STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

IN RE ENBRIDGE PIPELINES (FSP) L.L.C.	)	
	)	Docket No. 12-0347
APPLICATION PURSUANT TO SECTIONS 8-503, 8-509, AND 15-401 OF THE PUBLIC UTILITIES ACT/THE COMMON CARRIER BY PIPELINE LAW FOR CERTIFICATION AND AUTHORITY TO CONSTRUCT AND OPERATE A PETROLEUM PIPELINE AND WHEN NECESSARY TO TAKE PRIVATE PROPERTY AS PROVIDED BY THE LAW OF EMINENT DOMAIN	)	

NOTICE OF FILING

PLEASE TAKE NOTICE that on this date we have filed with the Clerk of the Illinois Commerce Commission, the pre-filed rebuttal testimony on behalf of Enbridge Pipelines (FSP) L.L.C., in the above-captioned matter.

ENBRIDGE PIPELINES (FSP) L.L.C.

By: /s/ G. Darryl Reed
One of Its Attorneys

Dated: October 3, 2012

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CERTIFICATE OF SERVICE

I, G. Darryl Reed, an attorney, certify that I caused copies of the pre-filed rebuttal testimony, filed on behalf of Enbridge Pipelines (FSP) L.L.C., to be served on each of the parties listed on the service list via electronic or regular mail, this 3rd day of October, 2012.

/s/ G. Darryl Reed
One of Its Attorneys

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Enbridge Ex. 7

ENBRIDGE PIPELINES (FSP) L.L.C.

ILLINOIS COMMERCE COMMISSION

DOCKET NO. 12-0347

REBUTTAL TESTIMONY OF

JERRID A. ANDERSON, P. E.

DIRECTOR

FLANAGAN SOUTH PIPELINE PROJECT

October 3, 2012

REBUTTAL TESTIMONY OF
JERRID A. ANDERSON, DIRECTOR
FLANAGAN SOUTH PIPELINE PROJECT

Q. PLEASE IDENTIFY YOURSELF FOR THE RECORD.

A. I am Jerrid A. Anderson, Project Director for the Applicant's Flanagan South Pipeline Project ("FSP"). I am the same individual that verified the Application in this proceeding and previously submitted direct testimony as Enbridge Exhibit 1 in this docket.

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. I am offering this testimony to respond for Enbridge Pipelines (FSP) L.L.C. (Enbridge or FSP) to Mr. Maple's request for further information about and elaboration on certain matters of concern to him. I will comment generally on his testimony and that of Ms. Freetly of the Staff. In the course of this testimony, I will also address matters raised by Intervenor Holder.

Q. WHAT IS ENBRIDGE'S GENERAL REACTION TO MR. MAPLE'S TESTIMONY?

A. Enbridge is pleased that Mr. Maple concurs with us that our certification application was properly filed; that there is in fact a public need for the Flanagan South Pipeline and the common-carrier-by-pipeline services it will provide; and that the public convenience and necessity is served by our right-of-way acquisition program and procedures and by the route we have selected for the new pipeline. As well, we appreciate Staff's agreement that as a part of the Enbridge System and through its support Enbridge FSP will be financially able to construct and operate the pipeline. However, we are concerned that Mr. Maple has expressed reservations about our demonstration that we are "able " -- it

appears he feels we are "fit" and "willing" -- to construct and operate the line as required by the Common Carrier by Pipeline Law. Thus he indicates some question about our ability to build and operate the line safely due to three release situations that have taken place in the past two and a half years. These are of course the incidents at Marshall, Michigan and Romeoville, Illinois in 2010 and that at Grand Marsh, Wisconsin in July of this year. Regrettably, Mr. Maple utilizes the rather harsh comments of various public officials to suggest that Enbridge is unworthy of this Commission's approval. It should be noted that such hearsay is of no decisional value or import and that neither the National Transportation Safety Board (NTSB), or Congressional Committees, or even the Department of Transportation Secretary, are responsible for evaluating pipeline safety or competence. Enbridge does not accept the characterization of any of the quoted comments and does not consider them relevant.

Q. WHY ARE THEY IRRELEVANT?

A. They do not reflect a comprehensive analysis of Enbridge's overall performance and history. It is worth noting that in the last few years this Commission has twice found Enbridge and Enbridge affiliates to be "fit, willing, and able" by certificating the Southern Access Expansion, Southern Lights, and Southern Access Extension pipelines. *See Order*, April 4, 2007, Dkt. No. 06-0477 and *Order*, July 8, 2009, Dkt. No. 07-0446. In each case, the Enbridge applicant demonstrated the historic, overall high level of performance of the Enbridge System as an operator of common-carrier pipelines, just as we have done here. No Enbridge applicant has asserted perfection in all operations or denied that there are risks, and sometimes problems, in operating pipelines. It would be

irrational to do so. Rather each Enbridge applicant, like Enbridge FSP, has demonstrated that Enbridge constructs and operated pipelines to the highest standards and that if something goes wrong, Enbridge takes responsibility and makes things right, frequently going beyond requirements.

Q. ARE YOU DISPUTING MR. MAPLE'S ANALYSIS?

A. We acknowledge his concerns and are anxious to satisfy his specific inquiries. We offered a telephone conference involving myself and other knowledgeable Enbridge personnel to answer any questions arising from our most recent data request responses in order to address any concerns in time for him to prepare testimony. Unfortunately, that proposal was declined, presumably due to the requirements regarding ex parte communications that govern the Commission. However, we are confident that Mr. Maple's concerns will be adequately addressed in this testimony. We are troubled by the statement that the recent incidents and the quoted comments "give the appearance that Enbridge has some serious flaws in the way it builds and/or operates its pipelines." Staff Ex. 1 at 24. We respectfully disagree because, as demonstrated in Dockets No. 06-0410 and No. 07-0446 as well as here, Enbridge constructs its pipelines in accord with all applicable regulations and per industry codes and best practices, and does so safely and efficiently. In fact, Enbridge's safety record in pipeline construction is one of the best in the industry. Thus on our major projects, *i.e.*, new pipelines, our reportable injury rate per U.S. Bureau of Labor (BLS) reporting requirements has significantly and steadily declined since 2006, and in 2008-2010, when we averaged over 10,000,000 exposure hours (workers X time) per year, was equal to or better (lower) than the BLS national rate

(2008 = 2.2 v. 2.2; 2009 = 1.8 v. 1.5; 2010 = 1.70 v. 0.84) (most new pipeline work had been completed by the end of 2010). The Flanagan South Pipeline will be constructed with the same safe practices, taking full advantage of modern technologies and techniques and using skilled contractors and construction specialists. We will employ experienced contractors and purchase high quality pipe, utilize factory-applied fusion bonded epoxy coating for corrosion protection, and employ procedures exceeding regulatory requirements, *e.g.*, 100% inspection of field welds, to assure the integrity and safety of our pipeline. Our new pipeline will also be operated pursuant to the best industry practices by skilled personnel; it will benefit from recent improvements in practices and procedure implemented to effect the lessons learned from the Marshall incident, as I discuss below.

Q. CAN YOU ELABORATE ON THE MEANS ENBRIDGE USES TO ENSURE THAT ITS PIPELINE FACILITIES ARE CONSTRUCTED TO OPERATE SAFELY?

A. Certainly. First of all, our Quality Management System (QMS) governs all major projects such as the FSP Project. Specific to each project is a quality policy that emphasizes the safe and reliable operation of every major asset over its expected lifetime. The policy is based on principles from the ISO 9001 framework and is designed to implement a process approach to projects. Senior Enbridge management oversees the application of QMS to our activities. The quality concept is further extended to all consultants and contractors that work on or bid for Enbridge projects so that, for example, all engineering consultants must have ISO compliant systems and procedures; equipment and pipe suppliers must demonstrate adequate testing protocols and accommodate our

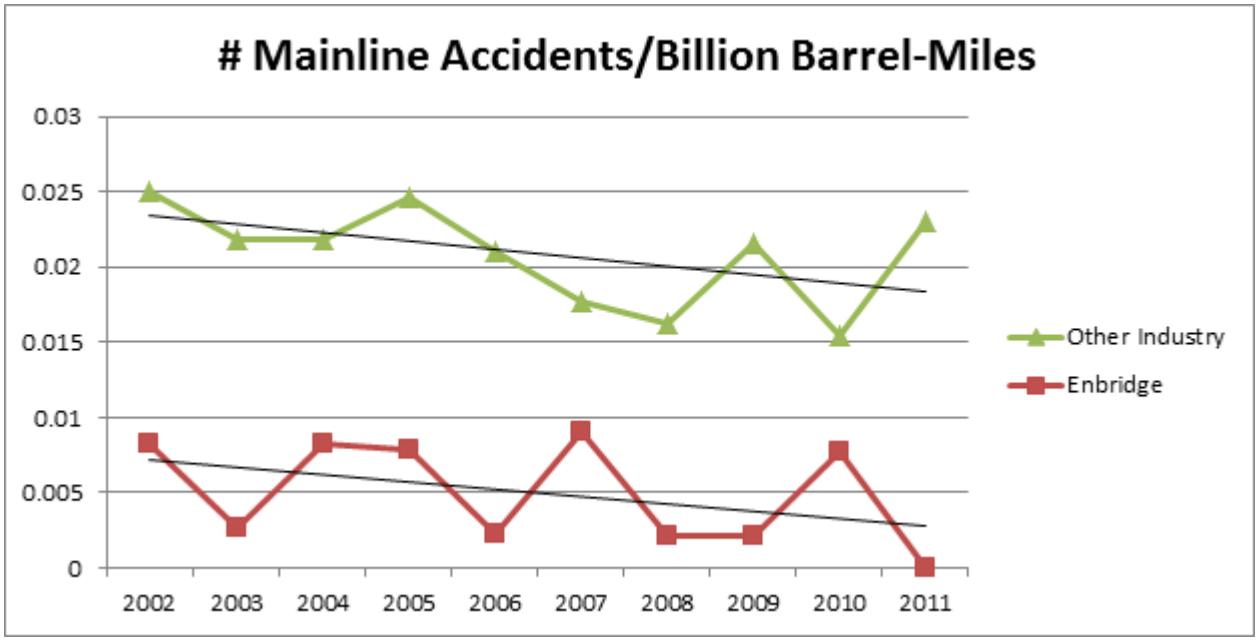
inspection and testing procedures (we will place observers in the pipe mill to ensure compliance with quality standards); and construction contractors must meet our qualification and performance criteria before being allowed to bid and must employ best-management practices for all excavation and earth-moving procedures to ensure minimal environmental impacts. For every project, we employ our own experienced and qualified construction inspectors who are not contractor employees, are trained in site specifics, and have successfully completed our computer-based training modules before beginning work. During actual construction, at least one inspector is assigned to each crew working on a pipeline right-of-way; a pipeline spread thus will normally have some 20 to 40 inspectors constantly present. Inspectors observe all construction work for compliance with safety, quality, and environmental-protection standards. Inspectors report directly to Enbridge management and can, if necessary, suspend work to correct deficiencies or unsafe operations. QMS policies also extend to the commissioning and start-up procedures by which a new system is brought from a non-energized/non-operational status to the status of an energized, safe-to-operate facility. All line pipe, for example, is hydro-tested to pressure levels well above maximum operating pressures. Detailed commissioning plans are developed and implemented by qualified personnel. Deficiencies discovered during commissioning require that the process be stopped and the facility not be placed in service until the issue is resolved.

Q. MR. MAPLE'S TESTIMONY SEEMS TO SUGGEST THAT ALTHOUGH PIPELINES GENERALLY ARE THE MOST EFFICIENT AND SAFE WAY TO TRANSPORT

PETROLEUM LIQUIDS, ENBRIDGE LACKS "OPERATIONAL AND MANAGEMENT" SKILLS TO SAFELY OPERATE THE FLANAGAN SOUTH PIPELINE BECAUSE OF THE RECENT INCIDENTS IN THE NATIONAL NEWS (STAFF. EX. 1 AT 22). IS THE POINT VALID?

A. While we regret that these events happened, and while we have accepted and do accept responsibility for them and their remediation, as I discuss below, it is not valid to use them to suggest that Enbridge is either incapable or less capable than other carriers to operate its pipelines safely. As with our operational history, it is important to consider these incidents in the overall context of the industry and Enbridge's place in it. The fact is that Enbridge operates ten percent (10%) of the total length of all crude petroleum and refined products pipelines and is the largest pipeline operator in the United States. It operates the greatest number of system miles of pipeline, operates the greatest number of crude oil pipelines, and has for the last decade transported hundreds of millions of barrels of liquid petroleum -- unrefined and refined -- each year with very few accidental releases. Of course, any release is unacceptable and Enbridge and the rest of the industry strive to achieve a zero-release goal, an objective that Enbridge actually obtained in 2011 in its mainline transport operations. The entire pipeline industry has substantially improved its release performance in the last decade and Enbridge has led the way in that effort. Although it is difficult to make exact comparison because of differences in system sizes and mileage, an analysis of mainline hazardous liquid releases (characterized as "accidents" under 49 CRF 195.50) since 2002 reported per the PHSMA requirements shows that both the industry and Enbridge have decreased the rate of mainline accidents

per billion barrel-miles of transport in the last ten years and that Enbridge's overall performance is substantially better than the remainder of the industry.



As shown on this chart, when normalized to billion barrel-miles to allow comparisons (this provides consistent units to compare, *i.e.*, billion barrel-miles), Enbridge's rate of mainline releases (outside of company property) is consistently lower than that of the remainder of the industry. Thus, for example, in 2007 all Enbridge liquid systems in the United States had only four (4) reportable mainline releases while the rest of the industry had a total of 26, producing an accident rate per billion barrel-miles for Enbridge of 0.009 compared to the "all others" rate of 0.017 (PHSMA regulations require *inter alia* reporting releases of over five gallons). Over the entire data period, the number of mainline release and the accident rates per billion barrel-miles were as follows:

YEAR	ENBRIDGE (number/rate)	REST OF INDUSTRY (number/rate)
2002	3/0.008	40/0.025
2003	1/0.003	35/0.021
2004	3/0.008	35/0.021
2005	3/0.008	34/0.024
2006	1/0.002	26/0.021
2007	4/0.009	26/0.017
2008	1/0.002	25/0.016
2009	1/0.002	25/0.021
2010	4/0.008	20/0.015
2011	0/0.000	30/0.023

As the trend lines on the chart show, both Enbridge and the rest of the industry have been successfully lowering the accident rate of mainline releases at about the same rate. However, in the data period -- 2002 to 2011 -- Enbridge has expanded the size and capacity of its systems, thus increasing the volume transported each year while the transport volume for the other pipelines has actually decreased. Thus by year the transport volumes by billion barrel-miles for Enbridge and the rest of the industry were as follows:

YEAR	ENBRIDGE	REST OF INDUSTRY
2002	366	1,600
2003	366	1,600
2004	366	1,600
2005	380	1,380
2006	453	1,381
2007	444	1,470
2008	474	1,536
2009	482	1,159
2010	517	1,299
2011	517	1,299

Overall, the data indicates that in the data period Enbridge's rate of mainline releases was considerably better than the release rate of the rest of the industry. To round out the data, I would note that over the ten-year timeframe shown, while Enbridge has substantially increased its pipeline mileage -- from 4,251 miles in 2002 to 5,869 miles in 2011 -- and transport volume totaled over 4,350 billion barrel-miles, Enbridge's mainline releases totaled just 45,691 barrels, most of which were at Marshall (20,082) and Romeoville (7,538), while the rest of the industry released 152,932 barrels, over three times Enbridge's total.[*]

[*] Mainline accident data includes releases occurring at valve sites on pipeline rights-of-way. Accident data from PHMSA Form 7000-1 data bases for 2002-2011. See data bases "Hazardous Liquid Accident Data -- January 2002 to December 2009" and "January 2010 to Present" at: http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=fdd2dfa122a1d110VgnVCM1000009ed07898RCRD&vgnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnextfmt=print. Volume of petroleum transported in billion barrel-miles from PHMSA Form F7000-1.1; 2007 value for "all others" adjusted. Analysis included releases of crude oil in the U.S. involving onshore pipelines. *See* database "2004 Hazardous Liquids Annual Data at: http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=a872dfa122a1d110VgnVCM1000009ed07898RCRD&vgnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnextfmt=print.

Q. ARE YOU SUGGESTING THAT MR. MAPLE'S CONCERNS ABOUT THE MARSHALL, ROMEOVILLE, AND GRAND MARSH INCIDENTS CAN BE DISMISSED?

A. No, and we have not dismissed them. In fact, Enbridge is increasing its efforts to prevent such incidents, as I discuss below. My point is that these matters have to be considered in context, as well as in specific detail. Too tight a focus can be misleading. It would be as misleading to look only at the year 2011, when we had zero mainline releases, as to look only at the three situations discussed. In that regard, let me note as well that if only our record in Illinois is considered -- and I am not advocating this -- the only significant mainline releases we have had were the result of outside-force damage to our Line 6A. Thus the South Elgin incident in 1986 was caused by a gravel-pit operator stripping top cover from the right-of-way with the blade of a front-end loader and the Romeoville release, discussed below, was due to an external force penetrating the pipeline.

Q. ARE THE MARSHALL, ROMEOVILLE, AND GRAND MARSH INCIDENTS CHARACTERISTIC OF ENBRIDGE'S OPERATIONS AND PERFORMANCE?

A. Not at all. Each is unique and illustrative of a type of problem that is inherent in the industry. We do not pretend, and I am not asserting, that there are not errors and omissions in our operations. Enbridge's pipeline operations are large and complex, and systems and people fail. We strive to operate with no releases and when we fail -- see responses to data request ENG 1.21 for list of releases due to operator error, material failures, etc. -- we admit it, learn from it, make necessary changes and improvements, and continue to perform the best we can. As we have shown in the prior dockets I referenced

and in this case, Enbridge has safely transported billions of barrels of petroleum into and through Illinois and other states and has accidently released only a minute percentage of it. If there is a release, virtually all released crude is recovered, affected areas are remediated, and any injuries are fully compensated. Indeed, our level of performance has been steadily increasing, and we keep working to make it better.

Q. HOW DO YOU EXPLAIN THE SEEMING STRING OF MARSHALL, ROMEOVILLE, AND GRAND MARSH RELEASES?

A. While Enbridge takes responsibility for and does not deny that each incident, particularly the Marshall, Michigan release, revealed some imperfection in our processes and procedures, it is important to understand the root cause of each incident. The Marshall release, which was the most significant, resulted from the failure of the anti-corrosion tape coating used when the pipeline -- our Line 6B -- was constructed in 1969. Tape was the industry's preferred corrosion-prevention technology at the time. It has been determined that under certain conditions tape coating will lose adhesion and disbond (separate) from the pipe. This causes "tenting" which can impair and impede cathodic protection systems used to prevent corrosion. Corrosion resulting from the tape failure caused pipe damage that allowed a release. Now it must be acknowledged that the release was greatly exacerbated by operational failures in the Control Center when Line 6B, which had been shutdown as part of regular operations (the line was not in a state of continuous flow), was restarted. Various mistakes and failures in recognizing and addressing operational alerts caused a release situation to go unrecognized for too long,

allowing a small problem to grow.[*] At Romeoville, which unfortunately occurred shortly after the Marshall release, our Line 6A, which was also built in the late 1960s, suffered a breach caused by outside (non-Enbridge /non-pipeline) actions and forces. While the NTSB has not yet released a report on this incident -- and may not do so -- our own personnel at the site responsible for controlling the situation and assessing pipe integrity discovered that a circular hole approximately two-inches in diameter had penetrated through the bottom of the pipe from the outside. As the pipe was uncovered, it was discovered that a water pipe located less than six inches below the bottom of the pipeline was badly corroded and leaking water under pressure against the pipeline. Further inspection showed that the hole in the pipeline was directly above a hole in the water pipe (which was still gushing water when the pipeline was uncovered) and that whoever installed the water line had backfilled the site with large stones and rocks. Our analysis of the situation at the release site determined that someone had installed the water pipe underneath and too close to Line 6A without notifying or advising Enbridge and did so sometime in the 1970s when the area was developed as an industrial park, after our pipeline had been constructed. The incident at Grand Marsh, Wisconsin involved our Line 14, which was constructed and placed in service in 1998. Although the investigation is not complete, it appears that the release there was caused by the failure of a long stem weld seam in a piece of the pipe. The particular pipe used for Line 14 was

[*]The NTSB report referenced by Mr. Maple discusses the Marshall incident in detail. Briefly stated, the incident occurred because of the exterior corrosion discussed and operator and Control Center errors when the line was being restored to active operation. Failure to recognize and respond to alarms and data reports produced repeated attempts to restart the line rather than a prompt shutdown.

manufactured using a process called electric resistance welding, or "ERW" welding, on the longitudinal seam of the pipe.

Q. WHAT IS THE INTERPLAY BETWEEN THE ROOT CAUSES OF THESE INCIDENTS AND THE OPERATIONAL/PROCEDURAL CHANGES IDENTIFIED IN ENBRIDGE'S RESPONSES TO STAFF DATA REQUESTS ENG 1.69 AND 1.70, AS REFERENCED IN MR. MAPLE'S TESTIMONY?

A. Mr. Maple rightly seeks an understanding of the enhancements of system integrity and safety expected from the policy and practice improvements discussed in our responses to his data request ENG 1.69 and ENG 1.70. Per his request, I will expand on those points subsequently and will incorporate the data request responses into this testimony. However, at the moment I wish to point out, in response to his general concern, that due to the Flanagan South Pipeline's design and construction the pipeline cannot experience two of the failure mechanisms I just discussed. Thus, unlike Line 6B, the FSP pipe will have its corrosion-protection epoxy coating fusion bonded to the pipe at the factory, where all pipe sections will be inspected by/for Enbridge. Similarly, the ERW welding technology used in the manufacture of the Line 14 pipe will not be used on FSP. Instead, the manufacturer will use double submerged arc welding or "DSAW" to produce the seam welds. Unfortunately, our ability to protect our lines against external-force damage, such as what caused the Romeoville release, is not entirely a matter of technology. However, we have, post-Marshall, increased the resources and personnel allocated to our pipeline-integrity and public-awareness program and continued to work with industry members and public authorities to improve facility-location/protection programs, such as

the "811 Call Before You Dig" number. All these efforts will help to protect the FSP line against outside-force damage. I would further note that because, as Mr. Maple recognizes, much of the FSP route will be collocated with the Spearhead Line right-of-way, our new line will benefit from public awareness of an established pipeline corridor and our ability to use the combined ROW space to buffer both lines from intrusions. As Mr. Aller discussed, this aspect of the route was a factor in its selection (Enbridge Ex. 2 at 4-7).

Q. WHAT IS IT YOU WISH TO EXPAND ON IN REGARD TO THE RESPONSES TO DATA REQUESTS ENG 1.69 AND 1.70?

A. First let me note that the impression that we are not adopting all the NTSB-recommended actions, as Mr. Maple references, is incorrect. Our reference to "the vast majority" was a poor choice of words in preparing the data-request responses -- I regret the confusion. We either already are or will soon be fully implementing all the NTSB recommendations that were directed to Enbridge in ICC Staff Exhibit 1.1.[*] As I indicated above, I am hereby incorporating into this testimony our responses to the data requests as Enbridge Exhibits 7A (Response -- data request ENG 1.69) and 7B (Response -- data request ENG 1.70). The responses are extensive so let me briefly summarize them and discuss our actions on the major respects of the NTSB report:

[*]A number of the NTSB's recommendations are directed to a federal agency -- PHMSA -- rather than Enbridge. *See* Staff Ex. 1.1.

A. With respect to Pipeline Integrity, Enbridge has already or will take the following actions:

- The external tape coating applied to Line 6B, which was the root of the failure, will not be utilized on the proposed pipeline;
- Implementation of changes to the integrity management program to assure improvements to long-term monitoring and mitigation policies;
- Changes to inspection frequencies, repair methodologies, quality assurance programs, detailed procedure enhancements, additional technologies, and organizational restructuring;
- Increased integration of planning and issue resolution formalized through new committees and planning processes;
- Re-organization of the functional areas responsible for pipeline and facility integrity resulting in a doubling of the number of positions dedicated to integrity;
- An increase in pipeline integrity management spending in 2011 and 2012 resulting in an increase in the number of in-line inspection programs and integrity digs (including excavation, examination, maintenance and repair by welded sleeve or pipe segment replacements);
- Strengthened focus on the tools, technologies, and strategies to ensure pipeline networks perform safely, reliably, and in an environmentally responsible manner; and
- Implementation of process and procedure enhancements to ensure that a feature similar to the one that led to the Line 6B Marshall incident will be identified and repaired.

B. Regarding its Leak Detection Program, Enbridge plans the following actions:

- Implementation of additional leak detection analysis procedures;
- Establishment of a Pipeline Control Systems and Leak Detection department;
- Enhancement of the Leak Detection Analyst Training Program;
- Implementation of a Leak Detection Instrumentation Improvement Program; and
- Implementation of changes to the Pipeline Control Systems to improve controller decision support systems.

C. Enbridge will also augment its pipeline control capacity, including Control Center Operations ("CCO"), through the following actions:

- Development and implementation of corporate and CCO specific "Golden Rules" (safe operating, when in doubt -- shutdown, emergency procedures);
- Revision of and enhancement to all procedures pertaining to decision-making, handling pipeline start-ups and shutdowns, leak detection system alarms, communication protocols, and suspected column separations;
- Revisions to documents associated with the newly revised processes and procedures;
- Augmentation to CCO staff, technical support, engineering and operator positions and enhancement to the organizational structure to better support operators and to manage span of control and workloads;
- Enhancement of training programs in all areas;
- Consolidation, in November 2011, of the new CCO for operation of most Enbridge liquid pipelines in North America to Edmonton, Alberta, Canada; and
- Emphasis on Enbridge's clear message that it operates its pipelines safely and if, for any reason, the pipelines cannot be operated safely, they will be shut down and will not be restarted until Enbridge knows exactly what is going on.

D. In addition to the operational changes noted above, Enbridge also plans to implement changes to its Pipeline Public Awareness and Emergency Response Programs by:

- Development of an online and in-person training tool to provide Enbridge-specific information to emergency responders in its host communities;
- Addition of Community Relations positions in key locations along Enbridge liquid pipeline routes;
- Increased spending ($50 million) between 2012 and 2013 to improve equipment and capabilities, develop better tools to deal with particular waterborne spills, and improve training programs;
- Implementation of specialized training for a cross-business unit response team, to respond to large-scale events anywhere in North

America that would require more resources than a single Enbridge liquid pipeline operating region or business unit could provide;

- Conducting an emergency-response preparedness assessment to identify additional strategic equipment purchases to enhance capabilities to more rapidly respond and contain a significant release anywhere in the Enbridge system; and
- Additional personnel in each Enbridge liquid-pipeline operating region to improve emergency-preparedness planning and coordination.

In concluding its responses to Staff's discovery, Enbridge made the following commitment, which I reaffirm in this testimony:

> "The new Flanagan South Pipeline will benefit from the heightened importance and top priority status placed on integrity management because the pipeline will be designed and constructed with the application of the latest technologies that have been established to improve overall pipeline reliability;
>
> Because Enbridge has strengthened and improved the overall reliability of the pipeline system, the Flanagan South Pipeline will not be exposed to the same conditions that caused the Line 6B Marshall incident; and
>
> All of the enhancements implemented by Enbridge following the July 2010 Michigan incident and NTSB Recommendations with respect to the Pipeline Control, Leak Detection, Pipeline Public Awareness Program and Emergency Response Preparedness are appropriate to and will be applied by Enbridge in its prevention and risk mitigation of the Flanagan South Pipeline."

As noted above, Enbridge accepts the accident investigation facts and conclusions of the NTSB report (although not its characterizations) and Enbridge has or will implement all of the company-related recommendations that are included in the report. In response to the NTSB report, Enbridge has emphasized that despite an overall good record, no incident is acceptable. Enbridge has and will continue to investigate and understand what happened, and to implement all "lessons-learned" from such incidents. The goal is to prevent all spills, leaks, and releases.

Q. MR. MAPLE'S TESTIMONY SUGGESTS THAT A RELEASE FROM THE FSP LINE COULD BE "DISASTROUS" FOR LANDOWNERS ALONG THE ROUTE. (STAFF EX. 1.0 AT 21). DO YOU AGREE AND DID ANY LANDOWNERS SUFFER "DISASTROUS" CONSEQUENCES FROM THE THREE INCIDENTS YOU HAVE DISCUSSED?

A. Enbridge takes any release from one of its pipelines very seriously and, as I have discussed, does everything possible to remediate any adverse impact. As well, the safety of the public and our employees is a prime concern and top priority to Enbridge. We do not pretend that transporting crude oil is risk free or deny that releases can be messy and troublesome but I disagree that a release will necessarily be disastrous to landowners or the public, particularly given Enbridge's commitment to, and history of, effective remediation. Thus in all three situations Mr. Maple has discussed and I have addressed Enbridge either has mitigated, or is in the process of fully mitigating, the effects of the releases. In fact, in the instances of both Romeoville and Grand Marsh, the mitigation efforts while significant were not unprecedented because of the rapid and effective containment and retrieval efforts Enbridge undertook. At Romeoville, the release was confined to a limited area, prevented from entering a nearby river, kept out of main processor of a sewage-treatment facility, and had only minor impact on the landowners other than for one property, a NICOR facility right at the release site that Enbridge bought to used as a command center/monitoring location. The Grand Marsh release was rapidly contained and quickly remediated and Line 14 was returned to service in about a week. Clearly the situation at Marshall was and is more complex and more costly to

remediate, principally because released crude flowed into the Kalamazoo River and then downstream for some distance. Recreational use of the river was impaired but neither public-water sources nor agriculture were adversely affected. Nor did the release itself force 150 families to be "permanently relocated from their homes." Staff Ex. 1 at 21. Some temporary evacuations did occur but the relocations were entirely voluntarily. In order to address concern about housing-market impact, Enbridge instituted a home-purchase program by which it would purchase at pre-incident, fair-market value any home in a defined zone along the river. Over 150 families elected to participate in the program. That program was a substantial part of the unprecedented mitigation effort Enbridge undertook, which as Mr. Maple notes, cost hundreds of millions of dollars (a cost borne by Enbridge and insurers, not shippers/customers). I think the Michigan response proves our point that we take responsibility -- or "ownership" as Mr. Maple says (*i.d.* at 22) -- and make things right if something goes wrong.

Q. THERE IS A SUGGESTION THAT A RELEASE WOULD BE PARTICULARLY HARMFUL TO AGRICULTURAL LAND ALONG THE FSP ROUTE. IS THAT BORNE OUT BY ENBRIDGE'S EXPERIENCE?

A. As I said, any release is taken seriously but our experience is that releases around wetlands and waterbodies -- rivers, streams, lakes -- are the highest impact. Agricultural properties, being generally rural, are less subject to outside-force intrusions and releases are generally manageable. Top soil can be remediated or replaced if necessary and crop losses are fully compensated if they occur. Since oil is less dense than water and most underground aquifers are deep-sourced, there is little history of contamination from

released oil. And, as has been previously noted, the new line will be constructed in accord with the Agricultural Impact Mitigation Agreement we have entered into with the Department of Agriculture. Finally, as Mr. Maple notes (Staff Ex. 1.0 at 15), we make every effort to accommodate landowner concerns in siting the line by avoiding ponds, trees, and other sensitive areas.

Q. DO YOU HAVE ANY OTHER COMMENTS ABOUT MR. MAPLE'S TESTIMONY?

A. Yes, I wish to respond briefly to his treatment of our request for authority to exercise eminent domain power.

Q. WHAT IS HIS POSITION, AS YOU UNDERSTAND IT?

A. Mr. Maple states that he cannot find that we have met the requirements of Sections 8-503 and 8-509 of the Public Utility Act "at this time, because Enbridge must first obtain a certificate in good standing." Staff Ex. 1.0 at 25. That of course is technically correct, and I have attempted to address his certification-criteria concerns in the testimony set forth above. It appears that Mr. Maple is satisfied that our right-of-way acquisition program and effort is proper and effective in communicating and working with landowners (Staff Ex. 1.0 at 12-15) and he disclaims knowledge of any evidence that Enbridge has done or will do anything other than negotiate in good faith with landowners (*id.* At 15-16). I would note further that no intervening landowner submitted testimony alleging "poor negotiations tactics on the part of Enbridge." (*Id.* At 16).[*] Let me note as

[*]Mrs. Holder's testimony was furnished on August 1, concurrently with some data requests. I think the gist of her testimony is that not all her concerns and questions were answered by her initial contacts with our agents and staff. Of course, since that date we have fully responded to her data requests and furnished her the responses to all the Staff data requests as well (our responses to her data requests are attached as Exhibit 7C and made part of this testimony). And, per procedures, our agents either have made or will make further contacts with Mrs. Holder and

well that it would be illogical for Enbridge to "treat landowners poorly" subsequent to the filing of Mr. Maples' testimony (*id.* At 16). That has not and will not happen, not only because we do not operate that way and because this Commission is always available to landowners but also because should we ever condemn an easement -- which we do not wish to do, as I discussed (Enbridge Ex. 1 at 15-16) -- the question of good-faith offers/negotiations will be litigated in the circuit court condemnation proceeding. Generally, that issue turns on the reasonableness of the condemnor's offer in terms of property valuation. As Enbridge's standard practice in negotiations is to offer full fee values for only easement interests, we have successfully defended that issue in the few condemnation cases we have had to file (all of which as previously noted were settled fairly rapidly (*see* Enbridge Ex. 2 at 13-15)). Moreover, the Commission is neither charged nor equipped to do property valuations if there is a dispute.

Q. ARE YOU STILL OF THE OPINION THAT THE COMMISSION SHOULD GRANT EMINENT DOMAIN AUTHORITY CONCURRENTLY WITH CERTIFICATION, IF MR. MAPLE'S CONCERNS ARE SATISFIED?

A. Yes, for all the reasons we have previously discussed. *Id.* In fact, I think Mr. Maple's acknowledgement that the route selected for the FSP line is consistent with public convenience and necessity and is "by far the most efficient route," "very linear," and "nearly as straight and short as the terrain will allow" (Staff Ex. 1.0 at 10-13) supports the grant of such authority.

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her counsel to address her questions and concerns. Her "safety" concerns, referenced by Mr. Maple, parallel those of Staff and are I think addressed by our data-request responses and this testimony. There is no contention in her testimony of bad-faith negotiation. In fact, I do not think we had even made her an offer as of August 1, since the process was just beginning.

Q. SO WHAT IS YOUR CONCERN?

A. There is a suggestion in Mr. Maple's testimony that we can easily reroute the pipeline or easily obtain alternative easements if landowner demands are economically unreasonable -- *e.g.*, rent-seeking or holding-out behavior -- or if someone refuses to negotiate altogether. Staff Ex. 1.0 at 16-17. He also references our Line 14 as having been built without eminent domain authority. *Id.* My concern is that this discussion discounts the adverse impact on route efficiency, linearity, and length that can result from forced reroutes (I'm not addressing the "minor deviations" and slight "tweaking[s]" that we regularly do, as Mr. Maple recognizes (Staff Ex. 1.0 at 13) to accommodate landowner desires and/or physical barriers). It is entirely possible that without eminent domain authority significant deviations from what Mr. Maple recognizes as the best route at the "macro level" (*id.* at 13) may be forced upon us. It is rarely possible that a single hold-out property can simply be skirted around; pipelines cannot have sharp angles so any route deviation can have an impact on a substantial length of pipe. Our Line 14 in Illinois illustrates the potential -- it is a considerable number of miles longer than necessary and significantly less linear that it should be due to a number of unnecessary reroutes. One other factor that needs to be considered is that because not all the Spearhead tracts involve multiple line rights we might lose the advantage of collocating with the Spearhead Line right-of-way -- a feature both Enbridge and Mr. Maple (*id.* at 11, 12) deem significant -- if we were forced to reroute.

Q. DO YOU EXPECT OR INTEND THAT THE FSP LINE WILL INVOLVE NUMEROUS CONDEMNATION SITUATIONS AND, IF NOT, WHY BE CONCERNED ABOUT EMINENT DOMAIN AUTHORITY?

A. We certainly do not intend such a case nor do we expect it. Our easement acquisition programs is proceeding well, as we have been advising the Staff. Currently, we have acquired 47.5% percent of the land tracts needed; we have easements or option agreements on 356 of the 749 tracts required in Illinois. Our agents are continuing their efforts to reach agreements and will do so for many more months. Our concern is that the absence of eminent domain authority will encourage refusals to negotiate and/or unreasonable demands. We will surely have situations where landowners will not negotiate or at least really focus unless there is a potential for condemnation. This only delays and complicates the process. If our project warrants certification, as we believe it does, it should also have the means of fulfilling its promise.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, unless some development requires further explanation.

Response -- data request ENG 1.69

ICC Staff Data Request

ENG 1.69 Explain how Enbridge will address each of the items listed in the Recommendations section of the NTSB report concerning the Line 6B release. Explain how Enbridge will change its policies and procedures to ensure this type of failure will not happen on the proposed pipeline.

Response prepared by:

Name: Jerrid A. Anderson
Title: Project Director
Address: 4628 Mike Colalillo Drive
Duluth, MN 55807

Enbridge and Enbridge Energy Partners (Enbridge) have worked closely and cooperatively with the NTSB throughout its investigation of the July 2010 pipeline incident in Michigan. Enbridge has already implemented operational and procedural changes, beginning soon after the incident. The summary below describe Enbridge's actions also taken as a result of this internal investigation related to NTSB's recommendations included in Accident Report NTSB/PAR-12/01, PB2012-916501 http://www.ntsb.gov/doclib/reports/2012/PAR1201.pdf.

The specifics of these actions, and Enbridge's continuing efforts to mitigate risks of operating Line 6B in Michigan as well as entire its interstate liquid petroleum pipeline system continue to be completed under the oversight of the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) and in compliance with federal pipeline safety regulations included in 49 CFR Parts 194 and 195.

Pipeline Integrity

The cause of failure on Line 6B was rooted to the type of external coating applied to the pipeline when it was constructed in 1967. That type of coating will not be utilized on the proposed pipeline. In addition, since the Line 6B incident, Enbridge has implemented numerous changes to the integrity management program to assure improvements to long-term monitoring and mitigation policies. Each of the items identified by the NTSB have been addressed through changes to inspection frequencies, repair methodologies, quality assurance programs, detailed procedure enhancements, additional technologies, and organizational restructuring. Some of the NTSB recommendations will require Enbridge to develop new industry models for integrity assessments and Enbridge has committed to leading development of those improvements and are therefore ongoing.

- Enbridge has heightened the importance of its pipeline and facility integrity program to assure broader company involvement and commitment to integrity management with increased integration of planning and issue resolution formalized through new committees and planning processes.
- Enbridge has re-organized the functional areas that are responsible for pipeline and facility integrity bringing additional leadership and focused resources on traditional, new and emerging areas of pipeline integrity management. Specifically, this re-organization has resulted in approximately doubling the number of positions dedicated to integrity management.
- Substantially increased pipeline integrity management spending to over $450 million in each of 2011 and 2012. The increased spending has resulted in an increase in the number of in-line inspection programs and integrity digs (includes excavation, examination, maintenance and repair by welded sleeve or pipe segment replacements). The in-line inspection program has been increased by more than 50% compared with the pre-2010 levels. Additionally, the number of integrity digs has more than doubled over that same time period.
- Strengthened its focus on the tools, technologies and strategies needed to ensure that pipeline networks have the strength and operating fitness to perform safely, reliably and in an environmentally responsible manner.
- Revised and improved numerous procedures within its Integrity Management program. Specifically, process and procedure enhancements have been implemented to ensure that a feature similar to the one that led to the Line 6B Marshall incident, should it exist elsewhere on the pipeline system, will be identified and repaired.

As Enbridge, and the industry as a whole, continues to improve accuracy and develop new technology for pipeline integrity assessments, we have worked with the Association of Oil Pipelines and Pipeline Research Consortium International in launching further research to improve the ability of inspection tools to gather certain information from pipelines, and enhance techniques for pipeline operators for interpreting the information the tools collect.

Leak Detection and Pipeline Control

Following the July 2010 incident on Line 6B in Michigan, Enbridge has accomplished the following:

Leak Detection

- Implemented additional leak detection analysis procedures. These procedures include improvements to the leak detection escalation process, shift change

transitions, alternate leak detection procedures, and analysis and communication procedure. Enbridge formalized best practices for its standard operating procedures.

- Formalized a Quality Management System ("QMS") that will ensure the effective execution of critical work activities that meet pre-defined quality objectives.
- Established a Pipeline Control Systems and Leak Detection department, doubling the number of employees and contractors dedicated to leak detection and pipeline control
- Enbridge enhanced the following aspects of the Leak Detection Analyst Training Program: on-the-job training, training program layout, readiness assessment, and communications with control center operations (CCO) personnel.
- Completed assessments and planning of instrumentation additions to and upgrades required to improve the performance of the leak detection system. Enbridge implemented a Leak Detection Instrumentation Improvement Program to add and upgrade instrumentation across its system based on the assessments. It reviewed and restructured its maintenance management program. This work has enhanced Enbridge's existing program by formalizing the inventory and management of critical leak detection equipment.
- Made changes to its Pipeline Control Systems. It has initiatives underway to improve controller decision support systems. This work includes developing tools to further support the analysis of column separation and potential leaks, and implementing expert systems to support alarm analysis. Enbridge is making ongoing improvements to its historical data storage and retrieval at most of its terminal and pump stations, resulting in the archiving of critical data at a resolution frequency of approximately one second. Enbridge is evaluating its current communication mechanisms, including its remote terminal unit infrastructure.

Pipeline Control (including CCO)

- Developed and implemented corporate and CCO-specific "Golden Rules" (safe operating, when in doubt – shutdown, emergency procedures).
- Revised and enhanced all of its procedures pertaining to decision-making, handling pipeline start-ups and shutdowns, leak detection system alarms, communication protocols, and suspected column separations.
- Revised a number of documents associated with its newly revised processes and procedures including pipeline maneuvers, start-up and shutdown documents, operating standards maneuvers, operating standards and procedures, QMS, CCO on-call handbook and CCO fatigue risk management handbook.

- Augmented its CCO staff, technical support, engineering and operator positions and enhanced its organizational structure to better support operators and to manage span of control and workloads.
- Enhanced its training programs in a number of areas including hydraulics, column separation analysis, incident investigation for all managers, technical services, engineers, shift leads and training staff, introduction to Lifesaving Rules training, enhanced emergency response training, fatigue management training, enhanced mentor selection process and training and material balance system training and formalized communication protocols.
- Moved into its new CCO for operation of most Enbridge liquid pipelines in North America in Edmonton, Alberta, Canada in November 2011. The new CCO also includes design features that address worker fatigue, a growing concern for companies with shift work employees. It has sit/stand consoles, improved lighting, noise reduction and facilities to address fatigue management to create an environment that meets all of the regulatory requirements related to control room management.
- Ensures that everyone in the CCO understands that, if they are ever in doubt, they must shut the line down and leave it down until the situation is fully understood. Enbridge's clear message is that it operates its pipelines safely. And if, for any reason, Enbridge cannot operate them safety, it shuts them down and will not restart them until it knows exactly what is going on. Enbridge will not sacrifice safety for throughput or expediency or the ability to return a line to service.

Pipeline Public Awareness Program and Emergency Response

To bolster its existing public awareness and emergency response programs, Enbridge has or is in the process of:

Public Awareness

- Developing an online and in-person training tool that will enable it to give Enbridge-specific information to emergency responders in its host communities.
- Added Community Relations positions in key locations along Enbridge liquid pipeline routes to build relationships with community members, emergency responders and local government.

Emergency Response

- Spending about $50 million between 2012 and 2013 to improve its equipment and capabilities, develop better tools to deal with particular waterborne spills and improve training programs.

- Created, and began specialized training for a cross-business unit response team, to respond to large-scale events anywhere in North America that would require more resources than a single Enbridge liquid pipeline operating region or business unit could provide. The response team will be conducting major training exercises involving all business units, Emergency Response contractors and consultants, and emergency response agencies at all levels of government.
- Conducting an emergency response preparedness assessment to identify additional strategic equipment purchases (e.g. sorbent boom, containment boom, fire boom, skimmers, boats, bladders, etc.) to enhance capabilities to more rapidly respond and contain a significant release anywhere in the Enbridge system.
- Adding personnel to each Enbridge liquid pipeline operating region to improve emergency preparedness planning and coordination.

Applicability to Operating and Maintenance of Flanagan South Pipeline

The new Flanagan South Pipeline will benefit from the heightened importance and top priority status placed on integrity management. Additionally, the Flanagan South Pipeline will be designed and constructed with the application of the latest technologies that have been established to improve overall pipeline reliability. Therefore, while Enbridge has strengthened and improved the overall reliability of the pipeline system, the Flanagan South Pipeline will not be exposed to the same conditions that caused the Line 6B Marshall incident. Specifically, the NTSB concluded that the probable cause of the Line 6B Marshall, MI incident was "...corrosion fatigue cracks that grew and coalesced from crack and corrosion defects under disbonded polyethylene tape coating..." (NTSB Accident Report pg. 121).

Enbridge generally agrees with the NTSB's conclusion as to the probable root cause of the pipeline failure - stress corrosion cracking caused by the disbonding of the polyethylene tape coating allowing the entrance of water under the coating. Polyethylene tape coating which is prone to disbondment will not be used in the construction and operation of the Flanagan South Pipeline. Flanagan South Pipeline will use fusion bond epoxy pipeline coating or other similar modern coating, which is not prone to disbondment.

All of the enhancements implemented by Enbridge following the July 2010 Michigan incident and NTSB Recommendations with respect the Pipeline Control, Leak Detection, Pipeline Public Awareness Program and Emergency Response Preparedness are appropriate to and will be applied by Enbridge in its prevention and risk mitigation of the Flanagan South Pipeline.

Response -- data request ENG 1.70

ICC Staff Data Request

ENG 1.70 Does Enbridge agree with all of the items in the Conclusions section of the NTSB report referenced in ENG 1.69? If no, explain what items it disagrees with and why.

Response prepared by:

Name: Jerrid A. Anderson
Title: Project Director
Address: 4628 Mike Colalillo Drive
Duluth, MN 55807

Enbridge agrees with the accident investigation facts and conclusions of the NTSB report and Enbridge has implemented the vast majority of the recommendations that are included in the report as outlined as mentioned in the response to ENG 1.69. However, Enbridge disputes the chairman's characterizations of our employees and their handling of this incident as an unfair characterization.

In response to the NTSB report, Enbridge has emphasized that despite an overall good record, no incident is acceptable to us. Enbridge has and will continue to investigate and understand what happened, and to implement the learnings from incidents. Our goal is to prevent all spills, leaks and releases.

Enbridge Ex. 7C

Response -- data request Holder 1.1 – 1.10

Ms. Virginia Holder Data Request

1.1 Please state, using applicable drawings, plans, legal descriptions, or any other documents or tangible items of any kind, including monuments, markers, poles, or stakes, exactly where the proposed pipeline of Enbridge will cross the properties of Virginia B. Holder, Mason County, Illinois (PIN #s 004-31000 and 004-39000), include in your answer a description with specificity of the endpoints or boundaries between which the pipeline lies, and the total length of the pipeline upon Virginia Holder's Property.

Response prepared by:

Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

The Flanagan South Pipeline project is proposed to cross the subject properties of Virginia B. Holder, Mason County Illinois (PIN #s 004-31000 and 004-39000) as portrayed on the attached drawings, IL-MA-0501.AB, IL-MA-0518.000, and IL-MA-0520.000. Based on Enbridge's records, the proposed route will cross three separate parcels of Virginia Holder's property, designated as tract numbers IL-MA-0501.AB, IL-MA-0518.000, and IL-MA-0520.000.

In regards to tract number IL-MA-0501.AB, the pipeline will not actually cross the property. Temporary construction workspace, however, may be required on this parcel between the approximate project mileposts 72.3 and 72.4, as further depicted on drawing IL-MA-0501.AB. The approximate dimensions of this temporary workspace are 42 feet X 74 feet X 85 feet.

Upon crossing E. County Road 2130 at milepost 74.4, the pipeline will enter tract IL-MA-0518.000 and traverse the property for approximately 1,503 feet. At this point (approximate mile post 74.7), the pipeline will cross tract IL-MA-0520.000 for approximately 29.837 feet. The routing on these two properties is depicted on drawings IL-MA-0518.000, and IL-MA-0520.000, respectively.

Ms. Virginia Holder Data Request

1.2 Please describe the manner in which the proposed pipeline is to be constructed by, on, and through the properties owned by Virginia Holder. Please include any documents which may be deemed or which describe, show, or depict any construction plans or proposals.

Response prepared by:
Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

The Flanagan South pipeline will be constructed on the aforementioned parcels of land according to industry best practices. The following is a summary of construction activities which will be taking place on said parcels of land.

The right-of-way (ROW) will be cleared and/or mowed prior to any ground disturbance activities. The working areas will then be scanned using underground utility locating equipment to locate any existing underground utilities. The ROW will be graded and top soil temporarily relocated according to the attached drawing using bulldozers and/or motorgraders. All handling of topsoil shall take place only when it is dry enough to avoid compaction and soil intermixing due to excessive rutting. Topsoil piles will be separated from subsoil piles and stored away from equipment travel lanes. Pipe will be hauled in and strung on the ROW by means of a pole trailer with a steerable rear axle. Any required pipe bends necessary beyond those that are pre-designed and factory-manufactured will be made by use of an on-site hydraulic cold bender. The joints of pipe will be welding together either by a manual process and/or an automated process. The welds will then be inspected by non-destructive evaluation methods. After inspection and field coating of welded joints, excavation and trenching for the pipe trench will follow using a mechanical excavator. Any and all damaged field drain tiles will be temporarily cut and capped and/ or relocated (with landowner approval). The pipeline will be lowered using a side-boom into the trench.

Subsequent to installation of the pipeline in the trench, all damaged or re-located drain tile will be permanently repaired and/or replaced. A hydrostatic strength and leak test will be performed on the pipeline at 95-105% of its specified minimum yield strength (SMYS) to ensure integrity and strength. The hydrostatic water will then be drained, filtered and returned to its source in accordance with applicable environmental permit requirements. Stripped topsoil and subsoil shall be replaced in a sequence opposite to that removed, and may require compaction or de-compaction based on conditions

present at the time. Lastly, clean-up and restoration of the entire working corridor will occur to return the area as close as practicable to pre-construction conditions. For operation and maintenance requirements, the permanent 50' ROW/easement must remain clear of trees.

Ms. Virginia Holder Data Request

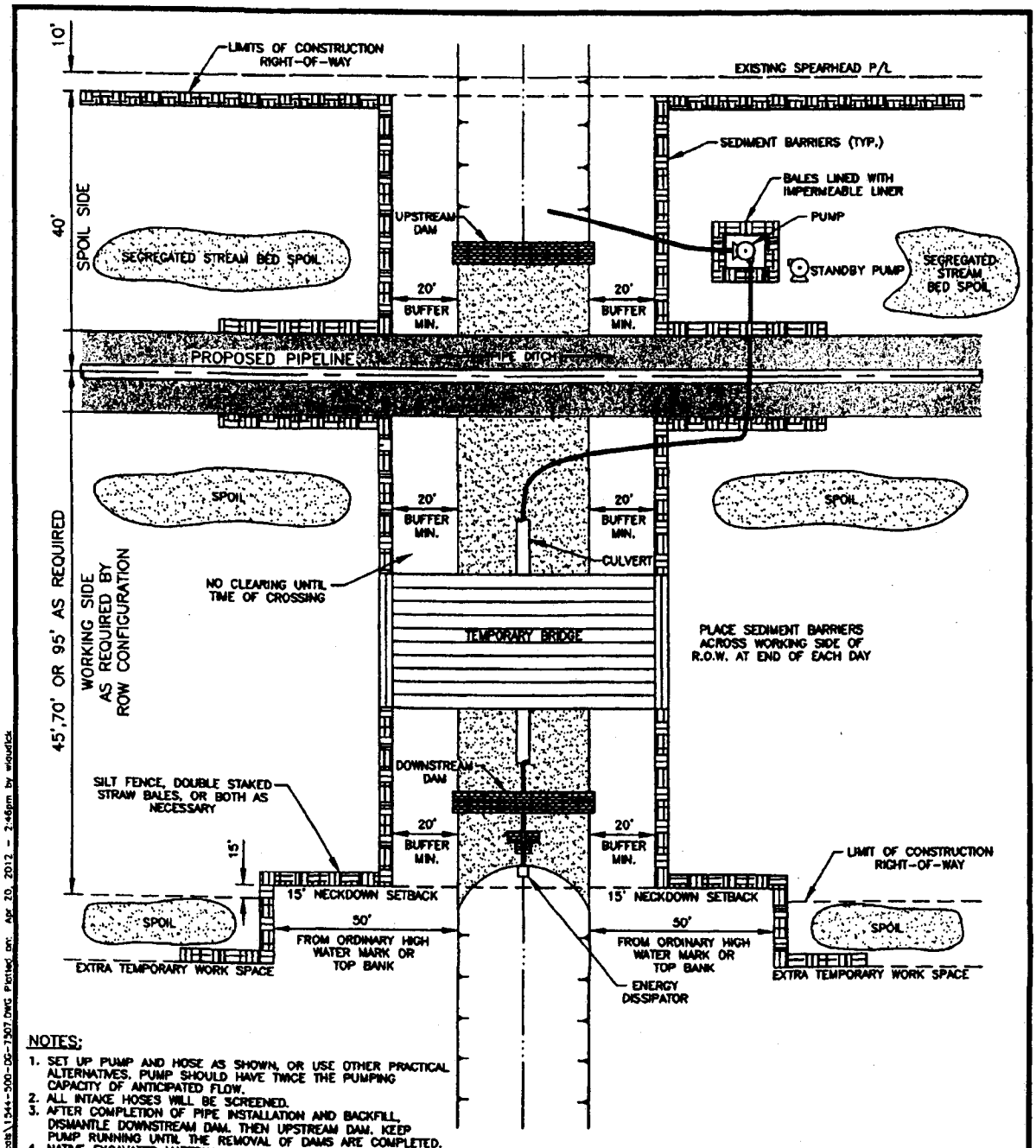
1.3 Please describe any special construction procedures involved in building the pipeline over, under, or through the drainage ditches located on the aforementioned parcels of land. Please include any documents or drawings describing, showing, or depicting any construction plans, techniques, or proposals for construction over, under, or through the drainage ditches located on the aforementioned parcels of land.

Response prepared by:
Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

The Flanagan South pipeline will cross beneath all drainage ditches located on the aforementioned parcels of land. The pipeline will be installed with at least 4ft depth of cover, measured between the service grade and the top of the pipe. All drainage ditch crossings will be installed using conventional open-cut methods.

If the drainage ditch has flowing water, standing water or the potential thereof exists at the time of construction activities, dam-and-pump or flume crossing methods will be used. See the attached drawings attachments 1544-500-DG-7507 and 1544-500-DG-7508 for illustrations of these crossing methods.

Upon completion of construction activities, the drainage ditch contours, profiles, and vegetation will be restored to pre-construction conditions. Any portions of the permanent 50-ft easement that were previously wooded will be allowed to reestablish with herbaceous and/or scrub shrub vegetation. Tree growth will be controlled within 25 feet of the pipe centerline to allow for adequate visibility of the 50-ft easement during aerial pipeline inspections.



NOTES:

1. SET UP PUMP AND HOSE AS SHOWN, OR USE OTHER PRACTICAL ALTERNATIVES. PUMP SHOULD HAVE TWICE THE PUMPING CAPACITY OF ANTICIPATED FLOW.
2. ALL INTAKE HOSES WILL BE SCREENED.
3. AFTER COMPLETION OF PIPE INSTALLATION AND BACKFILL, DISMANTLE DOWNSTREAM DAM. THEN UPSTREAM DAM. KEEP PUMP RUNNING UNTIL THE REMOVAL OF DAMS ARE COMPLETED.
4. NATIVE EXCAVATED MATERIAL SHALL BE USED AS BACKFILL MATERIAL.

NO.	REVISION DESCRIPTION	BY	DATE	CHK'D	APP'D
C	ISSUED FOR USE	WL	4-20-12	KFK	RH
B	ISSUED FOR CLIENT APPROVAL	KO	4-17-12	KFK	
A	ISSUED FOR CLIENT REVIEW	MAC	3-29-12	KFK	

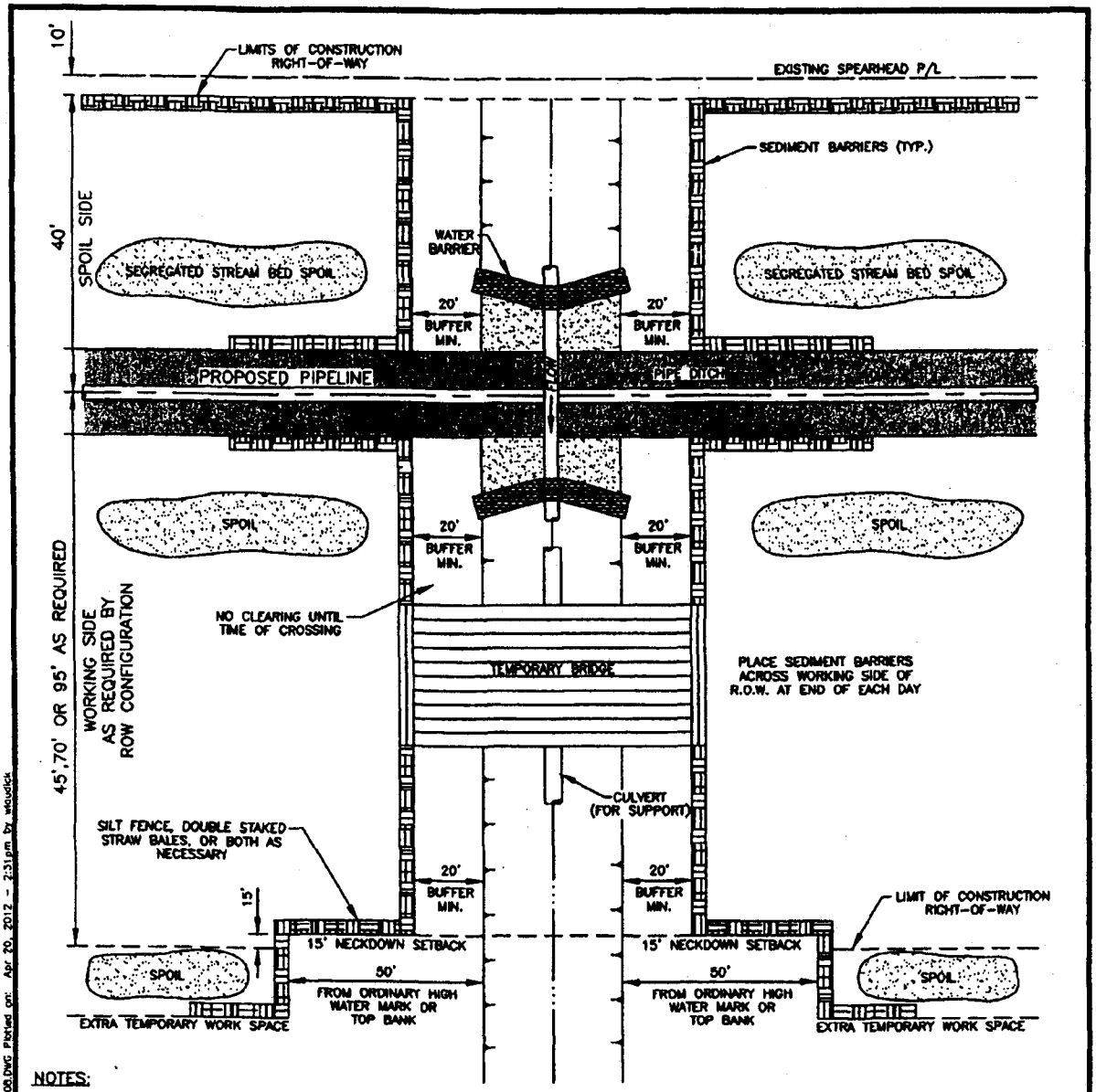
DWN. BY:	MAC	3-27-12
CHK.	KFK	3-27-12
PROJ. ENGR.	RH	4-18-12
PROJ. MGR.	MS	4-18-12
CLIENT APP.	JO	4-18-12
SCALE:	AS NOTED	

ENBRIDGE — Enbridge Pipelines (FSP) L.L.C.

FLANAGAN SOUTH PIPELINE
TYPICAL
WATERBODY CROSSING
PUMP AROUND METHOD

DWG. NO. 1544-500-DG-7507 | SHT. NO. 1 OF 1 | REV. C

H:_dgn\1544\000 - General\3 Pipeline\Typicals\1544-500-DG-7507.DWG Plotted on: Apr 20, 2012 - 2:46pm by woudick



NOTES:

1. PUMP STREAM CHANNEL DRY BETWEEN DAMS. DISCHARGE WATER ONTO STABLE SURFACE TO PREVENT EROSION.
2. SIZE FLUME TO HANDLE ANTICIPATED FLOWS.
3. EXCAVATE THROUGH TRENCH PLUGS, ACROSS STREAM CHANNEL, AND UNDER FLUME.
4. LOWER-IN PIPE BY PASSING UNDER FLUME, BACKFILL AS SOON AS PRACTICAL.
5. REMOVE IN THE FOLLOWING ORDER: EQUIPMENT CROSSING BRIDGE, DOWNSTREAM DAM, UPSTREAM DAM, AND FLUME.
6. NATIVE EXCAVATED MATERIAL SHALL BE USED AS BACKFILL MATERIAL.

NO.	REVISION DESCRIPTION	BY	DATE	CHK'D	APP'D
B	ISSUED FOR USE	KG	4-17-12	KFK	RH
A	ISSUED FOR CLIENT REVIEW	MAC	3-29-12	KFK	

GULF INTERSTATE ENGINEERING

DWN. BY:	MAC	3-27-12
CHK.	KFK	3-27-12
PROJ. ENGR.	RH	4-18-12
PROJ. MGR.	MS	4-18-12
CLIENT APP.	JO	4-18-12
SCALE:	AS NOTED	

ENBRIDGE — Enbridge Pipelines (FSP) L.L.C.

FLANAGAN SOUTH PIPELINE
TYPICAL
WATERBODY CROSSING
FLUME METHOD

DWG. NO. 1544-500-DG-7508 | SHT. NO. 1 OF 1 | REV. B

H:_Kim\1544\000 - General\3 Pipeline\Typicals\1544-500-DG-7508.DWG Plotted on: Apr 20, 2012 - 2:31pm by wgoudick

DRR 319

Ms. Virginia Holder Data Request

1.4 Please state the functional specifications of the proposed pipeline in its finished, operable form, including specifications as to flow rate, operating temperature, depth, internal and external circumferences, materials or liquids proposed for transportation through the pipeline, internal pressure, burst rate and other accident rates, and other planned or contemplated operational specifications with the proposed pipeline.

Response prepared by:
Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

The Flanagan South pipeline will have an outer diameter of 36 inches, an internal diameter of 34.94 inches, and a wall thickness of 0.531 inches. The pipeline will transport a targeted annual average of 585,000 bbl/day of crude oil from Flanagan, IL to Cushing, OK. The pipeline is capable of operating at pressures up to 1480 psig, with a temperature range of 46-83°F.

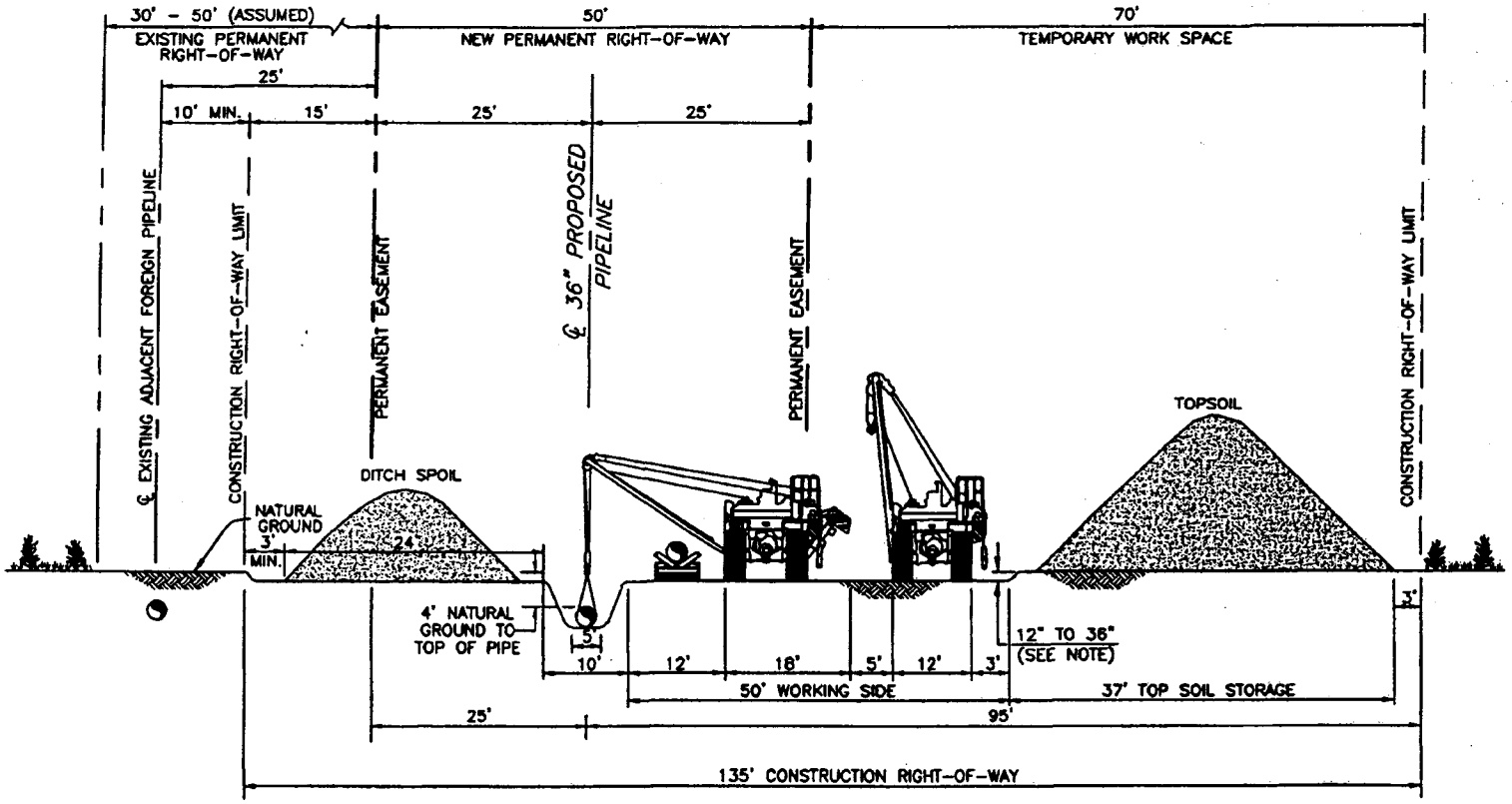
On the aforementioned parcels of land, the Flanagan South pipeline will be located parallel to the existing Spearhead pipeline on the property. According to the Agricultural Impact Mitigation Agreement between Enbridge Pipelines and the Illinois Department of Agriculture, pipeline depth of cover not less than 3 feet shall be maintained where the route parallels an existing pipeline. However, Enbridge will maintain a minimum 4 feet depth of cover throughout the Flanagan South pipeline (refer to drawing 1544-500-DG-7504).

Potential burst and accident rates cannot be easily predicted; however, Enbridge has designed and will construct this pipeline in accordance with all US acts, regulations, laws, codes, and standards. In particular, US DOT Title 49, CFR, Part 195, Transportation of Hazardous Liquids by Pipeline, and all other codes, standards, and regulations referenced within.

To mitigate the risk of pipeline failure, Enbridge will have:
1. All joining welds inspected by non-destructive examination methods.
2. All below grade pipe coated with fusion bonded epoxy (FBE) to inhibit corrosion. The coating will be inspected for any defects and any defects that are observed will be repaired before backfilling.
3. All pipeline components protected by an impressed current cathodic protection

system to mitigate the risk of corrosion.

4. All pipe segments undergo a hydrostatic strength and leak test prior to operation. The hydrostatic strength and leak test will be performed on the pipeline at 95-105% of its specified minimum yield strength (SMYS) to validate integrity and strength.
5. The pipeline placed in an Integrity Management Program (IMP) to proactively monitor the pipeline for defects post construction. For example, part of this program includes the use of inline inspection tools to measure pipe wall thickness for consistency.



NOTE:
IN ACTIVE CROP AND PASTURE AG LANDS 12" TO 36" OF TOPSOIL TO BE STRIPPED FROM THE WIDTH OF THE CONSTRUCTION RIGHT-OF-WAY WHERE REQUIRED BY THE AG MITIGATION PLAN.

NO.	REVISION DESCRIPTION	BY	DATE	CHK'D	APP'D
D	ISSUED FOR USE	KG	4-20-12	KFK	RH
C	RE-ISSUED FOR CLIENT REVIEW	JTT	2-11-12	KFK	
B	RE-ISSUED FOR CLIENT REVIEW	JTT	1-17-12	KFK	
A	ISSUED FOR CLIENT REVIEW	JTT	12-14-11	KFK	

GULF INTERSTATE ENGINEERING

DWN. BY:	MAC	12-14-11
CHK.	KFK	12-14-11
PROJ. ENGR.	RH	4-18-12
PROJ. MGR.	MS	4-18-12
CLIENT APP.	JO	4-18-12
SCALE:	AS NOTED	

ENBRIDGE — Enbridge Pipelines (FSP) L.L.C.

FLANAGAN SOUTH PIPELINE
TYPICAL ROW SECTION FOR
ACTIVE CROP AND PASTURE AG LANDS
IN AREAS ADJACENT TO EXISTING SPEARHEAD
PIPELINE THROUGH ALL STATES WITH
FULL ROW TOPSOIL SEGREGATION

DWG. NO.	SHT. NO.	REV.
1544-500-DG-7504	1 OF 1	D

Ms. Virginia Holder Data Request

1.5 Please state any and all plans, proposals, insurance policies, government or statutory mandates or other planned, proposed or contemplated contingency plans that deal with, address, repair, restore, replace, or otherwise affect any and all leaks, bursts, explosions, or other accidents that affect the environment, farmland, water tables, aquifers, drainage ditches, or any and all other environmental risks associated with the proposed pipeline.

Response prepared by:

Name: Jerrid A. Anderson
Title: Project Director
Address: 4628 Mike Colalillo Drive
Duluth, MN 55807

Data request 1.5 is addressed through compliance with provisions in federal pipeline safety regulations issued by the U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration (PHMSA), set forth in 49 CFR Subpart D Construction 195.200 Scope, 195.202 Compliance with specifications or standards, and Subpart F 195.402 Procedural Manual for Operations, Maintenance, and Emergencies. Each of these is described below are covered by Enbridge Operations & Maintenance Procedures (O&MP's), Engineering Standards website and Environmental Management System (EMS).

195.200: Scope

This subpart prescribes minimum requirements for constructing new pipeline systems with steel pipe, and for relocating, replacing, or otherwise changing existing pipeline systems that are constructed with steel pipe.

195.202: Compliance with Specifications or Standards

Each pipeline system must be constructed in accordance with comprehensive written specifications or standards that are consistent with the requirements of this part.

195.402: Procedure Manual for Operations, Maintenance and Emergencies

(a) General. Each operator shall prepare and follow for each pipeline system a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies.

Enbridge complies with the requirements set forth in the regulations listed above by maintaining an electronic library of manuals which include Pipeline Maintenance, Environment, Emergency Response and an Engineering Standards website. These manuals are reviewed annually and audited by PHMSA representatives.

Additionally, Enbridge's commitment to environmental protection and the achievement of environmental excellence are core priorities for Enbridge. Central to these priorities is the requirement that the administration, planning, construction and operation of projects be accomplished in a manner that minimizes environmental and socio-economic impacts and promotes the concept of sustainable development. Enbridge complies with all applicable Federal, State and local regulatory requirements for the construction, operation and decommissioning of its energy delivery systems. Environmental regulatory requirements specific to this project can be found in Exhibit F to the Application.

At the forefront of this corporate commitment is Enbridge's Environmental Management Systems (EMS). Enbridge's EMS are dynamic, multi-faceted systems of policies, programs and procedures for managing the environmental and socio-economic issues related to pipeline design, construction, operation and decommissioning. They are tools to conclusively document principles and systems already in place, as well as forward-looking action plans.

The EMS establishes an integrated environmental management framework for all Enbridge's operations. They are the base from which individual operating units develop specific practices, procedures, and programs. In this way, sound environmental management can be tailored to the various geographic and operational environments in which Enbridge operates.

Enbridge's EMS largely parallel the ISO 14000 International Standard for Environmental Management Systems, a set of standards that provide a clear and widely accepted framework for environmental management based on accepted business management principles.

Other Notables:

Enbridge has a written Public Awareness program which follows the guidance provided by the American Petroleum Institute's recommended practice 1162 compliant with CFR 49 subpart F 195.440 and a Damage Prevention Public Service One Call program as described in subpart F 195.442.

Insurance Coverage:

For all projects Enbridge procures project insurance in an amount not less than $10,000,000 and in most cases $25,000,000 which includes Builder's Risk Insurance, Wrap up Liability and Contractor's Pollution Liability. This is effective from mobilization of the project to the In-service date of the completed project. All Enbridge contractors are required to carry a minimum $5,000,000 limit of liability for their off-site activities.

Ms. Virginia Holder Data Request

1.6 Please state, if any, the benefits received by Illinois taxpayers, including Virginia Holder, by the presence and continued operation of the proposed pipeline. Please include any documents describing calculations, referenced tax provisions, and any other information describing how the operation of the proposed pipeline has a present and/or continuing benefit to the state of Illinois and its taxpayers, and specifically Virginia Holder.

Response prepared by:

Name: Jerrid A. Anderson
Title: Project Director
Address: 4628 Mike Colalillo Drive
Duluth, MN 55807

Please see the Application and the Direct Testimony of Enbridge Pipelines (FSP) L.L.C. filed on May 15, 2012 and July 3, 2012, respectively.

Ms. Virginia Holder Data Request

1.7 Please list and describe the nearest pump station to the aforementioned parcels of land, including the specifics of the pump station, whether it is manned or unmanned, and its functional purpose in the operation of the pipeline.

Response prepared by:

Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

The nearest pump station to the property in question is the Forest Pump Station located near the intersection of N 2800 County Road East and East County Road 1900. This station is approximately two (2) miles southwest of tracts, IL-MA-0518.000, and IL-MA-0520.000 and approximately four (4) miles southwest from tract IL-MA-0501.AB.

The station will be manned with an operator as well as having 24 hour remote monitoring from the Enbridge Control Center.

The functional purpose of the pump station is to provide motive pressure along the pipeline for the oil product being transported in the pipeline. Adding in multiple stations along the line allows the pipeline to operate at a lower maximum pressure while maintaining the throughput.

Ms. Virginia Holder Data Request

1.8 Please list and describe the process in place for detecting leaks, bursts, accidents, or any and all other potential disturbances and malfunctions possible with operating the proposed pipeline. Please include the location of the nearest response team, with respect to the aforementioned parcels of land, as well as average response times and actual response times for the aforementioned parcels of land.

Response prepared by:

Name: Doug Aller
Title: Lands & ROW Supervisor
Address: 119 North 25th Street East
Superior, WI 54880

Data request 1.8 is addressed through compliance with provisions in federal pipeline safety regulations issued by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, set forth in 49 CFR Part 195.402, Procedural Manual for Operations Maintenance, and Emergencies. This regulation requires pipeline operators to have written procedures handling abnormal operating conditions and emergencies. As well, PHMSA regulations set forth in 49 CFR Part 194 provide standards and guidelines for preparing Emergency Response Plans, including the listing of resources and capabilities of responding to a potential incident. This plan is submitted to and approved by PHMSA and will be amended as necessary upon the construction of this new pipeline.

Enbridge meets these requirements through its Operating & Maintenance Procedures and written Emergency Response Plan. There is currently a manned pumping station at Forrest, Illinois, which has the necessary equipment and trained Enbridge personnel to provide emergency response support. Further, Enbridge contracts with Garner Environmental Services, a full service environmental and emergency response company and a classified Oil Spill Response Organization, to supplement Enbridge's own resources located at designated terminals, pumping stations and pipeline maintenance facilities along the existing Spearhead pipeline and planned new Flanagan South Pipeline. Garner is located in many areas throughout the United States and maintains Response Teams equipped to quickly respond to emergencies upon notification.

The pipeline system is monitored round-the-clock and can be remotely shut down and remotely controlled valves closed within minutes when information is received or

observed by the Pipeline Control Center indicating potential abnormal operating conditions. The Pipeline Control Center has a protocol in abnormal conditions or if a leak is suspected to notify local emergency responders to respond on site and begin public and environmental control. The initial emergency responder from Enbridge would be concurrently notified and expected to physically respond to an incident on your property within sixty minutes or less. This initial response would be supplemented by personnel from other Enbridge locations and contract resources as required.

Enbridge has a number of leak detection capabilities that include visual surveillance of the pipeline right-of-way; reports from external parties; public awareness program with landowners, affected public, emergency responders and public officials; a scheduled line mass balance system; and a pipeline controller monitoring of operations in real-time while the pipeline is in operating flow condition.

Enbridge complies with the federal regulations that govern Pipeline Control Systems and Centers; Operator Qualification of pipeline control workers and American Petroleum Institute's Standard 1130 that provides technical consensus standard for pipeline leak detection subsystems.

Ms. Virginia Holder Data Request

1.9 Please provide any prior data requests and prior answers to any previous data requests, including any supporting documents, appendices, diagrams, maps, accountings, or other information included in prior data requests.

Response prepared by:
Name: Gerald A. Ambrose
Title: Attorney, Sidley Austin LLP
Address: One South Dearborn Street, Chicago, IL 60603

All such documents have previously been provided.

Ms. Virginia Holder Data Request

1.10 Please provide copies of any subsequent data requests and answers to any subsequent data requests, including any supporting documents, appendices, diagrams, maps, accountings, or other information included in prior data requests.

Response prepared by:
Name: Gerald A. Ambrose
Title: Attorney, Sidley Austin LLP
Address: One South Dearborn Street, Chicago, IL 60603

All such copies will be provided.