



PROCESS PERFORMANCE IMPROVEMENT CONSULTANTS,

**Independent Assessment of Dakota Access Pipeline
U.S. Army Corps of Engineers
Easement Special Conditions**

**Process Performance Improvement Consultants, LLC
Prepared this Assessment Report at the Request of
Dakota Access and in Accordance With the District Court's
December 4, 2017 Order**

March 29, 2018

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Introduction

Dakota Access Pipeline (DAPL) hired Process Performance Improvement Consultants (P-PIC), LLC to conduct a third-party independent review of the Dakota Access Pipeline - Lake Oahe, ND easement special conditions imposed by the US Army Corps of Engineers, and to assess compliance with all such conditions as well as other integrity threats between the valve sites closest to each shore of Lake Oahe, ND as ordered. (Case 1:16-cv-01534-JEB Document 304 Filed 12/04/17 Page 1 of 8)

In developing the approach to the audit, P-PIC reviewed the following documents:

- Judicial Order on Remedy During Remand & Memorandum Opinion
- USACE Easement Special Conditions (Exhibit D)
- DAPL As-Built Overlay (Lake Oahe HDD Plan and Profile)
- DAPL As-Built Alignment Sheet (Lake Oahe Crossing Valve-to-Valve)
- DAPL Post Construction Easement Conditions and Threat Assessment
- Various documents provided in two-three binder sets
- Various documents as collected in the Lake Oahe Supplemental Documents binder
- Various documents provided on a jump drive for materials documentation

P-PIC personnel conducted audit work at DAPL's offices (1300 Main Houston, TX 77002) and at Wood Group's offices (17325 Park Row Houston, TX 77084) during March of 2018.

This report is formatted to show the USACE Conditions, followed by any applicable pipeline safety regulation, followed by a discussion and reference to the evidence showing compliance with the condition.

Condition #1 - Procedures and Specifications: For the pipeline segments crossing Lake Oahe and its "could affect" High Consequence Areas ("could affect" HCAs) (as defined in 49 CFR § 195.450), Grantee must meet the U.S. Army Corp of Engineers easement special conditions by developing, implementing, and maintaining for the duration of the easement all easement special conditions in specifications and procedures for the design, construction, testing, operation and maintenance specifications and procedures as required in 49 CFR §§ 195.100, 195.202, 195.302, and 195.402 and this easement.

For the purposes of these special conditions, "pipeline segment" is defined as Lake Oahe and the "could affect" HCAs noted in EA for the vicinity of Lake Oahe.

49 CFR §§195.100 states: This subpart prescribes minimum design requirements for new pipeline systems constructed with steel pipe and for relocating, replacing, or otherwise changing existing systems constructed with steel pipe. Etc.

Evidence of Compliance With Condition – The pipeline was designed with materials selected in accordance with Energy Transfer/Sunoco Pipeline engineering standards and material specifications which meet 49 CFR § 195.100. Evidence of compliance is found by

reviewing the as-built drawings and material records. This evidence is described in the several Conditions below.

49 CFR §§195.202 states: Each pipeline system must be constructed in accordance with comprehensive written specifications or standards that are consistent with the requirements of this part. Etc.

Evidence of Compliance With Condition - The construction of the pipeline was in accordance with the construction specifications provided in DAPL-WGM-GN000-Pre-SPC-0001 dated July 27, 2016 (Page 1.1.1 to 1.1.102 of Lake Oahe Supplemental Documents) and 195.202. This document also contains the required records for proof that construction was in accordance with the regulations and the specifications. These records were reviewed as described in the Conditions below and provide evidence of compliance.

49 CFR §§195.302 states: Except as otherwise provided in this section and in §195.305(b), no operator may operate a pipeline unless it has been pressure tested under this subpart without leakage. In addition, no operator may return to service a segment of pipeline that has been replaced, relocated, or otherwise changed until it has been pressure tested under this subpart without leakage. Etc.

Evidence of Compliance With Condition - The pressure testing was done in accordance with the aforementioned construction specifications and 195.302. Evidence of compliance is found by the review of the pressure test records. This evidence is described in the Conditions below and evidence of compliance.

49 CFR §§195.402 states: 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. This manual shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes made as necessary to insure that the manual is effective. This manual shall be prepared before initial operations of a pipeline system commence, and appropriate parts shall be kept at locations where operations and maintenance activities are conducted. Etc.

Evidence of Compliance With Condition - The operation and maintenance of the pipeline is in accordance with the manual of written procedures for normal operations and maintenance activities, and handling abnormal operations and emergencies 195.402. These procedures specify records to be developed to show compliance with the procedures. Evidence of compliance is found by reviewing the records (Page 1.2.1 to 1.2.236 of Lake Oahe Supplemental Documents). The evidence is further described in the Conditions below and evidence of compliance.

Condition #2 - Grantee will conduct all HDD work according to the HDD Construction Plan [August 18, 2015] (Final EA, Appendix B) that it has prepared, and implement the HDD Contingency Plan [March 11, 2011] (Appendix B) in the event of an inadvertent release.

Evidence of Compliance With Condition – Compliance with the easement condition is

evidenced by documentation from GeoEngineers, Perennial Environmental Inspection (Perennial) and direct interviews with the Perennial's President and the Grantee (Operator). GeoEngineers documented the execution of the horizontal directional drilling operation. They completed a three-volume report, including Daily Field Reports. Environmental Inspection reports were filed by Perennial Inspectors. Additional information was obtained through direct interviews with the pipeline Operator.

An environmental inspection report dated March 15, 2017 (noted that mud had breached the containment berm at mud disposal site 1804. The March 15, 2017 inspection report (Page 2.2 of Lake Oahe Supplemental Documents) noted that clean-up activities were in progress. The report noted that the discharge did not impact any water features and further states that the Environmental Control Devices (ECD) that had been installed performed as expected and helped prevent migration of the drilling mud to the water.

Two sites were listed as locations where drilling mud where land farmed: Mud disposal site 1804 (Lat/Long: 46.442735, -100.570903) and the 69th Street mud disposal site (Lat/Long: 46.415756, -100.454429). Per the Environmental Assessment requirements, permission was obtained from the landowner for land farming of drilling mud on the east side of the lake. The Pipeline Operator owned the property on the west side of the lake where drilling mud was also land farmed.

Condition #3 - *Grantee is not authorized to discharge hydrostatic test water under this easement.*

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by Perennial's President and a copy of email from the North Dakota Department of Health Division of Water Quality (ND DOH), dated December 7, 2016 (Pages 3.1 – 3.7 of the Lake Oahe Supplemental Documents), addressed to Perennial's Environmental Project Manager. A discussion was also held with the pipeline operator about the disposition of hydrostatic test water.

Hydrostatic Test water was created from two hydrostatic tests (a pre-pull test (i.e., test prior to installation of the pipe into the HDD) and a post-pull test (i.e., test after the pipe had been stalled in the HDD). Discharge of hydrostatic test water occurred once, after the post-pull hydrostatic test. Water from the pre-pull hydrostatic test was used to mix drilling mud. The documentation that was presented indicates that the grantee had a permit to discharge hydrostatic test water from the State of North Dakota, Permit NDG070568.

The hydrostatic test water discharge location is referred to in the letter from the ND DOH as discharge location 017H (Lat/Long: 46.437111, -100.602947). The hydrostatic test water discharge location was located on the right of way approximately 1000 feet east of MLV 380. The discharge of hydrostatic test water did not impact the USACE easement along the western shoreline of Lake Oahe (Environmental Inspection report, dated 3/24/17, related to the water discharge is located on Page 3.10), photos of the structure are on pages 3.11 – 3.12 and a map showing USACE easements, Page 3.13 of the Lake Oahe Supplemental Documents).

Condition #4 - Grantee will follow response, containment, mitigation measures, and cleanup measures described in SPCC, SWPPP, and ECP.

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by Perennial's President, Perennial's Environmental Inspection Reports and photos provided by the onsite inspector.

Environmental inspectors were assigned to cover portions of the pipeline segment. The inspector that provided the Environmental Inspection reports for the HDD site at Lake Oahe (including the water discharge site) was assigned to portions of Spreads 6 and 7. The single dewatering structure constructed of hay bales was located in Spread 7 approximately 900 feet from the west side drilling pad and approximately 1000 feet east of MLV 380 (See references in Condition 3 – Pages 3.11 – 3.13). The inspection report, dated March 24, 2017 (see Inspection report in Condition 3 – Page 3.10) indicated that the bale structure was found to be adequate and no issues were noted. Two of the inspection reports, dated 02/25/17 and 02/26/17, noted that there were no issues with SPCC or SWPPP compliance (Pages 4.1 and 4.2 of the Lake Oahe Supplemental Documents). The report dated March 15, 2017 noted that mud had breached the drilling mud containment berm at the mud disposal site 1804 and clean-up activities were in progress (described under Condition 2).

Condition #5 - Grantee will use temporary sediment control measures, such as silt fence, to minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction.

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by Perennial's President, Environmental Inspection Reports and photos provided by the onsite inspector.

There were three situations where sediment control was pertinent to these Special Conditions. First, the Environmental Inspection Report dated March 15, 2017 noted that mud had breached the drilling mud containment berm at the mud disposal site 1804 and clean-up activities were in progress. The report notes that the discharge did not impact any water features and further states that Environmental Control Devices (ECD) that had been installed performed as expected and helped prevent migration of the drilling mud to the water. Second, each drilling pad was constructed by solid, military grade security fencing precluding the release of water and sediment (See photos, Page 4.3 and 4.4 of the Supplemental Documents). Lastly, the hydrostatic test water discharge bale structure, described above in Special Condition 3 was noted in the reports (See Environmental Inspection Report, Dated March 24, 2017, Page 3.10 of the Lake Oahe Supplemental Documents) as functioning properly and as intended.

Condition #6 - Grantee will return all surface drainage contours and vegetation to preconstruction conditions as much as practical.

Evidence of Compliance With Condition – Compliance with the easement condition was

confirmed verbally by Perennial's President and by photos provided by the onsite inspector.

The return of drainage contours and re-establishment of vegetation was monitored by Perennial following completion of the work through August 2017. Per the Environmental Assessment, the re-vegetation requirement was >70% before monitoring can cease. Perennial monitored the sites between April and August 2017 (See photos, Pages 6.1 and 6.2 of the Lake Oahe Supplemental Documents) and has a Purchase Order for 2018 for continued restoration monitoring.

Condition #7 - Grantee will avoid groundwater contamination by implementing the protective measures set forth in the Project specific spill prevention, control and Countermeasures prepared by the contractor and in the Spill Prevention, Control and Countermeasure Plan [December 2014] (Final EA, Appendix A).

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by Perennial's President, and by Environmental Inspection Reports and photos provided by the onsite inspector.

No groundwater contamination was noted in any of the inspection reports (page 7.1 to 7.7 of the Lake Oahe Supplemental Documents) and during the interview with Perennial's President. Please note comments made in Condition 2 and 5 where a mud release was prevented from reaching a water feature by the installed ECD and clean-up efforts. No groundwater contamination was noted.

Condition #8 - The Grantee will submit the Facility Response Plan to the Oahe OPM for review prior to the operation of the pipeline.

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by copies of emails provided by the Operator. It was also confirmed in discussions with the Operator's Management and Emergency Response personnel.

Discussions with the Operator indicate that they provided copies (phone numbers were redacted) of the Facility Response Plan (FRP) and the Geographic Response Plan (GRP) to the USACE prior to operation of the pipeline (see response to Condition 9). Emails, dated between September 2017 and February 2018 (pages 8.1 – 8.11 of the Lake Oahe Supplement Documents), indicate that the Operator, the Spill Modeling Consultant and the USACE have been engaged with updating the spill plans and the spill model to then update the FRP. The update is due to be published April 2018.

Condition #9 - The Grantee will submit all plans not final at the time this easement is granted to the Oahe OPM for review and the incorporation of the U.S. Army Corps of Engineers comments prior to the Grantee's submittal to the Pipeline and Hazardous Management Safety Administration. These plans include, but are not limited to the following:

- a. Geographical Response Plan,***
- b. Operations and Maintenance Manual,***

- c. ***Risk Assessment (Integrity Management Plan), and***
- d. ***Spill Models (Using the National Hydrography Dataset by the U.S. Geological Survey)***

Evidence of Compliance With Condition – Compliance with the easement condition was evidenced by the following:

- a. An email dated December 14, 2016 shows that the ERAP and FRP were sent to the USACE (page 9.1 to 9.2 of the Lake Oahe Supplemental Documents). Additionally, an email dated July 26, 2016 shows the notification for an emergency response exercise/training with a request for permit to conduct the exercise (page 9.3 to 9.17 of the Lake Oahe Supplemental Documents).
- b. We were unable to locate correspondence or other documents supporting that this requirement was met. An email dated March 22, 2018 to USCOE was provided stating that the Operator was not able to locate this record of transmittal (page 9.18 of the Lake Oahe Supplemental Documents). Attached to that email was the current version of the Operator's Liquid Pipeline Operations and Maintenance Manual.
- c. We were unable to locate correspondence or other documents supporting that this requirement was met. An email dated March 22, 2018 to the USCOE was provided stating that the Operator was unable to confirm that the Integrity Management Plan was submitted as required. Attached to the email was the current version of the Operator's Dakota Access Pipeline Risk Assessment (Integrity Management Plan) and the version that was effective at the time of the easement approval. The only difference in the two documents is that the later document showed that DAPL was now included in the Operator's IMP. In addition, an email was provided with an attachment of meeting minutes, from a meeting with USACE and Energy Transfer. (page 9.19 to 9.24 of the Lake Oahe Supplemental Documents)
- d. An email dated April 11, 2016 shows that the Spill Model Report was provided to the USACE. An email dated February 7, 2018 shows that an update of the Spill Model Report was sent to the USACE. (page 9.25 to 9.27 of the Lake Oahe Supplemental Documents)

Condition #10 - *The Grantee must send any updated plans in the Facility Response Plan to the Oahe OPM for review by the U.S. Army Corps of Engineers Environmental Compliance Coordinators at the Omaha District Office and the Oahe Project Office within one year of the update.*

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by the Operator's Management, Emergency Response Personnel and by copies of correspondence between the Operator and the USACE.

Discussions with the Operator and a review of the correspondence and notes indicate that a consistent pattern of interaction between the Operator and the USACE with respect to updates to the Facility Response Plan (FRP), the Geographic Response Plan (GRP) and the Spill Model (see documents referenced in Condition 8, Pages 8.1 – 8.11 of the Lake Oahe Supplemental Documents). Additionally, the Operator indicated that discussions with the USACE and the Pipeline Hazardous Material and Safety Administration (PHMSA) indicate that the USACE will be able to provide comment on the response plans, but approval lies with PHMSA.

Condition #11 - *The Grantee shall provide as-built drawings for the crossing at Lake Oahe to the Oahe OPM within 6 months of the completion of pipeline construction.*

Evidence of Compliance With Condition – We were unable to locate correspondence or other documents supporting that this requirement was met. An email dated March 22, 2018 to the USCOE(USACE) was provided which states that the Operator was unable to confirm that the As-Built Drawings were submitted as required and therefore was providing a complete drawing package (page 11.1 of the Lake Oahe Supplemental Documents).

A copy of the as-built alignment drawings were provided to us for this audit. The two drawings that pertain to the Lake Oahe crossing (MLV 380 to MLV 390) are shown as pages 11.2 and 11.3 in the Lake Oahe Supplemental Documents.

Condition #12 - *All records demonstrating compliance with these easement conditions herein must be maintained for the duration of the easement.*

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by the Operator's Records Retention Policy including Schedule which is maintained by Facilities and Property Management (page 12.1 of the Lake Oahe Supplemental Documents). Records related to the design, construction and installation and location of pipelines, plants, storage facilities, terminals, compressor station, meter and regulator stations, etc. are retained for the life of the asset. This schedule addresses the physical facilities.

The Operator is developing a record retention process and plan for submittal of documents required to be maintained per the easement special conditions, not subject to the retention schedule above. The plan is scheduled to be completed before the anniversary of the pipeline being in service. Records are slated to be sent in annually on or before June 1 of each year to the OPM. The Operator has stated they will retain these documents for the life of the easement.

Condition #13 - *Pipeline Design Factor - Pipelines: Pipe installed must comply with a design factor of 0.50 or lower in the Lake Oahe crossing and "could affect" HCAs.*

Evidence of Compliance With Condition – Compliance with the easement condition included confirming that all pipe at the Lake Oahe crossing was constructed with API Specification 5L line pipe. The pipe in this area is 30-inch diameter, 0.625 inch wall thickness, X70 pipe. The design pressure of this pipe using the Barlow formula as required in 49CFR §195.106 is 2,916 psig. Using a design factor of 0.5, the resulting operating pressure is 1,458 by design. The pipeline MOP is 1,440 psig, less than the design operating pressure at a 0.50 design factor.

A review of MTR's, mill pressure tests, mill mechanical and chemical testing confirm that this pipe met the requirements of API 5L PSL 2 as specified by the Operator. The records which support the conclusion were contained on a jump drive provided by Wood. We have asked that this drive be retained along with the other documents reviewed.

The pipe diameter, grade and wall thickness met the tolerance requirements of the Operator's

pipe specifications and API 5L and the Operator's Quality Assurance Plan for this pipe (page 13.1.1 to 13.3.38 of the Lake Oahe Supplemental Documents).

The valves were purchased in accordance with the Specification for 30-inch Ball Valve (pages 2073 to 2075) A review of the valve MTRs confirm their operating pressure at 1440 psig which is the pipeline's MOP at a 0.5 design factor.

Condition #14 - Pipe Girth Weld – Nondestructive Tests: Grantee must nondestructively test all girth welds in accordance with 49 CFR §§195.228, 195.230 and 195.234.

49 CFR §§195.228 requires that each weld and welding must be inspected. The acceptability of a weld is determined by visual inspection in API 1104, Section 9 or Appendix A, alternate acceptance criteria based on fitness for service. Welds inspected visually also require a second level of inspection through non-destructive evaluation.

Evidence of Compliance With Condition – Compliance with the easement condition was determined by confirming that all welding was performed in accordance with API 1104, with acceptability standards per Section 9 of that standard; visual inspection was used as the first level of inspection. Evidence of inspection was found by reviewing Welding Inspection Daily Reports during the period in which welds were made on pipe from the valves on either side of Lake Oahe, Valves 380 to 390. The number of welds made each day and their disposition, either accepted or rejected was noted on each Daily Report form. A table of welds was reviewed and the number of welds reflected in the table corresponded to the number of welds made (Volume 3 of 3, pages 2490 – 2554, exact pages in footnote*).

49 CFR §§195.230 describes management of welds rejected by inspection and their repair.

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by records which indicated one rejected weld in the affected area on weld # BHDD02036 (p. 2532). The repair was documented and accepted inspection was documented (p. 2535 and 2539). The completed welding inspection forms provide evidence of compliance with this condition.

49 CFR §§195.234 describes requirements for non-destructive evaluation of welds.

Evidence of Compliance With Condition – Compliance for the easement condition was determined by confirming NDE for all welds. The Federal regulations require that 10% of mainline welds and 100% of tie-in welds be examined and evaluated. The requirements of the Easement stipulated 100% non-destructive evaluation of all welds. Welding Inspection forms were reviewed and compared to the table that accounted for each joint of pipe and each weld made. A completed welding inspection form, indicating acceptance was found for each weld (p.2490 – 2554, exact pages in footnote). The page numbers of the Welding Inspection form corresponding to each weld was created to provide assurance that all welds had acceptable non-destructive evaluation.

* Volume 3 of 3, pages 2490, 2491, 2493, 2519, 2523, 2526, 2529, 2530, 2532, 2533, 2534, 2536, 2537, 2541 – 2552 and 2554.

Condition #15 - Pressure Test Level: *The pre-in-service hydrostatic test for mainline pipe must be to a pressure producing a hoop stress of either: a minimum 100% specified minimum yield strength (SMYS) or a minimum of 1.25 times maximum operating pressure (MOP) for eight (8) continuous hours for pipeline segments using a design factor of 0.50 or less.*

Evidence of Compliance With Condition – Compliance with the easement condition included confirming that the pressures tests were in accordance with Operator procedures and the pipeline safety regulations. A thorough review was performed of the following pressure test records:

- MLV 380 pressure test package, Test No. 6658
- MLV 390 pressure test package, Test No. 6657
- Lake Oahe HDD pre-pull hydro records, no test number, test not required by regulation
- Lake Oahe post-pull hydro records, Test No. 6754

These records confirm that pressure testing met the requirements of a pressure test level to a minimum of 1.25 times the MOP of the pipeline for 8 continuous hours. These documents were contained in Volume 1 of 3 pages 254 to 435.

Condition #16 - Assessment of Test Failures: *Any pipe failure occurring during the pre-in service hydrostatic test must undergo a root cause failure analysis to include a metallurgical examination of the failed pipe. The results of this examination must preclude a systemic pipeline material issue and the results must be reported to the Operations Project Manager at the Oahe Project Office (Oahe OPM) within 60 days of the failure.*

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by a memo created by Wood Group dated 3/6/2018 and conversations with Wood group personnel confirm that no pressure test failures occurred (Page 16.1 of the Lake Oahe Supplemental Documents).

Records indicated that there were no pressure test failures for the pre-drill pressure test, the post drill pressure test, MLV 380 pressure test and MLV 390 pressure test.

Condition #17 - Coatings for Trenchless Installation: *Coatings used for directional bore, slick bore and other trenchless installation methods must be capable of resisting abrasion and other damage that may occur due to rocks and other obstructions encountered in this installation technique.*

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by the Operator's Plant Applied External Fusion Bonded Epoxy Pipe Coating specification (pages 1995 to 2014, volume 3 of 3), which states the acceptable coating systems for the body of pipe. The coating used for the pipe for the Lake crossing consisted of two layers. This first layer was a fusion bond epoxy (FBE) coating that was applied with 14 to 16 mills of thickness. The second layer was an abrasion resistant overlay (ARO) with 40 to 50 mills

of thickness.

All pipe for the HDD was manufactured and coated at Welspun in Little Rock Arkansas. Review of the documents from the pipe/coating mill (Welspun) showed the following:

- The pipe surface was prepared per specification
- The coating application was performed per specification
- The coating thicknesses met specification
- The coating was tested for anomalies and those found were repaired per specification.

The records which support the conclusion were contained on a jump drive provided by Wood. We have asked that this drive be retained along with the other documents reviewed.

These coating systems and coating thickness are typical for pipelines to be installed by HDD and meet the Operator's specifications.

Condition #18 - Pipe Coating: Pipe coatings must be non-shielding to cathodic protection (CP). Coatings such as tape and shrink sleeves would be shielding coatings to CP that protects the pipe from external corrosion. The application of a corrosion resistant coating to the steel pipe must be performed according to a coating application quality control program. The program must address pipe surface cleanliness standards, blast cleaning, application temperature control, adhesion, cathodic disbondment, moisture permeation, bending, minimum coating thickness, coating imperfections and coating repair.

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced in the Operator's pipe coating specifications, both mill applied and field applied, which were for non-shielding coatings. The coating systems were FBE, which are known to be non-shielding. The records which support the conclusion were contained on a jump drive provided by Wood. We have asked that this drive be retained along with the other documents reviewed.

The mill applied coating systems were applied in accordance with the pipeline coating specification (previously cited). There are numerous documents prepared by the coating applicator, Wellspun and these were reviewed. These forms included:

- Blasting Inspection Report
- Abrasive Blast Parameter Report
- Powder Usage Report
- Acid Treatment Form
- Application Parameter Report
- Final Inspection Report
- Thickness Inspection Report
- Repair Report

A Quality Assurance Plan was developed by the Operator for both the ARO coating and the FBE coating systems (pages 18.1.1 to 18.1.17 and 18.2.1 to 18.2.17) of the Lake Oahe Supplemental Documents). These plans specify testing and inspection to achieve acceptable coatings, including raw material testing, incoming pipe inspection, abrasive blasting, acid treatment, coating application, on-line testing, off-line testing and retest of failures.

Condition #19 - Field Coating: Field joint coatings must be non-shielding to CP. Grantee must implement field girth weld joint coating application specification and quality standards to ensure pipe surface cleanliness, application temperature control, adhesion quality, cathodic disbondment, moisture permeation, bending, minimum coating thickness, holiday detection and repair quality. Field coating applicators must use valid qualified coating procedures and be trained to use these procedures.

Evidence of Compliance With Condition – Compliance with the easement condition included confirming the coating system used complied with the condition. The field applied coating specification (page 19.1.1 to 19.1.6 of the Lake Oahe Supplemental Documents) requires the use of a two-part epoxy coating system. These systems (list provided in specification) are non-shielding to cathodic protection. They are appropriate for pipe bending without compromise of the coating system and provide for appropriate moisture permeation.

The specification also addresses pipe cleanliness by use of abrasive blast, including providing and anchor pattern for proper adhesion, and inspection; cure times based on temperature; coating thickness measurements; coating holiday inspection; and coating repairs.

A review of the coating inspectors (3) credentials demonstrated that they had experience in pipeline coating inspection (page 19.2.1 to 19.2.11).

A review of the coating inspection reports showed that the coating was performed and inspected visually on a random basis (page 19.3.1 to 19.3.4) as called out in the field applied coating specification. Twenty-three of the approximately 134 weld coating locations were visually inspected and all met the Operator's Field Joint Coating specification. The coating was tested with a spark tester (jeep), before lowering the pipe into the HDD. These records also show any coating repairs that were made, using coating repair recommendations of the manufacturer (page 2016 to 2065 Volume 3 of 3).

Condition #20 - Construction Coating Survey after Installation: Promptly after a ditch for the pipeline is backfilled, but not later than three months after placing the pipeline in service, the operator must perform an assessment to ensure integrity of the coating using direct current voltage gradient (DCVG) or alternating current voltage gradient (ACVG). The operator must repair any coating damage classified as moderate or severe (voltage drop greater than 35% for DCVG or 50 dB μ V for ACVG) in accordance with section 4 and Appendix A of NACE SP0502-2008 (or latest edition referenced in 49 CFR § 195.3) within six months of the assessment.

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by the post construction coating survey, which was conducted by CORRPRO. The report from CORRPRO was found in Volume 2 of 3, pages 1874 to 1970, dated April, 2017. The report showed that there were no DCVG indications greater than the 35% threshold.

Condition #21 – Valves

- a. **Mainline valves with remote control or automatic shutdown for water crossings and reservoirs must be installed on either side of the crossing and additional mainline valves(s) installed either upstream, downstream, or both to protect the water body from the “could affect” HCA on either side of the water crossing. Mainline valves must either be located outside of the flood plain or have valve actuators and other control equipment installed so as to not be impacted by flood conditions.**
- b. **Mainline valves with remote control or automatic shutdown must contain transit inhibit switches that prevent the valves from shutting at a rate (and in conjunction with pumps being shutdown) so that no pressure surges can occur, or other damage caused by unintended valve closures or too fast of a closure.**
- c. **Mainline valves must be remotely controlled and actuated or automatic shutdown, and the Supervisory Control and Data Acquisition (SCADA) system must be capable of closing the valve and monitoring the valve position, upstream pressure and downstream pressure so as to minimize the response time in the case of a failure. Remote power backup is required to ensure communications are maintained during inclement weather. Mainline valves must be capable of closure at all times. If it is impracticable to install a remote controlled valve, Grantee must submit a valve design and installation plan to the appropriate Oahe OPM to confirm the alternative approach provides an equivalent level of safety.**
- d. **Mainline valves in the pipeline segment must have actuation capability (i.e., remote control shut-off, automatic shut-off, manual shut-off where personnel are in proximity, or alternative equivalent technology) to ensure pipeline ruptures are promptly mitigated based upon maximum valve shut-off times, location, and spacing specified.**
- e. **For each mainline valve that is a remote-control shut-off or automatic shut-off valve, the operator must conduct a point-to-point verification between SCADA displays and the mainline valve, sensors, and communications equipment in accordance with 49 CFR § 195.446(c) and (e), or an equivalent verification.**

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed through interviews with the Operator’s Control Center personnel, including a review of schematics and instrumentation from their SCADA-based control system.

- a) Mainline valves that are installed on either side of the crossing at Lake Oahe. The valves are installed with motor operators and can be remotely actuated from the Operators Control Center in Houston (see photos on pages 21.5 and 21.6 of the Supplemental Documents). On the system schematic, there are referred to as ND-41 and ND-42. ND-41 is referred to elsewhere in this document as MLV-380. ND-42 is also referred to in the document as MLV-390. Confirmation that the valves are not located within the flood plain was provided by the Operator’s Project Manager (see email, dated March 21, 2018, page 21.10 to 21.14) of the Lake Oahe Supplemental Documents).

- b) The mainline valves installed on either side of Lake Oahe are remotely actuated and remotely controllable from the Operator's Control Room. The over-pressure surge analysis evaluated the closure rate of each valve on the system, including valves MLV-380 and MLV-390, to determine the rate of closure necessary to prevent an unanticipated pressure surge resulting from a valve closure (Page 21.2.1 to 21.2.46 of the Lake Oahe Supplemental Documents). Several valves on the system were adjusted to slow the rate of closure. Valves MLV-380 and MLV-390 are set at the manufacturer's recommended closure rate. This and the automatic pump shutdown logic in the Supervisory Control and Data Acquisition (SCADA) system prevent an over-pressure surge at this location.
- c) All mainline valves on this system are remotely operated from the Operator's Control Center in Houston, including MLV-380 and MLV-390. Both valves have an upstream and downstream pressure sensor that can be monitored by the Controller (see schematic photo on pages 21.16 to 21.17 of the Lake Oahe Supplemental Documents. The SCADA control schematic also shows valve position, transit and communication status. Remote back up power is provided at both locations to maintain communications during inclement weather for a minimum of 6 hours in the event of a loss of primary power.
- d) Both MLV-380 and MLV-390, have actuation capability (i.e., remote control shut-off and manual shut-off (when personnel are in proximity)).
- e) A point-to-point verification between SCADA displays and mainline valve, sensors, and communications equipment for MLV-390 and MLV-380 was conducted on March 17, 2017 March 19, 2017 respectively) prior to start-up of this section of the pipeline (see pages 21.7 to 21.15 of the Lake Oahe Supplemental Documents)

Condition #22 - Supervisory Control and Data Acquisition (SCADA) System: Grantee must develop, install, operate, and maintain a SCADA system to provide remote monitoring and control of the entire pipeline segment in accordance with 49 CFR Part 195 requirements.

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed by interviews with the Operator's Control Center personnel, including a review of schematics and instrumentation from their SCADA-based control system.

The Operator utilizes Supervisory Control and Data Acquisition (SCADA) System to monitor and control pipeline operations. The version of the SCADA operating system being used is Oasis DNA 7.5. Control Center operations are consistent with Control Room Management requirements in CFR 195.

Condition #23 - Computational Pipeline Monitoring (CPM) Leak Detection: The pipeline segment must have a computational pipeline monitoring (CPM) leak detection system in accordance with 49 CFR § 195.134 and must have adequate pressure sensors at pump stations, laterals, mainline valves and liquid flow volume measurement along the pipeline at inflows, outflows and spaced along the pipeline to perform accurate leak detection. The pipeline segment must be operated as a

continuously pressurized pipeline (with no pressure, slack line pipeline segments). If the pipeline segment is operated as a slack line pipeline segment, an operating plan must be developed, reviewed by a responsible third party independent expert engineering company and submitted to the Oahe OPM for "no objection" prior to being implemented by Grantee.

Evidence of Compliance With Condition – Compliance assessment with the easement condition was confirmed through interviews with the Operator's Control Center personnel and a review of schematics and instrumentation from their SCADA-based control system. This review also includes a discussion of **LEAKWARN** which is the Operator's current Computational Pipeline Monitoring Leak Detection System (CPM).

LEAKWARN is a hydraulic-based computational model that utilizes data provided by the SCADA system. It monitors over-short and line pack conditions in increments of 1 min, 3 min, 6 min, 10 min, 15 min, 30 min, 1 hour and longer intervals. The system is pressure and temperature compensated. The system has a graphical interface that the controller can visually monitor the system leak detection status. The system also alarms when leak detection trigger points are exceeded. The pipeline system, including the Lake Oahe crossing, has pressure and temperature sensors at each valve location. Pump station and laterals also have pressure, temperature, and flow rate instrumentation. There are no laterals that impact this crossing. This pipeline is operated as a continuously pressurized system. As such, there was no requirement to obtain and independent third-party review.

Condition #24 - Grantee will minimize or avoid impacts on soils by implementing the mitigation measures described in the DAPL Project's Spill Prevention Control and Countermeasure Plan [December 2014] (SPCC), Storm water Pollution Prevention Plan [July 2015] (SWPPP), and Environmental Construction Plan [April 2015] (ECP) as well as requirements of applicable state and federal permits.

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally by Perennial's President, and Perennial's Environmental Inspection Reports (page 7.1 to 7.7 of the Lake Oahe Supplemental Documents) and photos provided by the onsite inspector (page 3.1.1 and 3.1.2 of the Lake Oahe Supplemental Documents).

A single dewatering structure constructed of hay bales was located in Spread 7 approximately 900 feet from the west side drilling pad and approximately 1000 feet east of MLV 380. The inspection report, dated March 1, 2017, indicated that the bale structure was found to be adequate and no evidence of erosion was found.

As noted above, an environmental inspection report dated March 15, 2017 noted that mud had breached the drilling mud containment berm at mud disposal site 1804 and clean-up activities were in progress. The report notes that the discharge did not impact any water features and further states that the Environmental Control Devices (ECD) that had been installed performed as expected and helped prevent migration of the drilling mud to the water.

Condition #25 - Overpressure Protection Control: *Grantee must limit mainline pipeline segment overpressure protection to a maximum of 110% maximum operating pressure (MOP) during surge events consistent with 49 CFR § 195.406(b). Before commencing operation, Grantee must perform a surge analysis showing how the pipeline segment will be operated to be consistent with these overpressure protection conditions. Grantee shall equip the pipeline with field devices to prevent overpressure conditions. Remotely actuated valves or automatic shutoff valves should be fitted with devices that will stop the transit (intentional or uncommanded) of the mainline valve should an overpressure condition occur or an impending overpressure condition is expected. Sufficient pressure sensors, on both the upstream and downside side of valves, must be installed to ensure that an overpressure situation does not occur. Sufficient pressure sensors must be installed along the pipeline to conduct real time hydraulic modeling, and which can be used to conduct a surge analysis to determine whether pipeline segments have experienced an overpressure condition.*

49 CFR §§195.406(b) states: No operator may permit the pressure in a pipeline during surges or other variations from normal operations to exceed 110 percent of the operating pressure limit established under paragraph (a) of this section. Each operator must provide adequate controls and protective equipment to control the pressure within this limit.

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by a surge analysis, which was conducted by Fluid Flow Consultants, with a report issued on June 2, 2017 (page 21.2.1 to 21.2.46). This report concludes that all surge pressures are less than 110% of MOP with the control logic in place.

The results and equipment requirements of the over-pressure analysis, have been included in the SCADA based operating system. The valves at the Lake Oahe crossing, MLV-380 and MLV-390, have been installed to close at a rate that does not over-pressure the system beyond 110% of MOP. MLV-380 and MLV-390 are not fitted with devices that stop the transit of the valves. The closure rate and the automatic shutdown of pumps prevent over-pressure at this location. As noted above, there are upstream and downstream pressure sensors and temperature sensors at each valve (all are remotely operated) that allow the operator to conduct real-time hydraulic modeling that is provided by the **LEAKWARN** system.

Condition #26 - Cathodic Protection: *The initial Cathodic Protection system must be operational within six (6) months of placing a pipeline segment in service. Cathodic Protection will be operated and maintained per applicable codes and the Grantee's 'Operations and Maintenance Manual'. Wall thickness testing will be performed in-lieu of periodic hydro tests. The Grantee shall send the inspection reports to the Operations Project Manager at the Oahe Project Office (hereinafter the Oahe OPM).*

Evidence of Compliance With Condition – Compliance with the easement condition included confirming that the cathodic protection for this segment was installed. The cathodic protection was active on the day the pipeline was tied in to the existing pipeline at the main line valves, MLV 380 and MLV 390. This was just before the pipeline went into service.

A Close interval survey (CIS) was conducted by CORRPRO in June of 2017, within two weeks of the in-service of the pipeline, June 1, 2017. This report shows the cathodic protection potential readings at the rectifiers and CP test stations from MLV 380 to MLV 390. This report is on pages 1663 to 1802, Volume 2 of 3. All readings met regulatory and Operator requirements.

Another CIS will be performed for the entire pipeline within two years of the pipeline being placed in service in accordance with PHMSA regulations and Operator procedures.

A review of the cathodic protection records while interviewing the corrosion control manager, showed that the pipeline's cathodic protection system is performing in accordance with the pipeline safety regulations and the Operator's Operations and Maintenance Manual.

The Operator will run an in-line inspection device within two years of the pipeline being in service; in accordance with their procedures. The device used will be able discern any metal loss on the pipeline. If metal loss is found, calculations using ASME B31G or AGA RSTRENG will be performed. These calculations relate metal loss to a remaining safe operating pressure as compared to a pressure test to 1.39 times the MOP. This wall thickness testing will be done with each running of a metal loss in-line inspection device.

The Operator performs a CIS every 5 to 7 years in conjunction with in-line inspection per procedures.

The Operator is developing a record retention process and plan for submittal of documents supporting these conditions. Cathodic protection records are one record type that will be included in this plan. The plan is scheduled to be completed before the anniversary of the pipeline being in service. Records are slated to be sent in annually on or before June 1 of each year to the OPM.

Condition #27 - Interference Current Surveys: *Interference surveys must be performed over the entire pipeline segment within six months of placing the pipeline in service to ensure compliance with applicable NACE International Standard Practice 0169-2007 (2007 or the latest version incorporated by reference in § 195.3) and 0177 (2007 or the latest NACE standard version, since NACE SP 0177 is not incorporated by reference in 49 CFR § 195.3) (NACE SP 0169-2007 and NACE SP 0177) for interference current levels. If interference currents are found, Grantee must determine if there have been any adverse effects on the pipeline and mitigate such effects as necessary as required below.*

The interference current mitigation program for the pipeline segment must include:

- 1) As frequently as needed, including when new or uprated high voltage alternating current power lines greater than or equal to 69 kVA or electrical substations are co-located near the pipeline, but not to exceed every seven years conduct an interference survey (at times when static or dynamic voltages are at the highest values for a time period of at least 24- hours) to detect the presence and level of any electrical current that could impact external corrosion where interference is suspected;***

- 2) **Analyze the results of the survey to identify locations where interference currents are greater than or equal to 20 Amps per meter squared; and**
- 3) **a remedial action plan and apply for any necessary permits within four months of completion of the inspection or testing that identified the presence of deleterious electrical stray current.**
- 4) **Implement remedial actions to protect the pipeline segment from detrimental interference currents. Remedial actions must be completed promptly, but no later than one year after completion of the survey, or as soon as practicable after obtaining necessary permits. Remedial action means the implementation of measures including, but not limited to, additional grounding along the pipeline to reduce interference currents below 20 Amps per meter squared. The following criteria shall be used to determine when remedial actions are required.**
 - a) **AC-induced corrosion does not occur at AC densities less than 20 A/m² (1.9 A/ft²). The operator shall monitor these locations per (a) above.**
 - b) **AC corrosion is unpredictable for AC densities between 20 to 100 A/m² (1.9 to 9.3 A/ft²). These locations require an engineering assessment to determine if remediation is required.**

AC corrosion occurs at current densities greater than 100 A/m² (9.3 A/ft²). These areas require mitigation. Any location that is determined to require mitigation must be mitigated to reduce the AC current density to less than 20 A/m².

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by an AC survey that was conducted and AC mitigation that was performed. An AC mitigation report was developed and issued by Wood Group on May 17, 2016; page 1818 to 1872, Volume 2 of 3. This report looked at AC power lines in the vicinity of the pipeline and provided AC mitigation. The AC mitigation consisted of installing zinc ribbon parallel to the pipeline at select locations. Maps showing these locations from MLV 380 to MLV 390 are shown in the report.

CORRPRO performed a survey to assess for AC interference and the effectiveness of mitigation in April of 2017 (page 1874 to 1950 Volume 2 of 3). This report showed that the mitigation is effective and the AC interference does not exceed acceptance requirements.

The Operator has procedures in place that address periodic AC surveys and mitigation (page 1.2.1 to 1.2.236 Lake Oahe Supplemental Documents)

Per the corrosion control manager, in the Lake Oahe area, the Operator has installed real time monitoring systems for measuring AC, DC interference and other parameters. The devices and supporting software provide for access to real time data, historical data and trending of data. A review of the data on-line shows that criteria are being met. With real time monitoring, there is no need for a plan to perform a periodic AC interference survey.

Condition #28 - Corrosion Surveys: *Grantee must complete corrosion surveys for the pipeline segment within six (6) months of placing the respective CP system(s) in operation to ensure adequate external corrosion protection per NACE RP 0169-2007. The survey shall also address the proper number and location of CP test stations as well as alternating current (AC) interference mitigation and AC grounding programs per NACE RP 0177. At least one (1) CP test station must be located within each "could affect" HCA with a maximum spacing between test stations of one-half mile.*

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced by the results of A close-interval survey (CIS) that was conducted by CORRPRO in June of 2017. This report shows the cathodic protection potential readings at the rectifiers and CP test stations from MLV 380 to MLV 390. This report is on pages 1663 to 1802, Volume 2 of 3. All readings meet regulatory and Operator requirements. There is one test station near MLV 380, one on the edge of the Missouri River at and one near MLV 390.

This survey also included an AC interference survey. There were no AC indications of concern based on the Operator's and industry criteria.

The Operator stated that a CIS will be run this year for the entire pipeline, as related by the Operator corrosion control manager. This survey is required by Operator procedures and the pipeline safety regulations, which requires CIS within two years of the completion of construction (49 CFR. § 195.573).

Condition #29 - Initial Inline Inspection (ILI): *Within three (3) years of placing a pipeline segment in service, Grantee must perform a baseline ILI using a high-resolution Magnetic Flux Leakage (HR-MFL) tool, high resolution (HR) deformation tool, and an ultrasonic crack detection tool or equivalent of each.*

Evidence of Compliance With Condition – Compliance with this easement condition is evidenced through the Operator's Pipeline Integrity Management Plan (page 31.1.1 to 31.1.68 of the Lake Oahe Supplemental Documents) which requires ILI within two years of the pipeline being placed in service using a high resolution (HR) magnetic flux leakage (MFL) tool. Per discussions with the Operator's personnel, the ILI tools are planned to be run by June 2019.

Condition #30 - ILI Deformation Tool: *Grantee must perform a high-resolution deformation tool run after completion of the hydrostatic strength test and backfill of the pipeline segment and prior to placing the pipeline segment in service. Grantee must remediate pipe in accordance with 49 CFR Part 195 and Subpart O. All expanded pipe must be remediated in accordance with PHMSA's "Interim Guidelines for Confirming Pipe Strength in Pipe Susceptible to Low Yield Strength for Liquid Pipeline" dated October 6, 2009 or any subsequent PHMSA update to this guideline.*

Evidence of Compliance With Condition – Compliance for the easement condition is evidenced by an ENDURO caliper ILI survey that was conducted on March 24, 2017, with a report issued on March 25, 2019 (pages 30.1.1 to 30.1.13 of the Lake Oahe Supplemental Documents). The report shows no dents, no ovalities and no expansions. The report further states there were no irregular welds or debris indications.

Condition #31 - Future ILI: *Future ILI inspections must be based upon pipeline segment integrity threats and must include as a minimum of a high-resolution Magnetic Flux Leakage (MFL) tool, high resolution deformation tool, and an ultrasonic crack detection tool or equivalent of each. ILI inspections must be performed on the entire pipeline segment on a frequency consistent with 49 CFR § 195.452(j)(3) assessment intervals or on a frequency determined by fatigue studies or anomalies found that are indicative of actual operating conditions.*

- 1) ***Conduct periodic close interval surveys (CIS) along the entire pipeline segment with current interrupted to confirm voltage drops in association with periodic ILI assessments under § 195.452(j)(3). Pipeline segments under Lake Oahe would not be able to CIS due to water segment and depth of directional drill across Lake Oahe.***
- 2) ***CIS must be conducted within three (3) months of running ILI surveys when using a five (5) year ILI frequency, not to exceed sixty-eight (68) months, in accordance with 49 CFR § 195.452 (j) (3) assessment intervals.***

CIS findings must be integrated into ILI Tool findings.

49 CFR §§195.452(j)(3) States: Assessment intervals. An operator must establish five-year intervals, not to exceed 68 months, for continually assessing the line pipe's integrity. An operator must base the assessment intervals on the risk the line pipe poses to the high consequence area to determine the priority for assessing the pipeline segments. An operator must establish the assessment intervals based on the factors specified in paragraph (e) of this section, the analysis of the results from the last integrity assessment, and the information analysis required by paragraph (g) of this section.

Evidence of Compliance With Condition – Compliance for the easement condition is evidenced by a risk analysis, which looked at threats to the integrity of the pipeline; and which was published by Dynamic Risk on June 26, 2016 (page 31.1.1 to 31.1.49 of the Lake Oahe Supplemental Documents).

The Pipeline Integrity Management Plan (IMP) is being revised (page 31.2.1 to 31.2.68 of the Lake Oahe Supplemental Documents) . The revision is scheduled to be completed by the end of April, 2018. The current IMP and the revised IMP both outline the companies process for determining integrity threats and performing integrity assessments with the appropriate tools. The plan follows the requirements of the pipeline safety regulations.

The revised procedures will require that a CIS be conducted within 3 months of an ILI inspection. The procedures also will require integration of the two sets of data in order to determine appropriate prevention and mitigation activities.

As of the date of this report, the new procedures were still under development. The information provided is based on interviews with Operator personnel.

Condition #32 - Internal Corrosion: *Grantee must limit basic sediment and water (BS&W) to 0.5% by volume and report BS&W testing results to A in the annual report. Grantee must report upset conditions causing BS&W level excursions above the limits on the annual report.*

- 1) ***Grantee must run cleaning pigs twice in the first year and as necessary in succeeding years based on the analysis of oil constituents, liquid test results, weight loss coupons located in areas with the greatest internal corrosion threat and other internal corrosion threats. At a minimum in the succeeding years following the first year Grantee must run cleaning pigs every five years unless analysis necessitates earlier action.***
- 2) ***Liquids collected during cleaning pig runs, such as BS&W, must be sampled, analyzed and internal corrosion mitigation plans developed based upon lab test results.***

Grantee shall review the program at least quarterly based upon the crude oil quality and implement adjustments to monitor for, and mitigate the presence of, deleterious crude oil stream constituents.

Evidence of Compliance With Condition – Compliance for the easement condition is evidenced through the Operators operating procedures (1.2.1 to 1.2.236 of the Lake Oahe Supplemental Documents) which require that cleaning pigs be run every quarter, and which exceeds the frequency stated in this condition. Samples of liquids from these pigs is collected and analyzed to determine if liquid water is present. If water is present, it will be analyzed. To date, there has not been enough water collected to be able to allow analysis.

Per the corrosion control manager, there is an internal corrosion control coupon located at the pig receiver downstream of Lake Oahe. All corrosion coupon results that were reviewed were below the acceptable rate (per procedure) of 1 mil per year. Above 1 mil per year, treatment may be required. No water has been found at this coupon location. Per the Operator's procedure, corrosion coupons are pulled every six months and the corrosion growth rates are determined and documented.

The overall internal corrosion control program will be reviewed annually per the Operator's revised procedures. Quarterly, the quality of the product stream will be reviewed. The new procedures were not implemented at the time of this report.

Condition #33 - Pipeline Patrolling: *Grantee must patrol the pipeline segment right-of-way on a two (2) week interval but not exceeding three (3) weeks, for at least twenty-six (26) times each calendar year, to inspect for excavation activities, ground movement, unstable soil, washouts, leakage, or other activities or conditions affecting the safe operation of the pipeline segment.*

Evidence of Compliance With Condition – Compliance with the easement condition is evidenced in the Operator's Part 195 Maintenance Manual, Subpart F, last revised on 01-01-2018 and right-of-way (ROW) reports from March 2017 until the present (see pages 33.1 –

33.18 of the Lake Oahe Supplemental Documents). The evidence that was reviewed indicates is routine pattern of ROW patrolling is consistent with the requirements specified in the Operations and Maintenance Manual, Section 195.412: Inspections of Right of Way and Crossings under Navigable Waters.

The ROW was inspected 47 times between March 1 of 2017 and March 1 of 2018. This exceeds the requirements of the pipeline safety regulations. The maximum interval between patrols did not exceed three weeks.

Condition #34 - The Grantee shall conduct the following training exercises:

- 1) ***A full scale open water and a full scale winter/ice exercises at Lake Sakakawea and Lake Oahe. A full scale exercise will occur once every 3 years (triennial cycle) with the location and type of exercise occurring on alternating schedules (e.g. open water exercise at Lake Oahe the first triennial cycle, followed by winter exercise at Lake Sakakawea the following triennial cycle, followed by a winter exercise at Lake Oahe the following triennial cycle, etc.). The first exercise will occur within the first 3 years after the pipeline becomes operational.***
- 2) ***To facilitate USACE staff involvement, the Grantee shall notify the USACE Environmental Compliance Coordinators at the Omaha District Office and the Oahe Project Office at least ninety (90) days prior to initiation of the training exercises. The Grantee shall also solicit the participation of key stakeholders (federal, state, local, and Tribal) in these exercises.***

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed by a discussion with the Operator's Management, Emergency Response Personnel and a review of the operator's Drill Exercise Schedule.

Per the operator, a full scale, open water spill exercise was conducted on Lake Sakakawea in August 2016. The next spill exercise will be a winter/ice drill on Lake Oahe during 2019 (see page 34.1 of the Supplemental Documents). The Drill Exercise Schedule that was reviewed is a three-year outlook for emergency response drills. It includes the Lake Oahe winter/ice drill scheduled for 2019. This meets the within three-years first exercise requirement of the easement.

Per the operator, for the 2016 exercise, notification was provided to the USACE. Specific details of the 2019 exercise have not been developed, however, the USACE is currently involved with the review and update process for the operator's Facility and Geographic response plans, both of which, will be completed in April 2018. Based on the evidence that was reviewed and discussions with the Operator's management and emergency response personnel, appears this easement condition will be met, including requests for participation of all key stakeholders (federal, state, local, and Tribal).

Condition #35 - *Within 1 month following the pipeline becoming operational, the Grantee shall provide for an all-weather access and collection point downstream of the HDD crossing at Lake Oahe. The Grantee shall provide an equipment storage facility on non-federal lands that includes a fenced permanent storage area for winter and open water spill response equipment. The storage facility should be placed in a strategic location and near existing facilities that would support access to the water. The Grantee will coordinate with the USACE and any other applicable stakeholders to obtain all necessary permits and approvals prior to construction for any ground disturbing activities associated with these facilities. The storage facility should contain sufficient response equipment at a minimum to mitigate an unintended worst-case release for this Lake crossing.*

Evidence of Compliance With Condition – Compliance with the easement condition was confirmed verbally with the Operator’s Management, Emergency Response Personnel, and by photos of the permanent storage facility and purchase orders detailing items purchased for the facility. Evidence was also provided by correspondence between the Operator and the USACE on spill modeling evaluation and discussions between September 2017 and February 2018.

The permanent storage facility has been constructed on the Operator’s property (non-federal lands) on the west side of Lake Oahe. The roads are maintained to provide all weather access to the site and access to the lake. The Operator has not been able to obtain access to boat launching ramps on tribal property south of the easement, however, there are a number of public boat launching sites on the east and west sides of Lake Oahe that are available for year-round for access. Per the Operator, the storage facility along with support from the Oil Spill Response Operator located in Bismarck, ND, has sufficient equipment to mitigate an unintended ‘worst case’ release for this crossing.

Condition #36 - Overall Condition from EA: *Grantee is generally responsible for commitments made and mitigation measures in the Final Environmental Assessment, Grantee Pipeline Project Crossing of Flowage Easements and Federal Lands (July 2016), including all Plans includes within Appendices thereof, even if they are not specifically made as a condition to this easement.*

Evidence of Compliance With Condition – Compliance with the easement condition was evidenced by a review of the actions taken by the Operator to address the easement conditions which indicate compliance with commitments required by the Environmental Assessment except as noted herein.

Additional Assessment, “Other Integrity Threats”: *Dakota Access, with input from the Tribes, shall select a third-party independent expert engineering company to review easement conditions and regulations, and to assess compliance with those conditions as well as other integrity threats. Order date December 29, 2017.*

Evidence of Compliance With Condition – Compliance with this condition is evidenced by a risk analysis, which looked at threats to the integrity of the pipeline; and which was published

by Dynamic Risk on June 26, 2016 (page 31.1.1 to 31.1.49 of the Lake Oahe Supplemental Documents).

Dakota Access has a Pipeline Integrity Management Plan (IMP) (page 31.2.1 to 31.2.68 of the Lake Oahe Supplemental Documents). The current IMP outline the companies process for determining integrity threats and performing integrity assessments with the appropriate tools. The plan follows the requirements of the pipeline safety regulations.

The IMP addresses the nine known threats to pipeline integrity. The easement conditions also address these threats as follows:

- External Corrosion; this threat is addressed by effective coating systems, adequate cathodic protection, periodic in-line inspection, post construction coating surveys, close interval surveys, and by addressing stray currents; all conditions of the easement.
- Internal Corrosion; this threat is addressed by periodic cleaning pigs being run, sampling of any water found, periodic in-line inspection, and using inhibitors and biocide if internal corrosion is found; all conditions of the easement.
- Stress Corrosion Cracking; this threat is not directly addressed in the special conditions, however, the use of FBE coating systems and operation at pressures at less than a 0.6 design factor (the pipeline is designed to operate at a 0.5 design factor), renders the threat non-existent.
- Materials; this threat was addressed through the use of appropriate materials manufactured to exacting specifications, through the completion of a hydrostatic pressure test, and by use of in-line inspection; all conditions of the easement.
- Construction; this threat was addressed through the use of comprehensive written construction specifications, by having competent contractors and independent inspectors, through the completion of a hydrostatic pressure test, and by use of in-line inspection, all conditions of the easement.
- Equipment; this threat is not directly addressed in the special conditions, however, there is no equipment in the Lake Oahe Easement, this threat is non-existent.
- Incorrect Operations; this threat is addressed by having comprehensive written procedures for the operation and maintenance of the pipeline including patrolling and emergency response, all conditions of the easement.
- Weather and Outside Force; this threat is addressed in part due to the location of the pipe, deep underground, and in part through the procedures for operation and maintenance of the pipeline, all conditions of the easement.
- Excavation Damage; this threat is addressed in part due to the location of the pipe, deep underground, and in part through the procedure for operation and maintenance of the pipeline including an excavation damage prevention program and participation in one-call organizations, all conditions of the easement.

We are unaware of any additional threats for this pipeline and we see evidence that Dakota Access is monitoring for other integrity threats (see below; Additional Assessment, Bi-Monthly Reports)

Additional Assessment, Bi-monthly Reports: *The Court will require that Dakota Access file bi-monthly reports regarding the status of the pipeline during remand, beginning at the end of this month. Order date December 29, 2017.*

Evidence of Compliance With Condition – Compliance with this condition was evidenced by two filings made. The first was Filed on 12/29/17 which covered the period of June 1, 2017 to December 26, 2017. The second was Filed on 2/28/18 which covered the period of December 26, 2017 to February 23, 2018. Each report covered the 10 points identified in the Order.