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TCC
Supplemental Testimony
Paul Krupin
EXH-5915_S

BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITING EVALUATION COUNCIL

In the Matter of the Application of:

DOCKET NO. EF-210011

Scout Clean Energy, LLC, for
Horse Heaven Wind Farm, LLC,
Applicant.

SUPPLEMENTAL TESTIMONY OF TCC
WITNESS PAUL KRUPIN

Q: Please state your name and address.

A: Paul Krupin, 2404 South Lyle St., Kennewick WA 99337.

Q: Please briefly describe your work experience and qualifications.

A: My education and resume were provided in EXH-5301_T and in Attachment A to
TCC's August 7, 2023 Motion for Reconsideration¹.

Q: Please describe what you are providing in this submittal.

I am providing supplemental testimony regarding the fugitive dust impacts that will be
caused by the proposed wind farm project and in response to questions that were
raised by Council members in the adjudication hearing on August 23, 2023.

¹ TCC'S Motion For Reconsideration Of Order To Strike All Or Part Prefiled Testimony Of TCC
Witnesses Rick Dunn, Paul Krupin, David Sharp, And Richard Simon.

SUPPLEMENTAL TESTIMONY OF TCC WITNESS

PAUL KRUPIN - 1

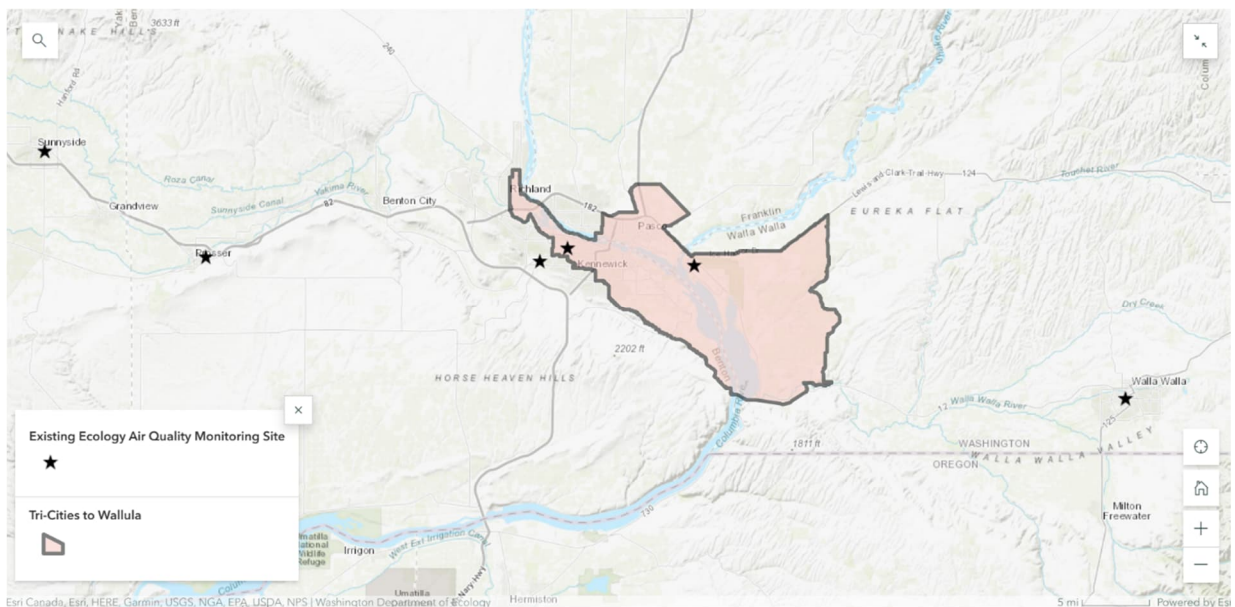
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1 Kennewick WA is designated as an overburdened community highly impacted by air
2 pollution.²

3
4 [RCW 70A.65.010](#) (54) defines “Overburdened Communities” as:

5 *“a geographic area where vulnerable populations face combined, multiple*
6 *environmental harms and health impacts or risks due to exposure to*
7 *environmental pollutants or contaminants through multiple pathways, which*
8 *may result in significant disparate adverse health outcomes or effects.”*

9 The following map identifies the overburdened communities in Washington State

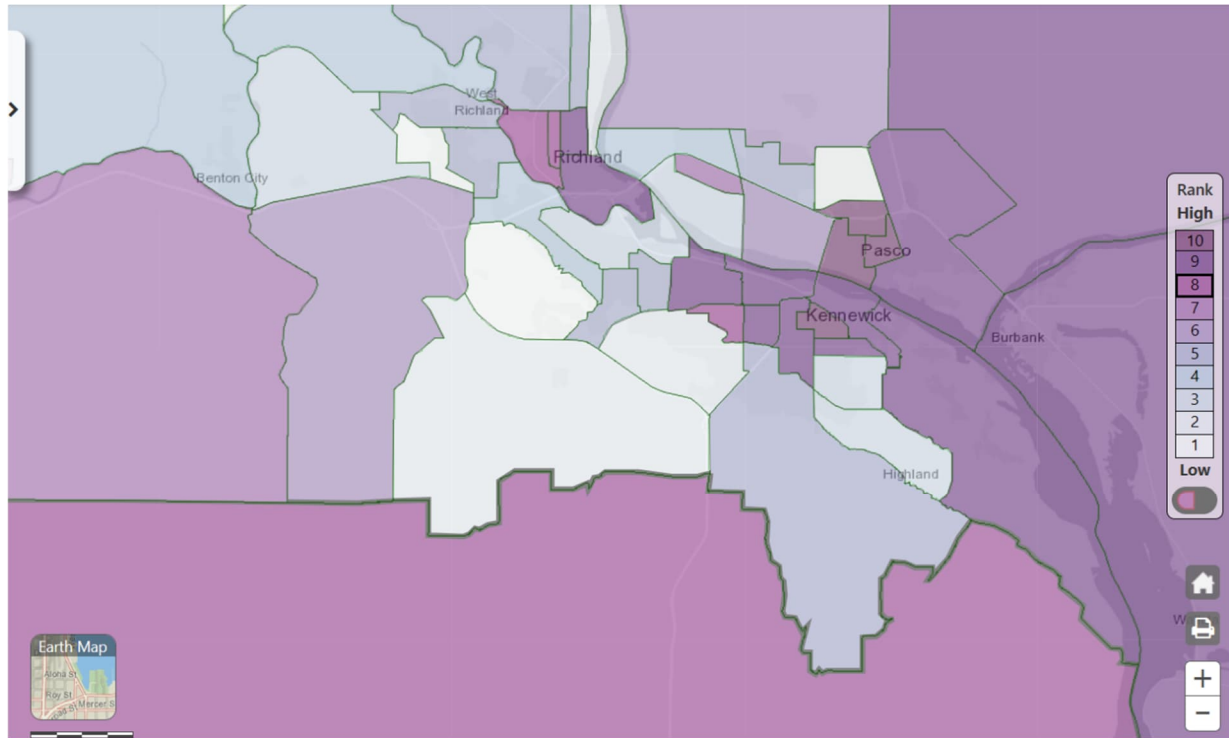


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20 The map shows the location of the existing air quality monitoring stations.

21 The Washington State Department of Health publishes an Environmental Health
22 Disparities Map that states that the Tri-Cities are identified as among the worst
23

24
25 ² Reference: Overburdened Communities Highly Impacted by Air Pollution (arcgis.com)

26 <https://storymaps.arcgis.com/stories/c10bdbfc69984a9d85346be1a23f6338>



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13 overburdened communities exposed to poor air quality and associated health
14 impacts.³

15 The area is already impacted severely by air pollution from fugitive dust. It is classified
16 in the highest categories for environmental health disparities compared to the rest of
17 the state of Washington. The Ecology report describes this area in pertinent part as
18 follows:

19 “At approximately 173 square miles, this is the largest overburdened
20 community highly impacted by air pollution by area that has been identified so
21 far. However, the pollutants of concern are primarily regional in scale. Ozone
22 forms in the atmosphere on hot summer days when two forms of air pollution –
23 nitrogen oxides (NOx) and volatile organic compounds (VOCs) – react with
24 sunlight. NOx and VOCs come from many sources, but cars and trucks are the
25 largest contributors. Conditions in the Tri-Cities area, including prevailing
winds, push ground-level ozone up against the Horse Heaven Hills, where it
can become concentrated in the basin over more populated areas. PM 10 and
PM 2.5 also collect in the basin, and come from sources like windblown dust
from construction, agriculture, or open lands, outdoor and agricultural burning,

26 ³ Washington Environmental Health Disparities Map <https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map>

1 residential wood burning, wildfires, mobile sources like cars and trucks, and
2 industrial sources.”

3 This area also is subject to occasional “exceptional events” for air quality like
4 windblown dust storms, which can lead to temporary exceedances of the national
5 ambient air quality standards for particulate matter and unhealthy air quality.
6

7 I am concerned that the project application fails to identify and adequately
8 characterize the air quality impacts. I believe that they are underestimating the
9 the amount of fugitive dust that will be created during construction of the wind farm
10 project.⁴
11

12 The Horse Heaven Hills Wind Turbine Project proposes over 100 miles (200 acres) of
13 gravel and dirt road to the area immediately adjacent to and upwind from the Tri-Cities
14 They do not present any alternatives at all to reduce and eliminate access roads and
15 reduce the potential for dust generation.
16

17 The application underestimates the dust that will be generated in the highly erodible
18 fine grained glacial soils – the loess that covers the agricultural land the project is
19 located on. The blowing dust created by the 100 miles of proposed roads will be well
20 beyond anything identified by the project in the Application.
21

22 I am concerned that they will not be able to control the dust with water due to the
23 evapotranspiration rates, over 50 inches per year, found in this area. Their declaration
24 that a Dust Control Plan will satisfy requirements is not rational and the statement they
25

26 ⁴ Updated ASC at page 3-59 and 3-60. Table 3.2-2 Emissions Totals by Project Phase.

1 will mitigate the dust is without scientific foundation. They fail to recognize a well-
2 documented fact: That the water applied to the roads to attempt to achieve dust
3 control simply and quickly evaporates into the air.
4

5 There are several scientific studies that indicate that fugitive dust emissions from
6 construction activities will be greater than that identified by the project.
7

8 Major dust storms may occur several times a year. Exceedances of the US Federal
9 Air Quality Standard for PM10 occurred 20 times between 2000 and 2010 in the city of
10 Kennewick, WA, which is located immediately downwind of the HHH. ⁵
11

12
13 The highest daily PM10 concentration measured in Kennewick during this time period
14 was nearly ten times the concentration allowed by law. All of these PM10
15 exceedances were attributed to windblown dust.⁶
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20 ⁵ Sharratt, B.S., and G. Feng. 2009. Windblown Dust Influenced by Conventional and Undercutter
21 Tillage within the Columbia Plateau, USA. *Earth Surface Processes Landforms* 34: 1223–1332.

22 Sharratt, B., G. Feng, and L. Wendling. 2007. Loss of soil and PM10 from agricultural fields associated
with high winds on the Columbia Plateau. *Earth Surface Processes Landforms* 32: 621–630.

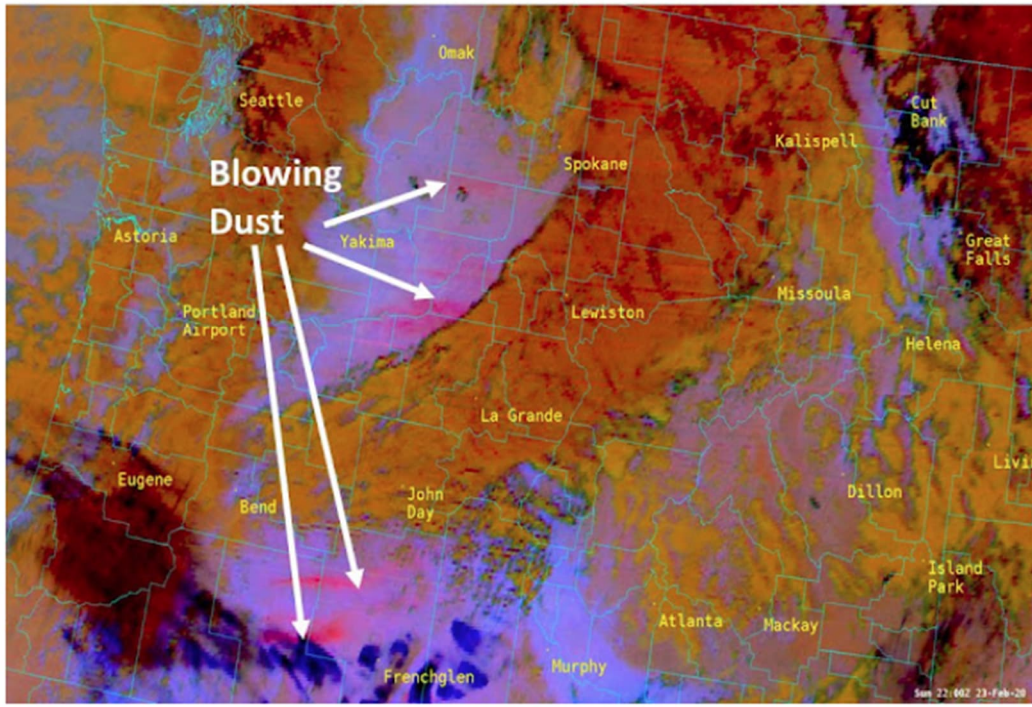
23 Sharratt, B.S., and R. Edgar. 2011. Implications of Changing PM10 Air Quality Standards on Pacific
Northwest, Communities Affected by Windblown Dust. *Atmospheric Environment* 45: 4626–4630.

24 ⁶ Page 2 Best management practices for summer fallow in the world's driest rainfed wheat region -
Washington State University (wsu.edu).

25 [https://rex.libraries.wsu.edu/esploro/outputs/99900502854201842?skipUsageReporting=true&recordUs
age=false&institution=01ALLIANCE_WSU#file-0](https://rex.libraries.wsu.edu/esploro/outputs/99900502854201842?skipUsageReporting=true&recordUs
age=false&institution=01ALLIANCE_WSU#file-0)
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1 This GOES 17 weather satellite image highlights the dust on a windy dusty day in
2 February 2020. ⁷

3 GOES 17 – Blowing Dust Detection



16 This same article by Dr Mass also contains a satellite photo showing the project area
17 impacted by the dust and discussing car crashes that sent some people to the hospital
18 and closed Interstate 82 for several hours.

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26 ⁷ : [Cliff Mass Weather Blog: Post Feb 20, 2020, Dust Storm Season Begins in Eastern Washington and Oregon](#)



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13 I am concerned that the dirt and gravel roads constructed for the Horse Heaven Hills
14 Wind Farm project will dramatically increase the sources and quantities of dust in the
15 air that will blow and be deposited in the Tri-Cities.

16
17 Without an adequate source of water for dust control, there is no practical effective
18 way to mitigate this impact. The project will make a very bad situation much worse.

19
20 The dust blowing into the Tri-Cities and the effects of fugitive dust particles on our
21 communities need to be adequately identified, fully and properly evaluated and
22 reliably mitigated to prevent significant impacts to people in the Tri-Cities.

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25 This photo taken in the Spring of 2023 shows the dust from the HHH plateau blowing
26 into Badger Valley during a dust storm event from the Summit View area in south

SUPPLEMENTAL TESTIMONY OF TCC WITNESS

PAUL KRUPIN - 7

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1 Kennewick. The project stands to make the existing situation much worse in the valley
2 and areas downwind.



12
13 The applicant fails to identify and evaluate the specific effects of constructing over 100
14 miles of micrositing corridors on the land above the valley where fluffy, powdery,
15 easily airborne soils will be the sources of the dust that will cause significant impacts
16 downwind. The applicant fails to propose or even contemplate any remedy if it entails
17 micrositing corridor elimination or relocation.

18
19 The Washington Department of Ecology’s Comprehensive 2014 County Emission
20 Inventory shows that emissions from agricultural activities are the largest source of
21 PM10 in both the maintenance area and the HHH. The report states:

22 “For Benton County, emissions from agriculture were second only to construction dust
23 as shown in Table 2 below. (Ecology, 2018).”⁸

24
25 ⁸ Reference: Publication 19-02-005 11 April 2019 High Wind Fugitive Dust Mitigation Plan (wa.gov)
<https://apps.ecology.wa.gov/publications/documents/1902005.pdf>.

Table 2: Maintenance Area 2014 PM₁₀ by source type in each county portion, pounds and percer pounds per season day.

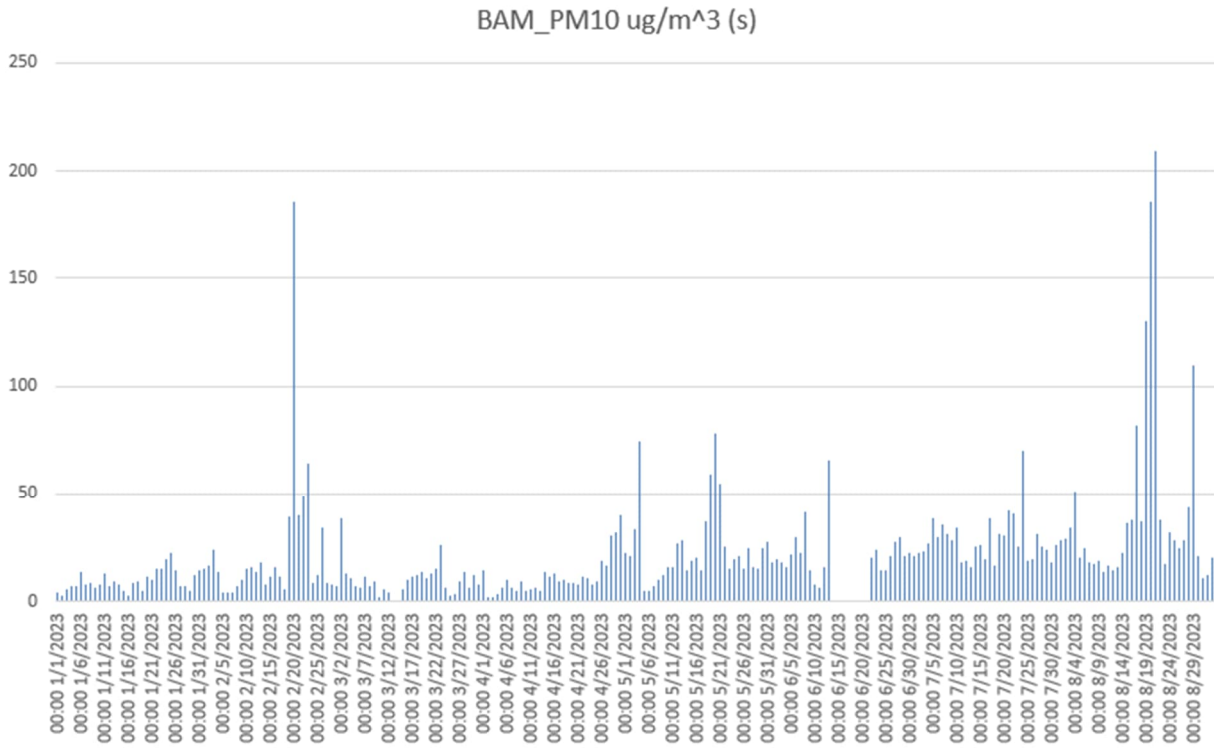
Source Type	Category	Benton, lbs. per season day	Benton, % lbs. per season day	Walla Walla, lbs. per season day	Walla Walla, % lbs. per season day	Maintenance Area Total
Point	≥ 70 Tons PTE	0	0%	2,485	35%	35%
Point	< 70 Tons PTE	66	1%	140	2%	3%
Nonpoint	Ag. Burning	0	0%	0	0%	0%
Nonpoint	Ag. Tilling Dust	247	4%	2,133	30%	34%
Nonpoint	Ag. Harvesting Dust	114	2%	211	3%	5%
Nonpoint	Construction Dust	393	6%	307	4%	10%
Nonpoint	Paved Road Dust	68	1%	344	5%	6%
Nonpoint	Unpaved Road Dust	343	5%	104	1%	6%
Onroad	Mobile	7	0%	50	1%	1%
All Sources Total		1,238	19%	5,774	81%	100%

The applicant does not provide for adequate air monitoring and does not identify and commit to any increased air quality monitoring.

I am concerned about the lack of monitoring of the air quality impacts that will result from the project. The project has not proposed any new air quality monitoring at all.

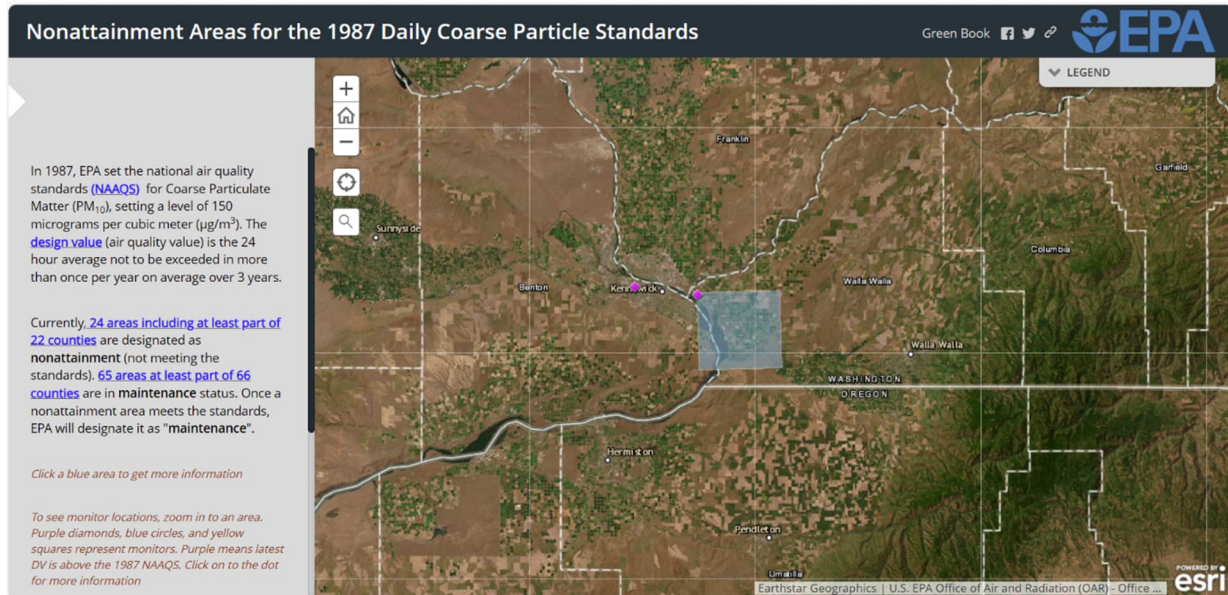
The graph below was created at the Department of Ecology Washington Air Monitoring Network Air Quality Program for the Kennewick Metaline station.

1 This graph shows three exceedances over 150 ug/m³ (the PM10 exceedance level for
2 an Unhealthy Classification from January 1, 2023 through September 3, 2023.⁹
3
4
5



25 ⁹ Department of Ecology Washington Air Monitoring Network Air Quality Program for the Kennewick
26 Metaline station. <https://enwiwa.ecology.wa.gov/report/SingleStationReport> and
<https://enwiwa.ecology.wa.gov/home/map>

1 The following map shows the locations of the EPA Air Quality Monitoring Stations in
2 Kennewick and in Burbank WA showing the “maintenance” level status of the area
3 east of the Horse Heaven Hills Project. ¹⁰
4



15
16
17 The EPA Green Book designates this “Maintenance” Zone as “serious” in the PM10
18 Designated Area/State Information table. The data for this table is current as of
19 August 31, 2023. ¹¹
20

21 This EPA Site and Map indicates:
22

23 ¹⁰ [Nonattainment Areas for the Daily Coarse Particle Standards \(arcgis.com\)](https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=41f979229e6d457188c3b49fba97852b&webmap=3483f6af7da9492bb9fc0a5c40106d7b) and the map
24 [https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=41f979229e6d457188c3b49fba97852b
&webmap=3483f6af7da9492bb9fc0a5c40106d7b](https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=41f979229e6d457188c3b49fba97852b&webmap=3483f6af7da9492bb9fc0a5c40106d7b)

25
26 ¹¹ PM-10 (1987) Designated Area/State Information
<https://www3.epa.gov/airquality/greenbook/pbtc.html>

- 1 1. There is no monitoring station located west of the Kennewick Metaline station,
2 near Dallas Road and Interstate 82, in between Kennewick and Benton City,
3 that can monitor the fugitive dust coming off the Horse Heaven Hills project
4 from the western half of the project when the wind blows from the southwest.
5
6 2. There is no monitoring station southeast of the project and west of the city of
7 Walla Walla in the area that will capture any air quality data when the winds
8 come out of the northwest.

9
10 Additional monitoring of the air quality impacts caused by the project is needed to
11 protect the health and safety of the public.
12

13 I declare under the penalty of perjury under the laws of the State of Washington that
14 my testimony and reports are true and correct to the best of my knowledge and belief.
15

16 Signed this ___3___ day of September, 2023, in ___Kennewick WA

17 _____.

18 _____PAUL KRUPIN_____ /s/ _____

19 Printed Name
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SUPPLEMENTAL TESTIMONY OF TCC WITNESS

PAUL KRUPIN - 12

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