MINUTES
ENVIRONMENTAL POLICY ADVISORY COMMITTEE
SPECIAL MEETING
APRIL 22, 2013

A special meeting of the Environmental Policy Advisory Committee (EPAC) was convened on Monday, April 22, 2013, at 3:00 p.m., in the Pueblo County Department of Planning and Development Conference Room, 229 West 12th Street. Chair Kester called the meeting to order at 3:00 p.m.

ROLL CALL

Those members present were:

Susan Finzel-Aldred
Betty Alt
Doris Kester
Ted Lopez
Chad Wolgram

Member absent was: Lois Illick (Interim CSU-Extension) (excused).

Guests present: Gabe Racz, Vranesh and Raisch, LLP; Christine Johnston, Xcel Energy; Steve Canton, GEI Consultants, Inc.; Somer Mee, Xcel Energy; Nancy Keller, City of Pueblo Waste Water Division; and Gene Michael, Director, City of Pueblo Waste Water Division.

Staff present were: Joan Armstrong and Sandy Blanco.

PUBLIC SERVICE COMPANY OF COLORADO (PSCO) WATER QUALITY PROPOSAL, ST. CHARLES RIVER, MIDDLE ARKANSAS RIVER SEGMENT 6 FOR SELENIUM STANDARD, PHOSPHORUS/CHLOROPHYLL A STANDARDS

Mr. Steve Canton, GEI Consultants, Inc., reported they're here to talk about the Public Service Company's site specific selenium standards proposal for the St. Charles River, Middle Arkansas River Segment 6, for the Water Quality Control Commission.

Ms. Christine Johnston, Xcel Energy, reported Segment 6 of the St. Charles River is what the Comanche Power Plant discharges to, noting it begins above the CF&I diversion to the confluence with the Arkansas River and is a pretty long segment. A few years ago, they established a temporary modification of the selenium standard, or the water quality standard for selenium at 39 micrograms per liter that expires at the end of the year. If they don't do anything or propose a site-specific standard, it will go back to a 4.6 chronic standard and an 18.4 acute standard on January 1, 2014. The selenium occurs naturally in the pure shale and is pretty common in Colorado, including the Arkansas Basin and the Gunnison Basin. The EPA adopted criteria in the 1990s to protect the aquatic life, which has a low standard of 4.6, noting they've been working to revise the criteria for 15 years. They have a few power plants in the Denver metropolitan area with selenium issues and discovered it's pretty expensive to remove it, noting technology isn't readily available on a commercial scale. They've done a lot of testing and any kind of significant treatment would generate a lot of electricity usage and environmental impacts in dealing with waste issues. The Comanche Power Plant is a 1,400 megawatt coal-fired power plant and is the largest power plant in Colorado, with the addition of Unit 3, that was built a few years ago containing 750

megawatts. The plant has pretty advanced pollution control equipment, noting it's the first plant in Colorado to control mercury emissions. They also have low nitrogen oxide burners to reduce their nitrogen oxide and sulfur dioxide. The Unit 3 addition is a critical coal unit, noting the boiler operates at a higher pressure and uses a low water cooling system. They typically use cooling towers to cool the water before it's recycled back through the plant, but they installed a combined system so they have both the cooling tower and an air condensed cooling system that uses big fans instead of water. They get their water from the Pueblo Board of Water Works, noting the diversion is right below the Pueblo Reservoir. The selenium data they collected at the outfall of their discharge point indicates they can't meet the 4.6 and the 18.4 standards. A few years ago, the City of Pueblo started a selenium study of the St. Charles River and the data established the temporary modification of 39 micrograms per liter. They continued the study in 2011 and 2012 and established more sites on the St. Charles River that weren't in the original study, and looked at the tributaries on Greenhorn Creek. They also did water quality samples, as well as fish and bug samples, and looked at the habitat in those sections.

Mr. Canton stated the study that was done in 2007 resulted in the temporary modification of the St. Charles River and in site-specific standards on the mainstem of the Arkansas River below the Fountain Creek and Wildhorse Creek. Chair Kester asked Mr. Canton if the request from Pueblo West had any influence on the selenium amounts they're dealing with. Mr. Canton replied no, noting it's a totally different drainage. Chair Kester asked if it was for Wildhorse Creek, and Mr. Canton replied yes, on the other side of the river and upstream which didn't affect them at all. Chair Kester stated there's a lot of selenium in the Fountain Creek. Mr. Canton agreed, noting the stream isn't that high but picks up in the 20 to 30 micrograms per liter range once they pass Pinon. The main site-specific standard is 17 for that segment from the Fountain Creek down to Limon. Mr. Lopez asked Mr. Canton why they chose the St. Charles River for the study. Mr. Canton replied it was a regional study to determine what things looked like in the area. Ms. Johnston stated the St. Charles River initially had a few locations, and their study added more sites.

Ms. Nancy Keller, City of Pueblo, Waste Water Division, reported the study was intended to include everything that impacted Segment 1A of the Arkansas River, including the St. Charles River, Wildhorse Creek, and the Fountain Creek.

Mr. Gabe Racz, Vranesh and Raisch, LLP, reported the tributary for the St. Charles River is an arroyo. Mr. Canton stated they looked at the arroyos but they were always dry and couldn't do any sampling. They looked at this segment from top to bottom and it was the only tributary that had water. It's what the Environmental Protection Agency (EPA) calls a use attainability analysis. All streams have a classified use and, in this case, it's aquatic life, noting the stream is classified as being able to support aquatic life. The use attainability analysis tries to determine what kinds of aquatic life a stream can support. They look at all the different aspects of what's going on when they're operating with samples from the spring, summer, and fall, to capture the different parts of the year that have more or less flow and higher or colder temperatures. They looked at water chemistry, in-stream habitat, flow data from the U.S. Geological Survey (USGS) gauges, and sampled macroinvertebrates, which are the bugs that live on the stream bottom. They also sampled fish populations, noting the selenium issue is primarily intake by fish through the water and diet and then accumulation under tissues, which gets passed to their eggs. If it gets passed to their eggs in high concentrations, the eggs either don't hatch, hatch in some deformed

manner, or they hatch and the larvae don't survive. It's the transfer of selenium from the diet into the tissues through the eggs and onto the young where they see the problem with selenium toxicity. The reproducing fish populations throughout the segment ended up with a population of at least half a dozen species and a few others that were added on depending on the site and the date. In the spring, they would have flowing water throughout the segment and by the end of the year there would be large portions of the segment without any surface flow except for residual standing pools of water, which contain quite a few fish. The pools are fed by groundwater so they don't dry up. It's a stream system where the water table is just below the surface. It may look like a pool of water, but the water is slowly moving through and allowing the fish to survive. In their earlier study, they had the temporary modification for selenium at 39, which was based on a combination of data from three sample points. The highway, the Bessemer Ditch, and the mainstem of the Arkansas River. The study also depicted, with the additional sites, they didn't hit the elevated selenium levels until they got past the arroyo. They had fairly low selenium upstream, noting their data from 2007 is pretty consistent. The highway at the I-25 bridge didn't have high selenium concentrations, but there were a few points in time when that segment was sampled with no flow. The lower concentrations didn't affect the average concentration, noting they didn't get significant selenium material in the arroyo. A lot of the potential aquifers in the areas where selenium is an issue are used to irrigate. They get a decrease in concentration from the Comanche Power Plant discharge because it's providing dilution, but it stays relatively high all the way down to the river. They were hoping to get a lot of groundwater data that was consistently in the 25 to 30 range for selenium. The real key is the immediate site next to it and the next site downstream because upstream, at the Comanche Power Plant discharge, they get huge ranges of selenium, none of which are below the standard. At certain times of the year, the dilution flow from upstream gives them low numbers, and at other times they get high numbers. Ms. Finzel-Aldred questioned Segment 6 and where it was located. Mr. Canton replied it was just upstream of the Comanche Power Plant discharge, noting they have two designations. They have a Site 6 upstream with a discharge and a Site 6 downstream with a discharge, that are separated by 50 to 100 feet. They're looking at concentrations and comparing them to the standard product that they're not supposed to exceed.

Mr. Racz stated the first part of the proposal for Segment 6 to 6A is for upstream events in the arroyo and Segment 6B is downstream to the Arkansas River. The default standards upstream for the State are met, and downstream there's a proposal for ambient-based selenium standards. Ms. Finzel-Aldred asked Mr. Racz who makes the segments. Mr. Racz replied the Water Quality Control Commission decides where the segment lines should be. The regulation states where the use of the aquatic life changes or where there's a measureable break in water quality for flow aerations is the appropriate place to resegment. Mr. Canton stated the original segmentation came out when the water quality regulatory framework was developed in the '70s and '80s. The State decided they wanted to find a way to manage and revaluate water quality throughout the State. They had people looking at basins and drawing lines. Mr. Racz stated once the stream is segmented they're also proposing ambient quality based standards for Segment 6B. The regulation allows for ambient quality based standards if natural ambient water quality levels are higher than the default or table values and the ambient levels are adequate to protect uses like aquatic life. If those two conditions are met, the Commission can adopt site-specific standards that are equal to the existing quality of the stream. Based on the study, the proposal is for a chronic total selenium standard of 55 micrograms per liter. In addition to that, the Water Quality Control Commission proposed phosphorus and Chlorophyll A standards for Segment 6. Due to the large selenium

concentrations, they propose future assessments of selenium to be based on all data from the streams. If there's one high value and one low value from a different location, it would be considered together because of the natural variable. They're also proposing a total selenium standard although they've been in discussions with the Water Quality Control Commission about recalculating a dissolved standard. The reason for a total selenium standard is GEI's work describing that all forms of selenium are relevant to the effects on aquatic life.

Mr. Wolgram questioned why they're not proposing an acute standard. Mr. Canton replied one issue is the proposed standard is well above the existing acute standard of 18, noting if they look at the evolution of the standard, it has nothing to do with acute selenium toxicity. The EPA has been trying to update their selenium standards for a while and work off numbers that came from a criteria document published in 1987, noting they came up with numbers in the 20s and 30s. They didn't see any problems with one arm of the lake where selenium is rarely higher than five so they set the standard at five. That was the first time they based a standard on the food chain and a water-based analysis. They still need to have an acute standard, but they can't do one based on the data, and as part of the calculation of the water, it's the toxicity based standard. In 2004, EPA proposed a draft criteria document acknowledging that acute toxicity was probably from direct exposure to water for short terms and in high concentrations. In using the formula with the data from the 2004 criteria document, the selenium standard for the stream would be between 400 and 1,000, noting they couldn't suggest a standard like that so they proposed no standard for acute selenium. Mr. Wolgram questioned the selenium concentration of a discharge. Mr. Canton replied 8 to 10, noting the water source is coming out of the Arkansas River. There are sources of selenium upstream in the Pueblo Reservoir because of the marine shale. Chair Kester stated according to other people, the selenium that goes into the Arkansas River comes in from the open dam and would have less selenium than what's flowing downstream. Mr. Canton stated that was correct and is where their primary sources are. Mr. Racz stated the Comanche Power Plant discharge is diluting the selenium in the stream so the concentration downstream is lower than the concentration upstream. Chair Kester stated the main concerns are to change the segment designation as well as change the standard. Mr. Canton stated they would accomplish capturing where natural occurring selenium is in the system and protects the upper portion of the segment as it's already meeting selenium standards.

Ms. Finzel-Aldred asked the City of Pueblo Waste Water Division if having a higher selenium level affected their operation, and if it was a good thing or something challenging. Mr. Michael replied it didn't have any affect at all on them because of where it's located and they're not connected to the discharge. Mr. Wolgram questioned Segment A and if they're proposing to not change the standards. Mr. Canton replied they would let it go back to the original table value standards. Ms. Finzel-Aldred questioned if they were at 4 and 18, and Mr. Canton replied 4.6 and 18.4. Mr. Wolgram questioned Chlorophyll A. Mr. Canton replied as part of last year's nutrient standards hearing, they're putting interim nutrient standards on waters that are primarily headwater streams unaffected by discharges. They went through the basins and applied them where they thought no wastewater plants would be affected. The standards aren't being applied downstream at wastewater plants because they're going to deal with nutrient standards on a different level having to do with the size, type, and treatment of the plant. Chair Kester questioned if the amount of selenium in the water was influenced by a discharge of the wastewater, and Mr. Canton replied no. Mr. Wolgram questioned the interim standard for Chlorophyll A, and Mr. Canton replied there isn't one. Mr. Wolgram questioned if they studied Chlorophyll A. Mr. Canton replied they looked at selenium

in the algae, but not the Chlorophyll A content. Ms. Keller stated the way the regulation is written doesn't apply until 2022 downstream. Mr. Wolgram questioned if the standard was different than the original one, and Mr. Canton replied yes. Ms. Alt questioned if the St. Charles River was really a river, noting it's always dry. Mr. Canton replied in Colorado it's a river, but anywhere else in the country it would be a creek. Ms. Alt stated most of the time it has enough water to flow, noting they keep talking about fish. Mr. Canton stated there are fish in there. Ms. Alt asked what kind of fish, and Mr. Canton replied mostly minnows and light suckers. Mr. Wolgram asked Mr. Canton if fly ash contains selenium. Mr. Canton replied it can, but it's not an issue. Ms. Johnston stated they don't handle wet fly ash wet, noting it's all dry and handled separately. Mr. Wolgram questioned where it was handled. Ms. Johnston replied they have an on-site landfill. Chair Kester asked Mr. Canton if there was any argument against what they're proposing. Mr. Canton replied no, other than the form of selenium. Mr. Racz stated the Water Quality Control Commission had some questions about the selenium, but in general, were receptive to the idea of removing the temporary modification and putting in place an appropriate ambient-based standard and putting the selenium issues on the St. Charles River to rest.

Chair Kester asked Mr. Canton if there was a current standard for phosphorous and Chlorophyll A. Mr. Canton replied no, noting the Water Quality Control Commission proposed one for Segment 6 as a whole. Ms. Finzel-Aldred asked Mr. Canton if they could adopt the standards and base them on Segments 6A and 6B separately, and Mr. Canton replied yes. They take the data, rank it, and take the 85th percentile leaving 15% of the data, which becomes the standard. Mr. Wolgram questioned what happens if they're over the standard. Mr. Canton replied they have to look at the sites when they're measuring because of the variation between the sites. If they only sampled the site upstream, they would be over 55 all the time unless they get some dilution and reduction of the selenium. If they measure only downstream without capturing all of the selenium in the segment, they would look at that. They would review the number in five years when they come back for the next basin hearing. If they have new data indicating the number is wrong and nothing has changed, they would recalculate and propose to update the number. Ms. Alt questioned how often they measure it if they come back in five years. Mr. Canton replied once they have a standard in place there's not a lot of incentive for them to keep studying the system, noting they already spent a lot of time studying it and they know it's natural. The State will come back and sample, noting they sample throughout the basin and will review the data when they come back in five years. Ms. Finzel-Aldred stated they're good unless there's some large geologic change or use. Ms. Johnston stated that was correct unless there's a new discharge or something changes the system that was looked at this time. Mr. Wolgram asked Ms. Johnston how a lower standard would affect their operation and discharge. Ms. Johnston replied they would have to find a way to treat it and right now there isn't one. There isn't anything commercially available that's reliable so it's an issue, noting they would have to figure out some way not to discharge. Ms. Finzel-Aldred questioned what the aquatic life looked like with 55. Mr. Canton replied they looked good, noting there's a lot of fish with the same number of species as they have upstream. Mr. Wolgram asked why 55 instead of 39 as the temporary number. Mr. Canton replied 55 reflects the data they have now and 39 was the data they had five years ago. Ms. Johnston stated that was for three sites. Mr. Canton stated the three sites including the site upstream that had low selenium. Mr. Lopez questioned the 4,000 small fish that were sampled and the wear and tear on them. Mr. Canton replied there are some specific kinds of deformities that can be tied to selenium, but it has to do with the structure of the organisms. Mr. Lopez questioned the spots on their scales. Mr. Canton replied parasites are fairly natural in warm water stream systems, noting they don't

harm the fish. They work their way through the system and have a life cycle. Chair Kester stated they developed in the area and adjusted to the water. Mrs. Finzel-Aldred questioned what their next step is to make a recommendation to PACOG. Chair Kester replied they have to make a decision today. Ms. Armstrong stated they need to submit their recommendation to PACOG.

Mr. Lopez stated the proposal makes sense and is based on studies done. Mr. Racz stated their full proposal is the attachment to the letter to PACOG dated April 3, 2013. Ms. Alt asked Mr. Racz if they're asking them to either be for or against the basis and purpose as listed in the attached letter of April 3, 2013. Mr. Racz replied yes, noting they would submit any comments from PACOG they receive on their proposal and submit it to the Commission. Ms. Finzel-Aldred stated she agrees with using the Edson Arroyo as the point between Segments 6A and 6B, and to adopt 55 as the selenium standard. It's a good number based on pre-sampling sites. Mr. Lopez stated they need to support the letter dated April, 3, 2013, and pass it onto PACOG recommending they do the same. Chair Kester asked Mr. Michael and Ms. Keller why they were there when it didn't have an impact on Pueblo's wastewater plant. Mr. Michael replied the issue of selenium does affect them, noting when the water table comes back up they will see the selenium shoot up. Any source of selenium in the Pueblo wastewater system is groundwater retention and a natural source, and they're very interested in how the system deals with the selenium. Ms. Keller stated they did a lot of the initial study if anybody has any questions. There are areas throughout Pueblo that are over 3,000 micrograms per liter. The numbers go up and down depending on what's being done, noting if more of the groundwater table gets into the river, the more they would see impacts. They don't see impacts to the fish because the shale has sulfate and tends to eliminate the effects.

Chair Kester thanked everybody for coming, noting they would make their decision and pass it on to PACOG.

Mr. Lopez moved to support Segment 6 on the St. Charles River in the Edson Arroyo as stated, and to support 55 micrograms per liter as the proposed selenium standard. Mr. Wolgram seconded the motion.

Ms. Finzel-Aldred stated after hearing the presentation the due diligence has been done and agrees that the evidence is sufficient to support it. Mr. Lopez stated it sounds reasonable. Mr. Wolgram stated it's naturally occurring and Chlorophyll A is directly related to the wastewater treatment plants. There are still fish in Wildhorse Creek. Chair Kester stated the fish developed in water like that. Ms. Finzel-Aldred stated they adapted over time.

After discussion, the motion passed unanimously.

AGENDA JUNE 6, 2013

The next regularly scheduled EPAC meeting is Thursday, June 6, 2013, at 229 West 12th Street, from 5:15 p.m. to 6:30 p.m.

ADJOURNMENT

There being no further business before EPAC, the meeting was adjourned at 4:20 p.m.

Respectfully submitted,

Sandy Blanco
EPAC Recording Secretary

SJB