Exh. DCG-13
Dockets UE-190529/UG-190530 and
UE-190274/UG-190275 (*consolidated*)
Witness: David C. Gomez

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**DOCKETS UE-190529 and UG-190530 *(consolidated)***
In the Matter of the Petition of **PUGET SOUND ENERGY** **For an Order Authorizing Deferral Accounting and Ratemaking Treatment for Short-life UT/Technology Investment**	**DOCKETS UE-190274 and UG-190275 (*consolidated*)**

EXHIBIT TO TESTIMONY OF

David C. Gomez

STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

MDEQ Major Facility Siting Act Certificate Amendment May 10, 2019

November 22, 2019

DEQ
Montana Department of Environmental Quality

MAJOR FACILITY SITING ACT CERTIFICATE AMENDMENT
to Utilize Non-Rosebud Mine Seam Coal

On March 15, 2019, the Department of Environmental Quality (DEQ) received an application from Talen Montana, LLC, (Talen) to amend its Certificate of Environmental Compatibility and Public Need (the Certificate) for the Colstrip Steam Electric Station (Colstrip). Talen revised the application with additional information on April 24, 2019. The Colstrip Steam Electric Station (CSES) is located in Rosebud County, Montana and consists of four sub-bituminous coal-fired units. Colstrip Units 3 and 4 were sited, constructed and are operated under the Certificate issued in 1976 under Montana's Major Facility Siting Act (MFSA). Units 3 and 4 are currently permitted to use Rosebud seam coal obtained from Areas A through G of the nearby Rosebud Mine.

The proposed amendment would allow Colstrip the flexibility to also use non-Rosebud seam coal obtained from mines other than the Rosebud mine. The proposed amendment would also allow Talen to construct a larger coal handling facility to enable Colstrip to receive and use coal from these new sources.

Specifically, Talen requests the following amendment to the Certificate:

> Based upon Certificate Amendment in 2019, Units 3 & 4 are also allowed to:
>
> 1. Utilize non-Rosebud Seam coals from mines identified in the January 22, 2019 application to modify Montana Air Quality Permit 0513-10 and the March 15, 2019 application to amend this Certificate, which have been demonstrated to be equivalent or better quality for emissions control related purposes, and
>
> 2. Utilize rail and or truck delivery facilities for the non-Rosebud mine coal as authorized by Montana Air Quality Permit 0513-11, March 13, 2019.

The mines identified in the January 22, 2019, application to modify Montana Air Quality Permit 0513-10 and the March 15, 2019, application to amend the Certificate include the Spring Creek Mine, the Decker Mine, the Signal Peak Mine, and the Otter Creek Mine in Montana and the Eagle Butte Mine, the Belle Ayre Mine, the Rawhide Mine, the North Antelope Rochelle Mine, the North Antelope Rochelle (north) Mine, the Caballo Mine, the Coal Creek Mine, the Black Thunder Mine, the Antelope Mine, and the Cabrero Rojo Mine in Wyoming.

Pursuant to Section 75-20-219(1), MCA, if DEQ determines that the proposed change would result in a material increase in any environmental impact of the facility, or a substantial change

in the location of all or a portion of the facility as set forth in the certificate, DEQ is required to grant, deny or modify the amendment with conditions it considers appropriate. Under Section 75-20-219(2), MCA, if DEQ determines that the proposed change in the facility would not result in a material increase in any environmental impact or a substantial change in the location of all or a portion of the facility as set forth in the certificate, DEQ is required to automatically grant the amendment either as applied for or upon terms or conditions that DEQ considers appropriate. Therefore, whether or not there is a material increase in any impacts or a substantial change in the location of all or part of the facility, DEQ has the authority to grant and condition its approval of the amendment.

This decision document addresses the proposed amendment to the extent that it would allow Talen to use non-Rosebud Seam coals as fuel in Colstrip Units 3 and 4. An amendment allowing Talen to construct the proposed rail/truck delivery facilities was previously approved on May 3, 2019.

DEQ has determined the use of the non-Rosebud Seam coal from the mines identified above would not result in a material increase in any environmental impact or a substantial change in the location of the facility. Therefore, DEQ is required to automatically grant the amendment either as applied for or upon terms or conditions it considers appropriate.

DECISION

Pursuant to Section 75-20-219(1), MCA, if DEQ determines that the proposed change would result in a material increase in any environmental impact of the facility, or a substantial change in the location of all or a portion of the facility as set forth in the certificate, DEQ is required to grant, deny or modify the amendment with conditions it considers appropriate. Under Section 75-20-219(2), MCA, if DEQ determines that the proposed change in the facility would not result in a material increase in any environmental impact or a substantial change in the location of all or a portion of the facility as set forth in the certificate, DEQ is required to automatically grant the amendment either as applied for or upon terms or conditions that DEQ considers appropriate. Therefore, whether or not there is a material increase or a substantial change in the location of all or part of the facility, DEQ has the authority to grant and condition its approval of the amendment.

In July of 1976, the Board of Natural Resources and Conservation (BNRC) issued Findings of Fact, Opinion, Decision, Order and Recommendations (BNRC's Order) regarding Colstrip Units 3 & 4. The Board determined that the facilities as proposed by Montana Power Company et al. (collectively MPC) represent the public interest, convenience and necessity of a majority of the people of the state of Montana and the Pacific Northwest, that the facilities as proposed represent the most acceptable and desirable method for satisfying the basic need for electrical energy to the people of the State of Montana and the Pacific Northwest with a minimum of adverse environmental impact, on both the human and natural environment, considering the state of available technology and the nature and economics of the various alternatives (BNRC's Order, p 47).

The BNRC also determined that the Board of Health and Environmental Sciences (BHES) was the authorized state agency empowered to determine whether the proposed facilities would violate state and federal standards regarding air and water quality. The BNRC recognized that the BHES had issued its own findings of fact and conclusions of law, determining that the proposed facilities would not violate state and federal standards. (BNRC's Order, p. 47) The BNRC incorporated by reference the BHES's findings of fact and conclusions of law as Exhibit A to the BNRC's Order (BNRC's Order, p. 9). The BNRC stated that the findings of fact and conclusions of law contained in Exhibit A were conclusive on all questions related to the satisfaction of state and federal air and water quality standards.

The BNRC ordered issuance of the Certificate of Environmental Compatibility and Public Need (the Certificate) for Colstrip Units 3 & 4 as proposed by MPC in its application subject to the conditions set forth in the BNRC's conclusions of law.

The provision that Talen seeks to amend is contained in Paragraph XV of the BHES's findings of fact. (Exhibit A, p. 11) That provision currently states as follows:

XV.

> *The fuel to be used in Units #3 and #4 will be Rosebud seam coal from the Colstrip area. (Berube 7-902). It will be mined from areas designated C, D, and E, shown on Exhibits 52, 53, 140 and 141. (Berube 8-102701029; Rice 28-3635-3636, 3640-3641). Based upon Certificate amendment in 2014, Units 3&4 are also allowed to utilize Rosebud seam coal mined from areas A, B, F and G, such coal having been shown to be of substantially the same or better quality for emissions control related purposes." XV, and amendment, In the Matter of the Application of PPL Montana, LLC to Amend the Colstrip 3 and 4 Certificate of Environmental Compatibility and Public Need, signed January 20, 2015.*

This provision is found in the context of the BHES' findings related to air emissions and air quality standards. These findings begin with Paragraph IV of Exhibit A (describing the system that would be constructed to control air emissions) and run through Paragraph XXVIII of Exhibit A.

A review of the hearing transcripts indicates that there was a question as to whether Colstrip Units 3 & 4 would use coal from the Rosebud seam or a blend of coal from the Rosebud and McKay seams. Testimony presented by MPC clarified that it was proposing to use only coal from the Rosebud seam because the emission of sulfur was easier to control using that coal. This clarification is reflected in Paragraphs X and XI of Exhibit A, which provide as follows:

X.

> *Scaling in the scrubber is deterred by: (1) proper control of ph through injunction of lime as additional alkali substance to absorb sulfur dioxide and (2) recycle of the liquor with provides seed crystals of calcium sulphate so as to prevent the super-saturation of calcium sulphate in the recycled liquor . . . .*

XII.

The emission control system for Colstrip Units #3 and #4 is best suited for the Colstrip plants because it makes use of the alkalinity nature of the fly ash found in the Rosebud coal and thus reduces dependence upon additional lime injection, (Grimm, 14-1964).

Furthermore, Paragraph XVII of the Exhibit A provides as follows:

XVII.

The values of the basic composition of the coal should be considered for the emissions control system, including averages, maximums and minimums proper for design of the equipment are included in Applicant's Exh. 54. (Berube 8-1042, 1043). This information is an instruction for the equipment supplier and not a description of the coal in the field. The value of 1% sulfur is a maximum for design purposes because it represents the maximum value of sulfur that the pollution control equipment will have to contend within operation. (Berube 8-1044-1046). It is the maximum value of sulfur authorized by this Board for certification purposes.

Exhibit 54 that is referenced in Paragraph XVIII is attached as Attachment 1. The composition of coal in the non-Rosebud coal seam fall below the range of values for which the emission control system was designed. In fact, the non-Rosebud coal seam has a lower sulfur content than in Rosebud coal areas C, D and E which were the initial sources of coal authorized by the Certificate. Rosebud coal areas C, D and E have an average sulfur content of 0.88 while non-Rosebud coal has an average sulfur content of 0.31 (MFSA Amendment Application, Figure 3, p 18).

Finally, in regard to air quality emissions, DEQ's Air Quality Bureau, has determined that the proposed future supply of coal from non-Rosebud coal is permissible under Colstrip's current Montana Air Quality Permit (MAQP #0513-11). Samples of the future coal supply confirmed that it will comply with the sulfur content limitations. No increase in potential emissions is expected to occur due to the consumption of this future supply of coal.

While the BHES relied on the coal composition in the Rosebud coal seam to determine that operation of Units 3 & 4 would not result in air quality violations, it did not rely on coal composition analysis in regard to compliance with the Montana Water Quality Act. The BHES's findings in regard to water quality begin at Paragraph XXXII of Exhibit A and run through Paragraph XXXXS of Exhibit A. The majority of these findings relate to the withdrawal of water from the Yellowstone River for use in Colstrip Units 1 through 4, which will not be affected by Talen's use of non-Rosebud coal.

Paragraph XXXIX is relevant, finding that the various ponds which will be used for storage of water in the evaporation and disposal of water and waste materials will have seepage not anticipated to impair the quality of the ground water in the area. Similarly, the BHES's Conclusion of Law No. 6 provides as follows:

> *All ponds, surge ponds, settling ponds, and impoundments shall be properly sealed. They shall be monitored for seepage, including the installation of test wells to determine the extent of ground water pollution, and the necessities of correction therefor.*

Thus, the requirement that the disposal ponds be properly sealed, monitored for seepage, and the required correction of any groundwater pollution formed the BHES's determination that there would be no water quality violations rather than the composition of the coal. The use of non-Rosebud coal will not alter the BHES's finding that operation of Units 3 & 4 would not result in water quality violations. DEQ and Talen are currently engaged in remediation of groundwater contamination under the terms of an Administrative Order on Consent (AOC). DEQ entered into the AOC under its Major Facility Siting Act and Montana Water Quality Act enforcement authority.

As an extra step of precaution, DEQ conducted a compositional analysis of the coal from proposed non-Rosebud coal, as compared to coal found in approved Rosebud coal to determine whether different water quality impacts may be expected. In the original MFSA Certificate proceedings, Applicants Exhibit 55, which is attached as Attachment 2, showed the minimum, maximum and average concentrations of elements found in Rosebud seam coal obtained from Areas C, D and E.

In the analysis, DEQ looked at the concentration of the following elements in the new coal sources: antimony, arsenic, beryllium, boron, cadmium, chromium, copper, fluorine, lead, manganese, mercury, nickel, selenium, and zinc. The new coal sources generally have significantly lower concentrations of these elements as shown in Attachment 3.

Attachment 3 compares the average concentrations of the elements found in the non-Rosebud seam coal from the fourteen new mine sources with the average concentration of the elements for Rosebud seam coal obtained from Areas C, D and E of the Rosebud mine. The average concentrations of elements in the coal from the respective new source mines that are depicted in light blue are significantly lower than the average concentration of the elements found in Rosebud seam coal from Areas C, D, and E. The average concentrations of elements from the respective new source mines that are depicted in darker blue are not statistically different from the average concentration of elements found in the Rosebud seam coal from Areas C, D, and E.

There is a higher average concentration of antimony at the Belly Ayre, Eagle Butte, and Signal Peak; of beryllium at Signal Peak; of cadmium at Belly Ayre, Decker, and Eagle Butte; of chromium at Decker; and of fluorine at Antelope, Belle Ayre, Caballo, Coal Creek, Corero Rojo, Decker, Eagle Butte, NARM, NARM North, Rawhide and Signal Peak. While the average concentrations of these elements are higher than the average concentrations in Rosebud coal from Areas C, D and E, the average concentrations of these elements are lower than the maximum concentration of elements in Rosebud coal from Areas C, D, and E.

Moreover, during the administration of the AOC, boron and selenium have been identified as constituents of concern. Boron is not an element for which minimum, mean and average concentrations were shown in Applicants Exhibit 55. The average concentration of boron in Rosebud seam coal was determined in the development of the AOC process. The average

concentration in boron in the non-Rosebud seam coal from the new source mines is lower than the average concentration of boron in Rosebud seam coal. Similarly, as shown in Attachment 3, the average concentration of selenium in the non-Rosebud seam coal from the new source mines is lower than the average concentration of selenium in Rosebud seam coal.

DEQ was not able to further analyze the non-Rosebud seam coal's parameter of germanium for comparison to the approved Rosebud coal. The parameter of germanium is not collected by all coal suppliers. During the original MFSA proceedings, DEQ and Talen inferred the analysis of germanium was not for an environmental parameter but was collected for another potential industrial use of the Rosebud coal seam. Other industrial uses of germanium are for semiconductor, mainly used in transistors and integrated circuit, and an additive to glass for wide-angle lenses and infrared devices (G. Smith memo, April 2019). DEQ's analysis of germanium found:

Germanium dioxide is considered to have low bioavailability and toxicity when released into the environment; therefore, it poses no immediate ecological risk (SDS-Teck, 2015). No water quality standards have been developed for germanium in Montana (DEQ-7). Germanium is included on the EPA's Contaminant Candidate List 3 (CCL-3), which is a list of contaminants that are not subject to any proposed or promulgated national primary drinking water regulations, and that are known or anticipated to occur in public water systems (EPA, 2009)" […] The low toxicity of elemental germanium, associated with the relatively small scale of human use account for the fact that environmental contamination by germanium does not represent a major problem, perhaps with the exception of the close surroundings of industrial germanium production or processing sites. […] Germanium is not identified or listed as a hazardous air pollutant in the Clean Air Act, nor is it often included in assessments of emissions from coal-fired plants. (G. Smith memo, April 2019).

DEQ concluded monitoring coal sources, coal plant emission, and residual wastes for germanium concentrations may serve to confirm the presence of the trace element, but it may have little value for assessing potential environmental impacts (G. Smith memo, April 2019).

Based on available information, the use of coal from the new non-Rosebud coal mines should not result in a material increase in impacts to groundwater.

Because the change proposed by Talen in the amendment application does not result in a material increase in any environmental impact or a substantial change to all or a portion of the facility, DEQ is required to automatically grant the amendment under Section 75-20-219(2), MCA, either as applied for or upon terms or conditions that DEQ considers appropriate. DEQ approves the proposed change as set forth in the application for amendment submitted by Talen on March 15, 2019 and revised April 24, 2019.

Conditions set forth in the Certificate of Environmental Compatibility and Public Need and subsequent amendments remain in full force and effect.

A person aggrieved by the final decision of DEQ on an application for amendment of a certificate may within 15 days appeal the decision to the Board of Environmental Review as provided in Section 75-20-223(2), MCA.

Dated this 10th day of May 2019.
Approved by:

Kristi Ponozzo, Public Policy Director, DEQ

Attachment 1

COAL COMPOSITION FOR
EMISSIONS CONTROL SYSTEM DESIGN

	MAXIMUM	AVERAGE	MINIMUM
MOISTURE, %	28.80	25.37	21.84
VOLATILE MATTER, %	32.39	29.67	26.95
FIXED CARBON, %	38.20	34.46	30.72
SULFUR, %	1.00	0.88	0.40
ASH, %	12.58	10.36	6.10
HEATING VALUE, BTU/LB	8878	8374	8162
LBS. OF SULFUR/MILL BTU	1.225	1.06	0.45
LBS. OF ASH/MILL BTU	15.4	12.43	6.91

NOTE:
1. EQUIPMENT IS REQUIRED TO MEET PERFORMANCE GUARANTEES OVER ENTIRE RANGE OF ABOVE VALUES, AND NOT JUST AT AVERAGE.
2. THIS TABLE IS FOR THE FUTURE AREA C COAL. TABLES FOR AREAS D & E ARE SIMILAR IN REGARD TO MAXIMUMS.

EXHIBIT

Attachment 2

SUMMARY OF TRACE ELEMENT REPORTS
COLSTRIP-ROSEBUD COAL
AREAS D, E & C

ALL VALUES IN PPM OF AIR DRIED COAL

ELEMENT	AVG.	MAXIMUM	MINIMUM	STANDARD DEVIATION
ANTIMONY	0.47	1.72	0.2	0.379
ARSENIC	5.32	11.45	0.97	3.37
BERYLLIUM	0.29	0.68	0.13	0.14
CADMIUM	0.10	0.33	0.04	0.069
CHROMIUM	6.02	22.35	0.67	5.83
COPPER	15.89	22.1	8.4	3.68
FLUORINE	31.41	86.0	8.0	20.87
GERMANIUM	3.74	9.0	0.88	2.15
LEAD	3.61	10.4	1.4	2.46
MANGANESE	50.9	100.0	20.1	22.59
MERCURY	0.20	0.3	0.11	0.052
NICKEL	22.0	40.4	6.3	8.89
SELENIUM	0.49	2.26	0.1	0.49
ZINC	10.72	25.1	1.6	6.43

APPLICANTS EXHIBIT 55

Attachment 3

One-sample t-test results, in which statistical summaries of MFSA (Rosebud CDE) data are compared to individual non-Rosebud Coal source averages

	Antelope	Belle Ayre	Black Thunder	Caballo	Coal Creek	Corero Rojo	Decker	Eagle Butte	NARM	NARM North	OtterC	Rawhide	Signal Peak	Spring Creek
Antimony	4.015	-3.705	3.923	3.368	3.480	1.958	3.603	-3.551	4.218	4.228	1.374	4.084	-6.747	0.527
Arsenic	5.829	5.521	5.268	4.638	4.714	4.793	4.376	5.353	5.700	5.810	5.488	4.858	3.560	4.825
Beryllium	1.989	3.735	2.245	1.354	1.459	2.304	0.756	3.819	3.615	3.670	-1.718	3.828	-24.051	3.174
Boron	42.414	40.175	38.507	38.108	32.355	41.381	33.096	40.629	41.824	39.447	18.325	37.107	32.878	42.207
Cadmium	0.599	-3.525	1.617	2.325	2.382	0.383	-25.151	-3.356	3.697	4.217	3.436	2.851	3.436	4.121
Chromium	1.850	1.852	1.851	0.828	1.018	1.392	-2.545	1.724	2.487	2.506	2.464	1.999	2.554	2.422
Copper	8.286	7.193	9.242	4.239	5.996	6.021	6.545	8.817	8.478	9.504	11.403	9.770	4.303	9.103
Fluorine	-2.357	-2.371	-4.618	-4.002	-3.068	-4.345	-5.018	-3.242	-5.144	-5.182	2.169	-2.927	-3.580	-1.299
Germanium	6.473	NA	NA	6.063	NA	NA	NA	NA	6.063	6.063	NA	6.063	7.144	NA
Lead	1.921	3.327	2.848	1.992	2.451	2.254	4.586	3.308	3.260	3.291	1.946	3.379	1.445	3.881
Manganese	7.322	5.929	7.664	6.049	7.730	7.460	7.537	6.960	8.228	8.390	5.830	5.509	2.209	6.770
Mercury	10.972	9.358	9.938	7.651	9.512	8.449	12.138	8.866	10.436	10.476	11.545	9.447	12.369	10.305
Nickel	9.757	10.006	9.801	9.253	9.488	9.332	7.731	9.560	10.046	10.484	10.213	9.280	10.426	10.443
Selenium	0.032	-0.147	0.013	-0.220	-0.121	-0.259	0.047	-0.141	0.036	0.000	0.005	-0.066	0.069	-0.091
Zinc	1.969	4.753	1.154	2.214	1.261	3.242	2.390	3.674	3.670	5.290	4.971	0.741	6.874	4.660

Note:

Light Blue Cells	(Rosebud CDE) is significantly greater than the mine average
Dark Blue Cells	(Rosebud CDE) and the mine average are not significantly different
Yellow Cells	(Rosebud CDE) is significantly lower than the mine average

Source: Environmin Technical Memorandum, May 2019