

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

FILED

MAR 12 2010

Jim Ruby, Executive Secretary
Environmental Quality Council

IN THE MATTER OF THE APPEAL OF)
JOHN D. KOLTISKA, AC RANCH, INC.)
A Wyoming Corporation, PRAIRIE DOG)
RANCH, INC., a Wyoming Statutory Close)
Corporation, and PRAIRIE DOG WATER)
SUPPLY COMPANY, of WYPDES)
PERMIT NO. WY0054364)

Docket No. 09-3805

**FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER DENYING
PETITION**

This contested case came before the Environmental Quality Council (EQC) for hearing on November 16 to 18, 2009 in Cheyenne, Wyoming. EQC members present included Dennis M. Boal, Chairman and presiding officer, John N. Morris, Thomas Coverdale, Tim Flitner, Fred Ogden¹ and Catherine Guschewsky.

Protestants (Petitioners) appeared by and through counsel, Kate M. Fox and J. Mark Stewart, of Davis and Cannon, LLP. Respondent permittee, Pennaco Energy, Inc. (Pennaco), appeared by and through counsel, Mark Ruppert and Jere "Trey" Overdyke, Holland and Hart, LLP. Respondent Department of Environmental Quality, Water Quality Division (DEQ), appeared by and through

¹ Dr. Ogden was able to participate in part but not all of the hearing and did not cast a vote on the final decision. Tr. Vol. III, pp. 641-2.

its counsel, Senior Assistant Attorney General Mike Barrash and Assistant Attorney General Luke Esch.

SUMMARY

DEQ met its duty under WYO. STAT. ANN. § 35-11-801(a) to issue Wyoming Pollution Discharge Elimination System (WYPDES) Permit WY0054364 upon proof by the applicant that the procedures of the Wyoming Environmental Quality Act (Act) and the applicable rules and regulations promulgated thereunder had been complied with. In this case, the Director issued a modified permit, with conditions which were appropriate to accomplish the purposes of the Act and was consistent with existing rules, regulations and standards. For these reasons, DEQ's decision to issue Permit WYPDES Permit WY0054364 should be affirmed.

Under the Act, the EQC "shall act as the hearing examiner for the department and shall hear and determine all cases or issues arising under the laws, rules, regulations, standards or orders issued or administered by the department or its air quality, land quality, solid and hazardous waste management or water quality divisions." WYO. STAT. ANN. § 35-11-112(a). The issuance or denial of a permit is a final agency action which is subject to review by the EQC. The EQC shall: "Conduct hearings in any case contesting the grant, denial, suspension, revocation, or renewal of any permit, license, certification or variance authorized or required" by the Act. WYO. STAT. ANN. § 35-11-112(a)(iv).

I. STANDARD

Factual determinations made by an agency are reviewed for substantial evidence while its conclusions of law are reviewed *de novo*. *Kennedy Oil v. Dep't of Revenue*, 2008 WY 154, ¶ 7, 205 P.3d 999, 1002 (Wyo. 2008), citing *Dale v. S&S Builders, LLC*, 2008 WY 84, 188 P.3d 554 (Wyo. 2008).

II. STATEMENT OF THE CASE

Petitioners dispute DEQ's April 29 major modification and issuance of WYPDES Permit WY0054364 (permit or Mod.). Pursuant to the Act and DEQ regulations, a discharge permit is needed before any person may cause, threaten or allow the discharge of any pollution or wastes into the waters of the state or alter various properties of waters of the state. WYO. STAT. ANN. § 35-11-301(a)(i) and (ii).

WYPDES Permit WY0054364 is a major modification of a permit allowing the discharge of pollution to waters of the state of Wyoming by Respondent Pennaco. Petitioners John Koltiska, AC Ranch, Inc., Prairie Dog Ranch, Inc. and Prairie Dog Water Supply Company (PDWSC) appealed the modified permit and requested the EQC to reverse DEQ's decision to issue it. Amended Petition (Am. Pet.), ¶¶ 2, 4.

III. FINDINGS OF FACT

A. Basic Facts

1. Permit WY0054364 was originally issued to Pennaco on January 29, 2007. It was renewed on January 6, 2009 and appealed by Petitioners on March

5, 2009. The renewed permit authorized discharges of up to 1.47 million gallons per day (mgd) of treated coalbed methane (CBM) produced water from the “Adams Ranch Treatment Facility” directly to Wildcat Creek (via outfall 001), to the on-channel Paul #3 reservoir in Wildcat Creek (via outfall 002) and directly to Prairie Dog Creek (via outfall 003) in Sheridan County, Wyoming. Exhibits 2, 3; Tr. Vol. I, pp 37, 56.

2. On April 29, 2009, DEQ issued Modified Permit WY0054364 to Pennaco Energy Inc. (Pennaco) and Petitioners filed an amended petition appealing its issuance on May 15, 2009. The modified permit authorizes Pennaco to discharge up to 1.47 mgd of treated CBM produced water from only two outfalls. These include discharges from the Adams Ranch Treatment Facility directly to Prairie Dog Creek (via outfall 003) and to the on-channel Paul #3 reservoir on Wildcat Creek (via outfall 002). These facilities are in Sheridan County, Wyoming. Tr. Vol. II, p. 377; Exhibit 1 (Statement of Basis [“SOB”]); Exhibit 14 (Petr’s Resp. 1st Disc., RFA#1); Mod, pp.1,2. Am. Pet., ¶2.

3. Petitioner PDWSC is an association with some 90 members/shareholders, mostly located along Prairie Dog Creek. Tr. Vol. II, pp. 237-8, 234-44.

4. Petitioners divert water from Prairie Dog Creek below outfall 003 and from Wildcat Creek below outfall 002 to irrigate crops. Exhibit 5A (modified map); Tr. Vol. II, pp. 218, 237-38, 274.

5. Two or three PDWSC members also irrigate with CBM water. Tr. Vol. II, p. 239.

6. Approximately twelve PDWSC members (including those who irrigate with CBM water) are located downstream from outfall 003 in Prairie Dog Creek. Tr. Vol. II, pp. 237-238.

7. AC Ranch and Prairie Dog Ranch are cow-calf operations that raise hay for their own cattle and sell the surplus. Tr. Vol. II, p. 206; Exhibit 14 (Petr's Resp 1st Int.#8).

8. Petitioners Prairie Dog Ranch, AC Ranch and Mr. Koltiska use water from Prairie Dog Creek and Wildcat Creek to irrigate alfalfa and alfalfa/grass mix (orchard grass/timothy). Tr. Vol. II, p. 214; Exhibit 14 (Petr's Resp 1st Int.#7).

9. Mr. Koltiska has historically planted a mix of alfalfa and orchard grass at a 10:1 ratio of 20 pounds of alfalfa to two pounds of orchard grass. He irrigates a mixture of alfalfa and orchard grass on his ranches (AC Ranch and Prairie Dog Ranch). DEQ wrote the permit with the aim of protecting the most salt-sensitive irrigated crops of alfalfa and pumpkins. However, no

evidence was presented concerning pumpkins being grown by any of the Petitioners. Exhibit 1 (SOB); Tr. Vol. II, pp. 166-68, 193, 214-215, 235, 245-246 .

10. All irrigation by Prairie Dog Ranch, AC Ranch and Mr. Koltiska is done with sprinklers and not via flood irrigation. AC Ranch is irrigated by pumping out of a small diversion reservoir on Wildcat Creek. Prairie Dog Ranch irrigates by diverting water from Ninemile Ditch and by pumping directly from Prairie Dog Creek. Tr. Vol. II, pp. 216, 220-221, 273-4.

11. The permit authorizes discharge from two outfalls: 002 for discharge to Paul #3 reservoir in Wildcat Creek and 003 for direct discharge to Prairie Dog Creek. Exhibit 1 (SOB,; Mod, p.2; Exhibit 14 (Petr's Resp ^{2nd} RFA#1).

12. The only irrigation diversions in Prairie Dog Creek relevant to this appeal are those downstream from outfall 003. Exhibit 14 (Petr's Resp.1stInt.#5).

13. Flow in Prairie Dog Creek is derived from Piney Creek via a transbasin diversion located near Story, Wyoming. Flows in Prairie Dog Creek can be supplemented with water stored in Kearney Lake. Tr. Vol. I, p. 52; Tr. Vol. II, pp.207-08.

14. Wildcat Creek is a small tributary to Prairie Dog Creek. Wildcat Creek has ephemeral flows in its headwaters with waters with moderate levels of salinity (electrical conductivity of 2,000 to 3,000 $\mu\text{mhos/cm}$). Ninemile Ditch is a man-made irrigation ditch that some of the Petitioners use to convey irrigation water from Prairie Dog Creek into Wildcat Creek. Tr. Vol. I, p. 64; Tr. Vol. II, p. 212; Exhibit 31, p. 5.

15. Outfall 002 is located near the end of the treatment unit and approximately two stream miles above the uppermost Ninemile Ditch outlet to Wildcat Creek. Tr. Vol. II, pp. 246-247; Exhibit 32 (map).

16. The permit authorizes piping of treated effluent from the treatment unit to outfall 002 for discharge into the existing on-channel Paul #3 reservoir in Wildcat Creek. Tr. Vol. II, p. 377; Exhibit 1 (SOB; Mod, p. 1; Exhibit 14 (Petr's Resp 2nd RFA #1).

17. Outfall 003 to Prairie Dog Creek is located downstream from the intake of the Ninemile Ditch from Prairie Dog Creek. Discharges from outfall 003 are not expected to affect irrigation in Wildcat Creek. Tr. Vol. II, pp. 236-237; Exhibit 32 (map).

18. To protect water quality for irrigation use, the water quality parameters of concern are salinity, measured as electrical conductivity (EC), and sodicity, measured as sodium adsorption ratio (SAR). EC is also referred

to as Specific Conductance and EC in water is sometimes referred to as EC_w. Exhibit 1 (SOB; Tr. Vol. II, pp. 174.

19. The EC of irrigation water is of concern because salt from irrigation water can build up in soils and impair crop production and yield. Tr. Vol. I and Vol. II, pp. 72, 301.

20. Soil salinity depends on numerous factors in addition to the salinity of irrigation water itself. These factors may include soil characteristics, depth to groundwater, the presence of saline seepages, irrigation management, adequacy of drainage, and leaching fraction. Tr. Vol. I, pp. 72-75.

21. In writing water discharge permits, DEQ must translate the narrative standard expressed in applicable regulations into numeric effluent limits to place in permits. Wyoming Water Quality Rules and Regulations, Ch. 1, § 20 (April 25, 2007) and Ch. 2, § 5(c)(iii)(C)(IV) (November 10, 2004) (WWQRR).

22. DEQ determined in this case that compliance with applicable regulations, and in particular WWQRR Ch. 1, § 20 (concerning the maintenance of water quality for continued use for agricultural purposes), required establishing numeric effluent limits for EC and SAR. DEQ thus imposed end of pipe effluent limitations for EC at Outfalls 002 and 003. DEQ

also imposed an end of pipe limitation for sodium concentrations at outfall 003 to control SAR in the receiving stream, Prairie Dog Creek, but placed no SAR limit at outfall 002. Tr. Vol. I, pp. 112-117; Exhibit 3 (SOB).

23. The permit instead requires that discharges of treated effluent via outfall 002 into the on-channel Paul #3 reservoir in Wildcat Creek be contained in the reservoir during “dry” operating conditions and prohibits discharge (release) of effluent from the reservoir except when natural precipitation events cause the reservoir to overtop and spill. Tr. Vol. I, pp. 34-35, 112-117; Exhibit 1 (SOB; Mod, p.3).

24. Irrigation of crops is Petitioners’ only agricultural use which would have a reasonable potential to be adversely impacted by discharges meeting the effluent limits set in the modified permit. Tr. Vol. II, p. 235; Am. Pet. ¶3; Exhibit 14 (Petr’s Resp 1st RFA#2 & 1st Int#1 [RFA#5]).

B. Ultimate Facts

25. In establishing permit limitations, DEQ translated the narrative criteria expressed in Ch. 1, § 20 WWQRR into numeric effluent limits, and in this case the standard included setting a “default” limit for EC at outfall 002 on Wildcat Creek. DEQ used these numbers to set the numeric effluent limit for EC on discharges from outfall 002 into Paul #3 reservoir in Wildcat Creek. Tr. Vol. I, p. 102; Exhibit 1 (SOB).; Exhibit 7 (Tables).

26. To establish the correct EC limit for outfall 002, DEQ used the USDA salt tolerance database soil salinity tables to find the soil salinity limit which would provide an adequate level of protection. The soil salinity tables list recommend soil salinity thresholds for a variety of crops. The salt tolerance database provides soil EC thresholds at which 100% crop yields are achievable. To calculate an EC effluent limit, DEQ divided the target soil salinity derived from the USDA database tables by 1.5, as recommended in *Agricultural Salinity and Drainage, Hanson, et al*, 2006 edition (containing the “Hanson Diagram”). Exhibit 1, (SOB), Exhibit 7 (Tables).

27. The USDA salt tolerance database soil salinity data tables used by DEQ to set limits for EC is the best database available for that purpose. Tr. Vol. II, p.388.

28. DEQ assumed that using 100% threshold numbers from the soil salinity tables to derive the EC limit would assure that the quality of discharged water would not negatively affect the production of crops irrigated with that water. Tr. Vol. I, p. 117; Exhibit 1 (SOB; Exhibit 7 (Tables).

29. DEQ did not assume that the limits used in this permit would assure 100% of potential yield, because irrigation water quality is not the only factor that can affect crop production. Tr. Vol. I, pp. 77-78.

30. DEQ’s conversion of soil EC to water EC to establish permit limits

was reasonable in this case.” Tr. Vol. II, pp. 360-361; Vol. III, pp. 486-488.

31. The permit’s effluent limit for EC_w is 1330 µmhos/cm for treated effluent piped to outfall 002 for discharge into the Paul #3 reservoir in Wildcat Creek. Exhibit 1 (SOB); Mod p.3); Exhibit 14 (Petr’s Resp 2nd RFA#2).

32. Using the USDA soil salinity data tables, DEQ derived a limit of 1330 µmhos/cm for EC_w to protect irrigation of alfalfa and pumpkins in Wildcat Creek. Exhibit 1 (SOB, p.6); Exhibit 7 (Tables).

33. A limit of 1330 µmhos/cm EC_w is protective for both alfalfa and orchardgrass in this area. Since 1330 µmhos/cm for EC_w is protective for alfalfa and orchardgrass, 1215 µmhos/cm for EC_w is also protective for alfalfa and orchardgrass. Tr. Vol. III, pp. 474, 503; Exhibit 1 (SOB, p. 6); Exhibit 34.

34. 2000 µmhos/cm EC for soil is protective for alfalfa. DEQ determined that 2250 µmhos/cm EC for soil is protective for pumpkins. No evidence was offered to contradict this determination. 3000 µmhos/cm EC for soil is protective for orchardgrass. Tr. Vol. II, pp.300-301, 337-338; Tr. Vol. III, pp.474, 484-486; Exhibit 1 (SOB); Exhibit 34 (Blaylock).

35. The permit authorizes direct discharge from the treatment unit via outfall 003 to Prairie Dog Creek. Tr. 40-41; Exhibit 1 (SOB); Exhibit 14 (Petr’s Resp 2nd RFA #1).

36. The permit's effluent limits are 1215 $\mu\text{mhos/cm}$ for ECw and 300 mg/l for sodium for direct discharges of treated effluent to Prairie Dog Creek from outfall 003. Tr. Vol. I, pp. 58, 68; Exhibit 1 (SOB); Mod, p.2.

37. The bases for the effluent limits on direct discharges to Prairie Dog Creek from outfall 003 are:

a. ECw 1215 $\mu\text{mhos/cm}$: This is the average ambient ECw in Prairie Dog Creek calculated from samples collected at USGS gauging stations at the Wakeley and Acme USGS gauging stations. Acme is located near the mouth of Prairie Dog Creek about 10 stream miles below Wakeley. Tr. Vol. I, pp. 58-59; Exhibit 1 (SOB).

b. Dissolved sodium 300 mg/l: The DEQ initially established 349 mg/l dissolved sodium based on the target SAR of 5 at an EC of 1215 to meet the Hanson Diagram relationship and correlation between USGS-measured dissolved sodium concentrations in Prairie Dog Creek and the target SAR, then Pennaco offered to voluntarily reduce and thus meet a dissolved sodium limit of 300 mg/l. Tr. Vol. I, pp. 59-60, 71-72, 99, 128; Exhibit 1 (SOB; Graph 1).

c. SAR (no limit at outfall 003): based on limit for dissolved sodium at outfall 003 in lieu of limit on SAR, Exhibit 1 (SOB).

38. Prairie Dog Creek, a tributary to the Tongue River, has regular base flows fed by diversion of flows from Piney Creek, which is a perennial stream. Tr. Vol. I, p. 39; Tr. Vol. II, pp. 235, 247; Exhibit 1 (SOB).

39. Prairie Dog Creek is a perennial stream due to a trans-basin diversion of up to 120 cubic feet per second (cfs) from Piney Creek via Jenks Creek to the top of Prairie Dog Creek (above outfall 003). Tr. Vol. I, pp. 52, Tr. Vol. III, pp. 235, 247.

40. PDWSC normally diverts 50-65 cfs from Piney Creek via Jenks Creek to Prairie Dog Creek above outfall 003. Tr. Vol. II, pp. 248, 254.

41. CBM discharge with a sodium concentration up to the 300 mg/l effluent limit will not cause an adverse impact on soils or irrigated crops if the resultant sodium concentration of the combined (CBM added to natural) waters is acceptable. Tr. Vol. II, pp. 346, Tr. Vol. III, pp. 494-499.

42. The proportion of Prairie Dog Creek water to CBM effluent discharge will determine the overall water quality (including sodium concentration) at any particular time. Tr. Vol. II, pp. 383-384; Exhibit 26 (Vance Report, p.5).

43. Downstream mixing of CBM discharge with natural flow (in Prairie Dog Creek) will determine the quality of irrigation water. Tr. Vol. II, p. 348.

44. It takes 24 cfs to irrigate Petitioners' lands below outfall 003 in Prairie Dog Creek. A maximum CBM discharge of less than 2.5 cfs would equal about 1/10 of 24 cfs. Petitioners do not begin to divert water from Prairie Dog Creek in the spring for irrigation until the flow is about 5 cfs and keep adding to that diversion until the flow is enough for irrigation. Tr. Vol. II, pp. 255-257.

45. If PDWSC normally diverts 50-65 cfs from Piney Creek via Jenks Creek to Prairie Dog Creek above outfall 003, then a maximum CBM discharge of less than 2.5 cfs would be no more than 1/20 of the irrigation water below outfall 003. Tr. Vol. II, pp. 248, 254.

46. Petitioners' expert in soil science, Dr. Vance of the University of Wyoming, expressed concern about discharge limits which allow addition of sodium that might increase sodium concentrations in Prairie Dog Creek over background concentrations, rather than with mass salt load by itself. However, Dr. Vance did not have knowledge of Prairie Dog Creek flow data, had not done a mixing analysis, and did not have an opinion as to what a protective flow should be to mix with the maximum permitted effluent from outfall 003. Tr. Vol. II, pp. 343-346.

47. Pennaco's expert in soil science, private consultant Dr. Schafer, showed through mass load modeling analyses, using Sheridan County

Conservation District water quality and flow data for Prairie Dog Creek, that an EC limit of 1215 $\mu\text{mhos/cm}$ for outfall 003 will not result in mixed CBM effluent and natural water exceeding 1330 $\mu\text{mhos/cm}$ EC in reaches of Prairie Dog Creek naturally below 1330 $\mu\text{mhos/cm}$ EC. He predicted that the discharge would result in a reduction of EC in downstream reaches of Prairie Dog Creek naturally exceeding 1330 $\mu\text{mhos/cm}$ EC. Tr. Vol. III, 489-494, Exhibit 31 (pp. 25-29, 35-37), Exhibit 36 (load model chart).

48. Dr. Schafer testified that a sodium level of 300 mg/l is protective and meets the Hanson Diagram EC/SAR ratios at any natural flow of 5 cfs or more in Prairie Dog Creek and that a natural flow of 5 cfs (the minimum irrigation flow) and a maximum permitted flow of 2.27 cfs would result in an EC of 935 and an SAR of 2.6. Dr. Schafer testified that, at a harmonic mean flow (a statistical low flow measure) of 6.8 cfs in Prairie Dog Creek, a sodium limit of 518 mg/l is protective and meets Hanson Diagram EC/SAR ratios. Tr. Vol. III, pp. 495-497; Exhibit 31 (pp. 20-21); Exhibit 39 (worst case scenario chart).

49. As to outfall 003, DEQ's and Pennaco's witnesses testified that the use of sodium as the effluent limit, as opposed to SAR which is a ratio, leads to a more predictable effect on the downstream mixture of effluent in perennial receiving water such as Prairie Dog Creek. A sodium limit at outfall

003 instead of an SAR limit is reasonable, appropriate and effectively controls SAR. Tr.Vol. I, 63, 126-127; Tr. Vol. III, pp. 482-483.

50. The bases for the permit's effluent limits on discharges from outfall 002 into the on-channel Paul #3 reservoir in Wildcat Creek are:

a. EC 1330 $\mu\text{mhos/cm}$: the USDA salt tolerance database soil salinity threshold of 2000 $\mu\text{mhos/cm}$ EC for alfalfa converts (using the 1.5 conversion factor) to a "default" limit of 1330 $\mu\text{mhos/cm}$ ECw for alfalfa. Tr. Vol. I, pp. 31-32; Exhibit 1 (SOB).

b. SAR, in lieu of an end of pipe limit, requires containment in an on-channel reservoir rather than direct discharge, tighter irrigation monitoring and a re-opener provision for SAR making the establishment of an end of pipe effluent limit for SAR at outfall 002 "automatic" under the specified conditions. Tr. Vol. I, pp. 34-35, 119; Exhibit 1 (SOB); Mod, p.9.

51. Wildcat Creek is tributary to Prairie Dog Creek and also receives flows diverted from Prairie Dog Creek via Ninemile Ditch. Tr. Vol. II, pp. 217-218; Exhibit 1 (SOB).

52. Wildcat Creek is an ephemeral stream that does not have a predictable base flow above the outlet from Ninemile Ditch. Tr. Vol., II, p. 218; Exhibit 1 (SOB).

53. Ninemile Ditch can divert up to 22 cfs from Prairie Dog Creek and carry it over to Wildcat Creek above the confluence of Wildcat Creek and Prairie Dog Creek. Mr. Koltiska and his ranches obtain most of their irrigation water from Ninemile Ditch which is unaffected by outfall 003. Tr. Vol. II, pp. 235-236, 249-250.

54. Ninemile Ditch is not affected by Pennaco's CBM discharges, because the intake for Ninemile Ditch in Prairie Dog Creek is above the point of CBM discharge (outfall 003) into Prairie Dog Creek. Tr. Vol. II, pp. 236-237, 250.

55. Petitioner, Mr. Koltiska indicated that the Petitioners generally are not concerned about CBM discharges affecting water quality in the Ninemile Ditch, because the point of CBM discharge (outfall 003) into Prairie Dog Creek is below the intake for the Ninemile Ditch in Prairie Dog Creek. Tr. Vol. II, pp. 236-237, 250.

56. Petitioner PDWSC shareholders irrigate with Prairie Dog Creek water below Wakeley and all the way down to Acme. Tr. Vol. II, pp. 238-239.

57. Average ambient water quality between Wakeley and Acme is expected to be comparable to ambient water quality available for irrigation use by the PDWSC shareholders who irrigate with Prairie Dog Creek water below Wakeley and all the way down to Acme. Tr. Vol. II, pp. 238-239.

58. Petitioners Prairie Dog Ranch, AC Ranch, and Mr. Koltiska use much of the alfalfa and alfalfa/grass mix they raise for their own livestock, but do not record quantities. Exhibit 14 (Petr's Resp 1stInt.#8).

59. Petitioners Prairie Dog Ranch, AC Ranch, and Mr. Koltiska have records of how much (surplus) hay they have sold, but no records of the quantities of hay they have held back for their own cattle. Exhibit 14 (Petr's Resp 1stInt.#8); Tr. Vol. II, pp. 240-241.

60. Petitioners Prairie Dog Ranch's, AC Ranch's, and Mr. Koltiska's hay production has fluctuated over the last several years due to temperature. Tr. Vol. II, p.242.

61. Petitioner Koltiska has not noticed any difference in the performance of his alfalfa hay, and the quality (nutritional value) of his hay has stayed constant. Tr. Vol. II, p. 242.

62. Petitioner Koltiska has not seen any impact from any untreated CBM water that may have escaped from the Paul #3 reservoir into Wildcat Creek. He uses water from Wildcat Creek that includes water from Ninemile Ditch. Tr. Vol. II, pp. 218, 243-244, 249-250, 262-263, 376.

63. Mr. Adams, a rancher in Wildcat Creek who also contracts with Pennaco, has produced irrigated alfalfa with untreated CBM-produced water discharged into the Paul #3 reservoir under a different discharge permit since

2006, and testified that he has not observed any negative impacts to his alfalfa or soils. Tr. Vol. III, pp. 576-577, 579.

64. Petitioner Koltiska has irrigated with water out of Wildcat Creek upstream of Ninemile Ditch at up to 2800 $\mu\text{mhos/cm}$ ECw and has not yet seen any damage to his alfalfa from this water quality. Petitioners did not present any evidence of actual harm to their crops caused by the release of CBM waters. Tr. Vol. II, pp. 221, 242-244, 266-268; Tr. Vol. III, pp. 576-579.

65. The ambient ECw of Wildcat Creek water measured above the outlet from Ninemile Ditch into Wildcat Creek is 2200 $\mu\text{mhos/cm}$. This value is higher than the 1330 $\mu\text{mhos/cm}$ ECw limit imposed by DEQ for outfall 002. Tr. Vol. II, p. 246.

66. There is little water entering the Wildcat Creek system from below the Paul #3 reservoir down to the outlet from the Ninemile Ditch. ~~Any~~ Water that does collect at the pumpback point below the Paul #3 reservoir is pumped out and over to the Makayla reservoir. Tr. Vol. I, pp. 36, 40-41; Tr. Vol. II, pp. 381, 383.

67. In establishing permit limits, DEQ assumed that some water is leaking from the Paul #3 reservoir, although Pennaco's expert witness Dr. Schafer concluded that the Paul #3 reservoir is not leaking into Wildcat Creek at this pumpback point. Tr. Vol. I, pp. 119-121; Tr. Vol. III, pp. 503-505.

68. Dr. Schafer gathered some carbon-13 and other isotope data in June 2009. Using this data, Dr. Vance calculated 16-17% CBM water at IMP-1, located above the outlet from the Ninemile Ditch and concluded there was no CBM water in Wildcat Creek below IMP-1 and above Ninemile Ditch. Tr. Vol. II, pp. 373, 375, 382; Exhibit 26 (Vance Report, p.5); Exhibit 31, pp. 38-40 .

69. Dr. Vance's view was that 60% of the water in Wildcat Creek at the pumpback point below Paul #3 reservoir and 83% at IMP-1 was non-CBM water, based on his review of carbon-13 isotope data. By contrast, Dr. Schafer concluded that all the water chemistry results taken from a June 2009 sampling, including the carbon-13 analysis, showed no CBM influence at IMP-1. Dr. Vance and Dr. Schafer agree that common ion chemistry from Wildcat Creek water samples taken in June 2009 show no evidence of CBM water anywhere in Wildcat Creek, to include IMP-1. Tr. Vol. II, pp. 373, 383; Tr. Vol. III, pp. 505-508; Exhibit 40.

70. Based on Dr. Vance's evaluation of Wildcat Creek water quality data, EC_w increased to 2500 μ mhos/cm and SAR decreased at IMP-1. Tr. Vol. II, pp. 384-386.

71. Dr. Vance's view was that the other (non-CBM), higher salt content water in Wildcat Creek that mixed with the smaller percentage of CBM

water between the pumpback point below Paul #3 reservoir and downstream IMP-1 drove up the EC_w to 2500 μ mhos/cm at IMP-1. Tr. Vol. II, pp. 384-386.

72. Dr. Vance accounted for the increase in EC_w (and decrease in SAR) as being due to mixing of CBM effluent with higher-EC, non-CBM water in the Wildcat Creek system. He believed that the EC_w level in Wildcat Creek could have gone up between the pumpback point below Paul 3 reservoir and IMP-1 even without CBM water mixed in, because more of the natural system could be contributing to the higher EC_w at IMP-1, and the EC_w at IMP-1 is lower than it is further down Wildcat Creek (because of mixing with the lower EC CBM water). Tr. Vol. II, pp.386-387.

73. The record shows no evidence of CBM water in Wildcat Creek below IMP-1. Dr. Schafer's testimony was that any CBM water which might be found in upper Wildcat Creek could be coming from irrigation return flows and not the Paul #3 reservoir, that the amount of CBM water at the confluence of Wildcat Creek and Ninemile Ditch would not be measurable, that CBM water from the Paul #3 would improve water quality in upper Wildcat Creek, and that CBM water would not have a measurable impact on irrigated crops. Tr. Vol. II, pp. 168-170, 375-376. Tr. Vol. III, pp. 509-514; Exhibit 41.

74. Dr. Vance's assessment of the carbon 13 data gathered by Dr. Schafer was that there has been some CBM water that has contributed to water quality problems in Wildcat Creek below Paul #3 reservoir, but that the influence of CBM water would have been minor, even if the entire discharge was attributable to CBM, if the quality of that water was at most 1330 μ mhos/cm EC at outfall 002 to Paul #3 reservoir and CBM water was only 40% of the water at the pumpback point below Paul #3 and down to 16-17% of the water further down at IMP-1. Tr. Vol. II, pp. 382-387.

75. The irrigated acreages in the Prairie Dog Creek and Wildcat Creek drainages have good soils that are well-drained and have the greatest measured depth to groundwater that NRCS measures. These lands have a Class III land capability, which is among the best in Wyoming, and are mostly considered prime farmland by NRCS. Tr. Vol. II, pp. 366-367, 487; Exhibit 29 (Soil maps).

76. The content of the soils at issue here did not concern to Dr. Schafer, and his work with the Prairie Dog Creek Agronomic Monitoring and Protection Program (AMPP) suggested the soils in the Prairie Dog Creek drainage are irrigable. Tr. Vol. III, pp. 487, 502-503; Exhibit 31 (Schafer Report, pp. 5-12).

77. Petitioners' expert, Dr. Vance, did not give an opinion on what the effluent limits in the permit should be to protect irrigation use. Petitioners did not show how more restrictive limits for EC, sodium or SAR would be more protective of irrigated crops or soils than the limits set in the permit by DEQ. Tr. Vol. II, pp. 336-337, 338-339; Tr. Vol. III, pp. 638-41.

78. While Dr. Schafer's work and opinion confirmed that of DEQ, there is not a consensus among all experts and scientists on what EC level is protective for alfalfa. Tr. Vol. II, pp. 348, 392-394; Tr. Vol. III, p. 638.

79. Having considered all of the evidence before it, the EQC found that Petitioners' challenge to the permit conditions should be denied and voted to affirm the issuance of modified WYPDES Permit WY0054364. Those in favor included Presiding Officer and Chairman Dennis Boal, and Council Members Coverdale Flitner and Guschewsky. Those opposed included Council Member John Morris. Tr. Vol. III, pp. 641-42.

80. To the extent that any of the foregoing findings constitute conclusions of law, they are hereby incorporated as such.

IV. CONCLUSIONS OF LAW

1. Pursuant to WYO. STAT. ANN. § 35-11-112(a)(iv), the EQC has jurisdiction over the subject matter and the parties in this contested case.

2. WYO. STAT. ANN. § 35-11-301(a)(i) and (ii) require authorization under a permit issued by DEQ for the discharge of any pollution or wastes into the waters of the state. More specifically, no person, except when authorized by a permit issued pursuant to the provisions of the Act, shall cause, threaten or allow the discharge of any pollution or alter the properties of waters of the state.

3. WYO. STAT. ANN § 35-11-301(a)(i) and (ii) do not prohibit the discharge of pollution into surface waters of the state or the alteration of physical or chemical properties of waters of the state. Rather, the person is required to obtain a permit or authorization from DEQ to discharge pollution into surface waters of the state or to alter the physical or chemical properties of waters of the state.

4. WYO. STAT. ANN. § 35-11-801(a) authorizes the director of DEQ to impose permit conditions, as necessary to accomplish the purpose of the Act, which are “not inconsistent” with existing rules, regulations and standards.

5. All Wyoming surface waters which have the natural water quality potential for use as an agricultural water supply shall be maintained at a quality which allows continued use of such waters for agricultural purposes. Degradation of such waters shall not be of such an extent to cause a measurable decrease in crop or livestock production. Unless otherwise demonstrated, all Wyoming

surface waters have the natural water quality potential for use as an agricultural water supply. Ch. 1, § 20, WWQRR.

6. Ch. 1, §20 does not require that there be no increase in EC or SAR levels over ambient water quality but only that no discharge will cause a measurable decrease in crop or livestock production.

7. There is more than one appropriate scientific method by which to set permit limits to achieve the narrative standard of Ch. 1, § 20, WWQRR. DEQ used appropriate methods to set the challenged permit limits in the permit. Tr. Vol. III, pp. 479, 480-484, 641; Exhibit 31, p. 15; Exhibit 33 (Criticism Table).

8. The permit limits for outfall 003 in the permit are protective of soils and irrigated crops in the Prairie Dog Creek and Wildcat Creek drainages. Tr. Vol. III, 474-475, 484, 488-499; Exhibits 31, pp. 20-29, 35-39.

9. The permit limits for outfall 002 are sufficiently protective of soils and irrigated crops in the Prairie Dog Creek and Wildcat Creek drainages. Tr. Vol. III, pp. 474-475, 502-514; Exhibits 31, pp. 29-40, 32, 40, 41.

10. The SAR and EC thresholds used by DEQ are protective of soil infiltration rates. Tr. Vol. II, pp. 392-393; Exhibit 22 (Hendrickx & Buchanan Report, p.3).

11. The Council has taken into account the competing testimony of the experts as to whether or how far downstream the Paul #3 reservoir may be leaking

into Wildcat Creek, the evidence presented on that point, and the fact that DEQ chose to include SAR monitoring provisions in the permit. Having done so, it finds that DEQ's decision not to impose an SAR limit at outfall 002 was appropriate and reasonable.

12. A preponderance of the evidence showed that the challenged permit's effluent limits of 1215 $\mu\text{mhos/cm}$ EC and 300 mg/l dissolved sodium for discharges from outfall 003 to Prairie Dog Creek and 1330 $\mu\text{mhos/cm}$ EC with restrictions on SAR at the irrigation monitoring point for discharges from outfall 002 into Paul #3 reservoir into Wildcat Creek, to protect water quality for irrigation of alfalfa, will not result in a measurable decrease in crop production and are consistent with the narrative standard in WWQRR Ch. 1, §20. Tr. Vol. III, pp. 632-647.

13. DEQ's use of the "default" limit of 1330 $\mu\text{mhos/cm}$ for EC, as opposed to the use of background water quality, has previously been affirmed as being protective for irrigation of alfalfa. *See, e.g.*, "Findings of Fact, Conclusions of Law and Order," In Re: Willow Creek General Permit, Pumpkin Creek General Permit, and Four Mile Creek General Plan, EQC Consolidated Docket Nos. 06-3815, 06-3816 and 06-3817, Aug. 12, 2008; Tr. Vol. II, pp. 388-391; Tr. Vol. III, pp. 636-637, 639.

14. The “default” method employed by DEQ to establish the challenged permit limits in this matter was an acceptable method for deriving protective numerical effluent limits for EC and sodium in this permit.

15. DEQ used acceptable methods to set EC and sodium limits in the permit under Ch. 1, § 20 and Ch. 2, § 5(c)(iii)(C)(IV) of the WWQRR. The limits established in it are sufficient to maintain water quality which allows continued use of such waters for agricultural purposes and will not result in a measurable decrease in crop production. Tr. Vol. III, pp. 632-647.

16. To succeed on this permit appeal, Petitioners were required to show that DEQ’s selection of the challenged permit conditions was unfounded or otherwise not in accordance with law. *Knight v. EQC*, 805 P.2d 268 (Wyo. 1991). Petitioners failed to make such a showing in this case.

17. When the EQC reviews the DEQ’s interpretations of regulations promulgated under the Act, it accepts those interpretations unless they are clearly erroneous or inconsistent with the plain language of the rules. *Powder River Basin Resource Council and Sierra Club v. Dep’t of Env’tl. Quality*, 2010 WY 28, ¶ 6, ___ P.3d ___ (Wyo. 2010).

18. In this contested case, where the competing parties have presented evidence, the EQC found that Petitioners failed to show by at least a preponderance of the evidence why the permit conditions selected by DEQ were

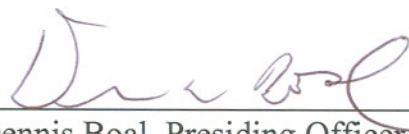
not “supported by relevant evidence” which a “reasonable mind” might accept. *Penny v. Wyo.*, 2005 WY 117, ¶ 12 , 120 P.3d 152, 160 (Wyo. 2005) and *Dale v. S&S Builders, LLC*, 2008 WY 84, 188 P.3d 554 (Wyo. 2008).

19. Having considered all of the evidence before it, the EQC found that Petitioners’ challenge to the permit conditions should be denied. The issuance of modified WYPDES Permit WY0054364 is affirmed.

ORDER

IT IS THEREFORE ORDERED that the Department of Environmental Quality’s decision to issue WYPDES Permit WY0054364 is affirmed.

Dated this 11 of March, 2010.



Dennis Boal, Presiding Officer
Environmental Quality Council

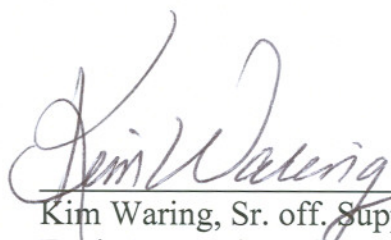
CERTIFICATE OF SERVICE

I, Kim Waring, certify that at Cheyenne, Wyoming, on the 10th day of March, 2010, I served a true and correct copy of the foregoing Findings of Fact, Conclusions of Law, and Order Denying Petition by First Class U.S. mail, postage prepaid, to the following:

Mark R. Ruppert
Jere C. Overdyke
HOLLAND & HART LLP
Attorneys for Pennaco Energy, Inc.
2515 Warren Avenue, Suite 450
P. O. Box 1347
Cheyenne, WY 82003

Mike Barrash
Luke Esch
Wyoming Attorney General's Office
Attorneys for Wyoming DEQ
123 State Office Building
Cheyenne, WY 82002

Kate M. Fox
J. Mark Stewart
DAVIS & CANNON, LLP
Attorneys for Petitioners
422 W. 26th Street
P.O. Box 43
Cheyenne, Wyoming 82003



Kim Waring, Sr. off. Support Spec.
Environmental Quality Council
122 West 25th Street, Rm. 1714
Herschler Building
Cheyenne, WY 82002