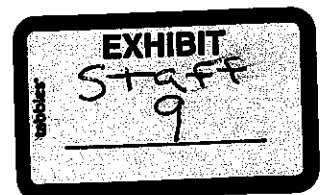


**BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

**DOCKET NO. HP14-002**

**IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN  
ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE**

**Direct Testimony of Robert E. McFadden, P.E.  
On Behalf of the Staff of the South Dakota Public Utilities Commission  
July 6, 2015**



1 **Q: Please state your name and business address.**

2

3 A: Robert Earle McFadden  
4 5729 B Logan Lane, Houston, Texas 77007

5

6 **Q: Describe your educational background.**

7

8 A: I hold a Bachelor of Science in Civil Engineering from Louisiana Tech University

9

10 **Q: By whom are you now employed?**

11

12 A: I am employed by REM Pipeline Consultants, LLC.  
13 I am President and majority owner of REM Pipeline Consultants, a pipeline  
14 engineering consulting firm which offers consulting services to midstream and oil  
15 and gas companies, investors, legal firms and governmental agencies on a wide  
16 variety of pipeline, pipeline facility and gas processing design and operational  
17 issues.

18

19 **Q: What work experience have you had that is relevant to your involvement on  
20 this project?**

21

22 A: I have over 40 years of experience in the pipeline industry in positions ranging  
23 from pipeline survey to engineering design, project management and supervision  
24 of transmission pipelines, gathering pipelines, pump stations, compressor  
25 stations, measurement, dehydration and treating facilities and virtually all aspects  
26 of pipelines, both onshore and offshore as well as domestic and foreign  
27 installations. As such, I am very familiar with the requirements of title 49 CFR  
28 Part 195 - Transportation of Hazardous Liquids by Pipeline and Part 194 -  
29 Response Plans for Onshore Oil Pipelines, which form the basis of the safe  
30 design and operation of Hazardous Liquids Pipelines in the US.

31

32 **Q: What Professional Credentials do you hold?**

33

34 A: I am a Licensed Professional Engineer in the State of Texas - License Number  
35 99488

36

37 **Q: What is the purpose of your testimony?**

38

39 A: My testimony is to state my opinions developed from my review of relevant  
40 portions of the application filed by Dakota Access, LLC with the South Dakota  
41 Public Utilities Commission related to the proposed Dakota Access Pipeline  
42 Project Energy Transmission Facility: SDCL 49-41B, together with related  
43 Docket filings. I was requested to develop opinions as to whether or not the  
44 proposed facilities will meet the design, construction, testing, operation and other  
45 requirements of Federal Pipeline Safety Regulations (49 CFR 195 - all subparts)  
46 and other applicable federal and state regulations. The testimony includes

1 specific discussion of areas of required notification and approvals from the  
2 Pipeline and Hazardous Materials Safety Administration (PHMSA). Specific  
3 areas of concern will be addressed in the testimony that follows.  
4

5 **Q: What methodology did you employ?**

6  
7 A: Methodology used in developing my testimony includes a review of the permit  
8 application, Dakota Access Pipeline Project Energy Transmission Facility: SDCL  
9 49-41B, Exhibits, responses to Interrogatories, and other documents included in  
10 Dakota Access, LLC Docket No HP 14-002. In addition I reviewed applicable  
11 areas of 49 CFR Part 195-Transportation of Hazardous Liquids by Pipeline, 49  
12 CFR Part 194-Response Plans for Onshore Oil Pipelines, Part 190 – Pipeline  
13 Safety Programs and Rulemaking Procedures, Part 199 – Drug and Alcohol  
14 Testing, the National Pipeline Mapping System and PHMSA regulations.  
15

16 **Q: On whose behalf was this testimony prepared?**

17  
18 A: This testimony was prepared on behalf of the Staff of the South Dakota Public  
19 Utilities Commission.  
20

21 **Q: Is an oil pipeline such as the proposed Dakota Access Pipeline considered**  
22 **a Hazardous Liquids Pipeline?**

23  
24 A: Yes, the proposed Dakota Access Pipeline is considered to be a Hazardous  
25 Liquids pipeline and thus is subject to 49 CFR Part 195-Transportation of  
26 Hazardous Liquids by Pipeline  
27

28 **Q: What is the PHMSA permitting approval process for an oil pipeline in**  
29 **interstate commerce?**

30  
31 A: PHMSA is the agency that enforces the Pipeline Safety Regulations for the US  
32 Department of Transportation as defined in the Title 49 Subchapter D – Pipeline  
33 Safety, Parts 190 thru 199. Procedures used by PHMSA in carrying out its duties  
34 regarding pipeline safety laws are prescribed in Part 190 – Pipeline Safety  
35 Programs and Rulemaking Procedures.  
36 Except for Part 194 – Response Plans for Onshore Oil Pipelines, PHMSA  
37 regulations do not require an operator to notify, apply for a permit or get approval  
38 from PHMSA for the construction or operation of a hazardous liquids pipeline.  
39 PHMSA receives copies of all Federal Energy Regulatory Commission (FERC)  
40 pipeline applications. FERC regulates the Interstate Transmission of Natural  
41 Gas, Electricity and Oil. PHMSA participates in FERC scoping meetings at their  
42 discretion and at the request of FERC. As such PHMSA monitors the design,  
43 construction and operations of interstate oil pipelines.  
44

45 **Q: What documents must be produced by the Applicant?**

1 A: There are a number of plans and documents that are required to be developed  
2 by the pipeline operator by PHMSA regulations.  
3 Specific plans and programs required under Part 195 – Transportation of  
4 Hazardous Liquids by Pipeline (Part 195) are as follows:

- 5
- 6 • Operating and Maintenance Procedures Manual which must contain
- 7 emergency procedures
- 8 • Integrity Management Program
- 9 • Damage Prevention Program
- 10 • Continuing Public Education Program (also referred to as a Public
- 11 Awareness Plan)
- 12 • Operator Qualification Program

13 Other PHMSA jurisdictional regulations also require written programs as  
14 indicated below:

- 15 • Part 194 – Response Plans for Onshore Oil Pipelines (Part 194) this plan
- 16 will detail the requirements for the operators Oil Spill Response Plan.
- 17 • Part 199 – Drug and Alcohol Testing (Part 199) This section covers drug
- 18 and alcohol testing of certain pipeline employees to be performed in
- 19 accordance with:
  - 20 ○ Anti-drug plan
  - 21 ○ Alcohol Misuse Plan
- 22 • National Pipeline Mapping System- Section 15 of the Pipeline Safety
- 23 Improvement Act of 2002 requires pipeline operators to submit geospatial
- 24 and other data to the National Pipeline Mapping System (NPMS).
- 25

26 **Q: What documents produced by the Operator must be approved by PHMSA?**

27

28 A: As previously stated, plans, programs and specific documents are not approved  
29 by PHMSA. However, the PHMSA inspection process reviews the documents for  
30 adequacy during compliance audits. They note deficiencies and require the  
31 Operator to address such deficiencies.  
32 Of the plans, programs and documents listed above, only the Oil Spill Response  
33 Plan requires specific approval from PHMSA.

34

35 **Q: What are the federal requirements for the Oil Spill Response Plan**  
36 **approval?**

37

38 A: PHMSA requires that two copies of the Oil Spill Response Plan be submitted to  
39 the Office of Pipeline Safety (OPS). PHMSA will review and approve the plan if it  
40 meets all of the requirements of Part 194 – Response Plans for Onshore Oil  
41 Pipelines. If PHMSA determines that the plan does not meet all of the  
42 requirements, PHMSA will notify the operator of any alleged deficiencies and will  
43 allow the operator to respond, including the opportunity for an informal  
44 conference on any proposed plan revisions and the opportunity to correct  
45 deficiencies. There is also an appeals process that the operator may initiate in  
46 the event that the operator does not agree with PHMSA's interpretation.

1 Part 194 requires that an operator of a pipeline for which a response plan is  
2 required, may not handle, store, or transport oil in that pipeline unless the  
3 operator has submitted a response plan meeting the requirements. Once the  
4 response plan is submitted to OPS, the operator may continue to operate the  
5 pipeline for up to two (2) years, pending approval or disapproval of the plan,  
6 provided that the operator has submitted a certification to OPS that the operator  
7 has obtained, through contract or other approved means, the necessary  
8 personnel and equipment to respond to the maximum extent practicable, to a  
9 worst case discharge or a substantial threat of such discharge. The certificate  
10 must be signed by the qualified individual or an appropriate corporate officer.

11  
12 **Q: Where is the Dakota Access Pipeline in this process?**

13  
14 **A:** The Operator states in interrogatories that they are in the process of developing  
15 the Oil Spill Response Plan for the Dakota Access Pipeline. PHMSA regulations  
16 require that the plan be submitted before the pipeline and related facilities are  
17 operated.

18  
19 **Q: What is PHMSA's inspection role during construction of the pipeline?**

20  
21 **A:** PHMSA inspections that take place during construction are to ensure that the  
22 pipeline is being built in compliance with the requirements of Part 195. PHMSA  
23 does not serve as the operator's quality control inspectors.  
24 Based on the construction schedule submitted by the operator in the FERC  
25 application, PHMSA will notify the operator in advance of construction  
26 commencement of their plan to inspect certain activities and request a current  
27 construction schedule. The operator will be notified which phases of construction  
28 that PHMSA wishes to inspect and when it plans to do so. In addition to specific  
29 construction requirements of Part 195, PHMSA's inspections will verify that  
30 activities in the field follow the operator's specific written construction  
31 specifications and standards. Field visits will focus on areas where PHMSA has  
32 encountered problems with other pipeline construction in the past, such as the  
33 proper execution of welding procedures, pipe handling, lowering in and tie-ins.

34  
35 **Q: What is PHMSA's inspection role after construction?**

36  
37 **A:** After the pipeline has been placed into service, PHMSA's primary inspection role  
38 is to ensure that the operator is operating the pipeline in accordance with the  
39 operator's pipeline specific procedures, plans and programs, and in compliance  
40 with specific regulatory requirements. These include operating, maintenance and  
41 corrosion control procedures and integrity management activities. A primary  
42 focus will be on verification that tests, inspections, patrols, surveys and other  
43 routine actions are being performed within the stipulated time frames and in  
44 accordance with the operator's procedures. Ensuring that the individuals  
45 performing such tasks are qualified and subject to a compliant drug and alcohol  
46 program in accordance with Part 199 is an integral part of those inspections.

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**Q: What is PHMSA's role in decommissioning the pipeline?**

A: Decommissioning is not a PHMSA regulated activity. However, if a pipeline is abandoned (i.e. permanently removed from service) operating and maintenance regulations must still be followed and are subject to PHMSA inspection. This usually occurs as a part of a regular compliance audit. PHMSA does require that the operator file a report of the abandonment with the NPMS.

**Q: Are there parts of the operator's application that PHMSA does not review?**

A: PHMSA does not review parts of the application that are not directly related to the design, construction and maintenance of the pipeline. These include such parts of the applications routing, necessity of the facilities and environmental impacts of construction.

**Q: Does PHMSA have authority to grant special permits that waive compliance with one or more of the Federal pipeline safety regulations under Part 195?**

A: Yes, PHMSA can grant waivers of compliance with certain regulations under Part 195, such as the maximum hoop stress percentage of Specified Minimum Yield Strength (SMYS) that a pipeline can be operated at in Class 1 areas being increased from 0.72% SMYS to 0.80% SMYS. Such Special Permits generally include additional requirements for testing and other restrictions and conditions.

**Q: Has the Dakota Access Pipeline requested a special permit as described above?**

A: No, Dakota Access Pipeline has not requested a Special Permit.

**Q: Is the Dakota Access Pipeline following all PHMSA procedural requirements?**

A: It appears that thus far, the Dakota Access Pipeline is following all PHMSA procedural requirements.

**Q: What are HCA'S?**

A: HCA's are High Consequence Areas. These are defined as

1. A commercially navigable waterway.
2. A high population area, which means an urbanized area delineated by the Census Bureau as having a population of 50,000 or more people or a population density of 1000 people per square mile.
3. Other populated area with a concentrated population such as an unincorporated town or designated commercial area.
4. An unusually sensitive area (USA), defined as a drinking water or ecological resource area that is unusually sensitive to environmental

1 damage from a hazardous liquids pipeline such as a community water  
2 intake, a source water protection area for aquifers, a wellhead protection  
3 area, an ecological resource, a migratory bird concentration area, an area  
4 containing endangered or imperiled species, as defined in Part 195  
5 section 195.6.  
6

7 **Q: Does the Dakota Access Pipeline pass through any HCA's in South Dakota**  
8

9 A: According to Dakota Access Pipeline, the pipeline route does not pass through  
10 any HCA's in South Dakota. A preliminary review of the alignment maps  
11 furnished with the permit application does not indicate that the pipeline route  
12 passes through any HCA's.

13 Dakota Access Pipeline also states in their interrogatories that there are no  
14 USA's within the pipeline route. Additional study needs to be done to confirm  
15 this. I reserve the right to amend my testimony should additional information  
16 confirm that the pipeline route does pass through any USA's.  
17

18 **Q: Are main line block valves planned to be installed at the proper locations?**  
19

20 A: Part 195 requires that block valves be installed at each of the following locations:

- 21 1. On the suction end and discharge end of a pump station in a manner that  
22 permits isolation of the pump station equipment in the event of an  
23 emergency.
- 24 2. On each line entering or leaving a breakout storage tank area in a manner  
25 that permits isolation of the tank from other facilities.
- 26 3. On a mainline at locations along the pipeline system that will minimize  
27 damage or pollution from accidental hazardous liquid discharge, as  
28 appropriate for the terrain in open country, or for populated areas.
- 29 4. On each lateral takeoff from a trunk line.
- 30 5. On each side of a water crossing that is more than 100 feet wide from  
31 high-water mark to high-water mark unless the Administrator finds in a  
32 particular case that the valves are not justified.
- 33 6. On each side of a reservoir holding water for human consumption.

34 Dakota Access Pipeline maps provided with the original permit submission  
35 indicates that valves are planned for the locations as prescribed above. There  
36 are a total of 31 main line block valves which are in addition to valves at the  
37 single pump station and at the launcher/receiver locations. Main line block  
38 valves appear to be properly spaced. Additional information is needed on the  
39 width of several of the streams to confirm that additional main line block valves  
40 are not required at these locations. I reserve the right to amend my testimony if  
41 subsequent information is obtained that indicates that additional valves are  
42 required.  
43

44 **Q: Does Part 195 require that the pipeline be protected from external and**  
45 **internal corrosion?**

1 A: Yes, it does. The pipeline is designed with an external corrosion coating of  
2 fusion bonded epoxy, 14-16 mils in thickness, which is an accepted industry  
3 standard for external corrosion protection on a pipeline. In addition, an  
4 impressed current will be designed to protect the pipeline. Internal corrosion will  
5 be controlled by limiting the water and sediment content of oil shipped through  
6 the pipeline. The applicant has stated that the design of the cathodic protection  
7 system will comply with Part 195 Subpart H and the National Association of  
8 Corrosion Engineers Recommended Practice 0169

9

10 **Q: What provisions will be made for detecting leaks on the pipeline?**

11 A: In addition to planned continuous monitoring of flows and pressures by  
12 Supervisory Control and Data Acquisition (SCADA) system to be installed with  
13 the pipeline, the applicant has committed to installation of a "state of the art"  
14 Computational Pipeline Monitoring software system, which will continuously  
15 monitor the pipeline for leaks.

16

17 **Q. Does this conclude your testimony?**

18

19 A: Yes.



## **Robert E. McFadden, P.E.**

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### **Experience Summary:**

Forty years of international and domestic experience in management of a broad range of pipeline, oil and gas, fiber optic and associated facilities projects. Served as President of Universal Ensco, Inc. from October, 1999 to December of 2005, prior to that time worked for eighteen years in various positions from Project Manager to Vice President/Business Unit Director. Responsibilities have included all phases of project execution including conceptual layout, cost estimating, engineering design, direction of surveys, permitting, right-of-way acquisition, drafting, material specification and procurement, contract preparation, solicitation and evaluation of bids, contract negotiations, construction supervision, litigation management and expert testimony. Served as Vice President of Houston Operations for Energy Management and Services Co. from March of 2006 through August of 2007. Formed REM Pipeline Consultants, LLC in September, 2007.

### **Career highlights include:**

- **President** of REM Pipeline Consultants, LLC providing strategic, management, conceptual design, economic evaluation, engineering, drafting, material procurement, logistics and support services for pipelines and related facilities for domestic and international projects.
- **President** and Chief Operating Officer of a major pipeline engineering firm. Managed fifteen Business Units with as many as 800 employees encompassing all phases of project management, engineering, survey, drafting, design, quality assurance, safety, construction management, inspection services and GPS equipment rental for pipelines, compressor stations, pump stations, tank farms, underground storage fields, production facilities, gathering systems, metering, SCADA and related facilities. Developed and implemented successful strategies to facilitate growth and maintain continuous profitability through volatile market conditions.
- **Provided** overall technical supervision for the design, material acquisition and construction management and logistics for the repair of an existing pipeline installation of three compressors and an Amine gas treating plant in Afghanistan for the Task Force for Business Stability Operations of the US Department of Defense. Provided training, planning, material procurement and logistics for an 89 km 12.75" OD new pipeline to ensure long term supply for existing needs and growth. Project included training local Afghan personnel to do the construction work themselves including specialized welding training and training in the operation of compressors, dehydration and gas treating equipment
- **Directed** project oversight for engineering of the Turkish portion of the Baku Ceyhan crude oil pipeline project.
- **Directed** and managed the process of obtaining ISO 9001 certification for all of company's work product processes.

- **Provided** expert witness services and testimony for pipeline related suits, arbitrations, and mediations.
  
- **Presented** a paper to an Underground Gas Storage Symposium held at the Dagang Oil Field in China in conjunction with provision of Design Supervision of the 4000 Km West to East Pipeline.
  
- **Project Director** for development of a major pipeline project to carry natural gas from Egypt to markets in Jordan. Project included a crossing of the Gulf of Aqaba in 3,000 feet of water.
  
- **Project Director** for numerous offshore pipelines, risers, subsea taps and subsea tie-ins including complete project management, design, MMS permitting, procurement, contractor selection and construction management in depths ranging from 10 fsw to 300 fsw.
  
- **Project Director** for alliance contracts with several major international energy companies. Projects performed include numerous crude oil, products and natural gas pipelines, pump stations, compressor stations and other facilities as well as planning and project implementation assistance for domestic and foreign pipeline system projects.
  
- **Traveled** over to twenty foreign countries on five continents to develop business, negotiate contracts and review ongoing operations.
  
- **Project Director** for CNG Transmission Corporation 8000 HP electric drive grass roots compressor station design, 49,000 HP Enron Bammel Station, and 12,000 HP Enron Gallup Station designs.
  
- **Project Director** for a pipeline engineering operation in Thailand, which furnished services to the Petroleum Authority of Thailand, including design and construction management of pipeline, metering, treating and fiber optic projects.

**Education:**

Bachelor of Science, Civil Engineering, Louisiana Tech University, 1974

**Registration and Professional and Civic Organizations:**

Professional Engineer Texas Registration No. 99488

Member US Department of Commerce District Export Council

Member American Society of Civil Engineers

Past Chairman - Board of Directors YMCA of Greater Houston

Past Chairman Board of Advisors Nick Finnegan Counseling Center

Houston Pipeliner's Club