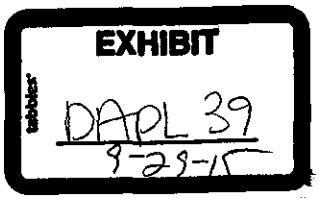
Aaron Dejoia

Rebuttal Testimony



BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	)	HP14-002

REBUTTAL TESTIMONY OF

AARON DEJOIA

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT

August 14, 2015

Q. Please state your name, present position and business address.

A. My name is Aaron DeJoia. My business address is: 4626 CR 65 Keenesburg, Colorado 80643. I am employed by Duraroot, LLC as a Principal Soil Scientist/Agronomist.

Q. What is your educational and professional background?

A. I have a BS degree in Agriculture (Agronomy) and a MS degree in Agronomy (Soil Fertility) from Kansas State University.

I have worked as an environmental soil scientist since 2000. Currently I am a Principal Soil Scientist/Agronomist with Duraroot, LLC based in Colorado. A majority of my work since 2004 has been focused on the reclamation of drastically, disturbed lands in agricultural, prime farmland, and rangeland/pasture settings throughout the United States. I have studied the effects of various restoration techniques and helped to design and implement successful reclamation plans for oil and gas exploration pads, pipeline right-of-ways, mines, and roadways. I have particular expertise in agricultural land and saline/sodic soil restoration.

Q. What professional credentials do you hold?

A. I am a Certified Professional Soil Scientist, through the Soil Science Society of America, Certified Professional Agronomist and Certified Crop Advisor, through the American Society of Agronomy, and a Certified Inspector Sediment and Erosion Control. All of these certification programs have required me to take and pass written tests and show education and professional experience in the chosen industry. I have had to sign ethics pledges for all three certification that require me to provide ethical services to my clients and the greater community. I have also passed the practical field examination for being licensed as a soil classifier in the state of North Dakota and am currently in the process of

providing the required paper work and work history to the Professional Soil Classifier Board in North Dakota. The certification that I currently hold are the highest certifications that can be obtained for Soil Scientists and Agronomists in the United States.

Q. Have you previously submitted or prepared testimony in this proceeding in South Dakota?

A. No.

Q. What is the purpose of your testimony?

A. My testimony is in response, or to rebut, direct testimony filed by various interveners, and expert witness, Brian Top. In addition, I will address concerns PUC Staff Expert witnesses raise. I will testify specifically address issues within my area of expertise; which includes soil, water, vegetation, agronomic and reclamation related issues.

Q. Did you read testimony in preparation for your written rebuttal?

A. Yes.

Q. What fact witness, or intervener, testimony did you read?

A. I read testimony submitted by the following individuals: Corliss Faye Wiebers, Delores Assid, Devona Smith, Janice Elaine Petterson, Kevin John Schoffelman, Linda Ann Goulet, Margaret Hilt, Marilyn Murray, Matthew Anderson, Mavis Parry, Nancy Stofferhan, Peggy Hoogestraat, Rod and Joy Hohn, Ron Stofferhan, Shirley Oltmanns, Tom Stofferhan, Ruth Arends, Allen Arends, Lorrie Bacon and Sherrie Fines, Orrin Geide, Kent Moeckly, Sue Sibson and Laurie Kunzelman.

Q. Are you aware that, aside from Kent Moeckly and Sue Sibson, the listed fact witnesses either own land or have a strong connection to land along the proposed Dakota Access Project?

A. Yes

Q. Based on the work you do, do you understand the concerns of these land owners have?

A. Absolutely. Having grown up in a small rural community in North Central Kansas that is supported by the local agricultural community, I appreciate how important the land is to those that depend on it for their livelihood. In addition, I read about the family and historical connection these land owners have to their land. Their concerns are well received and I am glad for this opportunity to respond to those concerns.

Q. Did you note several common concerns among the land owners? If so, what were they.

A. I did notice several common concerns. I will address each of them individually:

I. NATURAL WATER WAY RECONSTRUCTION

Natural waterway reconstruction after pipeline installation is an important aspect for any well-functioning ecosystem. It is very important for the natural waterways crossed by the right-of way to be reconstructed properly to protect both the sensitive environment and valuable pipeline asset. The slopes approaching the natural waterways will need to be returned to the natural contours and stabilized using appropriate erosion control devices and seeded with appropriate seed mixes. The use of erosion control devices will stabilize the slopes until the newly planted vegetation can establish. In the actual waterway it is

critical that the pre-construction channel slope is returned so that the natural stream habitat and natural flow process are not altered.

II. AFFECT ON STOCK DAMS

In my opinion, the Dakota Access pipeline will have no effects on dams that are either not crossed or are in close proximity of the pipeline right-of-way if erosion control devices are properly placed and maintained during construction as outlined in the Storm Water Pollution Prevention Plan.

III. PRODUCTION ABILITY OF AFFECTED TILLABLE ACRES

The yield potential of tillable lands after pipeline right-of-way restoration is required to be at least equal to pre-disturbance yield potential levels. I have worked on many pipeline projects throughout the nation, including some of the best farmland in North America, and in all cases that I know of these lands have been as productive following pipeline construction as they were prior to construction of the pipeline. Pipeline projects that I have worked on and have helped or observed the return of farmland to its original state of productivity include Rockies Express (Nebraska, Kansas, Missouri, Illinois, and Indiana), Bison Pipeline (Montana, and North Dakota), Alliance Pipeline (Iowa) and others. In a very few instances some of the farmland did take longer than the allotted crop loss payment period to return years but these were a very few areas that had special circumstances that were returned to pre-disturbance yields once limiting factors were addressed

Pipeline construction is not always completed during optimal site conditions however if a good plan is utilized and proper reclamation techniques are implemented returning the

productivity of the sites can be accomplished. Time is a critical element for returning farmland productivity to it pre-disturbance productivity.

Based on my experience if proper reclamation techniques are utilized and landowners/tenants work with the pipeline company productivity can be returned to pre-disturbance conditions within 3 years. However, if the landowner/tenant interrupt the reclamation process good intention practices such as, additional unnecessary tillage, can short circuit the process and cause productivity lags for extended periods. However it should be recognized, the reclamation process is conducted on natural, dynamic systems and I have witnessed isolated areas where it has taken longer than 3 years to return crop productivity to pre-disturbance conditions. Keep in mind, these have been very isolated and typically it was due to a variety of site-specific situations, but in all instances the land was eventually returned to full productivity at the end of the project.

IV. REHABILITATION OF GRAZING/PASTURE GROUND

The rehabilitation (revegetation) of grazing/pasture land takes time, effort and science but certainly can be accomplished if an appropriate revegetation plan is used. As with all revegetation of disturbed areas the soils are the foundation and must be managed appropriately during the construction and revegetation process. Dakota Access is addressing this very important resource by segregating topsoil during the construction phase.

Once the soil is protected, an appropriate seed mixture is required to effectively protect the replaced soil and begin to redevelop the natural vegetative community. Dakota Access is in the process of working with the NRCS and landowner/tenants to develop appropriate and desired seed mixtures for the construction areas. Proper restoration can

only be achieved if the planted seed mixture and resulting crop has a non-compacted root zone to explore and obtain required water and nutrients. Compaction can occur when the soil compresses and soil porosity is decreased by forces exerted by heavy equipment such as tractors, grain carts, combines, dozers and other construction equipment travel across the soil surface. Decompaction is the process of physically removing the induced from the soil. Decompaction can be performed by either mechanical or natural processes. The mechanical process typically used in agricultural setting to remove soil compaction is deep ripping. Deep ripping generally is a process where the soil is lifted and shattered. Crop roots are the primary natural process to alleviate soil compaction the crop roots travel through the pore space and as they grow they widen the pore spaces and decrease soil compaction. Natural process take longer to remove compaction therefore to enhance the restoration processes mechanical decompaction is the preferred alternative. Dakota Access is committed to all best management practices, including rooting zone decompaction in areas where decompaction would help promote growth and sustainability.

Finally, replanting of grazing/pastureland must be performed in an appropriate manner that provides a conducive environment for germination plant, establishment and growth. The seeds must be planted at the right depth, right time and into an appropriate seed bed. Dakota Access is currently working with the local county, state, and federal agencies to develop appropriate seed mixes for the project. The use of reclamation techniques and seed mixes such as those developed and being developed on by Dakota Access will provide the rehabilitation success that is expected for this project.

V. REHABILITATION OF SOIL STRUCTURE

With any soil excavation procedure soil structure (pores) will be damaged and some soil structure will definitely be destroyed during the construction process. However, it should be noted that a majority of soil structure loss is due to the excavation and movement of the soil material and compaction. Research indicates that the soil structure and associated pores can quickly redevelop in the soil profile. Sencindiver and Ammons (2000) and Haering et al. (1993) indicate that in mine soils, soil structure in the surface horizons have developed soil structure within 1 to 2 years. The time it takes for the surface horizon to begin to redevelop soil structure has been anticipated and is one of the reasons Dakota Access is offering crop loss payments for multiple years post construction. The development of soil structure in the subsurface horizons can take longer depending on the degree of decompaction and root growth that can be established. Dakota Access Agricultural Mitigation Plan includes soil compaction relief of the subsoil to ensure that rooting is not limited by soil compaction.

VI. REHABILITATION OF LAND'S NATURAL CONTOUR AND SLOPES

According to all documents that I have reviewed Dakota Access is committed to returning the land back to original contour and slopes.

VII. WEED CONTROL IN AFFECTED AREAS

Weed management of a pipeline right-of-way is necessary to achieve reclamation success. The use of Integrated Weed management (IWM) is the most effective and appropriate weed management. IWM evaluates the uses cultural, biological, mechanical and chemical weed control methods based on weed pressure, weed type, reclamation time frame and establishing vegetation. It should be noted that IWM protocols understand that

a fully functioning rangeland or cropping system is the most effective manner to control weedy species.

Cultural practices may include limited access, or education to limit the spread of weedy species by construction personnel and equipment. Cultural practices are some of the most effective ways to inhibit the spread of noxious and invasive weeds along a pipeline right-of-way. Biological practices are usually of limited use along the right-of way due to limited options and time required for control. However, biological control of weedy species may be reviewed especially near sensitive resources and organic farms.

Mechanical control (i.e. Mowing, clipping, hand removal) of weeds is an effective manner of weed control during the beginning stages of right-of-way reclamation. Mechanical weed control general is effective against weedy annual species and certain perennial species (i.e. Canada Thistle) especially in the initial year or two of plant establishment in range or pasture land when the reclamation crop is susceptible to chemical applications. Mechanical methods allow for the newly establishing crops to continue their life cycle and start to outcompete the weedy species. Chemical methods (herbicides) of control will be evaluated on a site by site basis as with all other potential control methods. In certain instances the use of broadcast spraying may be utilized however the preferred chemical control method will be spot spraying. Spot spraying allows for a more directed application that will limit the potential damage to desired species that are within the right-of-way. In organic farming areas chemical weed control will not be utilized to ensure that the organic status of the land is maintained.

VIII. OVERALL SUCCESS OF RESTORATION

Restoration success will be evaluated on a site-by site review. In agricultural areas site restoration will be successful when the post-construction yield potential is equivalent to existing off-ROW areas. This determination will be conducted through visual and data review of crop growth and yields. In rangeland areas restoration success is initially achieved when the site is returned back to 70 percent of off-ROW coverage as defined in the Storm Water Pollution Prevention Plan.

Q. Did you read expert witness Brian Top's testimony?

A. Yes.

Q. Do you have any comments regarding his concerns for topsoil segregation and stockpiling?

A. Yes. Mr. Top is correct, separating topsoil and stockpiling topsoil must be done carefully and correctly.

Q. Explain whether Dakota Access' plans for soil separation and stockpiling are adequate to protect the soil.

A. The method for topsoil and subsoil removal and segregation is outlined in Dakota Access' Agricultural Mitigation Plan. According to Dakota Access' plan all topsoil and subsoil will be separated and segregated in separate stockpiles. Topsoil will be salvaged to a depth of up to 12 inches. The top 12 inches of topsoil contain the most plant nutrients and microbial life and is critical for successful reclamation. After the pipeline is installed and all drain tiles are fixed the segregated subsoil stockpile will be returned to the trench. Once the trench line is replaced the subsoil will be decompacted to 18 inches or to a little less than the depth of the drain tiles, as to not compromise the drain tile integrity. After

the subsoil is decompacted the topsoil will be replaced and smoothed with a tillage implement, if necessary.

The topsoil and subsoil methods outlined in Dakota Access' agricultural mitigation plan is a common and successful practice in the pipeline industry. This method of topsoil salvage and segregation is the most successful and scientifically proven method to protect the soil resource and return the soil to 100 percent yield potential as quickly as possible. In addition, this method of topsoil segregation provide the highest level of protection for the topsoil and is intended not to allow for mixing of the topsoil and subsoil resources.

Q. Mr. Top testified that pores in subsoil will be destroyed. Do you agree?

A. To a point. With any soil excavation procedure soil structure (pores) will be damaged and some soil structure will definitely be destroyed during the construction process. However, it should be noted that a majority of soil structure loss is due to the excavation and movement of the soil material and compaction. To limit this decrease in soil structure from excavation processes Dakota Access will only remove the topsoil, up to 12 inches, and only the subsoil directly over the trench line. Research indicates that the soil structure and associated pores can quickly redevelop in the soil profile. Sencindiver and Ammons (2000) and Haering et al. (1993) indicate that in mine soils, soil structure in the surface horizons have developed soil structure within 1 to 2 years. The time it takes for the surface horizon to begin to redevelop soil structure has been anticipated and is one of the reasons Dakota Access is offering crop loss payments for multiple years post construction. The development of soil structure in the subsurface horizons can take longer depending on the degree of decompaction and root growth that can be established.

Dakota Access Agricultural Mitigation Plan includes soil compaction relief of the subsoil to ensure that rooting is not limited by soil compaction.

Q. **Mr. Top testified that it will take ten years or longer for the soil to regain its productivity. Do you agree? Why or why not.**

A. No. I have been on many pipeline projects that crossed agricultural fields and have seen most of the sites that used reclamation techniques similar to those identified in Dakota Access' Agricultural Mitigation Plan, back to full productivity in 3 growing seasons post-construction. The sites that were not back to full productivity within the first 3 growing seasons, that I have reviewed and evaluated, the potential problems were addressed and remedied and within 1 to 2 growing seasons, after solving the identified issues and productivity was returned to pre-disturbance levels.

Q. **Mr. Top testified that it will take 20 years or more for soil compaction issues to be remedied. Do you agree? Why or why not.**

A. No. Soil compaction is a physical condition of the soil where the soil is compressed and the voids are removed due to a force exerted on the soil surface. Compaction is a common problem in agricultural fields due to tractors, loaded grain carts, combines and other equipment passing over the site. The installation of a pipeline is likely going to cause soil compaction however Dakota Access' Agricultural Mitigation Plan aggressively addresses the removal of this potential compaction. The use of mechanical equipment is the initial step for alleviating soil compaction. Such mechanical equipment, is primarily a deep ripping implement that lifts and shatters the soil, creating channels that roots and water can follow to help further decompact the soil and begin the process of increasing soil structure. It is important to note that once decompacted, traffic on the ROW should

be kept to a minimum for the following year. Planting an appropriate crop such as alfalfa, corn, cover crops or other deep rooted crops following deep ripping is important to keep the newly created voids open. Note, excessive tillage or use of the ROW could easily decrease the beneficial effects of the previously completed ripping.

Depending on freeze-thaw cycles to decompact a soil is a common misconception. To be effective you must have multiple freeze-thaw cycles within a given year. In South Dakota multiple freeze-thaw cycles likely only occur in the upper 8 to 12 inches of the soil profile, the remainder of the soil profile typically does not have multiple freeze-thaw cycles. Below the very upper portion of the soil profile soil temperature fluctuates very little over a course of a day or week and once frozen in the fall the soil will likely not thaw again until the spring at which time it likely will not refreeze until the following fall. This is why in pipeline reclamation we actively manage the decompaction and use the proper equipment to speed up the natural decompaction processes. The use of an active management allows us to achieve and maintain decompaction within the initial 1 to 2 growing season post-construction.

Q. **Mr. Top testified that insects and diseases will survive winter due to the increase in heat surrounding the pipeline. Do you agree? Why or why not.**

A. No. There have been a limited number of studies reviewing soil temperature changes due to pipeline installation. The research indicated that soil warming from heated cables, buried at 36 inches and heated to 96 degree Fahrenheit, increased soil temperature by less than 5 degrees Fehrenheit (Rykbost et al., 1975). The Dakota Access pipeline will be

buried at least a foot deeper than the cables in the Rykbost et al. study, thus, logically indicating that surface soil warming will be less than that identified in the study. Rykbost et al. also indicated that corn yields were increased due to this slight soil warming. Dunn et al. (2008) found that yields were not affected by an increase in soil temperature due to pipeline heat. Although none of these studies directly measured insects and disease persistence due to pipeline heating it is apparent that yields were not negatively impacted. In my professional career as an agronomist working on pipelines throughout the country I have never seen an increase in insect or disease pressure on a pipeline ROW compared to off-ROW conditions.

Q. Is it possible to rehabilitate and re-vegetate native prairie ground? Are Dakota Access' plans in this regard adequate?

A. Yes, and Yes once seed mixes are developed for this area.

Q. Did you read testimony written by PUC Staff expert witness Andrea Thornton?

A. Yes

Q. Do you have any comment, question or take issue with any of her testimony?

A. It is my opinion that Ms. Thornton provides a good assessment of the revegetation and erosion control plan. Ms. Thornton's two, most significant, requests are for Dakota Access to provide a winter construction plan and an in/out crossing table of soil limitations. Ms. Thornton's requests are requirements for a Federal Energy Regulatory Commission (FERC) applications. The Dakota Access pipeline is not a FERC regulated project and those requirements are not applicable to this project. In addition, the preparation of an in/out crossing table of soil limitations is only as accurate as the soil survey from which it is developed. South Dakota soil surveys were developed as Order 2

soil surveys which typically has a minimum delineation of about 1.4 acres. This means that potentially different soil series can exist within each delineated soil map unit. Therefore the in/out tables could be incorrect and existence of soil series with more or less limitations could exist through the pipeline ROW. These tables can create a belief that conditions exist that are not actually present on the ground. Dakota Access will employee qualified, professional EIs who will be responsible for making site specific decisions based on actual field conditions. It is my opinion that the use of in/out tables would decrease the ability of the EIs to make the best field-based erosion control decisions and will decrease environmental protections. The inclusion of a Winter Construction Plan may be warranted if a large portion of the ROW will be constructed during winter. However by utilizing qualified, professional EIs in the field, their experience and knowledge of site specific conditions will likely be more protective of the environment than a broadly written Winter Construction Plan. Further, to my knowledge, winter mainline construction is not anticipated.

Ms. Thornton also requests that a more quantifiable measurement to determining revegetation success is identified. Ms. Thornton suggests that "sufficient coverage in upland areas is defined when vegetation has a uniform 70 percent vegetative coverage". Dakota Access has a defined vegetative metric *of 70 percent cover relative to undisturbed areas* in Section 5.0 of the filed SWPPP. The vegetative metric expressed by Dakota Access is the standard vegetative cover requirement promulgated by the EPA for termination of a Storm Water Pollution Prevention Plan. Clearly, Dakota Access should

not be required to improve the vegetative coverage to greater levels than previously existed prior to construction activities.

Q. On page 5 of her testimony, she recommends "that the PUC require that pre-construction design efforts include best management practices specific to locations with higher erosion potential." Do you have a response or a position based on her proposed PUC condition?

A. Yes, The use or design of pre-construction best management practices are not necessary since the Dakota Access pipeline will be using qualified, professional and experienced EIs during construction. The construction activities will temporarily change the conditions of the ROW and by implementing site-specific pre-construction BMPs, this limits the EI's ability to quickly and effectively adjust to actual site conditions in the field. I would recommend that the potentially higher erosion potential areas be identified so the EI is aware that these areas may need additional erosion control devices installed but selection and placement of BMPs should be decided upon actual site conditions and the EIs field experience.

Q. Also on page 5, Ms. Thornton recommends "the PUC require a mile post in/out table showing the areas that are more prone to erosion so the environmental inspectors can have the data more readily accessible during construction and restoration to know where the more problem areas expected to be." Do you have any comments or concern regarding Ms. Thornton's recommendation?

A. Yes, It is my opinion that the EI should be aware of these potentially sensitive areas but the use of mile post in/out tables is one of multiple ways that these areas could be identified. In/out tables are not required for this project. The problem I have with mile

post in/out area is that the tables are created based on remote sensed data. Remoted sensed data is a place to start, but as every farmer/rancher knows you cannot not correctly manage and protect a natural resource from behind a desk. By using in/out tables it will install a sense of protection through paper, however to truly manage and protect a natural resource one must use real time in the field data. Remoted sensed data use can lead to larger problems during the construction phase by concentrating on areas that were identified as sensitive from a desk and not the areas that are being impacted by construction. It is recommended that the EIs be made aware of the potential problem areas in some manner so that they are aware of the potential problem but other methods such as advance scouting, GIS map layers, site inspections or other methods will provide better information to the EIs in the field.

Q. On page 5 of her testimony she recommends that the PUC "require a more quantifiable measurement to determine when re-vegetation is successful." Do you know if Dakota Access has a quantifiable standard? If so, what is that standard and do you believe it is sufficient?

A. Yes, Section 5.0 of the Storm Water Pollution Prevention Plan, Dakota Access has identified that the site will be considered "completely stabilized" when the perennial vegetative cover has reached a uniform cover of at least 70 percent of the pre-construction cover. As I mentioned above this is the industry and regulatory standard and is sufficient. This is a very quantifiable and sufficient criteria to identify successful re-vegetation.

Q. On page 6 of her testimony, Ms. Thornton expresses some concern regarding the seed mixture for re-vegetation in grassland areas. What does Dakota Access intend to use as a seed mix? Do you have any concern with Dakota Access' plan?

A. Yes, The current seed mixture in the Dakota Access Storm Water Pollution Prevention Plan indicates that German Foxtail Millett and Bermuda grass. Bermuda grass is not an appropriate grass for the South Dakota. Dakota Access is in the process of working with the NRCS in South Dakota to develop more appropriate seed mixtures for the area. Appropriate seed mixtures at correct rates are a critical aspect of any successful reclamation plan. In my opinion, if Dakota Access works with the NRCS and individual landowners/tenants on developing appropriate seed mixture then reclamation can be successful.

Q. Do you believe site specific measures should be developed at this point in the process as it pertains to fertilizer and agricultural lime?

A. No, I believe that site specific agricultural amendments should not be developed until the construction is underway on the ROW. Many farmers and ranchers have intense and calculated fertilizer and soil amendment programs. If site-specific plans are developed too early Dakota Access could negatively impact these on-going management programs. For instance, if the farmer is an a two year phosphorus program and just applied phosphorus this fall and Dakota Access samples immediately after that application but is performing construction during the next application period they may not apply the appropriate phosphorus during reclamation, and thus decrease crop yields due to phosphorus deficiencies not due to actual construction. Waiting for the construction to begin prior to developing site-specific reclamation plans will allow Dakota Access to

develop appropriate and accurate reclamation plans based on conditions that exist at the time of construction.

Q. Is a winter construction plan necessary? Why or why not?

A. No. I don't know of any South Dakota statute that requires a winter construction plan to be developed or submitted as part of the application. Furthermore, Dakota Access does not plan to engage in mainline conventional construction during the winter.

Q. Did you review the testimony of Ryan Ledin, staff expert?

A. Yes.

Q. Did you review Mr. Ledin's testimony and recommended changes for the SWPPP?

A. Yes

Q. What is your response?

A. Mr. Ledin states multiple times the Storm Water Pollution Prevention Plan is a living document and is intended to be modified in the field as site conditions warrant. Dakota Access is planning on using qualified, professional, and experienced EIs who are expected to understand erosion control and use proper BMPs as necessary. I do not feel as if the addition of standard spacings for these items in the Storm Water Pollution Prevention Plan are required or will enhance environmental compliance and success. Exhibit C as an appendix to the Storm Water Pollution Prevention Plan is not necessary since it is already available to the EIs. The addition of Exhibit C will create an extra layer of administration and could negatively affect the use of Exhibit C because if Exhibit C is updated or modified the document would need to be replaced in multiple documents. If the updates are not all performed on the same time-frame then confusion could occur which could lead to mistakes being made in the field. In my opinion as long as Exhibit C

is available to the EIs then adding it as an appendix to the Storm Water Pollution Prevention Plan is not required.

Mr. Ledin's recommendation that the application of straw mulch should not be delegated to the EI is not warranted. I firmly believe that the EIs are trained professionals and should have some latitude in the field as to when straw mulch is required. It is recommended that the EIs be provided guidance but no mandatory requirements be implemented. Straw mulching should be based on site-specific conditions and used when necessary regardless of the percent slope.

Q. Did you review the recommendation Mr. Ledin made on page 5 of his testimony regarding measures to minimize impacts to vegetation?

A. Yes

Q. What are your thoughts regarding his recommendations?

A. Weed management is always a consideration for pipelines and other disturbed areas. It is my opinion that the use of Integrated Weed Management (IWM) is appropriate for this project. Integrated Weed Management is intended to locate and identify weed populations, develop a treatment plan for noxious and invasive weed management and then implement prescribed treatment plans at appropriate timings to ensure adequate control of the possible undesirable weedy species. Integrated Weed Management evaluates the use of cultural (i.e., using certified straw, reseeding as quickly as possible), biological, mechanical (i.e., mowing, discing) and chemical controls (i.e., herbicides) based on weeds present and their abundance. All decisions under an IWM program are made on site specific conditions. Through the IWM approach it is understood that a

healthy and productive rangeland system is the most effective weed management tool available. Although not although not explicitly stated as such, IWM approaches are being described in section 16.1.1 of the PUC application.

Q. Did you review Mr Ledin's recommendations on page 5 of his testimony regarding mitigation measures to minimize impacts to water bodies?

A. Yes

Q. What are your thoughts regarding his recommendations?

A. Mr. Ledin's recommendations are not required as long as the EIs have access to the information from other sources. Addition of this table to the Storm Water Pollution Prevention Plan is a redundancy could cause inconsistencies, confusion and additional work as the table would need to be replaced in multiple places as updates are required.

Q. Does this conclude your testimony?

A. Yes.

Dated this _____ day of July, 2015

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Aaron DeJoia

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