Control Point Maps

CONTROL POINTS

Control Point Map Process
Control Point Map Record

CONTROL POINT MAPPING

Enbridge Transportation North Liquids System

As part of an emergency response readiness program Enbridge has developed Control Point Map sets to be used as a tool for training during spill response activities, and communications. Information gathered on other projects (High Consequence Area analysis, river bank stabilizations, stream risk ranking, etc...) is used in conjunction with relevant pre-existing information, data from governmental agencies such as the U.S. Army Corps of Engineers and the U.S. Geological Survey. Aerial and ground confirmation of the control points is performed as a means to field truth the data. Annual control point reviews are conducted and updates are incorporated into the control point maps. Efficiency and control point mapping enhancements are made by qualified emergency response personnel.

Refer to O&MP Book 7: Emergency Response-Part 1- Corporate 01-02-03 for criteria relevant to Control Point Mapping procedures.

As required in the Federal Response Framework and Area Contingency Plans, attached is a list of the Control Point Maps significant to this region planning for low-probability, high consequence scenarios. Full sets of Control Point Maps are also retained in Enbridge Regional Offices, along with holders of the Book 7- Emergency Response Plan.

Superior Region Control Point Maps Record- Refer to Regional Control Point Map Books

LINES 1-4, 13 & 65	
Area Overview	(4 Maps)
Pembina River	MP 775.57 (2 Maps)
Tongue River Cutoff & Tributaries	MP 781.44 – MP 786.16
Red River Of The North	MP 801.73
Tamarac River	MP 828.87
Red Lake River	MP 864.31
Clearwater River	MP 875.34
Lost River	MP 885.80 – MP 903.96 (2 Maps)

LINES 1-4, 13 & 67	
Area Overview	(4 Maps)
Clearwater River	MP 922.44 (2 Maps)
Grant Creek	MP 927.34 – MP 933.66
Mississippi River	MP 939.72 (2 Maps)
Necktie River	MP 945.32 (LINES 1-3) & MP 947.13 (LINE 4)
Cass Lake	MP 956
Six Mile Lake Tributary Ditch	MP 975.05
Bear Brook Creek Tributary	MP 980.83
Mississippi River	MP 985.97 (2 Maps)
Ball Club River	MP 989.43 (2 Maps)
Deer River	MP 994.88
Bass Brook (Blackwater Creek)	MP 1004.21
Prairie River	MP 1011.00 (2 Maps)
Swan River	MP 1024.23
Floodwood Station Ditch	MP 1044.33 (2 Maps)
East Savanna River	MP 1046.04 (3 Maps)
Stoney Brook & Ditch	MP 1062.46 & MP 1062.48
Big Lake	MP 1066.18
Little Otter Creek	MP 1074.28
Little Pokegama	MP 1090.00
Pokegama River	MP 1094.42

LINE 5	
Area Overview	(8 Maps)
Nemadji River	MP 1098.85
Bluff Creek	MP 1100.66
Bear Creek	MP 1101.57
Dutchman Creek	MP 1104.29
Morrison Creek	MP 1105.28
Amnicon River	MP 1107.07

LINE 5 – cont.	
Middle River	MP 1111.51
Poplar River	MP 1112.18
Bois Brule River	MP 1121.45
Iron River (WI)	MP 1129.89 (2 Maps)
North Fish Creek	MP 1150.20
South Fish Creek	MP 1152.60
Bay City Creek	MP 1156.55
Beartrap Creek	MP 1160.41
White River	MP 1162.76
Bad River	MP 1165.00
Denomie Creek	MP 1171.54
Spoon Creek & Spoon Creek Tributary	MP 1177.47 & MP 1177.59
Montreal River	MP 1189.32 (2 Maps)
Welch Creek	MP 1191.00 (2 Maps)
Siemens Creek	MP 1193.50 (2 Maps)
Kallander Creek	MP 1197.18 (2 Maps)
Black River	MP 1199.97 (2 Maps)
Planter Creek	MP 1202.82 (2 Maps)
Presque Isle River	MP 1217.26 (4 Maps)
Pelton Creek	MP 1222.51
Slate River	MP 1223.79
Cisco Branch Ontonagon River	MP 1232.32 (2 Maps)
Middle Branch Ontonagon River	MP 1237.60 (2 Maps)
Duck Creek	MP 1244.40 (2 Maps)
South Branch Paint River	MP 1254.44 (2 Maps)
Cooks Run	MP 1260.15 (3 Maps)
South Branch Iron River	MP 1268.32 (3 Maps)
Nash Creek	MP 1269.84 (3 Maps)
Iron River & Iron Lake Creek	MP 1271.65 & MP 1271.94 (3 Maps)
Briar Hill Creek	MP 1284.98
Paint River	MP 1290.10 (2 Maps)
Michigamme River	MP 1294.77
Parks Creek	MP 1297.09
Ford River	MP 1315.64 (2 Maps)
Escanaba River Tributary	MP 1337.20
Escanaba River	MP 1341.55
Tacoosh River	MP 1352.54
Rapid River	MP 1356.87
Whitefish River	MP 1358.16
Sturgeon River	MP 1369.87 (2 Maps)
Indian River	MP 1393.57
Manistique River	MP 1394.31

LINE 5 – cont.	
Lower Millecoquins River	MP 1433.95
West Mile Creek	MP 1436.18
East Mile Creek	MP 1436.92
Black River	MP 1439.36
Davenport Creek	MP 1444.60
Cut River	MP 1452.56
Brevoort River	MP 1464.45
Straits of Mackinac	MP 1477.48
Indian River	MP 1507.78
Pigeon River	MP 1528.53 (3 Maps)
LINES 6A, 13, 14 & 61	
Area Overview	(3 Maps)
Nemadji River	MP 1.58
St. Croix River	MP 33.13
Eau Claire River	MP 34.17
Totogatic River	MP 40.53
Namekagon River	MP 53.78 (2 Maps)
Sand Creek	MP 65.52
Summit Creek	MP 70.50 (3 Maps)
Big Weirgor Creek	MP 85.28 (2 Maps)
Chippewa River	MP 88.27 (2 Maps)
Thornapple River	MP 94.36 (2 Maps)

Region Security Plan

SECURITY PLAN

Purpose

To ensure employee safety and system integrity, it is critical that appropriate protective measures are implemented throughout pipeline operations in response to security threat notifications.

Responsibilities

Training & Emergency Response

Training & Emergency Response, in consultation with Corporate Security, is responsible for communicating security threats to regional management.

Regional Management

Regions are responsible for:

- developing and maintaining region-specific security response plans for critical and noncritical facilities that address each security threat, including:
  - signage
  - fences and gates
  - access control
  - keys and padlocks
  - lighting
  - cameras and alarms
  - external security resources
  - communications and monitoring
  - employee awareness
- implementing appropriate protective measures specific to the area in response to changes in security threats.

Requirements

National Advisory System

The Homeland Security National Terrorism Advisory System (NTAS) replaces the color-coded Homeland Security Advisory System. This new system will communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation hubs, and the private sector.

NTAS Alerts

After reviewing the available information, the Secretary of Homeland Security will decide, in coordination with other Federal entities, whether an NTAS Alert should be issued.

NTAS Alerts will only be issued when credible information is available.

These alerts will include a clear statement that there is an imminent threat (credible, specific and impending) or elevated threat (credible). Using available information, the alerts will provide a concise summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that individuals, communities,

businesses and governments can take to help prevent, mitigate or respond to the threat.

The NTAS Alerts will be based on the nature of the threat: in some cases, alerts will be sent directly to law enforcement or affected areas of the private sector, while in others, alerts will be issued more broadly through both official and media channels.

NTAS Alerts contain a **sunset provision** indicating a specific date when the alert expires - there will not be a constant NTAS Alert or blanket warning that there is an overarching threat. If threat information changes for an alert, the Secretary of Homeland Security may announce an updated NTAS Alert. All changes, including the announcement that cancels an NTAS Alert, will be distributed the same way as the original alert.

Alert Announcements

NTAS Alerts will be issued through state, local and tribal partners, the news media and directly to the public via the following channels:

- Via the official DHS NTAS webpage – http://www.dhs.gov/alerts
- Via email signup at – http://www.dhs.gov/alerts
- Via social media
    - Facebook – http://facebook.com/NTASAlerts
    - Twitter – http://www.twitter.com/NTASAlerts
- Via data feeds, web widgets and graphics
    - http://www.dhs.gov/alerts

The security procedures in this tab are specific to Superior Region. For information applicable to all sites at all times, see *Book 7: Emergency Response*, 01-02-04, *General Site Security Standards*, 03-02-05, Security Threat Condition Levels and 03-02-08, Bomb and Security Threats. For contact lists, see the *Enbridge Energy Emergency Response Directory (ERD).*

In accordance with the pipeline security guidance provided by the Pipeline and Hazardous Materials Safety Administration (PHMSA), the below listed locations in the Superior Region have been identified as "Critical Facilities".

Superior Terminal - Superior, WI
Clearbrook Terminal, Clearbrook, MN

All other locations within the Superior Region do not meet the PHMSA threshold for being designated critical. Accordingly this document is divided into two sections. The first section outlines security measures to be taken within the Superior Region at its critical facilities. The second section outlines security measures to be taken at all other facilities within the Superior Region.

All information in the Superior Region Security Response Plan must be reviewed annually.

Definition

Critical Facility- a facility that meets one or more of the following criteria:

- may be considered a viable terrorist target, and a release from the facility has the potential for mass casualties or significant impact on public drinking water affecting a major population center
- if damaged or destroyed would have a detrimental impact on the reliability or operability of the pipeline system, significantly impairing the ability to service a large number of customers for an extended period
- if damaged or destroyed, would significantly impair other modes of transportation or other critical infrastructures (e.g. electrical power generation, telecommunications, public utility)

Scheduled Work Day – any work day an employee reports to that work location.

Monitoring – Visually, electronically or physically reviewing or looking over property, persons or Right-Of-Ways (ROW).

Threat Condition- Information received from a NTAS or through the company chain of command that a security condition or situation has developed that could jeopardize the safety of our employees, the general public or our operations.

Critical Facilities: Clearbrook/Superior Terminals

Monitoring

Employee will make rounds, which includes driving the perimeter of the terminal and checking within pump rooms, at least twice per shift.

Quarterly site security inspections must be completed using the Safety Inspection form (for more information, see Book 2: Safety, 01-03-01, Completing Safety Inspections).

Employee Awareness

Unless they are of immediate concern, security issues should be identified and documented at local monthly EH&S meetings. Items of immediate concern should be brought to Management's immediate attention.

Safety coordinators are responsible to ensure all company security standards and procedures are reviewed annually with employees.

Employees must be aware of vehicles frequently driving by or parking along roadways adjacent to company facilities, including:

- Clearbrook: County Road # 49 and township road north of station.
- Superior: Bardon Avenue, East 21st Street, and 31st Avenue.

Secure sensitive company information (e.g., route sheets, employee information) in locked filing cabinets, desk drawers or office outside regular working hours.

Shred discarded sensitive company information

Communications

Test and maintain communication systems (e.g., cellular phones, radio systems) as part of emergency response exercises (see Book 7: Emergency Response, 01-02-01, Training and Exercises).

As part of public awareness, provide security awareness information to landowners along the right-of-way and to emergency response organizations.

WHEN AN ELEVATED NTAS ALERT IS ISSUED AND HAS BEEN FORWARDED TO REGIONAL MANAGEMENT BY TRAINING & EMERGENCY RESPONSE AND THE CORPORATE SECURITY DEPARTMENTS –
All of above, PLUS:

Access Control

Tours of the facilities must be approved by the General Manager.

Unknown visitors must be escorted by an employee at all time.

Monitoring

Employees will make rounds, which include driving the perimeter of the terminal and checking within pump rooms, at least three times per shift.

Employees must perform undocumented weekly inspections of buildings (including those that are not regularly used); storage areas, tanks and perimeter fencing (alter days and times).

Communications

Area site supervisors or designates are responsible to establish contact with local law enforcement to discuss changes in threat condition levels, company security standards and procedures, sharing of resources, and to provide quarterly updates. Consider arranging site visits.

Employee Awareness

Area site supervisors or designates are responsible to immediately notify employees when threat condition levels change (e.g., emails, bulletin board), and review all company security standards and procedures pertaining to the new threat level.

In addition, safety coordinators are responsible to ensure all company security standards and procedures are reviewed quarterly with employees.

Critical Facilities: Clearbrook/Superior Terminals

WHEN AN IMMINENT NTAS ALERT IS ISSUED AND HAS BEEN FORWARDED TO REGIONAL MANAGEMENT BY TRAINING & EMERGENCY RESPONSE AND THE CORPORATE SECURITY DEPARTMENTS –
All of above, PLUS:

Access Control

Regional management must establish contact with ETN Crisis Management Center and ETN Incident Screening Committee in Edmonton.

Prepare for shut down or evacuate facilities as identified or directed by senior management.

Restrict access to area staff unless approved in advance by regional management.

Assign employees 24 hours to assist with access control and monitoring the facility.

All facility tours will be canceled.

Upon entry into the facility, security must ensure the visitor (including office employees visiting field locations) :

- Signs in at the designated guard house
- Records vehicle description/license number
- Shows photo ID

An outside security service will be utilized to man the front gates and be responsible for the preceding bullets.

Restrict access through main gates only.

At Superior, the guard house at the main gate will be used as a checkpoint. Visitors must be escorted within the terminal after initial check-in.

At Clearbrook, a checkpoint will be established outside of the main gate. Visitors must be escorted within the terminal after initial check-in.

During construction, contractor identities should be verified by regional management before entry.

Request police to assist with securing access to the facility. For example, extra patrols on the following:

- Clearbrook: County Road # 49 and township road north of station
- Superior: Bardon Ave, East 21st St, and 31st Ave access to back gate

Tours of the facilities will be postponed during an Imminent Alert Level.

Vehicle Control

Use a 24-hour security service to monitor and inspect all vehicles entering the main gate, including cargo areas, undercarriage, glove box and any area where dangerous items could be concealed. All vehicles will be routed through the main gate. All other perimeter gates will be shut down to traffic.

Move vehicles to a central parking area away from equipment/buildings as specified by the site supervisor or designate (where possible, at least 30 yds from critical buildings, tanks and equipment).

Restrict vehicle access to employees and emergency vehicles only.

Lighting

If necessary, install temporary lighting at all gates to ensure all areas are adequately lit.

Security Officers

PerMar Security will be used for outside security services for Superior Terminal. They can be reached at 1-715-297-1466 (Brian Thacker) or 1-715-848-4932 (Tami Artz).

Professional and Trustworthy Security of Park Rapids, MN will be used for outside security services for Clearbrook Terminal. They are on retainer and can be reached at 1-866-887-8790. The contact is Dwight Patterson.

Review site security standards and procedures with the security service weekly.

Monitoring

Employees must perform undocumented inspections of buildings (including those that are not regularly used), storage areas, and tank areas at least once per day. This is over and above normal rounds, which include driving the perimeter of the terminal and checking pump rooms, at least three times per shift.

Monitor media (television, radio and internet) and company communications for status changes, additional instructions or information.

Area site supervisors or designates are responsible to coordinate all employee travel (e.g., remote job sites). Maintain scheduled contact with employees at remote locations.

Request police to increase the frequency of patrols.

Employee Awareness

Area site supervisors or designates are responsible to immediately notify employees when threat condition levels change (e.g., emails, bulletin board), and review all company security standards and procedures pertaining to the new threat level.

Critical Facilities: Clearbrook/Superior Terminals

Communication

Area site supervisors will keep an open line of communication with local law enforcement concerning our protective measures.

General

All security response activities must be logged.

Review all contract maintenance and capital project work, and consider canceling or delaying non-essential work.

Lock doors at all times.

Suspend all maintenance and capital project work involving contractors.

Non-Critical Facilities: Pump Stations, Remote Valve Sites, ROW, PLM Shops and Offices (Superior/Bemidji/Thief River Falls/Ironwood/Escanaba)

Signage

Post signs identifying company emergency contact information on each side of the perimeter fencing.

Post "No Trespassing" signs every 100 – 150 ft along the perimeter fencing and at the main gate.

Along the right-of-way, post warning signs in accordance with Book 3: Pipeline Facilities, 03-02-03, Right-Of-Way Signs.

Access Control

Upon entry to the site, an employee must review site-specific safety information with visitors. This does not apply at shops and offices.

For the Superior Office, outside regular working hours, the alarms at the main doors are monitored by Arrowhead Security. For the Bemidji Office, outside regular working hours, the alarms at the main doors are monitored by Bonded Lock and Alarm. The first/last employee to enter/leave the facility at the start/end of the day is responsible to enter the security code to enable the alarms.

Vehicle Control

Vehicles must be parked in designated areas.

Buildings/Gates/Fences/Mainline Valves

The perimeter of the facility must be fenced. Stations under construction will maintain proper fencing around station at the height of existing fence. This does not apply for Offices.

Gates must be locked or secured in the closed position when facility is unattended.

The integrity of fences and gates must be maintained at all times.

Vegetation growth must be controlled on the exterior perimeter of the fencing.

Buildings must be locked when employees are offsite.

Mainline valves must be chained and locked at all times.

Keys and Padlocks

Spare keys and padlocks must be stored in a locked box maintained by the Supervisor or designate.

All spare keys must be signed in/out with the Supervisor or designate using a log sheet kept with the locked box.

All staff will be issued one key and spares will be controlled with a sign-out sheet maintained by the Supervisor or designate.

Only the Region Manager has the authority to acquire additional keys.

Contractors may be issued keys only with approval from the Regional Manager or designate.

The Region Accountant is responsible for distributing and tracking keys in the Region.

Supervisor or designates are responsible to ensure any keys issued are returned when an employee is transferred or leaves the company or when a contractor completes their work.

Lighting

Facility and perimeter lighting must be functional at all times, with perimeter lighting directed toward the fence line.

Monitoring

Quarterly site security inspections must be completed using the Safety Inspection form (for more information, see Book 2: Safety, 01-03-01, Completing Safety Inspections).

Non-Critical Facilities: Pump Stations, Remote Valve Sites, ROW, PLM Shops and Offices (Superior/Bemidji/Thief River Falls/Ironwood/Escanaba)

Employee Awareness

Unless they are of immediate concern, security issues should be identified and documented at each local EH&S monthly meeting. Items of immediate concern should be brought to management's immediate attention.

Safety coordinators are responsible to ensure all company security standards and procedures are reviewed annually with employees.

Secure sensitive company information (e.g., route sheets, employee information) in locked filing cabinets, desk drawers or office outside regular working hours.

Shred discarded sensitive company information.

Communications

Test and maintain communication systems (e.g., cellular phones, radio systems) as part of emergency response exercises (see Book 7: Emergency Response, 01-02-01, Training and Exercises).

WHEN AN ELEVATED NTAS ALERT IS ISSUED AND HAS BEEN FORWARDED TO REGIONAL MANAGEMENT BY TRAINING & EMERGENCY RESPONSE AND THE CORPORATE SECURITY DEPARTMENTS –

All of above, PLUS:

Regional Manager is responsible to notify areas when the threat level changes.

Access Control

Visitors must be checked in by an employee and escorted when possible. This does not apply to shops and offices.

Monitoring

Employees must complete weekly site inspections of manned and unmanned pump stations, including valves; buildings and perimeter fencing (alter days and times).

Employee Awareness

Area site supervisors or designates are responsible to immediately notify employees when threat condition levels change (e.g., emails, bulletin board), and review all company security standards and procedures.

In addition, safety coordinators are responsible to ensure all company security standards and procedures are reviewed quarterly with employees.

WHEN AN IMMINENT NTAS ALERT IS ISSUED AND HAS BEEN FORWARDED TO REGIONAL MANAGEMENT BY TRAINING & EMERGENCY RESPONSE AND THE CORPORATE SECURITY DEPARTMENTS –

All of above, PLUS:

Access Control

No visitors or contractors are permitted without approval from the regional manager. This does not apply to offices and PLM shops. Regional management must establish contact with ETN Crisis Management Center and ETN Incident Screening Committee in Edmonton.

Prepare for or shut down or evacuate facilities as identified or directed by senior management.

Restrict access to area staff unless approved in advance by regional management.

Vehicle Control

Restrict vehicle access to employees and emergency vehicles only. No visitor or contractor vehicles are permitted without approval from the regional manager. This does not apply to offices and PLM shops.

Security Officers

Regional management must assess need for 24-hour security services on a site-specific basis.

Monitoring

Employees must complete site inspections of all manned and unmanned pump stations to include valves, buildings and perimeter fencing, at least twice per week.

All valve sites, densitometers and other remote facilities will be inspected once per week. This includes all manual valves. Inspect for tampering and condition of locking devices.

In consultation with Aviation and Operation Services, increase frequency of Aerial Patrols to weekly.

Maintain scheduled contact with employee(s) at remote locations.

Request police to increase the frequency of patrols.

Regarding Aerial Patrols, confirm with Aviation Department as no fly restrictions could apply.

Non-Critical Facilities: Pump Stations, Remote Valve Sites, ROW, PLM Shops and Offices (Superior/Bemidji/Thief River Falls/Ironwood/Escanaba)

Employee Awareness

Area site supervisors or designates are responsible to immediately notify employees when threat condition levels change (e.g., emails, bulletin board), and review all company security standards and procedures.

In addition, area site supervisors or designates are responsible to ensure all company security standards and procedures are reviewed weekly with employees.

Communications

Area site supervisors or designates will keep an open line of communication with local law enforcement concerning our protective measures.

Advise landowners of security status and provide emergency contact information if unusual or suspicious activity is observed.

General

All security response activities must be logged.

Review all contract maintenance and capital work, and consider canceling or delaying non-essential work.

Lock doors at all times.

Suspend all maintenance and capital work involving contractors.

Appendix

1.0 OPERATOR IDENTIFICATION

Enbridge (U.S.) Inc.
Operates the Enbridge Energy, Limited Partnership Pipeline System
1100 Louisiana, Suite 3200
Houston, TX 77002-5216
(713) 650-8900 (Phone Number)
(713) 653-8711 (Fax)

24 hr. Contact: 800-858-5253 via Edmonton Control Center

QUALIFIED INDIVIDUAL(S)

M. J. Willoughby
Superior Region General Manager, Enbridge (U.S.) Inc.
Business: 715-394-1410
Mobile: 218-393-5772
Business FAX: 715-394-1405

Mike Goman
Manager, Technical Services
Business: 715-394-1523
Mobile: 218-428-5027
Business FAX: 715-394-1405

Al Aleknavicius
Manager, Pipeline Services
Business: 715-394-1415
Mobile: 218-591-2818
Business FAX: 715-394-1405

Enbridge Pipelines (Lakehead), L.L.C.
Superior Central Square Office
1320 Grand Ave.
Superior, WI 54880

*NOTE: For summary of emergency procedures and contact information refer to the *Enbridge Emergency Response Directory* (ERD).

2.0 ENBRIDGE U.S. INC. RESPONSE ZONE DESCRIPTION

The Superior Region System traverses through North Dakota, Minnesota Wisconsin, and Michigan. This region encompasses two entities: Enbridge Energy (Lakehead), Limited Partnership and Enbridge Pipelines (Southern Lights) L.L.C. Refer to *Tab 1, Region Specific* for in-depth description of the Superior Region including:

- Transportation pipelines
- Delivery lines
- Natural Gas lines
- Counties located in the region
- Miles of mainline pipe

3.0 CONSISTENCY WITH NATIONAL AND AREA CONTINGENCY PLANS

3.1 National Contingency Plan

Enbridge (U.S.) Inc. has reviewed the National Contingency Plan to ensure our emergency response planning and structure is consistent. The Incident Command Structure established for Enbridge assumes Enbridge, as a "responsible party" will work in a "unified command structure" with local, state and/or federal agencies to manage the emergency.

The Enbridge Emergency Response Plan (ERP) adheres to all Federal, State and Local emergency response requirements for the crude oil pipeline transportation industry. This section of the appendix was developed to address specific protocol questions common to ERP requirements.

Enbridge identifies the technical training and qualification standards for operations employees in accordance with company policy, industry standards, and applicable government regulations. For the Liquid Pipeline side, these can be found in our *Operations and Maintenance Procedures* (O&MP) *Book 1 Tab 5 – Training and Qualifications*. For the Gathering Systems, this can be found in *Gathering Systems O&MP Section 4*. Specifically:

1. Characteristics and hazards of oil: This training is conducted annually during HAZWOPER refresher training, specifically in the hazardous materials and Material Safety Data Sheet (MSDS) training components.

2. Conditions that are likely to worsen emergencies, including the consequence of facility malfunctions or failures and appropriate corrective actions: These are covered in our O&MP Books 7 both General & Region Specific under the High Consequence Areas (HCA) identified on individual maps and covered as part of the Emergency Response Training.

3. Steps necessary to control an accidental discharge of oil: Training on general operations procedures cover the precautions to prevent discharges and are reviewed during our annual table-top exercises, field exercises and HAZWOPER training.

4. Steps necessary to minimize the potential for fire, explosion, or environmental damage: Covered in annual ignition source, HAZWOPER and emergency response training.

5. Proper firefighting procedures and use of personal protective equipment (PPE), firefighting procedures or extinguisher use is provided within three months of initial hire or before an individual is assigned to a specific response position and every three years thereafter. PPE training is covered in annual refresher training for all employees.

Additional Comments:
The Enbridge *O&MP Book 2 Section 15-02-01- Emergency Response Training Matrix (Table 2)* and *O&MP Book 7 Section 02-01-01- Overview of Emergency Response Actions* address the appropriate levels of training and the requirements specified in *OSHA 29 CFR 1910.120*.

The OM&P Book 2 Section 15-02-02 describes the requirements for maintaining drill response documentation for three years ensuring the availability of such records for inspectors.

3.2 Area Contingency Plan

Enbridge has reviewed the applicable Area Contingency Plans and established communication, where necessary, with the appropriate Area Contingency Plan coordinator to ensure that Enbridge information is accurate. Enbridge will, on an on-going basis, continue to review these plans, provide input as necessary and participate in the Area Committees as appropriate. The identification of environmentally sensitive (high consequence areas) will be reviewed with Area Contingency Plans in order to establish consistency.

The Area Contingency Plans that must be considered within Enbridge's Emergency Response Plan have been identified and are listed below according to the response zone affected.

Superior Response Zone

USCG		EPA	
National Response Center http://www.nrc.uscg.mil/nrchp.html	800-424-8802	*EPA Region V* 77 W. Jackson Blvd. Chicago, IL 60604	312-886-3000
USCG Ninth District 1240 E. 9th Street Cleveland, OH 44199	216-902-2045	*EPA Region VIII* 999 – 18th St., Ste. 300 Denver, CO 80202-2466	303-312-6312
USCG Marine Safety Office 600 S. Lake Ave. Duluth, MN 55802-2352	218-720-5286		
USCG Marine Safety Office 337 Water Street Sault Ste. Marie, MI 49783	906-635-3233		

4.0 WORST-CASE DISCHARGE VOLUME CALCULATION METHODOLOGY

The approach for calculating Worst-Case Discharge (WCD) volume utilizes Enbridge's Automated Valve Placement (AVP) System. The AVP model performs two calculations to determine the total volume-out at any given point along the pipeline in the event of a rupture; maximum initial loss and maximum stabilization loss.

The calculations used to determine the worst-case discharge volume use:

- An assumption of a guillotine rupture (100% volume out);
- Design pipeline capacity to determine the amount of product released prior to a rupture being isolated by closure of remote-controlled mainline valves;
- An assumption that all of the product in the pipe except that isolated by either elevation or the location of existing remote-controlled valves will be discharged at a rupture location.

This yields a conservative estimate of the worst-case discharge volume regardless of weather conditions.

Mainline and facility risk assessment data are compiled and entered into American Innovation's Risk Intelligence Platform (RIPL) software. RIPL is used to manage the pipeline and facility data and to generate risk assessment results and outputs. Further information on RIPL is contained in the *ORM Reference Library.*

Maximum Initial Loss

Initial volume-out is the amount of product that is released before a pipeline is shutdown and remote-controlled isolation valves closed in vicinity of the rupture.

Maximum Initial Loss = pipeline flow rate x (time to recognize rupture and isolate the pipeline)

Time to Recognize Rupture (i.e. Time to Isolate Rupture)

The SCADA system alarms within 10 minutes of a full mainline leak. This is followed by 3 minutes to initiate shutdown.

The Material Balance Leak Detection is a backup to operator recognition. The Material Balance Leak Detection system used for leak detection runs on a five minute cycle, therefore it will recognize a rupture within 5 minutes and initiate the shutdown.

Valve Closure Rate

All motor operated valves in the Enbridge liquid mainline system close in three minutes or less. This is a design criteria requirement for motorized mainline valves used by Enbridge.

The time to isolate a given rupture is 13 minutes (10 minutes to recognize and initiate isolation + 3 minutes for remote controlled valves to close).

Maximum Stabilization Loss

The maximum stabilization loss is a worst-case calculation of the amount of oil that will escape to ground after isolation has occurred. The calculation takes into consideration the outer diameter and wall thickness of the pipe, the pipeline elevation profile, and the location of remote-controlled valves.

Worst-Case Discharge Volume

Worst-Case Discharge (WCD) Volume= Maximum Initial Loss + Maximum Stabilization Loss

Calculation of Worst Case Discharge for Mainline Piping

Line	"Design Flow Rate" Capacity (bbls/day)	Time to Isolate (min)	Worst Case Discharge (bbls)	Location (ft Stationing)	Location (~MP)
1	235,176	13	15,024	1,710,200	1097
2	491,234	13	35,267	213,317-215,900 (13 sites)	815
3	434,493	13	56,953	213,271-215,900 (11 sites)	1098
4	859,176	13	86,511	295,200 & 295,300	830
5	525,683	13	32,851	340,700	62.5
6A	727,335	13	36,635	29,900	6
13 Clearbrook-Gretna	194,800	13	20,689	213,290-215,900	949
13 Superior-Clearbrook	180,000	13	13,088	945,600	1086
13 Ladysmith-Superior	180,000	13	11,372	29,000	5.5
14	398,774	13	18,363	16,100	3
61	400,000	13	47,421	27,800	6
LSr (65)	186,000	13	9,952	333,060	815
67	450,000	13	41,375	1,668,600	1085

*Emergency Response/ WCD Location Map in Tab 4- Maps and References

Calculation of Worst Case Discharge for Tankage

Prevention Measure	*Standard*	Credit (percent)
Secondary containment > 100%	NFPA 30	50
Built/repaired to API standards	API STD 620/650/653	10
Overfill protection standards	API RP 2350	5
Testing/cathodic protection	API STD 650/651/653	5
Tertiary containment/drainage/treatment	NFPA 30	5
Maximum allowable credit		**75**

25% of largest tank in Superior Region Zone = 390,000 x 25% (75% RSPA credit) = 97,500 bbls

5.0 IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS

Enbridge utilizes the criteria described in its integrity management plan (HCA Management Plan) to identify and evaluate varying degrees of sensitivity to a number of public safety and environmental concerns along its right-of-way.

Spatial data regarding the HCA sites were derived from the National Pipeline Mapping System (NPMS) database maintained by PHMSA and mapped using the Geographic Information System (GIS) software ESRI (Environmental Systems Research Institute) ArcMap. In addition to the HCA's identified by PHMSA, Enbridge considered the following features in its Unusually Sensitive Area assessment:

- Rivers identified as high volume areas;
- Additional drinking water resources; and
- Environmentally sensitive areas identified through regional or field knowledge.

In addition, HCA's were identified that may be affected by a release from Enbridge pipelines via transport mechanisms. The types of transport mechanisms considered were:

- Overland flow of crude oil to an HCA which is a function of topographic gradients, locations of ditches, and barriers to flow, in addition to stationing-specific volumes of crude oil that could be potentially released from an Enbridge pipeline.
- Flow of crude oil with/on water to an HCA from static lakes and ponds or perennial streams.
- Spray of crude oil from a potential rupture to an HCA.

The Enbridge HCA maps are an integral part of Enbridge emergency planning and response and are distributed to the Enbridge Regional Offices. The HCA maps are available upon request.

6.0 BASIS FOR DETERMINATION OF "SIGNIFICANT AND SUBSTANTIAL HARM"

Enbridge has determined that the Superior Response Zone meets the criteria which requires the zone to be considered as having the potential to cause "significant and substantial" harm.