



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

1200 New Jersey Ave, S.E.
Washington, D.C. 20590

March 8, 2011

Mr. Paul J. Pike
Senior Project Executive
ExxonMobil Development Company
Greenspoint 4, GP4-450
16945 Northchase Drive
Houston, TX 77060-1905

Re: Federal Energy Regulatory Commission Docket PF09-11
PHMSA letter to APP dated March 3, 2010

Dear Mr. Pike:

On March 3, 2010, the Pipeline and Hazardous Materials Safety Administration (PHMSA) wrote to you requesting information about the nature of your proposed Alaska Pipeline Project (APP) and your plans for the submission of special permit applications for the project pursuant to 49 C.F.R. § 190.341. As you are aware, a special permit is an order by which PHMSA waives compliance with one or more of the Federal Pipeline Safety Regulations under the standards set forth in 49 U.S.C. 60118(c) and 49 C.F.R. § 190.341, subject to conditions and limitations set forth in the order. A special permit may be issued to a pipeline operator (or prospective operator) for specified facilities that, absent waiver, would be subject to the regulation. Although PHMSA has not yet received a written response to the March 3, 2010 letter, APP has engaged with PHMSA technical experts to discuss APP's plans and approach for addressing some of the issues described in the letter. PHMSA appreciates the project briefings you have provided over the past several months. PHMSA met with APP in November 2010 to discuss materials engineering, in December 2010 to discuss strain based design, and in February 2011 to discuss quality management and integrity management. Based on these briefings, and our understanding of the limited information that has been made available to my staff at this point of your project planning, PHMSA has determined that current regulations do not allow the approach you are proposing in certain areas and one or more special permit applications would need to be submitted and approved for the following:

External loads that exceed design allowable:

As prescribed in 49 CFR §§ 192.103, 192.105, 192.111, 192.112, 192.317, and 192.620, pipelines must be designed to limit stresses below the specified minimum yield strength (SMYS)

by a design factor (based on class location). APP has indicated that it intends to operate under the alternative MAOP provisions of Part 192. Most of the pipeline is anticipated to be located in a Class 1 location. For those segments located in a Class 1 location, the stress must be limited to 80% of specified minimum yield strength (SMYS). Lower allowable stresses would apply to other class locations. The regulations in 49 CFR §§ 192.103 and 192.105 also requires additional wall thickness sufficient to handle concurrent external loads, and require that the pipeline be protected from hazards that may cause the pipeline to sustain abnormal loads. APP has indicated that it will likely seek to use a strain based design (SBD) approach that would allow the pipeline to permanently sustain loads in excess of SMYS in areas of frost heave, thaw settlement, slope instability, and other areas of expected significant soil movement. APP proposes to carefully monitor strain to assure that external loads that exceed the pipe SMYS and approach ultimate tensile strength are detected and mitigated. The current Part 192 code, however, is largely based on hoop strength and internal pressure. Part 192 has no provisions for the material, design, operations and maintenance, or integrity management aspects of SBD, nor does API 5L, ASME/ANSI B31.8 or B31.8S. Therefore, a special permit application with detailed technical and engineering analysis of materials, design, and operating parameters would be required to allow PHMSA to make a determination as to whether APP's proposed use of SDB to allow the pipeline to permanently or indefinitely sustain external loads in excess of SMYS is consistent with pipeline safety.

Crack arrestor spacing

As prescribed in 49 CFR § 192.112(b), a pipeline that operates under the alternative MAOP provisions of Part 192 must be able to demonstrate that failure cracks will self-arrest within five (5) pipe joints with 90% probability, or within eight (8) pipe joints with 99% probability. If pipe toughness properties are such that this is not demonstrable, crack arrestors must be designed and installed to assure prescribed crack arrest performance. APP has indicated that crack arrestors are needed, but that its proposed approach would allow crack arrestor spacing greater than every eight (8) joints in areas of very low consequence. A special permit would be required if § 192.112(b) limits are exceeded for crack arrestor spacing.

Shielding coating

As prescribed in 49 CFR § 192.112(f), a pipeline that operates under the alternative MAOP provisions of Part 192, must use non-shielding coating. PHMSA recognizes fusion bonded epoxy (FBE) to be non-shielding. APP has indicated a preference for another type of coating. A special permit would be required in accordance with § 192.112(f), if APP uses a coating that shields cathodic protection current.

Additional special permits may be needed, based on PHMSA's future review of more specific design and project development information.

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A number of other candidate special permit topics have been discussed in these meetings, including but not limited to: post-construction proof pressure testing, valve spacing, depth of cover, and reliability based design. At these meetings, APP verbally committed to conduct a post-construction subpart J pressure test, install mainline block valves at the prescribed spacing, and bury the pipeline at or below the prescribed depth of cover in order to comply with Part 192, and that reliability-based design techniques would not be used. I request that APP confirm PHMSA's understanding of APP's commitments with respect to these issues in writing. To avoid project delays, PHMSA requests that APP submit special permit applications for the above items as soon as possible. PHMSA advises APP to submit its applications before making design-related decisions that could be adversely impacted by conditions that could be imposed in special permits.

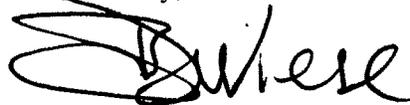
Additionally, to facilitate our review of your special permit application(s), please provide the information listed in Enclosures A, B, and C with your special permit application. Depending on your response, PHMSA may request additional information, including, but not limited to: data, reports, studies, documents, and independent third party analyses. PHMSA expects a detailed safety and environmental review of your special permit application to take a minimum of 12 months or more, depending upon the extent and nature of the request, any requirements for additional information or studies, and the quality of submittal documents.

While the Federal Energy Regulatory Commission (FERC) will be the lead agency for environmental reviews under the National Environmental Policy Act of the overall project, PHMSA is required to conduct an environmental review of any environmental impacts of its decision to grant or deny a particular special permit. An overview of the preliminary environmental information needed to support your special permit applications and facilitate PHMSA's environmental review is provided in Enclosure D. Each special permit application must include the information described in Enclosure D.

Your timely submission of permit applications and detailed safety and environmental information will enable PHMSA to properly analyze potential risks to public safety and to the environment that could result from our decision to grant or deny a special permit.

Please contact Dennis Hinnah, Deputy Director of Western Region at (907) 271-4937, or Jeffery Gilliam, Director of Engineering and Research Division, at (202) 366-0568, if you have any questions.

Sincerely,



Jeffrey D. Wiese

Associate Administrator for Pipeline Safety

cc: With Enclosures

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Enclosure A

Information Requested for the Anticipated Special Permit for Allowable External Loads

Information that would be needed in a special permit application includes:

- Arctic Engineering
 - Route data, geothermal, hydraulics, and geo-technical
 - Frost heave & settlement prediction models
 - Pipe to soil structural modeling
 - Frost heave lab tests
 - Frozen soil uplift tests
 - Heave field test comparisons
 - Full scale bend tests
 - Environmental loads – soil properties, hill sides, slide areas, settlement areas outside frost heave locations
 - Strain demand basis
- Materials
 - Pipe grade and wall thickness
 - Internal pressure effects – strain capacity and combined hoop stress on pipe
 - Pipe mechanical and chemistry properties, and steel and pipe rolling practices
 - Pipe weld end and body diameter and ovality requirements to meet on a consistent basis maximum girth weld misalignment assumptions for strain capacity
 - Pipe and steel inspection procedures
 - Pipe girth weld properties and procedures
 - Non-destructive pipe girth weld inspection practices
 - Coating application temperature effects – strength increase/decrease, work hardening (Y/T), and elongation effects
 - Allowable anomalies in pipe, weld and during operations and location of them – welds and pipe such as cracked welds, weld anomalies, pipe dents, and wall loss
 - Maximum girth weld misalignment and affect on strain capacity
 - Maximum girth weld flaws and there affect on strain capacity
 - Crack driving force for which a ductile crack becomes unstable as measured by a crack tip opening displacement (CTOD) test
 - Low strength steel and there affects on strain capacity
 - Wall loss anomalies in both circumferential and longitudinal direction and there affects on strain capacity
 - Pipe dents and there affect on strain capacity
- Pipeline Engineering and Construction
 - Strain demand and strain capacity basis
 - Design –
 - Design safety factors – review of arctic data, material data, and construction specifications
 - Reliability assessment - does it meet safety design factors
 - Strain capacity design basis – how are the below properties considered and destructive test results

- Weld strength overmatch
 - Steel and weld toughness and heat affected zone softening
 - Curved wide plate tests
 - Full scale plate tests
 - Full scale bend tests
 - Finite element simulations
 - Design safety factors – any needed adjustments
 - Allowable strain limit versus ultimate strain limit
- Construction
 - Construction specifications
 - Weld procedures – procedure testing, welder testing, and on-going verification tests during construction
 - Geotechnical verification parameters
 - Installation specifications – including verification parameters and any specification deviation parameters
 - Quality Assurance/Quality Control (QA/QC) practices to ensure engineering parameters are meet or exceeded
 - Training procedures
 - Inspection procedures
 - Documentation of construction, QA/QC and in-place installation findings
- Operations and Maintenance (O&M)
 - Pipeline segments
 - Type monitoring required and monitoring interval – normal and strain design locations
 - O&M integrity actions to mitigative findings – when and intervals
 - Training of O&M personnel – type
 - Integrity Management (IM) – how strain capacity design is integrated into IM
 - Strain monitoring – type and intervals
 - Strain intervention criteria
 - Reviews of program to meet special permit, code, specifications, procedures, and keep public, employees, environment, and facilities safe

Enclosure B

Information Request for the Anticipated Special Permit for Crack Arrestor Spacing

Information that would be needed in a special permit application includes:

- Evaluation of pipe toughness for ductile fracture arrest
- Prevention of Crack Initiation and Crack Growth
 - Mitigation measures to minimize likelihood of crack initiation
 - Maintenance activities to prevent crack initiation
 - Integrity assessments to detect cracks and crack-like defects
 - Remediation activities to repair cracks discovered before growth to critical flaw size
- Crack Arrestor Design
 - Type of material
 - Size, including thickness and length
 - Test results under conditions comparable to APP
 - Full scale
 - Frozen soil uplift tests
 - Heave field test comparisons
 - Full scale bend tests
- Crack Arrestor Location Criteria
 - Detailed, location-specific analysis of the effect on the environment along the route
 - Crack arrestor location and spacing in class 2, 3 or 4 areas demonstrating that potential incremental consequences are mitigated
 - Crack arrestor location and spacing criteria for locations in close proximity to TAPS or other infrastructure or at or near crossings with TAPS.
 - Valve assemblies
 - Compressor stations
 - Bridges
 - Electricity infrastructure
 - Populated areas (including areas that where people reside or congregate in Class 1 areas)

Enclosure C

Information Request for the Anticipated Special Permit for Coating Type

Information that would be needed in a special permit application includes:

- Coating specifications
 - Operating temperatures
- Coating application specifications
- Coating test results

Enclosure D

Guidance for Special Permit Applicants on Providing Environmental Information

The processing of an Alaska gas pipeline special permit (SP) application will involve an environmental analysis in accordance with the National Environmental Policy Act of 1969 (NEPA), the President's Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), and Department of Transportation (DOT) policy. To the extent PHMSA's grant or denial of your special permit request may constitute a Federal action under NEPA, in addition to analyzing any potential risks to public safety, PHMSA also analyzes any potential risks to the environment that could result from such grant or denial. Specifically, PHMSA evaluates whether the special permit would significantly impact the likelihood of a pipeline spill or failure as compared to the environmental status quo in the absence of the special permit.

PHMSA's environmental analysis must be incorporated into FERC's Environmental Impact Statement (EIS) for the project, as required by the Alaska Natural Gas Pipeline Act of 2004 (ANGPA) (15 USC 720b). ANGPA imposes time limitations on the FERC EIS, making the early submission of special permit applications critical. Once FERC determines that the project certificate application is complete, it must complete a draft EIS within one year. If PHMSA does not receive special permit applications and all necessary supporting information well in advance of the completion of FERC certificate application, it is likely that there will be insufficient time to properly conduct our safety and environmental analyses before the EIS deadlines.

To facilitate PHMSA's environmental analysis, the special permit applicant needs to provide certain environmental information. The purpose of this form is to provide guidance to the applicant on what information should be provided. Any information submitted by the applicant is subject to being made public.

I. Purpose and Need

[Describe pipeline and specify county and state where the affected segments located]

[Cite regulation(s) for which special permit (waiver) is sought. Paste relevant portion of regulation(s) here.]

[State the unique circumstances and reasons for your special permit request. Explain how the special permit will benefit you and the public.]

II. Site Description and Affected Environment

Describe the right-of-way and the type of environment in the vicinity of the affected pipeline segments including:

[Provide map if available]

[Describe extent to which landowners, businesses, and residential areas are in the vicinity including parks]

[Describe surface waters in the vicinity including wetlands]

[Describe drinking water aquifers in the vicinity]

[Describe soils and vegetation in the vicinity]

[Describe wildlife habitats including fisheries in the vicinity]

[Describe any geologic hazards]

[Describe any cultural resources that may be affected if a special permit were granted]

[Describe any socioeconomic impacts or special impacts on Native Americans, if any, if a special permit were granted]

[Describe the existing infrastructure that is within the Potential Impact Radius of the pipeline]

III. Mitigation Measures

[Describe the alternative mitigation measures you are offering to implement in lieu of compliance with the regulations for which you are seeking a special permit.]

IV. Analysis and Investigation of Alternatives

[Explain the basis for the particular set of alternative mitigation measures listed in section III above. Explain whether the measures will ensure that a level of safety and environmental protection equivalent to compliance with existing regulations is maintained.]

[Discuss how the special permit would affect the risk or consequences of rupture or failure (positive, negative, or none)]

[Discuss any effects on pipeline longevity and reliability such as life-cycle and periodic maintenance. Discuss any technical innovations as well]

[Discuss how the special permit would impact human safety]

[Discuss whether the special permit would affect land use planning]

[Discuss any pipeline facility, public infrastructure, and environmental impacts associated with implementing the special permit. In particular, discuss how any environmentally sensitive areas could be impacted]

[Evaluate alternatives to the special permit and any beneficial or adverse consequences of such alternatives.]

NOTE: APP should include the pipeline stationing and mile posts (MP) for the location or locations of the applicable *special permit segment(s)*.