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"Clear Knowledge in the Over Information Age"

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November 3, 2014

To: Mr. Thomas Wood
Town Attorney
Town of Cortlandt
1 Heady Street
Cortlandt Manor, NY 10567

Re: Review of Algonquin Gas Transmission LLC's Algonquin Incremental Market ("AIM Project"), Impacting the Town of Cortlandt, NY, FERC Docket No. CP14-96-0000, Increasing System Capacity from 2.6 Billion Cubic Feet (Bcf/d) to 2.93 Bcf/d

Executive Summary

Accufacts Inc. was retained by the Town of Cortlandt ("Cortlandt") to perform a basic system review and to provide a brief analysis of the above FERC filing as it may affect Cortlandt. The project as submitted to FERC is asking for several major modifications on the Algonquin gas transmission system to increase gas capacity by approximately 342 dekatherms per day (Dth/d) from Ramapo, NY, to move gas eastward to Connecticut, Rhode Island and Massachusetts markets. The AIM proposal impacting Cortlandt upgrades the existing 26-inch and 30-inch looped pipelines between the Stony Point and the Southeast Compressor Stations in New York, by removing sections of existing 26-inch lower 674 psig Maximum Allowable Operating Pressure ("MAOP") pipe, replacing it with approximately 8 miles of new 42-inch higher 850 psig MAOP pipe, and installing new interconnecting pressure reducing/letdown valves to take advantage of the higher MAOP pipe (See Exhibit 1).[1, 2, 3] A segment of the new 42-inch installation may also involve approximately 2 miles of pipe looped on new right-of-way ("ROW") running south of the Indian Point nuclear power plant complex within Cordlandt. Modifications to a metering and regulating station servicing the Cortlandt, NY area are also

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[1] Looping is the connection of two or more pipes between two points, splitting gas flow to reduce pressure drop through the connected sections of the pipeline due to pressure limitations or for increasing the flow rate in a bottlenecked or constrained segment or section.
[2] MAOP is a term defined in federal minimum pipeline safety regulations that defines the maximum pressure under which a gas pipeline may normally be operated. Pressures greater than MAOP are allowed in certain situations.
[3] There are varying numbers in AIM Project filings to FERC for the miles of pipe replacement within Cortlandt. The 8 mile figure is derived from Exhibit G data.

included in the project. This report focuses on the gas transmission infrastructure that could impact Cortlandt.

The following are major findings and observations from my analysis of the AIM Project proposal, sections of the AIM DEIS, and a detailed review of CEII information supplied in the Exhibit Gs submitted to FERC by Algonquin that contain important system information.[4] Exhibits 4 and 5, which are included as attachments, contain more detailed information bolstering my general observations and findings, but these two specific Exhibits are CEII protected under a nondisclosure agreement ("NDA"), and are not for public release or distribution, even among Cortlandt officials, unless they have also signed a FERC CEII NDA.

Major Accufacts Findings and Observations for Cortlandt concerning the AIM Project:

1) The new 42-inch pipeline in Cortlandt is considerably oversized/overbuilt for the stated capacity increase of 342 Dth/d claimed for this project.

2) Actual gas velocities, an important variable driving design, for the pre-AIM existing gas transmission pipelines spanning Cortlandt are within acceptable ranges, but after the AIM installation are so low that considerable future possible throughput increases can be easily accommodated for these segments.

3) Further Algonquin Pipeline pipe expansions in New York State are likely given the 42-inch pipe installations proposed for AIM, and the extremely high gas velocities in other existing segments of the New York system further downstream of Cortlandt. However, the AIM proposal and the DEIS contain no evaluation of the impacts of these future expansions.

4) The Safety Evaluation and Analysis for the Indian Point Nuclear Plant ("IPEC") submitted by Entergy concerning the risk associated with the 42-inch AIM pipeline is seriously deficient and inadequate.

5) Additional precautions are warranted for the proposed southern 42-inch pipeline route near the Buchanan-Verplanck Elementary school.

Expanding on the above major findings and observations:

1) The new 42-inch pipeline in Cortlandt is considerably oversized/overbuilt for the stated capacity increase of 342 Dth/d claimed for this project.

The following Exhibits included as Attachments supplement this report:

1) Exhibit 1 is a simple schematic developed from information in the public domain of the existing and proposed major pipeline segments for the AIM Project that could impact

[4] Accufacts requested the CEII information from FERC on September 11, 2014 and received the files from Algonquin on October 6, 2014.

Cortlandt. The AIM Project is proposing to modify the pipeline segments between the Stony Point and Southeast Compressor Stations into two significantly different operating loops via new mainline interconnects utilizing pressure reducing/letdown valving installations, and various pig launcher/receiver modifications (to be installed within Cortlandt) to produce: (a) a "Smaller Loop" mainline system consisting of first an existing 30-inch pipeline reducing to an already existing 26-inch mainline, and (b) a "Larger Loop" mainline system consisting of new proposed 42-inch pipe reducing down to an already existing downstream 30-inch mainline (See Exhibit 1).[5]

2) Exhibit 2 is a figure captured from the AIM Project DEIS showing the relative location of where the existing 26-inch pipeline will be removed and replaced by new 42-inch pipeline that AIM has labeled "Take-up and Relay (T&R)," in essentially the same right-of-way ("ROW") through most of Cortlandt.[6]

3) Exhibit 3 is a figure taken from the AIM DEIS depicting existing and proposed Algonquin Hudson River crossings for the AIM Project.[7]

4) Exhibit 4 (CEII Protected) is a hydraulic profile (pipeline pressure vs. pipeline milepost) developed by Accufacts for the smaller diameter (30-inch and 26-inch) lower MAOP pipeline (Smaller Loop) segment within New York State, pre and post AIM Project, for the pipelines between the Stony Point and Southeast compressor stations, incorporating Exhibit G information provided by Algonquin's submission to FERC.

5) Exhibit 5 (CEII Protected) is a hydraulic profile developed by Accufacts for the larger diameter (42-inch and 30-inch) higher MAOP pipeline (Larger Loop) segment within New York State, pre- and post-AIM Project, for the pipelines between the Stony Point and Southeast compressor stations, incorporating the Exhibit G information provided by Algonquin's submission to FERC.

Exhibits 1, 2, and 3 provide a quick perspective of the pipeline changes and general routing for the AIM Project in that specific segment of concern between the compressor stations that bridge Cortlandt. Exhibits 4 and 5 provide a more detailed technical perspective of some of the hydraulics (pressures, MAOP, and gas velocities at certain locations along the pipelines) for the flow cases that drive various Accufacts conclusions and findings. For ease of reference in Exhibit 4 and 5, I have set the milepost ("MP") reference for the segments beginning at the Stony Point, NY compressor station at zero. The pipelines crossing Cortlandt generally begin at the landfall on the east side of the Hudson River, and are thus

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[5] Pig launcher/receivers are above ground installations to permit the periodic launching or receiving, depending on their location within the system, of multi-ton inline inspection tools inserted into an operating transmission pipeline to assess for various pipeline imperfections, or certain possible threats, to pipeline integrity.
[6] Algonquin Gas Transmission LLC Docket No. CP14-96-000, FERC/EIS-0254D, "Algonquin Incremental Market Project Draft Environmental Impact Statement," filed to the FERC Docket on 8/6/14, p. 2-2.
[7] *Ibid.,* p. 3-20.

between approximately MP 3.5 and 11.5 as indicated on Exhibits 4 and 5. Exhibit 4 contains an approximately 5 mile shorter length for the Smaller Loop between compressor stations post versus pre AIM, which Accufacts cannot explain from the Exhibit G data provided. This discrepancy suggests an error in this important submission to FERC. This difference does not affect Accufacts' major findings or conclusions, however.

In addition, I have reviewed the Hudson River crossing DEIS discussions currently consisting of: two existing 24-inch pipelines, and an existing 30-inch pipeline, and a proposed new 42-inch pipeline crossing to be routed either south of the existing three gas pipeline river crossings or at a more northern crossing (the Hudson River Northern Route Alternative, or "HRNRA") near the existing three pipelines (See Exhibit 3).[8] This new 42-inch Hudson River crossing, to be installed via Horizontal Directional Drill, or HDD, if possible, would connect to new onshore 42-inch pipelines installed on each side of the Hudson River as part of AIM. The southern 42-inch crossing option would incorporate a new additional pipeline right-of-way of approximately 1 3/4 miles within Cortlandt as it is routed out of the existing pipeline ROW and south of the Indian Point Energy Complex passing a church and an elementary school. The route eventually rejoins the existing 26-inch ROW east of IPEC to continue its route through Cortlandt in the existing ROW as indicated in Exhibit 3 filed to the FERC Docket on August 6, 2014 as the Draft Environmental Impact Statement, or DEIS.

A detailed review of the CEII files captured by the hydraulic profile in Exhibit 5 clearly demonstrates the 42-inch pipeline is not needed for the AIM project claimed capacity increases of 342 Dth/d. The Larger Loop is taking considerable pressure drop introduced from a new "midstream" mainline pressure reducing/letdown valve located at the end of the new pipe MAOP 42-inch upgrade at the edge of Cortlandt, essentially wasting horsepower added at the Stony Point compressor station (See Exhibits 1 and 5). The 42-inch proposal overbuilds the system for the capacity/horsepower increases submitted for AIM. The Stony Point Compressor station after the AIM project, fails on both the Larger Loop and Smaller Loop mainline systems to operate anywhere near Stony Point Compressor Station discharge pipeline MAOP, and the 42-inch to 30-inch mainline pressure reducing/letdown valve takes a major pressure drop for the stated maximum flow conditions.[9] This indicates that added AIM horsepower is wasted at the Stony Point Compressor station increasing pollution emissions.

Exhibit 5 can also be used to demonstrate that a new smaller (i.e., 30 or 36-inch 850 psig MAOP pipe instead of the proposed 42-inch) can provide the additional 342 Dth/d claimed in the AIM proposal. Installation of higher rated MAOP pipe on the discharge segment of Stony Point Compressor Station deals with one bottleneck on this segment spanning the compressor stations. AIM is incomplete, however, as it fails to also adequately address the

[8] The proposed installation of the 42-inch across the Hudson River and south of Indian Point is in a new ROW within the Town of Cordlandt. The existing two, 24-inch and one, 30-inch crossings under the Hudson River will remain active and pressurized, in "standby" backup service if ever needed, which is a reasonable operating approach for this river crossing.

[9] For the Exhibit G CEII cases reviewed, the Smaller Loop does not take pressure drop at the new pressure reducing/letdown valve to stay within the 26-inch mainline MAOP.

weaker bottleneck mainline segments downstream of Cortlandt entering the Southeast Compressor Station that are experiencing extremely high actual gas velocities.

Installation of the overbuilt/oversized AIM 42-inch pipe appears to be an initial effort by Algonquin to minimize future construction impacts by installing a pipeline larger than that needed for the present stated application, but positions the system for future major increased expansions. This is especially true if further downstream pipeline "bottlenecks" to the Southeast Compressor Station can be overcome with additional pipe replacements/upgrades to reduce the extreme actual gas velocities in these remaining existing mainline pipes.

The AIM Project is clearly oversized and is only a partial step toward a more system-wide pipe upgrade path within the state of New York. The AIM Project thus appears to be either an unjustified pipeline expansion or a segmentation of a larger, system-wide upgrade. The AIM Project effort is substituting quicker-to-install compressor horsepower placed at Stony Point against additional needed pipe replacement. Such a quicker path may be an attempt to avoid a proper environmental review and introduces a substantial loss of pipeline system efficiency via wasted horsepower and subsequent increased air pollution emissions. This inefficiency is not addressed in AIM's DEIS.

2) **Actual gas velocities, an important variable driving design, for the existing gas transmission pipelines <u>spanning Cortlandt</u> are within acceptable ranges, and after the AIM installation are so low that considerable future possible throughput increases can be easily accommodated for these segments.**

For a natural gas transmission pipeline a critical variable, actual gas velocities (in ft/sec, or fps) along the system, is very relevant, usually driving piping mainline modification/addition decisions and compressor horsepower installations. Actual gas velocities within a pipeline segment are mainly a function of:

1. the internal pipeline diameter,
2. the required gas flow along a given pipeline segment, usually reported at standard flow conditions,
3. pipeline pressure, which decreases and varies down a pipeline, and
4. pipe segment MAOP.[10]

Because natural gas is compressible as pressure decreases along a pipeline, actual gas velocities increase for the same cross-sectional area of the pipe and same gas flow stated at standard conditions. Gas flow as stated at standard conditions of temperature and pressure can vary depending on possible major additions and takeoffs along a specific pipeline segment, though many segments do not have major receipts or deliveries. Because the pressure at the downstream segment is less than the upstream pressure, actual mainline velocity is usually (but not always, depending on such factors as receipts/deliveries) highest for pipeline segments immediately upstream of compressor stations (at lowest segment

[10] There is an associated effect of gas temperature on gas velocity but this influence in long transmission pipelines is usually not leveraging.

pressure). High gas velocities can also be experienced in segments where the effective cross sectional area of a pipeline, or looped pipelines, is restricted or "pinched," compared to the rest of the segments experiencing similar standard flows and pressures.

Accufacts has observed that maximum actual gas velocities along a specific pipeline have usually been set by company internal standards that keep velocities well below those that could result in mainline erosion and based on other considerations. As a result, federal minimum pipeline safety regulations have not established maximum gas velocities for gas transmission pipelines. Unfortunately, Accufacts has found that more than one company has elected to change, ignore, or modify their own internal maximum historical gas velocity standards in recent FERC filings in order to minimize project costs and/or accelerate applications/approvals with FERC and project startup on multibillion dollar expansion projects. For example, I place little credence in studies or industry standards submitted to FERC that try to convey that a maximum gas velocity of 100 fps is appropriate for gas transmission pipelines.[11] For many reasons, including close proximity to population areas, gas transmission velocities should be set at limits well below those of production pipelines.

For gas transmission pipelines, two cases are usually important in actual gas velocity determinations: the velocities at "design" capacity, and the velocities at "peak flow" which will usually be higher than the design case. These two terms are often not defined in a FERC process and their misuse or misapplication can have serious consequences on safe and appropriate operation of a gas transmission pipeline.

Peak flow cases and their probable duration usually establish the maximum actual gas velocity design control within a transmission pipeline segment, as well as the needed additional horsepower and pipeline operating pressure, but this should be confirmed by the development of a hydraulic profile (pipeline operating pressure vs milepost) of the boundary case incorporating the gas additions and removals along a pipeline system that may differ between the cases. Peak flow cases usually set the maximum operating pressure which can affect a safety design review within a pipeline segment, but not always. The information provided in Exhibit Gs usually permits one to develop such a simple hydraulic profile as that captured in Exhibits 4 and 5. Fortunately, the Exhibit Gs and supporting documents for the AIM Project provided under CEII Nondisclosure Agreements provided sufficient relevant details to reliably evaluate this system at important points where actual gas velocities may be critical for the AIM Project and provide an indication where pipeline bottlenecks remain for possible future capacity increases.

A detailed analysis of the information provided under FERC CEII nondisclosure and Algonquin NDA agreements has allowed Accufacts to develop the hydraulic profiles of Exhibits 4 and 5.[12] Further, Accufacts' calculations based on this CEII protected data

[11] Accufacts Report to Delaware Riverkeeper, "Evaluation of Actual Velocity Critical Issues Related to Transco's Leidy Expansion Project," dated Sept 8, 2014 (FERC Docket No. CP13-551, Accession No. 20140910-5084 submitted 9/10/2014).

[12] Accufacts was required to take a highly unusual step of signing an Algonquin NDA, which raises serious questions about the CEII process in this FERC filing.

indicate that actual gas velocities do not exceed prudent velocities in the pipeline segments spanning Cortlandt for both the AIM base and expansion cases. In fact, the resulting very low gas velocities for these segments after AIM suggest the pipelines crossing Cortlandt will be able to easily accommodate considerable future expansions via horsepower increases at the Stony Point compressor station.

3) **Further Algonquin Pipeline pipe expansions in New York State are likely given the 42-inch pipe installations proposed for AIM, and the extremely high gas velocities in other existing segments of the New York system further downstream of Cortlandt. However, the AIM proposal and the DEIS contain no evaluation of the impacts of these future expansions.**

While the gas transmission pipelines crossing Cortlandt for the CEII cases reviewed indicate actual gas velocities well within acceptable ranges, this is not the case for much of the existing looped pipelines remaining downstream of Cortlandt but upstream of the Southeast Compressor Station in New York. Actual gas velocities on these existing 26 and 30-inch downstream transmission pipelines are at the highest levels that Accufacts has observed in the many FERC CEII filings we have been asked to review (well beyond 60 feet per second). Such high gas velocities suggest further pipe replacement projects in the Algonquin system in New York are needed or forthcoming. Such additional expansions should not be segmented in phases, but should be considered as one overall project requiring a complete environmental review considering their cumulative environmental impact. FERC needs to pursue this important possible segmentation question in further detail.

Because of gas compressibility, pipeline segments facing high gas velocities from increased demand can reduce velocities by increasing compressor horsepower with one or a combination of the following approaches: (1) increase system operating pressure subject to the MAOP limitations of the pipe, (2) rerate or uprate the segment of the pipe MAOP following certain pipeline safety minimum regulations for such upgrades that can introduce some serious risks unless a proper integrity hydrotest is performed, (3) replace or loop the pipeline usually with higher MAOP rated pipe, to yield a larger effective diameter for the segment, and/or (4) shorten the interval between compressor stations by adding new compressor stations that essentially raise the system average operating pressure.

While the 42-inch take and replace segments (42-inch to replace portions of the existing 26-inch) overcompensate for basically the upstream half of the looped system between Stony Point and Southeast Compressor Stations within New York, the remaining existing looped New York pipeline systems downstream of Cortlandt are a serious impediment given inefficiencies of the looped remaining pipeline system both in limited pipe diameter and low MAOP. I would anticipate further 26-inch pipe replacement proposals on this segment downstream of Cortlandt and upstream of the Southeast Compressor Station in the near future that take full advantage of additional capacity of the 42-inch proposed installation applied for in this Docket. Commensurate with such an additional pipe segment upgrading will most likely be a need for additional compressor horsepower at Stony Point.

4) The Entergy-submitted Safety Evaluation and Analysis for the Indian Point Nuclear Plant ("IPEC") concerning the risk associated with the 42-inch AIM pipeline is seriously deficient and inadequate.[13]

After a careful review, Accufacts has concluded that the above referenced Entergy Safety Evaluation and Analysis ("Analysis"), which includes enhanced pipeline measures proposed by the pipeline operator for the 42-inch pipe segment near IPEC fails to adequately capture the threat and, more importantly, prudently demonstrate that rupture of the new 42-inch higher MAOP pipeline will not markedly impact IPEC facilities, including IPEC's ability to "failsafe" shutdown from such a pipeline rupture. A 42-inch pipeline rupture is a far greater release event than that from the existing 26- or 30-inch lower MAOP gas transmission pipelines now operating in close proximity to IPEC.

A primary deficiency in the Analysis is the critical assumption of a three minute response time to identify, acknowledge, and close appropriate gas mainline remote isolation valves in event of a pipeline rupture. This assumption is unrealistically optimistic, ignoring both systemic dynamics (compressor and pipeline system rupture dynamics/interactions that mask remote rupture identification), uncertainty in the SCADA monitoring that will further delay remote recognition of a pipeline rupture, and control room operator confusion and related human factors that will also easily further delay control room remote response actions of a pipeline rupture, all of which will work to drive response <u>well beyond the assumed 3 minute time</u>. In addition, the 3 minute assumption disregards initial release and subsequent blowdown times dictated by the laws of thermodynamics related to pipeline rupture, even large 42-inch gas transmission pipelines. History is filled with clear examples of gas transmission pipeline rupture events generating high heat flux events well past an hour, so the 3-minute response assumption in the Analysis is highly unrealistic and not appropriate for this sensitive infrastructure site, especially with a 42-inch high MAOP pipeline. Such important issues must be taken into consideration in any prudent and realistic safety analysis concerning critical energy infrastructure, such as a nuclear power plant, where gas transmission pipeline rupture interactions, such as loss of nearby power grid or substations and resulting loss of power to IPEC, may cascade or snowball, driving the nearby IPEC facility to failure or prevent emergency access.

The Analysis has identified that in the vicinity of IPEC the 42-inch pipeline will be enhanced, or upgraded, to consist of X-70 API 5L grade pipe with a thicker wall thickness of 0.72 inches, buried to a minimum depth of four feet.[14] While I approve of these specific proposed safety enhancement measures to increase the 42-inch pipeline safety near IPEC, additional arguments presented in the Analysis are very misleading or inappropriate so as to cause one to underrepresent the real risks of pipeline rupture on/near IPEC, even with the enhancements. These additional arguments are far from complete in preventing a pipeline

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[13] Entergy letter to U.S. Nuclear Regulatory Commission, "10 C.F.R 50.59 Safety Evaluation and Supporting Analysis Prepared in Response to the Algonquin Incremental Market Natural Gas Project Indian Point Nuclear Generating Unit Nos. 2 & # Docket Nos. 5-247 and 50-286 License Nos. DPR-26 and DPR-64," dated August 21, 2014.
[14] *Ibid.,* Sheets 3 to Sheet 10 of 21.

rupture. For example, the argument to install a concrete barrier over the pipeline to prevent possible damage from third parties at first blush sounds like an appropriate step. Unfortunately, Accufacts has seen too many pipeline near misses where such barriers were defeated, negating the effectiveness of such barriers to avoid serious damage to high-pressure pipelines. Accufacts has yet to see a steel pipeline that cannot be damaged by third party threat activities, especially damage that could result in delayed pipeline rupture. I have seen similar misguided arguments presented in the Analysis that steel pipelines can be made difficult to puncture, reflected in some very poor pipeline risk management approach studies and safety risk analyses trying to improperly convey the impression that pipelines cannot be made to rupture. Delayed pipeline ruptures generating massive explosions and flames are caused by damage that seldom punctures the pipe, but the pipe is weakened to where it eventually fails in time as a rupture, a large pipeline fracture that occurs in microseconds during operation.

The Analysis should more thoroughly assess the impact of pipeline rupture on IPEC facilities and operation. Such a safety hazard analysis is unique to the IPEC facilities and should thoroughly evaluate and document a process safety management approach to assess the real effect on IPEC of the proposed 42-inch, 850 MAOP, gas transmission if it should rupture. Given the seriousness of a nuclear plant loss-of-containment incident, that analysis should reflect actual gas rupture dynamics and realistic duration and impact for this specific location and system. Such an analysis should be performed and subjected to a true independent process hazard analysis that would assure any equipment loss impacted by such a large diameter pipeline rupture would not prevent the "failsafe" shutdown of IPEC, nor loss of radiation storage containment that could cascade into a radiation release in this highly populated and sensitive location. Risk management analysis should be considered seriously deficient if it dismisses low probability events with catastrophic consequences as no probability. History has repeatedly demonstrated that when it comes to complex systems, low probability events can easily become linked, substantially increasing the likelihood and risks, and may even drive a system to catastrophic failure with all too predictable disastrous consequences. A more thorough and truly independent safety analysis of the 42-inch pipeline and its possible rupture effects to IPEC are warranted and the results made public given the deficiencies and many failings of the current Analysis to instill confidence in the public.

5) Additional precautions are warranted for the proposed southern 42-inch pipeline route near the Buchanan-Verplanck Elementary school.

Given the various concerns raised from involved officials and citizens about the risks associated with the southern routing option of the new 42-inch proposed pipeline in close proximity to the Buchanan-Verplanck Elementary School, Accufacts will comment on pipeline related safety concerns concerning this matter. Ironically, current federal pipeline minimum safety regulations, industry codes, or best practices, do not specifically or adequately address siting issues or risks related to natural gas pipelines near schools. Pipeline safety regulations are moot concerning such important siting related issues for various reasons.

Nevertheless, there are several precautions that Accufacts recommends that would prove helpful to minimize the consequences of a 42-inch pipeline rupture if the new pipeline is routed in such a sensitive location near the school. There is no requirement that a pipeline be placed in an existing or new ROW, or even in the middle of a pipeline ROW. The placement of the pipeline right-of-way and the actual location of the pipeline within the ROW should be carefully reviewed and assured so as to minimize the removal of trees that buffer between the proposed pipeline and the school. Such large and numerous trees can reduce the impact of blast and thermal radiation to structures and individuals, buying critical time that can markedly reduce injury or loss of life associated with a possible pipeline rupture. In addition the Buchanan-Verplanck Elementary School is constructed mostly of masonry that has a much greater tolerance, or survivability, during a rupture event. Such more hardened structures also serve as excellent radiation shields to shelter individuals from blast and thermal radiation. While there is no requirement, placement of school ball and play fields where individuals are most likely to be caught unsheltered, are best situated as presently located, in the shadow of the building away from the gas transmission pipeline. Sheltering substantially increasing the likelihood of individual survival should a pipeline rupture.

The stark reality is that pipeline safety regulations and industry standards do not provide FERC with siting precautions for such sensitive locations. Integrity management ("IM") pipeline safety regulations have attempted to instill certain additional safety precautions in such potential High Consequence Areas, or HCAs. Unfortunately, the first phase of these IM regulations, in effect for more than ten years now, have met with very mixed success as evidenced by many high profile pipeline ruptures indicating further improvements in IM regulation are warranted.[15]

Conclusion

It should be clear, from a review of the Exhibits and the above discussions, that the attempt to replace segments of the 26-inch pipeline segment with a 42-inch pipeline across Cortlandt are not in sync with the claimed increased gas demands identified in the current AIM FERC filing and subsequent DEIS. The operator appears to be positioning for further expansions on the Algonquin system and there are still serious bottlenecks on the looped system between the Stony Point and Southeast Compressor Stations that should have been included with this FERC application. The operator appears to be attempting to utilize horsepower compressor additions that can be permitted more quickly than pipe installations, in an attempt to overcome pipeline bottleneck inefficiencies in remaining segments spanning New York State.

Accufacts cannot overstress the importance of performing a full and complete process hazard safety analysis, independently demonstrating, especially to the public, that there will be no interplay between a possible gas transmission pipeline rupture and the IPEC facilities to failsafe shutdown or cause a loss of radiation containment in such a sensitive and highly populated area

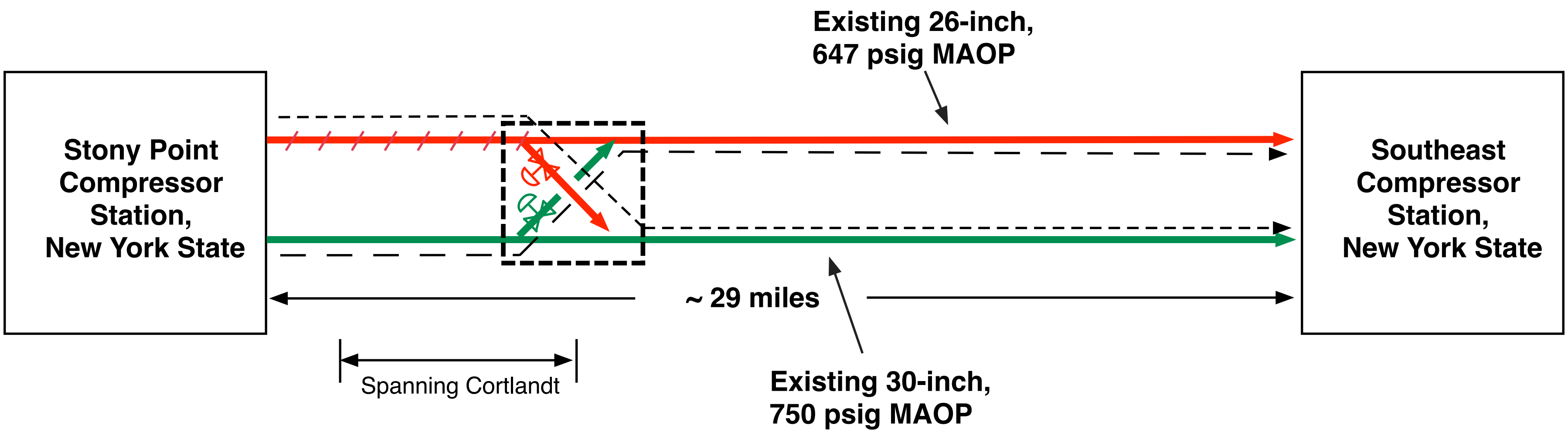
[15] Sites where significant numbers of people can gather near a pipeline, such as churches and schools, fall under the definition of High Consequence Areas, meriting additional pipeline safety integrity management precautions as per Subpart O of 49CFR§192 for gas transmission pipelines.

of the country. A proper and thorough hazard review and analysis may suggest another 42-inch route is warranted to assure the safety of IPEC from this gas transmission pipeline infrastructure. While Accufacts can appreciate attempts to keep certain information of such an important safety analysis somewhat secret, much more detailed effort is needed to assure the public that prudent and complete safety analysis efforts have been performed in choosing possible pipeline options in this location.

Richard B. Kuprewicz
President,
Accufacts Inc

Exhibit 1

Simplified Schematic - Algonquin Gas Transmission Pipelines
Stony Pt to Southeast Compressor Stations Looped Segment
Pre & Post AIM Project Proposal



26-inch 647 psig MAOP replaced with 42-inch, 850 psig MAOP

= New installation of pressure reducing/letdown valves ( ) and interconnections

= Larger Loop gas flow after AIM

= Smaller Loop gas flow after AIM

Accufacts Inc. 11/2/14 - Not to Scale

Exhibit 2 – AIM Project Overview Map from DEIS Showing General Location of Replacement of 26-inch with 42-Inch Pipeline Across Cortland, NY

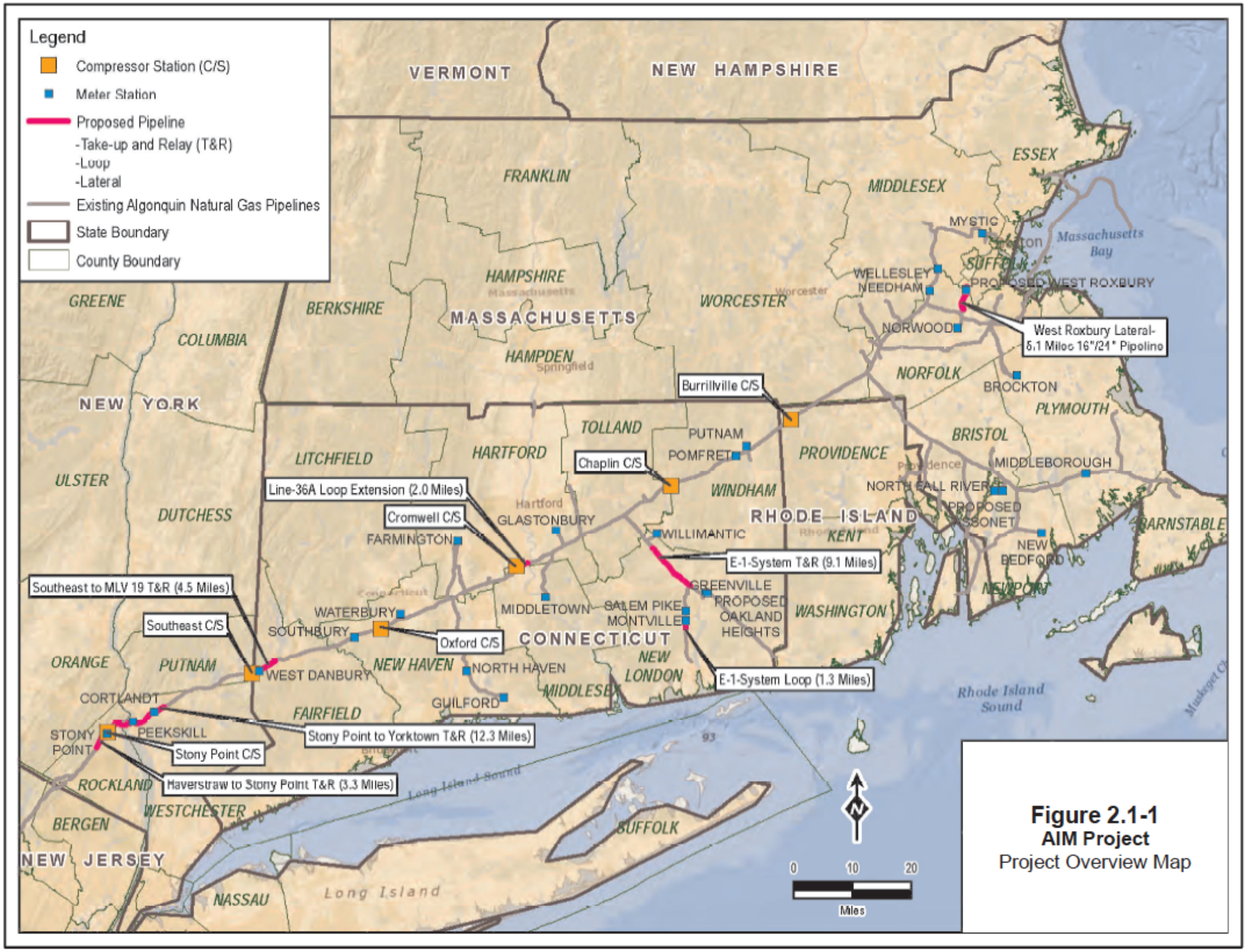


Exhibit 3 – Algonquin Pipeline Hudson River Crossings, Existing and Proposed from AIM DEIS