q3 2013

- Release the draft SMS that complies with industry best practices and the NTSB definition.
  Implement improvements to core safety competencies.

Q1 2014

- Finalize and release the new version of Enbridge's SMS

Specific Actions and Milestones with Completion Dates

1) Safety Management System
    - Action: SMS Development
    - Objective: Revise and expand the Enbridge SMS to include a systemic and comprehensive approach to managing safety risk in relation to employees, public, environment, contractors, and process safety elements.
    - Approach: Enbridge's approach to revising its SMS is to work with industry in both the United States and Canada, and to reassess its current SMS initiatives to assure the inclusion of best practices. Enbridge is on a working group with API for drafting a Recommended Practice for safety management. The work group along with API has set a goal of completing the Recommended Practice by Q4, 2013. Enbridge has agreed to participate in an NEB industry forum to share safety management strategies in June of 2013. Finally, Enbridge has hired a third party consultant to assist in its revisions to its SMS. Input from the aforementioned sources will be used to help construct Enbridge's next revision to its SMS.
    - Deliverable: Provide a draft summarizing details on the SMS development. (Q3 2013) Final SMS. (Q1 2014)
    - Original Completion Date: N/A
    - Target Completion Date: Q3 2013 & Q1 2014

    Enhance Safety Culture

    - Action: Enhance Safety Culture
    - Objective: Move Enbridge closer to interdependence on the DuPont Bradley Curve
    - Approach: Continue to execute the Enbridge Safety Culture Plan (2012-2016)
    - Deliverable: The Q3, 2013 results of the DuPont Safety Perception Survey
    - Original Completion Date: Q3, 2013
    - Target Completion Date: Q3, 2013

2) Create Safety Improvement Team
    - Action: Create Process Safety Management Improvement Team.
    - Objective: Assemble a cross-functional team to develop a charter and identify areas for improvement.
    - Deliverable: Team charter and proposed elements identified for improvement.
    - Original Completion Date: Q1 2013
    - Target Completion Date: Q1 2013
3) Safety Management Improvement
    - Action: Process Safety Management Improvement.
    - Objective: Improve upon the organization's competencies in process safety.
    - Approach: Assemble a cross-functional work group to recommend improvements to elements of process safety management.
    - Deliverable: Improvements to existing process/procedures or the creation of new processes/procedures based on the team's assessments and work groups.
    - Original Completion Date: September 2013
    - Target Completion Date: Q3 2013

B. Facilities Response Plan (FRP)

Specific Actions and Milestone with Completion Dates

1) Emergency Response (ER) Capability Assessment
    - Action: ER Capability Assessment
    - Objective: Assess the capability and state of readiness to respond and contain a release.
    - Approach: The Response Group (TRG), a well-known emergency response consulting firm headquartered in Houston, has been retained to complete a system-wide emergency response capability assessment. The assessment will focus on Enbridge's capabilities and the state of readiness to respond and successfully contain a release. This work will include interviews with the Enbridge LP Emergency & Security Management Department and an assessment of all Operating regions.
    - Deliverable: Final report.
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q2 2013
2) Emergency Response Plan Revisions
    - Action: Revise the Emergency Response Plan
    - Objective: Update content of existing U.S. ER plans for submission to PHMSA. The review is focused on content usability and regulatory requirements for the five year submission.
    - Approach: A project team has been assembled, with oversight from TRG, to review the emergency response procedures contained in Enbridge LP's Operation and Maintenance Procedures (O&MPs) Book 7, Parts I (general) & II (regional specific).
    - Deliverable: Provide a copy of the Integrated Contingency Plan (ICP) when all revisions are complete and approved.
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q1 2013 (PHMSA submission on Jan. 29, 2013 as per 5 year submission cycle)
3) Incident Action Plan (IAP) Tool Development
    - Action: Development of the IAP Software
    - Objective: Improve emergency response readiness by identifying and populating the IAP tool with LP specific data.
    - Approach: This task involves work by TRG to prepopulate IAP software with Enbridge LP-specific content, including: equipment locations, current control point information, tactical plan information, plan templates and contact/notification information.

- Deliverable: Provide demonstration of IAP software highlighting the regional equipment lists and prepopulated information in 2013.
- Original Completion Date: N/A
- Target Completion Date: Q1 2013

4) Emergency Response Job Aids Development
   - Action: Create an Incident Management Handbook and Exercise Guide
   - Objective: Provide the appropriate regional staff with job aids to help with ICS response and the development of regional exercises.
   - Approach: This task is focused on providing job aids to support the regional ER teams, including: an incident management handbook (IMH); an exercise design guide; a tactical response guide; and, ICS role specific guides.
   - Deliverable: Provide copy of IMH, Exercise Design Guide, Tactical Response Guide
   - Original Completion Date: Q4 2012 (IMH, Exercise Design Guide)
   - Target Completion Date: Q4 2013 (Tactical Response Guide)
5) Emergency Response Drills
   - Action: EELP commits to lead response drills, involve communities, external agencies and local emergency responders along the Lakehead System in 2012/2013 and regularly thereafter.
   - Objective: To practice with ER plans and build relationships with local responders and external agencies.
   - Deliverable: US Regional Exercise schedule for 2013.
   - Original Completion Date: N/A
   - Target Completion Date: Q1 2013
6) Enbridge Enterprise Emergency Response Team (E3RT) Exercise
   - Action: Complete E3RT in 2012.
   - Objective: Enhance Enterprise wide Emergency Response capabilities.
   - Approach: A cross-business unit emergency response assist team was created to respond to potential Tier 3 incidents that require more resources than a single region, or business unit, can provide.
   - Deliverable: Invitation to PHMSA and DNV to attend E3RT Exercise
   - Original Completion Date: Q3 2012
   - Target Completion Date: Q3 2012

7) Crisis Management Plan Revisions
    - Action: Evaluate and revise the Crisis Management Plan
    - Objective: Improve the Crisis Management Plan
    - Approach: TRG has been contracted to evaluate the Crisis Management Plan and recommend improvements to streamline the plan and ensure consistency with the overall ER Plan.
    - Deliverable: Provide a copy of the updated plan.
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q4 2013 (TRG review being finalized)
8) API/AOPL Emergency Response Strategy Workgroup
    - Action: Workgroup to participate in industry initiatives
    - Objective: To ensure connection with industry and assist with the development of the API/AOPL Emergency Response Strategy.
    - Approach: EELP commits to actively participate in industry initiatives (working committees, organizations, etc.) and to influence change with the goal of continually improving industry standards and practices associated with emergency response management.
    - Deliverable: Provide 2012 list of meetings and calls attended during 2012.
    - Original Completion Date: 2012/2013 – ongoing
    - Target Completion Date: Q1 2013
9) ICS Training
    - Action: Provide baseline ICS training.
    - Objective: Improve Emergency Response readiness
    - Approach: Baseline ICS Training will continue to be provided to response teams across Enbridge LP. The training courses being given include: ICS 100/200; ICS 300; Exercise Design; and Environmental Unit Lead Training.
    - Deliverable: Provide statistics on training completed in 2012 and course outlines.
    - Original Completion Date: Q1 2013
    - Target Completion Date: Q1 2013

10) Tactical Training Plan Development

- Action: Assess and evaluate tactical ER programs
- Objective: Improve consistency in tactical Emergency Response training
- Approach: During 2012, the ER and Training groups will assess and evaluate tactical ER programs currently delivered across Enbridge LP regions and develop a consistent ER training plan that covers tactical topics, such as: ER notification; ice slotting; boat handling; HAZWOPER; inland oil spill response; and boom deployment.
- Deliverable: Provide a copy of the revised matrix.
- Original Completion Date: Q1 2013
- Target Completion Date: Q2 2013

C. Control Room Management

The Control Center Operations (CCO) has completed a significant number of changes and enhancements to its control room management and training over the past two years to position the control room in the best in class category and ensure the safety of our pipeline operations as outlined in Appendix A.

Specific Actions and Milestones with Completion Dates

1) Control Room Management (CRM) Plan Notice of Amendment Response
    - Action: Develop response to Notice of Amendment (NOA)
    - Objective: Communicate the Enbridge response to the NOA
    - Approach: Following a PHMSA control room management (CRM) audit in December of 2011 and January of 2012, Enbridge immediately began enhancing the CCO CRM Plan and associated processes, and providing periodic progress updates to PHMSA.
    - Deliverable: Copy of the August 8, 2012 ENB response and revised ENB response.
    - Original Completion Date: August 8, 2012
    - Target Completion Date: Q1 2013
2) Enbridge LP has developed and implemented a comprehensive CRM plan as required by U.S. Code of Federal Regulations. The CCO is committed to address any issues identified during the PHMSA CRM audit earlier in the year and as outlined in the NOA dated July 6, 2012.
    - Action: Conduct an internal review of CRM plan using a 3rd party consultant expert to assess adherence and effectiveness.
    - Objective: Assess adherence and effectiveness of the CCO CRM Plan
    - Approach: the scope of this review will include required staffing levels and performance metrics. Enbridge will identify a 3rd party reviewer of the CCO CRM Plan with expertise in pipeline control room processes and operational excellence (Pipeline Performance Group, or similar)
    - Deliverable: Copy of 3rd Party Expert Review Completion Report
    - Original Completion Date: August 2013
    - Target Completion Deadline: Q3 2013
3) CCO Procedures Review and Enhancements
    - Action: CCO will conduct a review of its emergency and operating procedures and management systems for effectiveness and industry best practices. Actions plans will be developed and executed based on the recommendations.
    - Objective: To assess effectiveness of the CCO emergency and operating procedures

- Approach: Initiate a comprehensive procedure review to ensure that the structure of our procedures, the organization of them, the access to them, and the automation of them where possible is best in class. In conjunction with this review, we will be evaluating new and improved tools which allow better operator interfacing with them and tracking of compliance.
- Deliverable: Copy of the Phase 1 Procedures Review Completion Report.
- Original Completion Date: December 2012
- Target Completion Date: Q1 2013

4) CCO Safety Culture Enhancements
   - Action: CCO will continue work with DuPont on the current action plans to improve Safety Culture in the control center.
   - Objective: Continue to improve Safety Culture in the Control Center
   - Approach: Safety Culture Improvements Initiatives will continue through the newly formed CCO Safety Leadership Committee. They will focus on areas such as: Safety Objectives and Key Performance Indicators, Department Safety Organizational Structure and Formal Safety Management processes, Formal Safety Observation Program, etc.
   - Deliverable: Copy of the Completion Reports for the 2012 Safety Culture Improvement Plans.
   - Original Completion Date: December 2012 / Ongoing
   - Target Completion Date: Q1 2013

5) CCO Team Training:
   - Action: The CCO will further enhance its training program to include semi-annual team training in recognition of and response to emergency and unexpected conditions that include supervisory control and data acquisition system indications and Material Balance System software.
   - Objective: Enhance CCO emergency response training
   - Approach: The CCO will develop a semi-annual team training program to enhance its ability to respond to emergency and unexpected operating conditions.
   - Deliverable: Provide a summary of the training course content and number of staff trained by the end of Q2 2013.
   - Original Completion Date: April 1, 2013
   - Target Completion Date: Q2 2013

6) Operator Qualification Program Enhancements:
    - Action: Develop enhancements to the operator qualification program and qualify all required employees involved in pipeline operational decisions.
    - Objective: Enhance CCO Training
    - Approach: The CCO will further enhance its Operator Qualification program to include all CCO staff involved in pipeline operational decisions.
    - Deliverable: Provide a copy of the training material and a summary of how many employees have taken the course by the end of Q2 2013.
    - Original Completion Date: Q1 2013
    - Target Completion Date: Q2 2013

D. Priorities for Pipe Replacement

Background

Enbridge LP's pipe replacement analysis procedure evaluates feature density (crack, corrosion, and deformation), predicted feature growth, anticipated repairs, and high risk area/high consequence area consideration. Asset management aspects such as future capacity requirements and pipeline system operability are also incorporated into the decision to utilize replacement as a pipeline remediation strategy. In 2011, Enbridge LP established a specific engineering team to evaluate replacement programs. This has resulted in the NPS 36 Line 6B Asset Plan for replacing 75 miles of pipeline starting in 2012.

Specific Actions and Milestones with Completion Dates

EELP will commit to the following actions as part of the Lakehead Plan:

1) Pipe Replacement Plan
    - Action: Develop the 2013 pipe replacement plan (based upon the pipe replacement analysis noted above)
    - Objective: Develop an annual review of assets for the purpose of identifying locations for pipe replacements based on an established process
    - Approach: Summary of Lakehead System pipeline replacements for projects initiating in 2013 as per current Enbridge methodology
    - Deliverable: Submit copy of plan once final evaluations are complete
    - Original Completion Date: December 31, 2012
    - Target Completion Date: Q4 2012 (Complete)

2) Pipe Replacement Plan
    - Action: Develop the 2014 pipe replacement plan (based upon the pipe replacement analysis noted above with enhancements identified in the “Approach” below)
    - Objective: Develop an annual review of assets for the purpose of identifying locations for pipe replacements based on an established process
    - Approach: Revisit methodology to incorporate consideration of priority areas of high consequence, pipe downstream of pump stations and other identified high risk areas. Assess the use of hydro testing of high risk areas downstream of pump stations where piping has not been identified to be replaced. Documented assessments will be developed and associated with each pump station, on a line-by-line basis, for the Lakehead System.
    - Deliverable: Submit copy of the plan once final evaluations are complete
    - Original Completion Date: December 31, 2013
    - Target Completion Date: Q4 2013
3) Probabilistic Modeling
    - Action: Improvements to Probabilistic Modeling
    - Objective: Enhance the application of probabilistic modeling as an input into the development of operational risk assessments.
    - Approach: Develop improvements to the probabilistic modeling methods which quantify the effect of pipe replacement on the overall Enbridge LP operational risk assessment profiles.
    - Deliverable: Provide a report that describes the results relative to the 2013 replacement plan
    - Original Completion Date: June 30, 2013/Implemented by 2014
    - Target Completion Date: Q4 2013/Implemented in 2014

E. Training

Background
Specific training is primarily embedded into each of the specific initiatives identified.

Enbridge is committed to ensuring a culture of learning that supports our values. Enbridge continues to build on our foundation of operating excellence by adhering to a strong set of reaffirmed core values that reflect what is truly important to the company. The values represent a constant beacon by which decisions are made, as a company, and as individual employees, every day. Enbridge values are integrated within our employee and leadership development course offerings. Enbridge Values include: Respect, Integrity and Safety.

To support development, performance, and career progression, Enbridge actively invests in its people by providing a series of programs and courses for both employees and people leaders delivered through the Enbridge University (ENBU) curriculum. The ENBU currently offers 80 courses under the following categories: Energy Studies, Business Excellence, Risk Management, Project Management, Leadership Development, and Personal Excellence.

In addition to these offerings, employees are also required to take mandatory courses which include the Statement on Business Conduct (which is Enbridge's code of ethics), Lifesaving Rules, Health and Safety Management System (HSMS), Enbridge Values, Onboarding program, acceptable use of computing assets, maintaining respectful workplace, alcohol and drug free workplace policy, and fraud awareness training.

<u>Specific Actions and Milestones with Completion Dates</u>

1) Define the current state of learning and development
    - Action: Engage Pipeline Integrity, Control Centre Operations and Enbridge LP Operations to provide feedback for their respective areas of training, including: current learning capability models; expectations with respect to training and competency; accountability for technical training; establishment of competency/qualification requirements; how gaps in competencies are identified and addressed; compliance with regulatory requirements; how competency is ensured for employees and contractors who job function changes; how effectiveness of the training is assessed; and their record keeping.
    - Objective: To define and communicate the current state of learning and development and, to act as a starting point for the external 3rd party consulting firm to begin their in-depth analysis on the standardization of technical competencies for the key stakeholder training groups.
    - Approach: In order to establish a baseline or current state of training, key stakeholders will provide an overview of their

department's current training model/functions with particular emphasis being placed on technical competencies.

- Deliverable: A summary document outlining each of the 3 key stakeholder groups' training model/functions, with specific details to address the technical competency questions posed by DNV.
- Original Completion Date: N/A
- Target Completion Date: Q1 2013

2) Measure the effectiveness of the current state of the technical and functional training
    - Action: Engage an external 3rd party consulting firm to do an assessment of the key stakeholders' learning capability models (gap analysis), with particular emphasis on technical competencies.
    - Objective: To measure the effectiveness of the current state of the technical and functional training against leading industry best practices in order to recommend improvement opportunities and address any apparent gaps or disconnects.
    - Approach: Human Resources will facilitate the engagement of a qualified and reputable industry consulting firm to conduct an assessment of the current and future state of technical training for Pipeline Integrity, Enbridge LP Operations and the Control Centre Operations.
    - Deliverable: A summary document from the external consulting firm outlining recommendations on a competency framework to aid key stakeholders in identifying an integrated best practices model to define critical competencies and drive targeted business results.
    - Original Completion Date: N/A
    - Target Completion Date: Q3 2013
3) Path forward on the development of a technical competency framework
    - Action: Keys stakeholder groups to review recommendations delivered by 3rd party consulting firm.
    - Objective: To determine the future direction or path forward on the development of a technical competency framework.
    - Approach: Human Resources will facilitate meetings with Pipeline Integrity, Enbridge LP Operations and the Control Centre Operations to review the results received and identify an integrated best practices model for technical competency management.
    - Deliverable: A document that supports the decision by key stakeholders on the direction they plan to take to address competency management.
    - Original Completion Date: N/A
    - Target Completion Date: Q4 2013

F. In-Line Inspection Result Interpretation

Background
Since 2010, numerous changes in how crack in-line inspection data is interpreted have been applied. Enbridge LP has also enhanced and is committed to improving in-line inspection data integration methods and processes. See Appendix A for recent improvements. Key incremental improvement actions are identified below.

Specific Actions and Milestones with Completion Dates

1) Inline Inspection Data Flow and Quality Assurance (QA) processes.
    - Action: Develop updated ILI data flow and QA processes including formalized communication of any unreported defects that meet the detection threshold back to the ILI vendor with a documented investigation and review.
    - Objective: Improve data flow and quality process documentation to address timely and thorough investigation of outliers.
    - Approach: Revise ILI program documentation to reflect updated data flow QA processes. Demonstrated implementation of ILI vendor Master Service Agreements (MSA) to ensure investigation, causal analysis and measurement of outliers to improve data accuracy
    - Deliverable: Provide documentation of ILI data flow and QA processes
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q1 2013
2) Reporting Requirements for Crack In-line Inspection
    - Action: Review current crack in-line inspection reporting requirements and identify opportunities to increase reporting parameters, including lessons learned from previous incidents, in order to improve interpretation of the results.
    - Objective: Update Enbridge reporting Profile Standard to achieve enhanced crack feature attribute reporting based on Enbridge lessons learned.
    - Approach: Working with ILI vendor(s) establish the required enhanced crack feature attributes and integrate it into their existing processes. Update Enbridge Reporting Profile Standard to clearly establish this expectation.
    - Deliverable: Update Crack ILI reporting requirements
    - Original Completion Date: Q2 2013
    - Target Completion Date: Q2 2013

3) Line 14 Inline Inspection Root Cause Analysis
    - Action: Integrate Line 14 ILI root cause analysis into the integrity programs.
    - Objective: Update Pipeline Integrity Management System to incorporate the lesson's learned from the root cause analysis to prevent reoccurrence of the 2012 Line 14 incident.
    - Approach: Revise Pipeline Integrity Management System documentation.
    - Deliverable: Updated Pipeline Integrity Management System documentation.
    - Original Completion Date: Q3 2012
    - Target Completion Date: Q3 2013

4) Inline Inspection Process Review and Audit
    - Action: Building upon processes already implemented, complete an audit and process review on the ILI vendor's analysis processes.
    - Objective: Audit the ILI vendor's processes and confirm that lessons learned from earlier events and in-line inspection root cause analyses are implemented.
    - Approach: Conduct an audit led by Enbridge and supplemented with a 3rd party consultant.
    - Deliverable: Provide a copy of the audit process and audit findings.
    - Original Completion Date: Audit Process Development Q4 2012, Audit Q1 2013
    - Target Completion Date: Q1 2013

5) Enbridge LP's Crack Dig Selection Criteria and Growth Modeling
    - Action: Third party to review dig selection criteria, growth modeling, Fitness for Purpose (FfP) methodology, and existing re-assessment intervals for in-line inspection.
    - Objective: Review Pipeline Integrity Management System against existing regulations, standards and industry best practices to identify recommendations for improvement.
    - Approach: Secure a third party consultant to conduct the review, complete the analysis, and prepare the report.
    - Deliverable: 3rd party summary report, including recommendations
    - Original Completion Date: Q1 2013
    - Target Completion Date: Q3 2013

6) Improve Integrity Threat Integration Methods
    - Action: Using Enbridge's lessons learned and new processes for corrosion and cracking interactive defects and growth mechanisms, organize industry review to develop the protocols for the overlay of multiple ILI data sets so as to improve integrity threat integration methods
    - Objective: Work closely with pipeline industry associations to share existing Enbridge threat integration methods and promote the development of improved methods for the interpretation and management of integrated threats for adoption across the industry
    - Approach: Develop guidelines for the overlay of multiple ILI datasets. Review guidelines/criteria with API, CEPA, etc., to implement as revisions to existing recommended practices or standards. Consider inclusion of excavation criteria for integrated data sets.
    - Deliverable: Develop guidelines and share with industry organizations.
    - Original Completion Date: Q4 2013
    - Target Completion Date: Q4 2013
7) ILI Performance as Root Cause
    - Action: Conduct a comprehensive review of past cracking-related mainline failures on the Enbridge system where ILI performance was identified as the root cause or a contributing factor. Review and re-assess susceptibility of the Lakehead System based on any new lessons learned.
    - Objective: Confirm application of lessons learned from past RCA's.
    - Approach: Revisit the root cause of each of the crack-related failures on the Enbridge System. Collate into a report that summarizes the key trends and lessons learned. Assess past programs on Lakehead System for susceptibility and identify any follow-up actions.
    - Deliverable: Report summarizing the root causes for the past decade of crack-related failures on the Enbridge System and results on the review on the Lakehead System.
    - Original Completion Date: Q2 2013
    - Target Completion Date: Q3 2013
8) Standards and Protocols for Crack Identification Technology
    - Action: Participate and lead in industry initiatives to define standards and protocols for crack identification technology and integration of ILI data improvements.
    - Objective: Lead industry to define standards and protocols for crack identification technology and integration of ILI data management practices.

- Approach: Recommend to PRCI they develop a new committee focused on crack ILI with Enbridge taking a leadership role in the committee.
- Deliverable: Status report
- Original Completion Date: (on going)
- Target Completion Date: Q3 2013

9) Manage the uncertainties associated with crack ILI technology
   - Action: Heighten use of reliability engineering tools to conduct empirical analysis of tool performance. Conduct bench scale testing and analysis to determine bias associated with key elements of the ILI technology. Develop formal decision processes for the management of quantified uncertainty.
   - Objective: Integrate enhanced reliability practices into the management of crack ILI uncertainties.
   - Approach: Utilize intensive empirical analysis techniques (e.g., ILI vs. field) to express ILI demonstrated performance. Use industry standard statistical methods to develop targets for the acceptance of confidence levels. Define the bias associated with key elements of the inspection technology (e.g. sensor spacing, impact of crude properties, analyst procedures) to express ILI expected performance. Define the reliability impact of adjoining activities (e.g. strength assessment formulae, growth models, non-destructive examination (NDE) methods). Prepare process documentation based on the above.
   - Deliverable: Technical report on the improvements to the management of crack ILI reliability
   - Original Completion Date: New item
   - Target Completion Date: Q2 2013

10) Reliability of Non-Destructive Testing (NDT)
   - Action: Develop a summary document identifying core Enbridge activities to monitor and address non-destructive inspection uncertainty.
   - Objective: Demonstrate how Enbridge establishes confidence in NDT reliability in being able to detect and accurately size defects.
   - Approach: Generate a summary of the existing process, procedures, and audit functions used to establish confidence in NDT techniques and technicians contracted by Enbridge to detect and accurately size defects.
   - Deliverable: Provide a copy of the completed summary.
   - Original Completion Date: N/A
   - Target Completion Date: Q2, 2013

G. Current Engineering & Probability of Failure Modeling

Enbridge LP gathers quantitative integrity information on its pipelines in order to calculate FfP results for all pipe segments. The engineering methods are based on industry and regulatory codes and standards. The FfP information is then integrated into the Enbridge LP overall operational risk assessment modeling. In 2010, Enbridge LP formed a dedicated team to focus on applying reliability engineering principles to support the FfP engineering methods as an innovative technique for enhancing probabilistic failure models.

Enbridge LP is in the process of transitioning to a more quantified risk model. This risk assessment tool is part of the risk management framework that follows the guidelines of the ISO 31000 standard. The long term strategy is to improve use of risk assessment results in the decision making process for risk control activities.

Specific Actions and Milestones with Completion Dates

1) Reliability Roadmap
    - Action: Create the developmental roadmap for applying reliability engineering principles to a liquid transmission pipeline system
    - Objective: Adapt reliability engineering principles for application to a pipeline system to systematically improve system performance
    - Approach: Meet with PHMSA to review and assess the strategic roadmap.
    - Deliverable: Provide roadmap documentation
    - Original Completion Date: March 31, 2013
    - Target Completion Date: Q2 2013
2) Quantitative Risk Assessment Model
    - Action: Complete development of the quantitative risk assessment model.
    - Objective: Improve risk management decision-making process through the use of quantitative risk assessment models.
    - Approach: Improve upon integration of integrity threats and other threats, such as third party damage, geohazard, etc., in order to more effectively assess risk and improve risk decision-making.
    - Deliverable: Presentation of the enhanced risk assessment model.
    - Original Completion Date: August 31, 2013
    - Target Completion Date: Q4 2013

3) Pipeline Research Council International (PRCI) Research Programs
    - Action: Co-fund PRCI research projects, serve on research teams, and serve or initiate industry forums.
    - Objective: Advance codes, standards and practices relative to the development of pipe strength Modeling and reliability assessment tools.
    - Approach: Lead and actively support PRCI research program initiatives.
    - Deliverable: Provide to PHMSA an updated catalogue of projects coordinated through PRCI and other industry initiatives which represent Enbridge's leadership
    - Original Completion Date: N/A
    - Target Completion Date: Q2 2013

4) Selection of Risk-Mitigation Measures
    - Action: Group the various processes that relate to the determination of risk mitigation to simplify the demonstration of a comprehensive approach.
    - Objective: Clearly demonstrate how Enbridge integrity management processes provide a comprehensive approach to risk mitigation.
    - Approach: Update the process documentation within the management system. Clarify how fitness for service analysis will be connected to enhanced reliability practices and how this links to the risk assessment modeling. Identify the additional information that will be needed for the use of enhanced reliability tools. The consolidated process will describe the criteria for the selection of risk mitigation measures such as the following:
        - pressure reduction,
        - repair,
        - hydrostatic testing,
        - rehabilitation, and
        - pipe replacement.

      The consolidated process will describe the approach for managing integrity from a lifecycle perspective including elements such as:
        - Addressing defect tolerance in the pipeline design process;
        - Providing effective quality management practices during pipe manufacture and pipeline construction; and
        - Utilization of mitigative measures designed to prevent or retard crack growth.
    - Deliverable: Updated sections of the Integrity Management System
    - Original Completion Date: New item
    - Target Completion Date: Q4 2013

H. Leak Detection Systems and Sensor & Flow Measuring

Specific Actions and Milestones with Completion Dates

Enbridge LP has made a number of significant improvements to our leak detection system recently and is continuously undertaking initiatives to improve the leak detection capabilities on our pipeline systems.

1) Instrumentation Addition and Program Enhancements
   A leak detection equipment design standard was initiated to optimize the performance of the existing Leak Detection system. As part of this, Enbridge LP has developed system performance targets for all pipelines.
   a) Maintenance Management Program Enhancements
      - Action: Make enhancements to the Maintenance Management Program.
      - Objective: Review and verify that critical instrumentation utilized by the Enbridge Computational Pipeline Monitoring System (CPM) is properly defined in the Enbridge asset management system (Maximo) such that preventative and reactive maintenance is performed in an effective and optimal manner.
      - Approach: The Maintenance Management Program has been reviewed and restructured to formalize the inventory and management of critical leak detection equipment.
      - Deliverable: Processes and procedures focused on the on-going management of Leak Detection Critical Equipment lists (instrumentation) and the subsequent update to the Maximo Asset Management System will be produced. Provide a demonstration of various pipeline leak detection critical equipment lists and how they are synchronized with Maximo.
      - Original Completion Date: Q1 2013
      - Target Completion Date: Q2 2013
   b) Instrumentation Improvement Program
      - Action: Enbridge LP will add new flow meters, pressure transmitters and temperature transmitters to our pipelines.
      - Objective: Improve Lakehead leak detection system performance with an emphasis on sensitivity and reliability through targeted instrumentation additions.
      - Approach: Enbridge LP is executing upon a leak detection instrumentation improvement program and will add flow meters, pressure and temperature sensors across our pipeline systems. The instrumentation and their placements were determined by performing API1149 assessments on a set of alternatives for each pipeline.
      - Deliverable: Provide a summary of the new equipment installed across the Lakehead System by the end of 2013 as part of the instrumentation improvement program and proof of an assessment of the system sensitivity and reliability.

- Original Completion Date: Q4 2013
- Target Completion Date: Q2 2014

2) Leak Detection Technology Assessments
Enbridge LP is actively reviewing and testing different types of leak detection technologies to complement existing detection capabilities:

a) Evaluation of CPM Systems
- Action: Complete an evaluation of CPM systems.
- Objective: Determine if benefit can be derived by deploying a complementary CPM system.
- Approach: Enbridge LP is reviewing several other CPM systems that can potentially complement the existing CPM system in terms of improved sensitivity and reliability during various operating conditions.
- Deliverable: Provide a summary outlining the assessment results and recommendations.
- Original Completion Date: Q4 2012
- Target Completion Date: Q1 2013

b) Evaluation of Acoustic Pressure Wave Leak Detection System
- Action: Evaluate Acoustic Pressure Wave Leak Detection System
- Objective: Determine if a pressure wave based CPM can provide enhanced performance with regards to leak sensitivity, time to detect, and leak location on the Enbridge pipeline system.
- Approach: Through the PRCI, Enbridge LP has committed to hosting the test of several vendor technologies that monitor the pressure wave created by different size leaks.
- Deliverable: A final report will be produced by PRCI with results, recommendations and next steps regarding the performance of this technology.
- Original Completion Date: Q4 2012
- Target Completion Date: Q1 2013

c) Evaluation of Acoustic Inline Inspection Tools
- Action: Evaluate Acoustic Inline Inspection tools
- Objective: Determine if internal acoustic listening devices can provide enhanced performance with regards to leak sensitivity and leak location on the Enbridge System.
- Approach: Enbridge is committed to researching acoustic inline inspection leak detection technology that are run through the pipeline to identify the acoustic emissions produced by leaks.
- Deliverable: A summary of results, recommendations and next steps will be generated as part of the testing and evaluation of two different acoustic leak detection technologies.
- Original Completion Date: Q4 2012
- Target Completion Date: Q2 2013

d) Evaluation of External Leak Detection Sensor Technology

- Action: Evaluate external leak detection sensor technologies.
- Objective: Assess if external sensors (i.e., cables) can provide enhanced performance with regards to leak sensitivity and leak location.
- Approach: Enbridge is assessing the viability of fiber optic cable, vapor tubes and other hydrocarbon sensing cables for leak detection in highly sensitive areas. The construction of a test apparatus will allow for the evaluation of these technologies under a variety of real world conditions.
- Deliverable: A report of results, recommendations and next steps will be generated as part of the testing and evaluation of these various sensor based technologies.
- Original Completion Date: Q2 2013
- Target Completion Date: Q4 2013

e) Evaluation of Aerial-Based Leak Detection

- Action: Evaluate aerial-based leak detection technologies
- Objective: Assess aerial based technologies to determine if they can contribute to improving leak detection surveillance capabilities.
- Approach: An initial test of several aerial-based leak detection technologies has been completed. Five aerial-based technologies were tested in 2012 on gas pipelines; further testing will be completed on liquids pipelines in 2013.
- Deliverable: A report will be produced by PRCI with results, recommendations and next steps regarding the performance of this technology.
- Original Completion Date: Q3 2012
- Target Completion Date: Q4 2013

3) Enhancements to the Leak Detection System

Enbridge LP has committed to making the following changes to the CPM system:

a) Dynamic Alarm Thresholds

- Action: Establish Dynamic Alarm Thresholds.
- Objective: Optimize leak detection thresholds in the Enbridge CPM system such that leak sensitivity and reliability performance during steady state and transient conditions is optimized.
- Approach: Dynamic alarm thresholds are being introduced on all systems to minimize false alarms during transient conditions and to tighten leak sensitivity thresholds during normal or steady state operating conditions.
- Deliverable: A report outlining the current CPM performance including leak sensitivity and reliability (false alarms) will be

produced. In addition, the annual CPM assessment process documentation will be provided.
- Original Completion Date: Q4 2012
- Target Completion Date: Q2 2013

b) Pipeline Simulators
- Action: Develop line specific pipeline simulators for simulated leak testing.
- Objective: Develop pipeline simulators to test the Enbridge CPM systems and to facilitate team-based training environments.
- Approach: Enbridge is committed to the development of simulators for all lines to facilitate CPM performance analysis. Leak detection system performance is tested using techniques identified in API1130, through simulated leak tests, and through fluid withdrawal tests.
- Deliverable: Provide update on the implementation status of Lakehead Systems running with line specific simulators.
- Original Completion Date: Q2 2013
- Target Completion Date: Q2 2013

4) Enhancements to the Pipeline Control System
Enbridge LP has committed to making the following changes to pipeline control systems.

c) Improve Decision Support Tools and Evaluate Expert Systems
- Action: Improve Decision Support Tools and Evaluate Expert Systems
- Objective: Implement systems that can improve the decision support capability of operators and analysts and to determine if an expert system can aid in the assessment of CPM system alarms.
- Approach: Initiatives are underway to improve controller decision support systems including developing tools to further support the analysis of abnormal conditions, and column separation and to evaluate expert systems to support alarm analysis.
- Deliverable: Provide a summary of the tools being implemented along with a summary of how they will improve decision support upon implementation.
- Original Completion Date: Q1 2013
- Target Completion Date: Q4 2013

d) Improvements to Historical Archival Systems
    - Action: Implement local historians and centralize the local control system historical data across the Lakehead System.
    - Objective: Provide improvements to infrastructure to allow for development of improved decision support systems.
    - Approach: Currently projects are being executed to improve historical data storage and retrieval at terminals and pump stations, resulting in the archiving of critical data at an increased resolution frequency.
    - Deliverable: Summary of sites where local historians have been provisioned and evidence of centralized archival.
    - Original Completion Date: Q1 2013
    - Target Completion Date: Q4 2013

5) Pipeline Control System Strategic Map
    - Action: Develop a pipeline control system strategic map.
    - Objective: Define strategies that directly support pipeline safety and reliability by employing best in class capabilities in SCADA, control systems, instrumentation and support infrastructure.
    - Approach: A pipeline control system strategy will be developed which will define recommendations and initiatives that support and improve the pipeline control system.
    - Deliverable: Provide the relevant sections of the pipeline control system strategic map.
    - Original Completion Date: Q4 2013
    - Target Completion Date: Q4 2013

I. Valve Placement

Enbridge LP relies on the use of emergency flow restriction devices (EFRDs) to minimize the amount of product released during an unplanned event. In the Lakehead System there are 445 remote control valves, 245 manually operated valves and 35 check valves.

Specific Actions and Milestones with Completion Dates

1) Develop a Valve Placement Standard
    - Action: Enbridge LP is developing a valve placement standard for which the entire system can be benchmarked with a view to optimizing valve placement.
    - Objective: Provide a tool for providing consistent valve placement.
    - Approach: Provide a copy of the draft valve placement standard to DNV / PHMSA and coordinate a meeting to present the standard.
    - Deliverable: Copy of the draft valve placement standard document.
    - Original Completion Date: Q4 2012
    - Target Completion Date: Q1 2013
2) Develop a 2012 Valve Placement Plan
    - Action: Develop a valve placement plan that includes installing approximately 20 additional Lakehead System EFRD valves by end of 2012.
    - Objective: Communicate the 2012 valve placement plan
    - Approach: EELP will commit to meet with the DNV and PHMSA to review this plan.
    - Deliverable: Coordinate a review of the 2012 valve placement plan. Provide an Excel spread sheet with a list of planned valves for 2012 and a presentation explaining the program.
    - Original Completion Date: Q3 2012
    - Target Completion Date: Q3 2012 (Completed)
3) Develop a 2013 Valve Placement Plan
    - Action: Develop a valve placement plan that includes automating or installing approximately 25 Lakehead System valves.
    - Objective: Communicate the 2013 valve placement plan
    - Approach: EELP will commit to meet with the DNV and PHMSA to review this plan.
    - Deliverable: Coordinate a review of the 2013 valve placement plan. Provide an Excel spread sheet with a list of planned valves for 2013 and a presentation explaining the program.
    - Original Completion Date: Q3 2012
    - Target Completion Date: Q3 2012 (Completed)

4) Instrumentation Placement
    - Action: Coordinate valve placements with installation of leak detection tools on the Lakehead System.
    - Objective: Enhance leak detection capability through instrumentation placement.
    - Approach: Install temperature and pressure transmitters at valves being installed or automated as part of the valve placement plan. The new transmitters will be tied into the SCADA and CPM systems that will assist leak detection analysts and CCO operators.
    - Deliverable: Summary of the new transmitters installed and commissioned in 2012 and 2013.
    - Original Completion Date: N/A
    - Target Completion Date: Q1 2014

5) Lakehead System Long Range Valve Placement Plan
    - Action: EELP commits to performing a valve analysis on the entire Lakehead System to look for areas of concern and then determine a long-range plan for valve upgrades to the System.
    - Objective: Document the long-range valve placement needs that will assist with decision-making for the Lakehead System.
    - Approach: Use the standard developed in I.1 (Develop a valve placement standard) to carry out valve placement analysis and develop a long-range plan based on the analysis. Meet with the DNV and PHMSA to review this long range plan. This will be a draft plan and will be subject to senior management approval.
    - Deliverable: An Excel spreadsheet containing the number of remote valves currently on each line vs. additional valves proposed for each line.
    - Original Completion Date: March 2013
    - Target Completion Date: Q1 2013

J. Integrity Verification

Enbridge LP's primary method of integrity verification of its pipelines incorporates the use of multiple in-line inspection (ILI) technologies. Enbridge LP will employ techniques such as hydro testing and direct assessments as appropriate to validate modeling techniques and ILI results.

Specific Actions, Tasks, Commitments & Milestones

1) ILI Technology Roadmap
    - Action: Prepare a technology improvement plan with Enbridge LP ILI vendors including the incorporation of new technologies (e.g., EMAT).
    - Objective: Development of an ILI technology strategy by way of an Enbridge ILI technology roadmap and joint Enbridge and ILI vendor technology advancement plans.
    - Approach: Currently developing a technology advancement plan for each vendor, plan to roll up into technology roadmap (ILI technology advancements). Review roadmap with PHMSA.
    - Deliverable: Provide a copy of the roadmap.
    - Original Completion Date: March 31, 2013
    - Target Completion Date: Q2 2013
2) ILI Verification
    - Action: Conduct a 3rd party review of Enbridge LP in-line inspection verification processes to assess continued compliance with the new version of API 1163 expected in late 2012.
    - Objective: Verify compliance of Enbridge ILI verification process to requirements of API 1163.
    - Approach: Determine applicable EELP processes pertaining to ILI verification, outlined in API 1163. Select and hire a consultant to perform the 3rd party review and to prepare a report.
    - Deliverable: 3rd party report.
    - Original Completion Date: March 31, 2013
    - Target Completion Date: Q2 2013
3) Evaluate Safety Margins
    - Action: An analysis of variables that define current industry and regulatory safety margins and growth models.
    - Objective: Evaluate industry and regulatory safety margins and growth models across other industries.
    - Approach: Complete a reliability engineering based review in comparison to other industries. The independent consultant, PHMSA, and EELP will meet to review the results of that analysis. In addition, identify opportunities to share results of the above review with industry and regulators. EELP will commit to

take a leadership role in incorporating improvements into standards and regulations.
- Deliverable: Final report
- Original Completion Date: June 30, 2013 and ongoing
- Target Completion Date: Q2 2013

4) Effectiveness of Hydro Testing to Complement ILI
   - Action: Conduct a reliability engineering analysis of the effectiveness of hydro testing in conjunction with ILI.
   - Objective: Determine the effectiveness of hydro testing when used to complement ILI data to improve pipeline safety using reliability engineering techniques
   - Approach: Utilizing results from recently hydro-tested Enbridge pipelines, prepare a report and review the report findings with PHMSA.
   - Deliverable: Final report
   - Original Completion Date: December 31, 2013
   - Target Completion Date: Q1 2014

5) Facility Integrity Management Program
   - Action: Identify new or upcoming facility integrity standards or best practices and incorporate into the Enbridge LP integrity management system.
   - Objective: Update Enbridge facility integrity management programs to include improvements identified in revised industry standards (API 570, API 2611)
   - Approach: Verification of completion will be by providing a list of specific improvements that have been made to the Facilities Integrity Management documents based on this review. API 570 and 2611 will be reviewed.
   - Deliverable: Gap analysis report between the EELP FIMP and API 570 and 2611 industry standards/best practices.
   - Original Completion Date: Q2 2013
   - Target Completion Date: Q2 2013

6) Technical Training Matrix
   - Action: Develop a comprehensive role-specific technical training matrix
   - Objective: Alignment of skill requirements and enhance critical decision-making and information sharing among pipeline integrity employees.
   - Approach: Develop a role specific training matrix for pipeline integrity employees. This matrix will be reviewed by a 3rd party consultant and assessed against industry-leading practices.
   - Deliverable: Updated Integrity Management System to include a role specific technical training matrix
   - Original Completion Date: Q4 2012
   - Target Completion Date: Q1 2013

7) 2013/2014 Lakehead System Integrity Plans
    - Action: Develop a summary of the 2013/2014 Lakehead System integrity plans.
    - Objective: Communicate integrity plans for the Lakehead System.
    - Approach: Develop a detailed summary of the integrity plans for the Lakehead System including ILI schedule and planned risk mitigation activities (e.g., hydrostatic testing, replacements, repairs). Criteria for prioritizing these activities will be addressed in initiative "Selection of Risk Mitigation Measures" within section G of this plan. Decisions associated with hydrostatic testing and repair versus line replacements will require completion of other initiatives within the Lakehead Plan prior to developing plans on these activities. The summary will include discussion on how the other initiatives will be employed on the remainder of the Lakehead System.
    - Deliverable: Provide a copy of the summary.
    - Original Completion Date: N/A
    - Target Completion Date: Q2 2013

Training

The pipeline integrity training program is comprised of four components:

- Core safety and policy - ensuring all safety policy and procedure requirements are met for role expectations as well as other policy items, such as Enbridge's Statement on Business Conduct.
- Department Function - a detailed learning map to ensure key elements are understood in the area of pipeline operation, regulations and employee effectiveness.
- Role specific - which is specific technical training to ensure the required skills are present to meet the expectation of the integrity management system on a job function basis. All these requirements are measured through employee dialogue and the development of an individual development plan.

Foundational Development - The Pipeline Integrity and Engineering Department has launched a foundational development program available for all employees. A learning map has been developed which outlines a common curriculum with both required and optional baseline training requirements, and is meant to serve as a foundational training program. The program focuses on three tracks of development aimed at base technical development, enhancing general skills and knowledge and leadership development.

K. Quality Management System

Enbridge LP has a Quality Management Process (QMP) that addresses the key stages of a pipeline installation life cycle, focusing on engineering, procurement, construction, and commissioning. Elements of the program include the use of pre-qualified vendors, master service agreements with provisions for quality management, inspection, quality auditing, non-conformance reporting and corrective actions and lessons learned. As part of the overall integrated management system, all management systems will have a quality management approach to continually assess and improve processes and procedures in a comprehensive and interconnected manner. As part of the integrated management system initiative, the consultant retained has conducted a high-level gap analysis of the management systems and functional alignment. Specific to line pipe, there have been a number of improvements in Enbridge LP's Quality Management Process since the period in which Line 14 was constructed including:

- Prequalification and periodic requalification of pipe mills using an ISO 19011 – type auditing process involving quality personnel as well as pipe line engineering staff
- Prequalification and periodic requalification of steel mills which supply the pipe mills by qualified personnel in conjunction with consulting metallurgical expertise
- 100% third party inspection during project mill runs by a stable, experienced inspection firm
- Monitoring of pipe mill performance including internal production statistics and results of third party inspection

<u>Specific Actions and Milestones with Completion Dates</u>

1) Gap Analysis and Improvement Plan
    - Action: Develop a gap analysis and improvement plan to address the management of our material supplier inspection. Management of material suppliers will reside within the Supply Chain Management System (IMS-13) and consist of all the necessary enabling functions from qualification to final payment.
    - Objective: Implement quality process documentation that closes identified gaps.
    - Approach: 3rd party consultant analysis and recommendation of processes for managing the quality of material suppliers by comparing existing LP/Major Projects processes with industry best practices. Document a process for purchaser representation during pipe manufacturing that includes the activities that are to be performed based on the following three philosophies: No inspection, Intermittent Inspection, and Residency Inspection. Develop and document a process that outlines the 3rd party agencies quality requirements related to quality management registration, qualifications and training for performing inspection activities on behalf of Enbridge.

- Deliverable: Provide draft “Purchaser Representation During Pipe Manufacturing” process document and the draft “3rd Party Agencies Quality Requirements” process document.
- Original Completion Date: Q4 2012 / Q2 2013
- Target Completion Date: Q1 2013 / Q2 2013

2) Pipe Mill Quality
   - Action: Improve Pipe Mill Quality Standard. Management of pipe mill quality will reside within the Supply Chain Management System (IMS-13) and consist of all the necessary enabling functions to ensure pipe quality prior to shipment.
   - Objective: Implemented quality process documentation that improves the material received from pipe mills.
   - Approach: Develop improvement plan for managing the prequalification and requalification of potential pipe manufacturers by conducting a review of current company standards for the manufacturer of pipe versus current industry standards. Also, document the process for prequalifying and re-qualifying the capabilities of potential pipe manufacturers to ensure manufacturers have required process controls in place for providing materials to Enbridge in accordance to regulatory requirements and industry standards.
   - Deliverable: Provide a copy of the draft “Prequalification and Requalification Improvement Plan” and a copy of the draft process document on “prequalifying and re-qualifying pipe manufactures.”
   - Original Completion Date: Q4 2012 / Q2 2013
   - Target Completion Date: Q1 2013 / Q2 2013

3) Engineering Consultant Management Tool
   - Action: Develop an Engineering Consultant Management Tool for Projects to enable more effective management of pipeline designers. This tool is intended to drive consistent application of best practices for managing consultants. Management of engineering consultants will reside within the Engineering and Projects Management System (IMS-08) and consist of the necessary enabling functions to ensure quality within the design process is consistently achieved.
   - Objective: Implemented management tools that improve the quality of deliverables produced by engineering consultants.
   - Approach: Current state of engineering consultant management reviewed and opportunities for improvement identified. Plans created for the development of various procedures and tools to enhance the performance of engineering consultants. Cross-functional teams established in order to develop and implement the procedures and tools.

- Deliverable: Procedures and tools documented for use by Major Projects. A copy of the documentation provided to rollout recipients, a summary of whom has received the roll out, and the plan for remaining rollout as of the deadline.
- Original Completion Date: Documentation - Q4 2012 / Rollout - Q2 2013
- Target Completion Date: Documentation – Q1 2013 / Rollout - Q2 2013

4) Quality Management and the Integrated Management System
    - Action: The Integrated Management System is the means to achieve Pipeline Safety within the organization by applying quality management principles in an integrated approach. Thus the IMS is a quality management system. IMS-01, Integrated Management System Policies and Procedures, outlines the requirements specific to quality management in three areas: supplier, material and internal. Each management system is accountable to abide by the requirements outlined in IMS-01 with regards to quality management. The quality management requirements are applicable to any group within or providing service to Liquids Pipelines.
    - Objective: Implementation of the Integrated Management System Policies and Procedures.
    - Approach: The Integrated Management System is currently under design and the approach is to continue as planned in order to develop and implement the complete system.
    - Deliverable: Document outlining the quality management system and quality management approach for suppliers, material and internal.
    - Original Completion Date: N/A
    - Target Completion Date: Q4 2013

L. Other Safety Enhancements and Initiatives

Public Awareness:

Specific Actions and Milestones with Completion Dates

The following describes incremental public awareness activities to those previously initiated by EELP or required under existing regulations and standards.

1) 811 Awareness
    - Action: Increase the 811 awareness activities on a continuous basis.
    - Objective: Reduce third party line strikes.
    - Approach: EELP participated in industry and company initiatives aimed at enhancing 811 awareness, including a nation-wide advertising campaign to promote the national one-call number on 811 Day (August 11, 2012) and increasing media advertising and outreach efforts with a specific target of running more than ten 811 ads and pitching 24 op-eds to newspapers across its systems for 811 Day 2012. EELP will participate in additional campaigns for excavation safety in 2013, including 811 Day and Safe Digging Month. EELP is providing a magnet featuring the emergency number and 811 to all excavators as part of our 2013 baseline mailing.
    - Deliverable: EELP will provide a summary of the 2012 811 Day media advertising and an example of the magnet being provided to all excavators as part of our 2013 baseline mailing.
    - Original Completion Date: Q2 2013
    - Target Completion Date: Q2 2013
2) Excavator Communications
    - Action: Meet with excavators, execute phone campaigns (auto dialers), and improve the process for following up on line strikes and near misses.
    - Objective: Improve communications with excavating community.
    - Approach: EELP is focused on strengthening communication with excavators, in particular those in violation of state one-call laws and Enbridge excavation procedures. EELP will hold meetings with excavators and execute phone campaigns (auto dialers) targeted at excavators in high risk counties. In addition, EELP will review, revise and document the process for following up on line strikes and near misses. This improved process is intended to provide violators information on the ramifications of their actions.
    - Deliverable: Enbridge will provide a copy of the implemented “One-Call Violator” process, and a summary of the excavator meetings and phone campaigns completed between Q1 2012 and Q1 2013.

- Original Completion Date: Q2 2013
- Target Completion Date: Q2 2013

3) Emergency Response Training
   - Action: Develop Online and In Person Third Party Emergency Response Training
   - Objective: Train third party emergency response organizations.
   - Approach: EELP will roll-out Enbridge-specific online emergency responder education program to all identified -third party emergency response organizations in our counties of operation throughout the U.S. by the end of 2012. (Approximately 7,000 emergency responders were identified) Further, EELP will roll-out an in-person component to provide key third party emergency response organizations with in-person emergency response training in 2013. EELP will also be formalizing a process to standardize the pipeline-specific information provided to third party emergency responders.
   - Deliverable: EELP will provide the URL to access to the online training program and will submit documentation for those that have taken the program in 2013.
   - Original Completion Date: Q1 2014
   - Target Completion Date: Q1 2014

4) Supplemental Information for 911 Dispatch Centers and Fire Departments
   - Action: Provide emergency responders in counties of operation with specific information on signs of a pipeline rupture, how to respond to a pipeline emergency and how to handle a call from the public reporting a potential pipeline emergency.
   - Objective: Provide 911 Dispatch Centers and Fire Departments with data that they can use to help identify a pipeline rupture and the appropriate way to respond.
   - Approach: EELP mailed supplemental information (posters) to 911 dispatch centers and fire departments within its counties of operation in September 2012.
   - Deliverable: EELP will provide a summary of the poster mailing, including a copy of the poster provided to 911 Dispatch Centers and Fire Departments.
   - Original Completion Date: Q1 2013
   - Target Completion Date: Q1 2013

5) Pipelines and Public
   - Action: Run targeted online advertising in key areas along our pipeline systems to provide the public with information on how to recognize and respond to a pipeline emergency.
   - Objective: Educate the public on pipelines, signs of a leak, and appropriate response

- Approach: An online advertising campaign will target affected public and others in zip codes along the Lakehead System in December 2012. Online ads will link to the Public Awareness section of the website. Analytics will provide information on how many views and clicks the ads and web pages receive. The remaining Enbridge U.S. areas of operation will be targeted in 2013.
- Deliverable: EELP will provide analytics on the Lakehead online advertising campaign, including the number of clicks and page views.
- Original Completion Date: Q1 2013
- Target Completion Date: Q1 2013

6) Public Awareness Committee
   - Action: Increase collaboration among internal stakeholders of the Public Awareness Program.
   - Objective: Improve the contribution of the Public Awareness Program to pipeline safety.
   - Approach: Quarterly meetings are held with the Public Awareness Committee (PAC), which includes field operators, management, right-of-way, compliance, integrity, emergency management and Public Affairs.
   - Deliverable: EELP will provide the PAC charter and meeting notes from the 2012 PAC annual meeting.
   - Original Completion Date: Q1 2013
   - Target Completion Date: Q1 2013

7) Public Awareness Training
   - Action: Enhance employees' understanding of their role in the Public Awareness Program by providing in-person and online training to employees.
   - Objective: Increase employee understanding of the key audiences, key messages and how to document Public Awareness contacts
   - Approach: Develop online training to supplement the in-person training currently provided to each Region/District on an annual basis. The training will be used to target new employees, employees unable to make the in-person training and office employees. Region/district management can choose to provide training online versus in person every other year.
   - Deliverable: EELP will provide the number employees trained by the end of Q2 2013 and a copy of both the online and in-person training material.
   - Original Completion Date: Q3 2013
   - Target Completion Date: Q3 2013

Damage Prevention (Line Locating):

Specific Actions and Milestones with Completion Dates

1) TALL Training
    - Action: Roll out of Transmission Advanced Line Locating (TALL) Training program in all Regions
    - Objective: To reduce mechanical damage caused to pipelines by increasing line locator's capabilities of accurately locating facilities.
    - Approach: TALL Training is an Enbridge LP line locate initiative for 2012 and onwards. The intention is to create a consistent and robust line locate training program across the US and Canada. TALL Training also satisfies Operator Qualification requirements for line locating and temporary staking.
    - Deliverable: Provide a summary of how many employees have completed TALL training by the end Q1 2013 and a copy of the TALL training program materials.
    - Original Completion Date: March 2013
    - Target Completion Date: Q2 2013
2) Equipment
    - Action: Move towards standardization of equipment and provide an update of the policy and procedure
    - Objective: Standardize line locate equipment across the Enbridge LP system to ensure consistency in training, and transferability of employee resources.
    - Approach: A component of TALL Training sees a move towards standardization of equipment. A line locating equipment review has been conducted and Enbridge will be moving towards reducing the models and type of locating equipment to between two and four acceptable units. This will allow employees to move between locations more efficiently.
    - Deliverable: Provide a summary of how many new lines locators (Fuji PL960 ACX) units have been distributed to the US operating groups by end of Q1 2013.
    - Original Completion Date: N/A
    - Target Completion Date: Q1 2013
3) Field Inspections
    - Action: Perform field inspections on line locating and ground disturbance practices.
    - Objective: Assess line locator competency and Company policy/procedure knowledge of other Enbridge parties involved with ground disturbance.
    - Approach: This 2013 initiative will see the damage prevention team from Enbridge LP going into the field and conducting field

reviews on both line locating practices and ground disturbance practices.
- Deliverable: Provide a copy of the field review form templates.
- Original Completion Date: Q2 2013
- Target Completion Date: Q2 2013

4) Close Calls and Incidents Record Management
   - Action: Compare 2012 incidents and close calls related to line locating with 2011 incident and close call numbers.
   - Objective: Determine whether there has been a reduction in the number of close calls and incidents related to line locating practices.
   - Approach: Damage prevention personnel will compare 2011 incidents to 2012 incidents.
   - Deliverable: Provide comparative numbers for incidents and close calls related to line locating for 2011, 2012.
   - Original Completion Date: N/A
   - Target Completion Date: Q1 2013

Research, Development & Innovation:
A new departmental function has been created with a director – level dedicated role, with a budget to identify, invest in, and develop innovative technologies and best practices to support Enbridge LP operations and the achievement of strategic goals, particularly those related to improved safety and reliability. This area will be responsible for promoting the adoption of novel technical solutions. It will design and execute a comprehensive research and development plan for accessing technology through research, product or process development, proofs of principle, and field demonstration of commercially significant technology. This includes internal initiatives, working with functional departments in need of or pursuing new technologies, external opportunities, joint ventures and scientific collaborations. A focus of the R&D department will be to research tools and technology that align with Enbridge's values around safety and to work towards a goal of zero safety and release incidents. Likewise, EELP is committed to sponsoring R&D through research associations like PRCI and leading research initiatives to enable both the company and the industry towards developing better models, tools, consensus standards, technology and procedures.

<u>Specific Actions and Milestones with Completion Dates</u>

1) Research and Development Plan
   - Action: Prepare a draft Research and Development Plan.
   - Objective: Define the objectives and path forward for the Research, Development and Innovation Group
   - Approach: Utilize Research, Development and Innovation staff to develop a written "Research and Development Plan." This plan will serve as a roadmap for future research and development initiatives and will highlight the focus on Safety and Operations.

- Deliverable: Draft Research & Development Plan
- Original Completion Date: Q4 2012
- Target Completion Date: Q1 2013

2) Research and Development Plan
   - Action: Review Research and Development Plan with DNV and PHMSA
   - Objective: Communicate the intent of the plan.
   - Approach: Review session held by March 31, 2013 with PHMSA and DNV. Plan will be shared with DNV and PHMSA in advance of the meeting. Comments and recommendations on the draft plan will be documented for future consideration by Enbridge.
   - Deliverable: Provide a copy of the comments and recommendations discussed at the review meeting in meeting minute format.
   - Original Completion Date: March 2013
   - Target Completion Date: Q1 2013

3) PRCI
   - Action: Participate as a full member of PRCI
   - Objective: Maintain an influential position within PRCI on Safety and/or Operations efforts.
   - Approach: Maintain a full membership status with PRCI, including sponsoring and or leading R&D efforts in areas of Safety and/or Operations.
   - Deliverable: Provide a list of Enbridge LP employees that are involved with PRCI, their role, and brief summary of which PRCI R&D efforts Enbridge is involved with.
   - Original Completion Date: N/A
   - Target Completion Date: Q1 2013

Appendix A - Improvements Undertaken Since 2011

Integrated Management System
Since 2009, Enbridge has embarked on improving its various management systems. In 2010, Enbridge retained a consultant to assist with identifying the various management systems, assessing each system and devising a process to integrate the various management systems. The IMS is being implemented in stages and is already implemented in various aspects, with further implementation to occur over the next year. While the overall Integrated Management System is being developed, the following documents have been created and the following presentations made as part of implementation:

- Integrated Management System Executive Committee (IMSEC) Terms of Reference
- IMSEC Bulletins
- Tone at Top Messages and presentations
- Draft Integrated Management System Policy
- Draft Integrated Management System Table of Contents

Compliance & Ethics Management System (CEMS)
Enbridge has addressed compliance & ethics through a number of policies, processes, and practices that existed and were implemented prior to the Marshall incident. Examples of such policies include: the Statement on Business Conduct; Compliance Policy; Whistleblower Policy; and Internal Audit, Investigations & Review Policy, among others. Over the past two years, work has been ongoing to document and formalize all the existing compliance and ethics policies, processes and practices into one management system that is comprehensive. While many of the processes and practices in the draft CEMS are already in place, a more formal communication and training plan will be put in place to implement the finalized CEMS.

Prior to commencing the IMS, Enbridge managed compliance and ethics through the following:

- Statement on Business Conduct annual certification
- Statement on Business Conduct annual online training commenced in 2009
- New employee orientation, includes compliance and ethics
- Compliance Policy
- Statement on Business Conduct
- Documents Policy
- Internal Audit, Investigation and Review Policy
- Whistleblower Policy
- Quarterly request to Directors and Vice Presidents to report material non-compliances
- Legal Updates circulated to employees
- Online Fraud Training for employees (2009)

As part of the IMS process a formal CEMS review and implementation process for improvements has been occurring since early 2010 and includes the following:

- Draft Compliance & Ethics Policy
- Draft CEMS
- Statement on Business Conduct annual certification
- Statement on Business Conduct annual online training
- New employee orientation, includes compliance and ethics
- People Leader training, includes compliance and ethics
- Compliance Policy
- Statement on Business Conduct
- Documents Policy
- Procedures Library
- Internal Audit, Investigation and Review Policy
- Whistleblower Policy
- Quarterly request to Directors and Vice Presidents to report material non-compliances
- Compliance Summit
- Legal Updates available to all employees and contract workers
- Tone at Top Messages & short-term incentive program scores
- Draft content for 2012 Online Fraud Training for employees and contract workers

Emergency Response

1) Emergency Response Support
   Creation of the Training and Emergency Response department – manager led and reporting to Director Operations Services. Attached:
   - ER Organization Chart

2) For Incident Support Job Aids
   Created Incident Management Handbook IMH. This manual is used as a job aid during an incident and drills. It outlines how ICS works. This is given to all participants of ICS 100/200 & 300 training. Attached:
   - Enbridge Pipeline IMH BOOK 2011 Revision 1

3) ICS 201 Packet Form is an industry and US regulatory set of initial forms that lead into the Incident Action Plan. These forms are on the Operations Services SharePoint site and are now being used during incidents:
   - ICS_201-1: Incident Briefing Map/Sketch
   - ICS_201-2: Summary of Current Actions
   - ICS_201-3: Organization Chart
   - ICS_201-4: Resource Summary
   - ICS_201-5: Site Safety and Control Analysis
   - ICS_202: General Response Objectives
   - ICS_205: Communication Plan
   - ICS_206: Medical Plan
   - ICS_230: Meeting Schedule

- Notifications Report (template)
- Weather Report (template)

4) Training
   - ICS training certificates
   - We issue from TRG certificates of completion for:
     - ICS 100/200
     - ICS 300
     - Exercise Design (3 Courses Offered to date in Western, Central and Chicago Regions)
     - Environment Specific Training Completed for that Department
   - Regional Training stats

Region	ICS 100/200	ICS 300 (Formerly 300/400)	Total
Athabasca	9	2	11
Central	27	19	46
Chicago	75	34	109
Cushing	88	20	108
Eastern	75	16	91
EPND	30	14	44
EPSI	21	2	23
Northern	16	14	30
Superior	33	3	36
Western	24	2	26

5) Enterprise-Wide Team
   We have an enterprise-wide team that meets regularly (every month or so) to discuss the creation of the team, members are currently being identified. Drill scheduled for 2 Days in Houston, 1 day training and 1 day drill.

Safety Culture

1) Lifesaving Rules at Enbridge
    - Lifesaving Rules at Enbridge
    - Safety Perception Survey
    - Life Saving Rules Training Package
    - Lifesaving Rules Training Video
    - Additionally, Control Center Operations is in the process of introducing three Golden Rules that are designed to complement the Lifesaving Rules at Enbridge but are focused on key areas of control center operation: Safe Operating, When in Doubt - Shutdown, and Emergency Procedures.

2) Other Training:

Course/ Topic	Seminar Start	Audience	# Attended
Thinking Differently about Safety (Values-Ethics & Safety; Safety Culture & Discipline; Safety Management Systems)	12/8/2010	ELP Executive Leadership Team	TBD
Concepts of Operational Excellence	1/13/2011	ELP Executive Leadership Team	TBD
Felt Leadership	6/22/2011	Operations Department Managers- SVP Operations	TBD
PSM Introduction	7/26/2011	Managers- Directors	10
Safety that Works for Operations Managers	8/9/2011	Managers- Directors	23
Safety that Works for Operations Managers	8/23/2011	Managers- Directors	32
Corporate Safety Governance and Strategic Planning	9/21/2011	SVP Ops/Eng & Senior Safety Directors from LP, Major Projects, Gas Distribution, Gas Transmission	~15
Safety that Works for Operations Managers	11/15/2011	Managers- Directors	18
MP Safety Leadership/ SPS	11/17/2011	Major Projects Executive Leadership Team	12
Safety Leadership Saturday	12/3/2011	ELP Executive Leadership Team	TBD
Safety Management Fundamentals	1/30/2012	Supervisors	TBD
Safety Management Fundamentals	3/14/2012	Supervisors	TBD

Public Awareness Plan (PAP)
Changes to PAP are the following:

1) Public Awareness Coordinator: A full-time position was added in late 2010 to manage the day-to-day activities of the Public Awareness Program, including oversight of the documentation database, employee training and enhanced supplemental activities.
2) Public Awareness Hotline: A toll-free number has been set-up for Public Awareness-related inquiries. The number was established after focus group results indicated that audiences were confused about which regional office to call to request information. In the 2012 baseline brochures, only one telephone number is listed for non-emergency contact, 877-799-2650, versus listing several regional office numbers. The public can also request public awareness information through the previously established public awareness email address, USpublicawareness@enbridge.com.

PAP documents include:

- 2012 Brochures
- Congressional Contact Listing
- Copy of Public Awareness Review Protocols
- Copy of Magnets
- 2012 Calendar
- U.S. Safe Digging Month Summary
- National Safe Digging Month Radio Script
- Excerpt from the Superior Telegram; PA feature running April 11, 2012
- August 4, 2011 letter to legislators from Mark Maki
- Dec. 14, 2011 letter to legislators from Mark Maki, enclosing Enbridge calendar
- PAC Sub-committee objectives
- PAP PHMSA audit exit interview
- Effectiveness Evaluation: 2011 Papers Research
- Emergency Responder Program Plan
- Liquids Legislator Mailing List
- Enbridge Pipeline Brochure Research
- Gas Legislator Mailing List

Pipeline Control Systems and Leak Detection (PCSLD)

1) Organization Structure Changes
    a) Creation of the Pipeline Control Systems and Leak Detection department in October, 2010 – Director led and reporting to Senior VP Pipeline Integrity & Engineering
    b) Single area of accountability in relation to leak detection capability, safe and reliable pipeline control systems and improved operator information systems.
    c) Incremental staff and contractor additions in 2010, 2011 and 2012 resulting in a doubling of the PCSLD workforce

d) Creation of the Leak Detection department reporting to the Director, PCSLD. Department comprised of three teams: Maintenance and Integration, Assessment and Support, and Testing and Research.
e) Creation of the Pipeline Control Systems department reporting to Director, PCSLD. Department comprised of three teams: SCADA Services, Control Systems CAN, and Control Systems USA
f) Creation of Quality and Compliance department reporting to Director, PCSLD.

2) Process and Procedure Changes

New Procedures - Four MBS Analyst procedures have been implemented, these include the leak detection escalation process, shift change sheet, alternate leak detection recommendation procedure.

Efforts are underway to formalize existing practices through the identification and development of standard operating procedures.

Control Room Management - Procedures have been developed for the Control Room Management regulation, which have an implementation deadline of August 1st, 2012.

Establishing a (QMS) which ensures effective execution of critical work activities meeting pre-defined quality objectives is underway.

3) Training Changes

The Leak Detection Analyst Training Program has been enhanced in several areas including on-the-job training, training program layout, readiness assessment, and communications with CCO personnel.

4) Instrumentation Changes

Assessments and planning of instrumentation additions and upgrades required to improve the performance of the leak detection system, and ensure it consistently meets or exceeds Enbridge internal performance targets has been completed.

The establishment of a maintenance management program is underway. This program will further enhance the existing program by formalizing the inventory and management of critical leak detection equipment.

5) MBS Changes

Continuous improvement plans have been developed and are being implemented to tune the Material Balance System (MBS) leak detection system for optimal performance.

A leak detection equipment design standard has been developed to ensure leak detection performance standards will be met on new pipelines.

Various initiatives are underway to assess commercially available leak detection technologies and determine if there are complementary strategies to further enhance leak detection performance.

Pipeline Control (including Control Centre Operations "CCO")

- CCO Training (Enrolment Records Attached)
  - Admin On-Call
  - Column Separation Analysis Form
  - Column Separation Calculation
  - Orientation Fatigue Management
  - Supervisor Fatigue Training
  - Human Factors 1.1- Science of Sleep
  - Human Factors 1.2 –Fatigue Prevention
  - Human Factors 1.3-Fatigue Mitigation
  - Emergency Response
  - Incident Investigation
  - Introduction to Life Saving Rules
  - MBS Analysis and Communication
  - Pipeline Hydraulics I
  - Pipeline Hydraulics II
  - Respectful Workplace Training
- Pipeline Maneuvers
  - Start Up
  - Shutdown
- Operating Standards Maneuvers
  - General Operating Standards - Temporary Console Monitoring
  - General Operating Standards - Shift Change – Operators
- Operating Standards & Procedures Quality Management System (QMS)
- Pipeline Emergency Response Procedures
  - Material Balance System MBS Alarm
  - Suspected Column Separation
- CCO Operational Incident and Close Call Flow Chart
- CCO Operational Incident and Close Call Process
- Column Separation Analysis form
- Shift Change Form
- CCO On-Call Handbook
- CCO Fatigue Risk Management Handbook
- Control Room Management Plan
- Mentor Selection Worksheet
- CCO KPI Scorecard
- CCO Engagement Action Plan Final 05-03-11
- Transition of CCO to New Location 11-01-2011
- Control Centre Safety Culture Charter
- CCO Specific LifeSaving Rules Roll-out Communication

Integrity
The following procedure documents have been reviewed and revised:

- Wall thickness used for FfP calculations
- Including tolerance for FfP
- CF inter-linked length greater than 3 inches
- Risk Mitigation Criteria
- Tool Performance Validation
- Selection of cracks in corrosion, threat integration
- POD, POI, POS Trending
- FfP Outliers
- ILI Classification Outliers
- Inclusion of Outliers into Dig Selection
- SCC Growth Rates Checks

DET NORSKE VERITAS

Proposal for:

Independent Review and Oversight of Enbridge's Written Plan to Address Item 13 of Corrective Action Order CPF No.3-2012-5017H

Client: Enbridge Energy, LP

Date: August 3, 2012

DET NORSKE VERITAS

Proposal for Enbridge Energy, LP
Independent Review and Oversight of Enbridge's Written Plan
to Address Item 13 of Corrective Action Order CPF No.3-2012-5017H

Proposal title: Independent Review and Oversight of Enbridge's Written Plan to Address Item 13 of Corrective Action Order CPF No.3-2012-5017H		DET NORSKE VERITAS (CANADA) LTD. Suite 150, 2618 Hopewell Place NE Calgary AB T1Y 7J7 Canada Tel: (403) 250-9041 Fax: (403) 250-9141 http://www.dnv.com
Customer:	Enbridge Energy, LP	
Customer Address:	City Center Office 1409 Hammond Avenue Superior, Wisconsin 54880-5247	
Customer Reference:		
Contact Person:	Len Leblanc	
DNV Reference:		
Date of Issue:	August 3, 2012	
Validity of Tender:		
Terms and Conditions:		
Prepared by/Contact Person: Burke Delanty, P. Eng.	*Position:* Head of Section Integrity Solutions	*Signature:*
Approved By: Jake Abes, P. Eng.	*Position:* Country Manager North America Oil and Gas	*Signature:*

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1 INTRODUCTION

On July 27th, 2012 Enbridge Energy, LP (Enbridge) experienced a product release on its Line 14 at MP 232 near Grand Marsh, Wisconsin. In response to this incident the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), issued Corrective Action Order (CAO), CPF No.3-2012-5017H, as well as an Amendment to the Corrective Action Order. Item 13 of the Amendment to the CAO requires Enbridge to retain an independent third party pipeline expert to review and assess its proposed plan to improve the safety record of the Lakehead Pipeline system and then to oversee the development and implementation of that plan.

Enbridge has requested that Det Norske Veritas (Canada) Ltd. (DNV) submit the enclosed proposal to provide the required independent third party oversight.

2 BACKGROUND INFORMATION ON DNV

DNV is a global provider of risk management services with the purpose of safeguarding life, property and the environment. Organized as an independent, autonomous foundation, DNV balances the needs of business and society, based on its independence and integrity. With its vision of creating a global impact for a safe and sustainable future for its customers and, ultimately, society at large, DNV serves a range of high-risk industries, with a special focus on the maritime and energy sectors.

DNV North America Oil & Gas has more than 700 employees in the USA. DNV's main activities in the USA are within the energy sector, both within oil & gas exploration, development and production as well as within wind energy. DNV is engaged in verification, classification and asset risk management offshore in the Gulf of Mexico and within risk management of onshore pipelines and refining. DNV has a leading Corrosion and Materials Technology Center in Columbus, Ohio focusing on management of degradable structures. The Technology Center in Ohio was a leader in the development of pipeline corrosion assessment standards referenced by US Federal Regulations. The DNV office in Columbus provides a variety of services to the industry including research, testing, engineering analysis (including cathodic protection and other corrosion control systems), failure investigation, forensic services, project management, consulting, field monitoring, materials selection, materials and corrosion evaluations, equipment life extension, condition assessment, integrity and risk management services, SHE management services, and litigation support services.

In Canada, the DNV office in Calgary, Alberta provides a broad spectrum of services to the pipeline industry, specializing in pipeline integrity management, analysis of in-line inspection results, regulatory and code compliance, accident investigation, quality and safety management systems, pipeline operations, and risk management.

3 DNV'S ONGOING WORK WITH ENBRIDGE

In order to ensure complete transparency, DNV wants to highlight that a number of its offices in Canada and the USA are currently engaged in active projects for Enbridge involving a number of their different pipeline systems, including Line 14.

DNV believes that our ongoing working relationship with Enbridge will actually enhance and not diminish our ability to undertake the required scope of work because of our familiarity with and knowledge of a number of Enbridge's current practices and processes.

4 SCOPE OF WORK

Although DNV has other work arrangements with Enbridge, for this Scope of Work, DNV will undertake the work activities described herein in a manner consistent with our professional licensing requirements to provide independent and critical thought to the assessments, monitoring and reviews that will be provided both to PHMSA and Enbridge.

DNV understands and accepts that, for this Scope of Work, it will be equally responsible to both PHMSA and Enbridge.

In accordance with the requirements outlined in the Amendment (Item 13) to CAO, CPF No.3-2012-5017H, issued by PHMSA, DNV understands the required scope of work to consist of the following three key tasks:

Task 1: Kick-off Meeting

A kick-off meeting with the U.S. DOT, Enbridge and DNV to discuss, clarify and agree on Scope of Work, DNV's role, Enbridge and U.S. DOT expectations, communication channels, reporting, etc.

Task 2: Review and Assessment of Enbridge's Written Plan

Review and assess Enbridge's proposed written plan to improve the safety record of the Lakehead pipeline system. This review will require meetings between Enbridge and DNV to better understand the challenges that Enbridge is experiencing in managing the safety record of this pipeline system and how the proposed plan is intended to address those matters. At a minimum the plan is to address the following items:

- Organizational issues, including the promotion of a safety culture and creation of a safety management system
- Facilities response plan
- Control room management
- Priorities of pipe replacement
- Training
- Interpretation of in-line inspection data

- Current engineering and probability of failure modeling
- Leak detection systems
- Sensor and flow measuring and valve replacement
- Integrity verification
- Quality management system
- Any other items that are necessary to promote and sustain the safety of the Enbridge pipeline system

Once DNV has completed its review of the plan, it is to provide a written report to PHMSA and Enbridge concurrently which will discuss the adequacy of the proposed plan and identify, where appropriate, suggested enhancements to the plan.

Task 3: Oversight of the Development and Implementation Enbridge's Written Plan

Following the acceptance of Enbridge's written plan by PHMSA, DNV shall oversee the creation, execution and implementation of the action items identified within the plan. DNV interprets this oversight function as primarily advisory in nature. DNV proposes to work closely with Enbridge to provide guidance, as required, on the activities required to improve the safety performance of the Lakehead pipeline system in the areas noted above, and then oversee the subsequent development and implementation of those activities.

DNV will provide regular monitoring reports to PHMSA and Enbridge concurrently at a frequency to be determined.

5 KEY PERSONNEL

This project will be overseen jointly by Jake Abes, Country Manager North American Oil and Gas, and Burke Delanty, Head of Section Integrity Solutions Canada. Additional resources from DNV's Canadian and American offices will be identified and utilized once the scope of Enbridge's written plan is better understood.

DNV will ensure that subject matter experts are assigned to each of the items outlined in the Amendment (Item 13) to CAO, CPF No.3-2012-5017H, issued by PHMSA. The qualifications of the subject matter experts with lead responsibility for each of the items will be provided for review by PHMSA and Enbridge.

Provided below is a brief summary of Mr. Abes' and Mr. Delanty's experience and background:

Jake Abes

Mr. Abes is President and Country Manager for Det Norske Veritas (Canada) Ltd. He has over thirty years of experience in the oil and gas pipeline industry, specializing in the areas of safety

management systems and quality management systems, pipeline safety, pipeline integrity and regulatory compliance. Before joining DNV, he was Vice President of Technology & Operations at the Canadian Energy Pipeline Association. Mr. Abes also worked at the National Energy Board of Canada for sixteen years, during which time his responsibilities included the development of standards and regulations, compliance monitoring and enforcement and accident investigations. He has been a member of the Canadian Standards Association (CSA) pipeline standards development program since 1983.

Burke Delanty

Mr. Delanty is Director of Integrity Solutions for Det Norske Veritas (Canada) Ltd. He has over twenty-six years of experience in the oil and gas pipeline industry, specializing in the areas of pipeline integrity and regulatory compliance. Before joining DNV, he held several positions within the Integrity Department of TransCanada Pipelines.

6 DELIVERABLES AND TIMESCALE

The deliverables and associated timelines associated with this project will be defined during an initial kick-off meeting that will involve representatives from Enbridge, PHMSA and DNV.

7 PRICING

Following a review of Enbridge's proposed plan, DNV will prepare a cost estimate based on a time and expenses basis. The rates will be DNV applicable rates for the given calendar year in which the work was completed.