APPENDIX B

Responses to NRC Requests for Additional Information (RAI)
Air Quality

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RAI AQ-1

Please provide additional information on projected air emissions.

A. *Please provide the calculations that led to the conclusion that 15.5 tons of particulate matter <10 microns (PM10) per year would be expected to be emitted from the Ludeman Project.*
B. *Please provide information on projected emissions for each phase of the Project (i.e., construction, operation, aquifer restoration, and decommissioning).*
C. *In the discussion of projected air emissions, please include other pollutants of concern, such as nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), volatile organic compounds (VOC), ozone (O3), and particulate matter less than 2.5 microns in diameter (PM2.5).*

Sections 3.6 and 4.6 of the ER provide the estimate of 15.5 tons of PM10 emissions resulting from vehicle traffic associated with the proposed Ludeman Project. These estimates are likely calculated based on expected Project activities as well as the emissions factors provided by the WDEQ; however, no detail is provided on the calculations. There is an apparent discrepancy between the 18.5 tons of PM10 per year that is given in Section 3.6.3.6 of the ER and the 15.5 tons of PM10 per year in Section 4.6 of the ER; please resolve this discrepancy. In addition, the ER does not provide separate estimates of air emissions from each Satellite area during each phase of the Project. Estimates for all emissions are necessary for the NRC to evaluate potential impacts to air quality from the Proposed Action and the Alternatives.

RAI AQ-1 Response

Due to the fact that the Proposed project is expected to have similar air quality impact potential as the NRC-approved Moore Ranch project based on similar design features, development schedules, and environmental similarities, Uranium One has applied those approved potential air quality impacts to the Ludeman project. This implies that the 15.5 tons per year PM_{10} and associated discussion approved by the NRC for the Moore Ranch Source Materials License are directly applicable to the proposed Ludeman Project. Additionally, as noted in NUREG 1910 (GEIS Section 4.2.6) In-Situ Uranium projects air quality impacts will be considered small, thus further negating the need for additional exhaustive studies under circumstances where expected potential impacts do not differ from those described by the GEIS.

Uranium One has provided some additional discussion which has been added to ER Section 4 (Impacts) as this section has been formatted to better address impacts during project phases.

The typographical discrepancy in ER Section 3.6.3.6 has been corrected to the 15.5 tons PM_{10} per year.

RAI AQ-2

Please justify the conclusions that air-quality impacts would be insignificant.

A. *Please provide a reference for the statement made in Section 3.6.3.6 of the ER, "Atmospheric dispersion modeling typically shows that fugitive PM10 emissions on the order of 15 tons per year results in insignificant impacts to ambient air quality beyond a distance of a few hundred yards from the sources."*
B. *Please provide information on the distance and direction of any nearby Class I areas from the proposed Ludeman Project and provide an assessment of impacts for prevention of significant deterioration (PSD), visibility, and atmospheric deposition to each of the Class I areas.*

Section 3.6.3.6 of the ER concludes that emissions on the order projected to be emitted at the Ludeman Project are insignificant; however, no reference or rationale for this conclusion is provided. In addition, Section 3.6.3.6 notes that the Thunder Basin National Grasslands is a Class I area in proximity to the proposed Ludeman Project; however, the impacts to that Class I area from the proposed Project are not addressed. Neither the distance nor the direction from the proposed Project to Class I area(s) are given. The determination of the air-quality impacts at the Project and in the vicinity is necessary to complete the EA.

RAI AQ-2 (A) Response

The determination by Uranium One that potential air quality impacts resulting from uranium ISR operations within the Powder River Basin is documented and described within NUREG-1910 Section 4.2.6. The Ludeman project meets the following conditions:

- Gaseous emissions are within regulatory limits and requirements;
- Air quality in the region of influence is in compliance with national Ambient Air Quality Standards (NAAQS); and
- The facility is not classified as a major source under the New Source Review or Operating (Title V) permit programs described in Section 1.7.2 (NUREG-1910)

In meeting these conditions the impacts would be classified as SMALL.

RAI AQ-2 (B) Response

Thunder Basin National Grasslands was misidentified within the license application as a Class I area. Upon further review it has been determined that the Thunder Basin National Grasslands are not classified as a Class I area and the correct status is actually a Class II area under the Clean Air Act. The closest Class I area is Wind Cave National Park in South Dakota, a distance of over 100 miles northeast of the proposed project. The closest Class I area within Wyoming is the Bridger Wilderness, located over 150 miles west of the project area. As the potential air quality impacts of the project are small and there is a great distance between the project and Class I areas no further assessment is required.

RAI AQ-3

Please provide additional information regarding the specific mitigation measures to be used by Uranium One to control fugitive dust at the Ludeman Project site during each phase of the Proposed Action.

A. *Please provide a technical basis for the following statements made in Section 4.6 of the ER:*
    1) *"Construction activities ... will cause minimal short-term impacts on local air quality."*
    2) *"The application of water to unpaved roads will reduce the amount of fugitive dust to levels equal to or less than the existing condition."*
    3) *"as periodic watering or chemical treatment of the unpaved roads will reduce emission factors by half or more."*
B. *Please identify the fugitive-dust levels that would trigger the implementation of control measures cited in Section 5.6 of the ER.*
C. *Please discuss how fugitive dust would be monitored (i.e., does Uranium One intend to use observation or real-time particulate monitoring)?*
D. *Please describe how measured dust concentrations would be compared to on-going land disturbances.*
E. *Please specify the speed limits, water-application frequencies, dust suppressants, and road-surface types that would be used to minimize fugitive-dust emissions.*

Dust-suppression methodologies that would be used in the disturbed areas of the Ludeman Project during all Project phases should be specified. The success of dust-suppression measures directly affects air-quality impacts. In order for the NRC to assess air-quality impacts, additional information is required regarding the implementation and the associated performance of dust-control measures.

RAI AQ-3 (A) Response

Per NRC's request, the ER Section 4 has been updated to include the potential impact analysis for each phase of the proposed project. As a result, the statements in question have either been clarified or removed.

RAI AQ-3 (B) (C) (D) and (E) Response

AQD regulates fugitive dust by employing management practices opposed to numerical limits. Exceptions occur where fugitive dust emissions are anticipated to be very large and/or concentrated, in which case air quality permit conditions may require ambient PM_{10} monitoring. Uranium One will use visual observation to monitor air quality in the proposed project area. As a result of these observations, the frequency of fugitive dust suppression methods such as watering, chemical application, and enforcing speed limits in the proposed project area will be implemented. The frequency may be also increased if dust related concerns are expressed by nearby residences and/or other individuals in or directly adjacent to the proposed project area. As per NUREG 1910 the impacts from fugitive dust will be small with ambient fugitive dust levels far below the Title V EPA major source classification.

RAI AQ-4

Please provide additional information on the meteorological data described in Section 3.6 of the ER.

A. *Please confirm that the 2005 and 2007 data described in Section 3.6.1 are the best available data to characterize the meteorological conditions at the Ludeman Project or update the data with the most current information. Also, please include a map identifying the locations of monitoring stations relative to the Project area.*
B. *Newcastle is listed in Table 3.6-1 of the ER as one of the meteorological stations included in the climate-change analysis. Please address the absence of data for Newcastle in the text and subsequent figures.*

The use of complete and best-available data is required for the NRC to characterize pre-licensing baseline conditions and to estimate air-quality impacts. These data will support the development of a defensible EA.

RAI AQ-4 (A) Response

The period of record presented in the ER was based on available data at the time that it was originally developed. While the long-term regional climatic conditions tend to remain relatively stable over time, the tables and figures below have been revised to reflect the most recent meteorological data available.

Table 1: Monthly Average Temperatures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Douglas AP	24.6	25.5	35.7	42.7	51.7	62.6	72.9	70.0	58.6	44.7	34.5	24.2	47.7
Glenrock	24.9	26.6	33.2	41.2	51.4	60.9	70.8	68.2	57.9	45.0	34.6	24.3	46.1

Period of record: Douglas 2003 through 2012, Glenrock Coal Mine 2000 through 2009 (discontinued)

Table 2: Monthly Wind Conditions

Douglas AP Monthly Wind Averages (2003 through 2012)			
	Wind Speed	**Wind Direction**	**Max Hourly Wind Speed**
JAN	10.3	NW	47
FEB	10.5	NW	48
MAR	11.9	NW	46
APR	12.4	NW	44
MAY	11.6	SE	45
JUN	10.6	SE	46
JUL	9.5	SE	51
AUG	9.5	SE	48
SEP	9.3	SE	54
OCT	10.1	NW	47
NOV	10.5	NW	53
DEC	10.0	NW	46
ANNUAL	10.5	NW	48

Figure 1: 10-Year Monthly Temperature Comparison

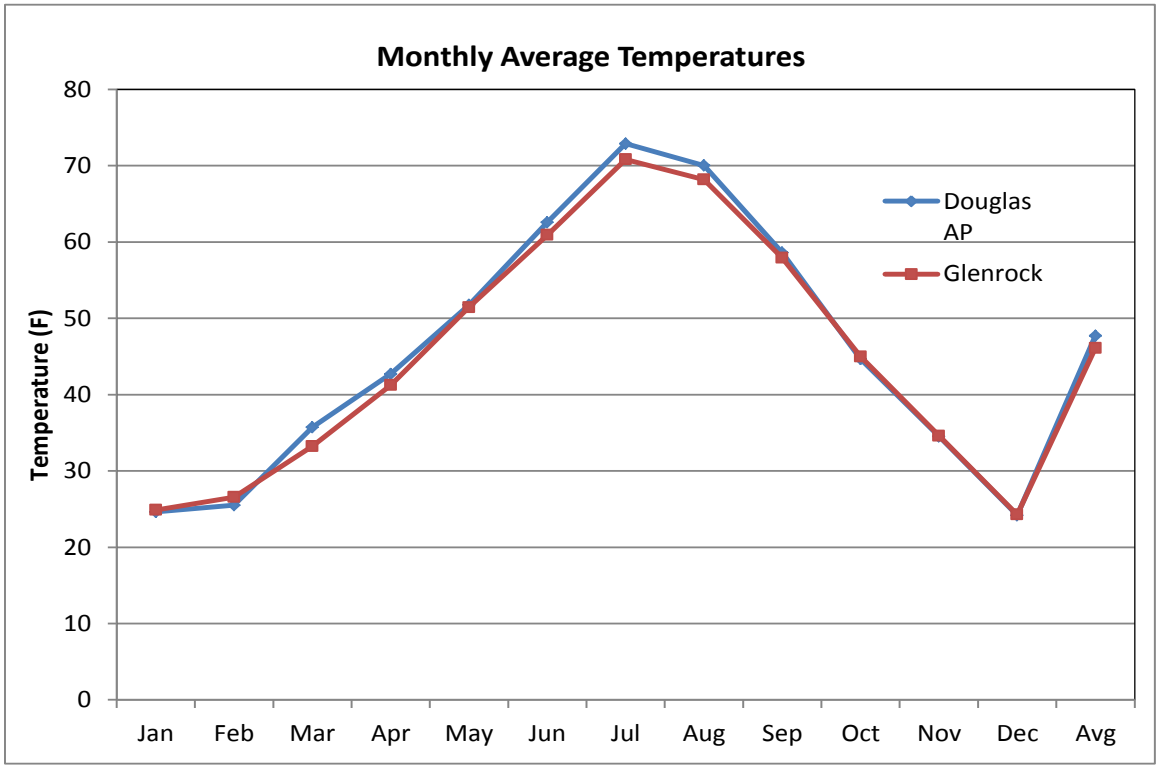


Figure 2: Seasonal Diurnal Temperature (Douglas AP 2003-2012)

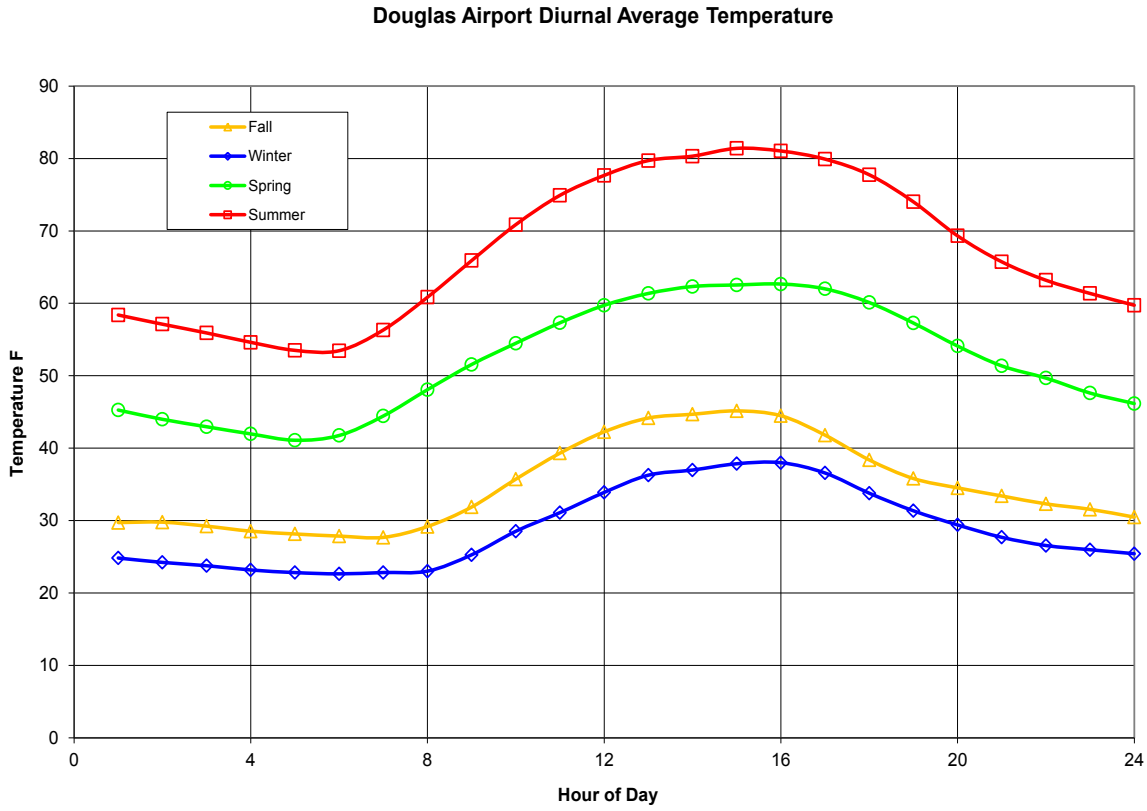


Figure 3: Regional Monthly Precipitation

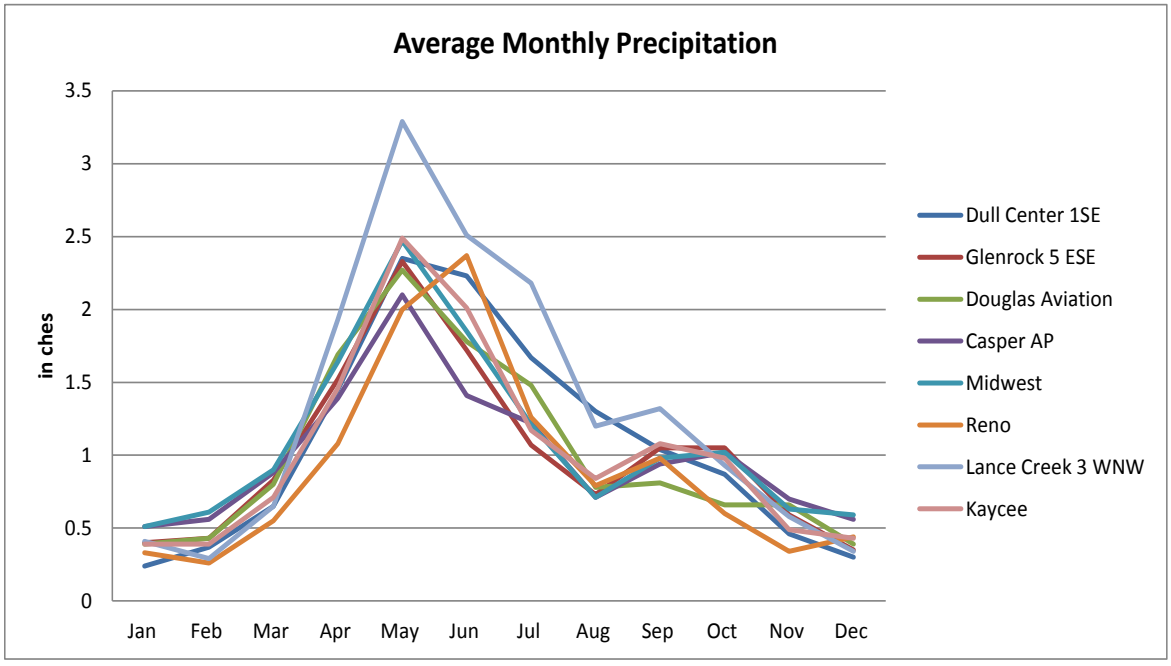
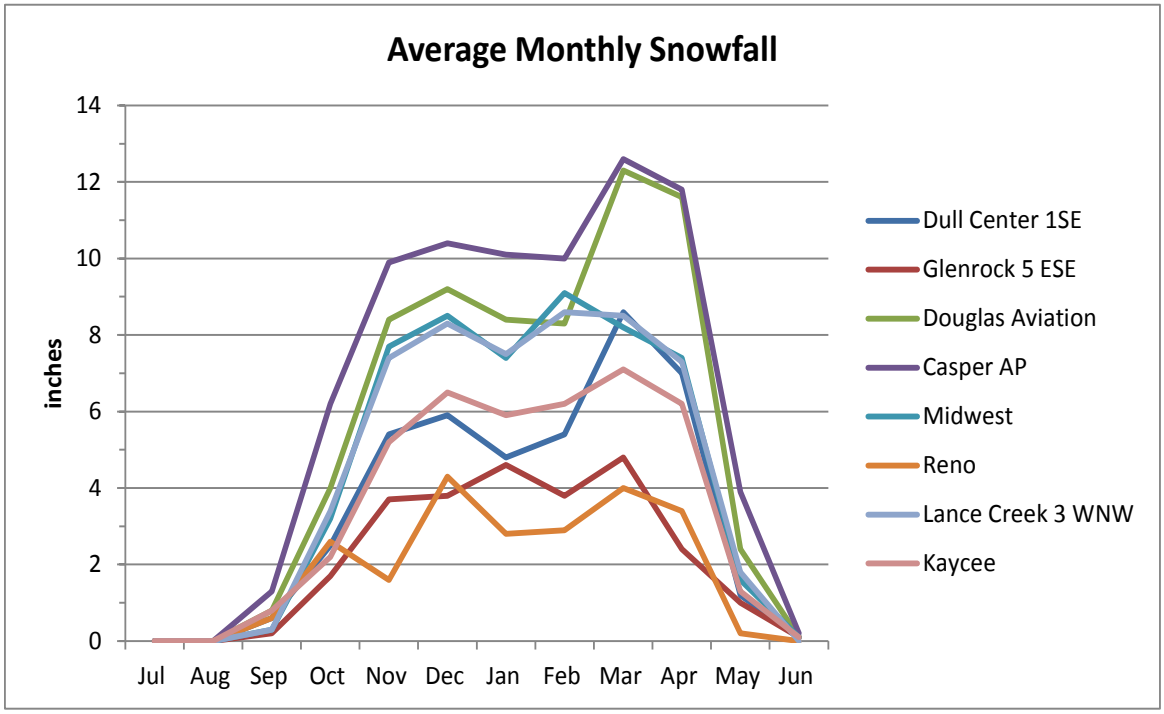


Figure 4: Regional Monthly Snowfall with its Accompanying Table



Period of Record for Precipitation and Snowfall	
Dull Center 1SE	5/20/1926 to 2/28/2013
Glenrock 5 ESE	7/1/1941 to 3/31/13
Douglas Aviation	8/1/1962 to 1/31/ 1995
Casper AP	8/1/1948 to 3/31/2013
Midwest	1/1/1939 to 3/31/2013
Reno	5/1/1963 to 11/30/1983
Lance Creek 3 WNW	4/1/1962 to 3/31/1984
Kaycee	11/25/1900 to 3/31/2013

Figure 5: Casper Airport Degree Days (55℉ Base)

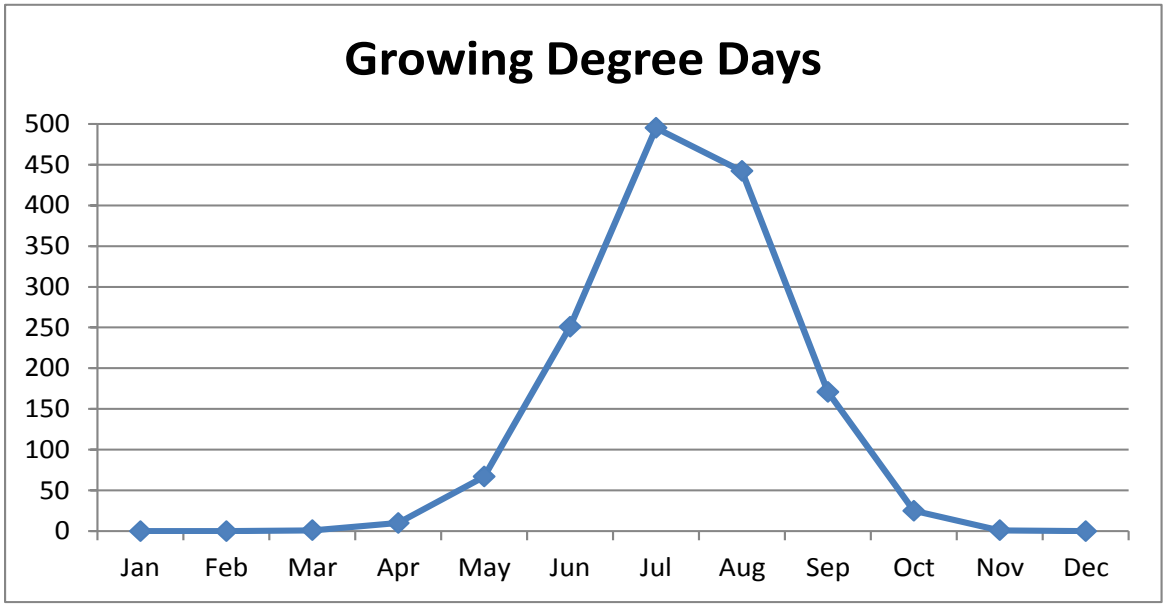


Figure 5 (continued): Casper Airport Degree Days (55℉ Base)

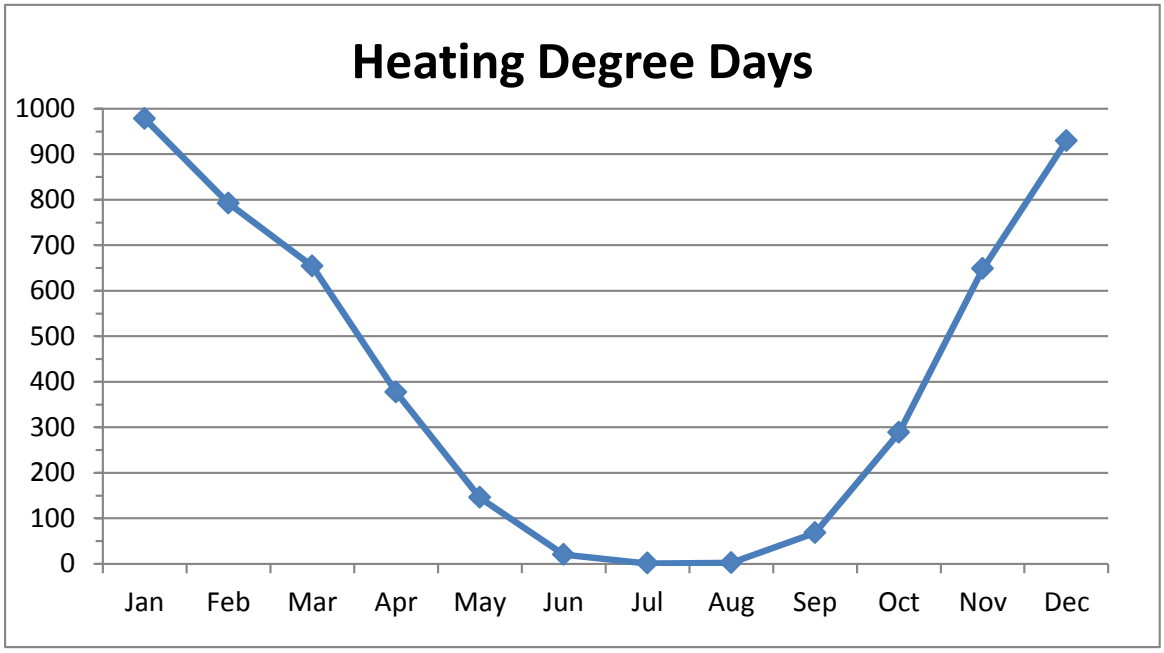
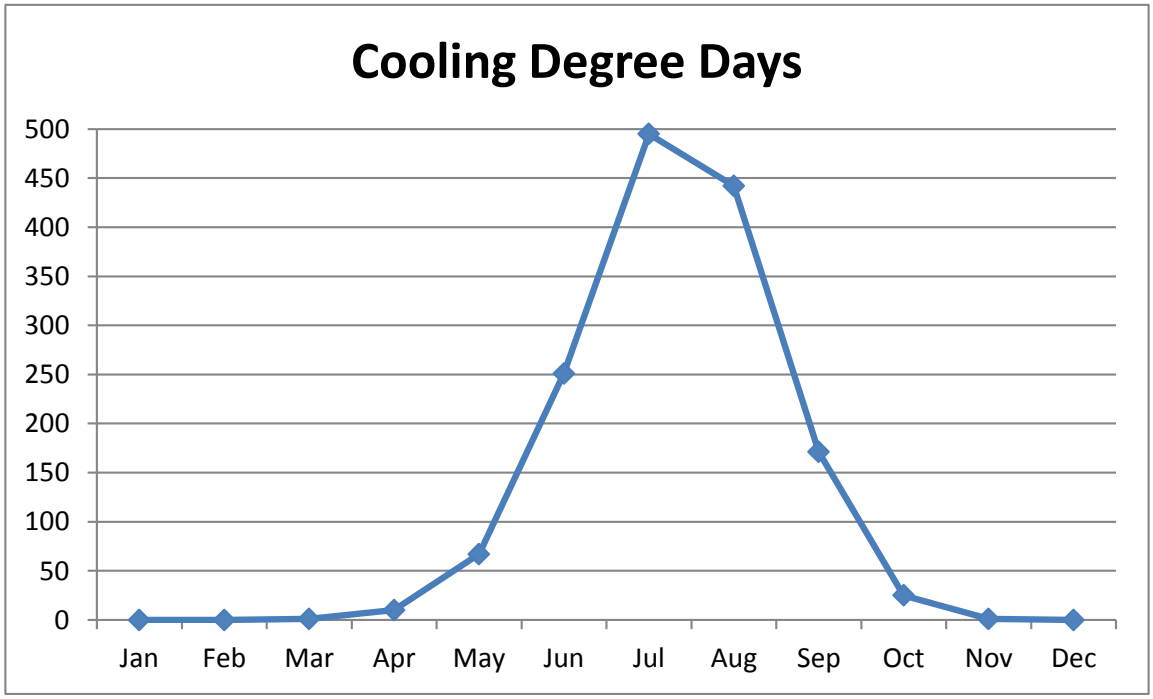


Figure 5 (continued): Casper Airport Degree Days (55℉ Base)



RAI AQ-4 (B) Response

Newcastle was included in ER Table 3.6-1 by mistake. The revised table below has been corrected accordingly.

Table 3: Meteorological Stations Included in Climate Analysis

Station Name	Agency	X (UTM)	Y (UTM)	Z (ft)	Years Operation
Antelope Coal Company	IML	474179	4816180	4675	1986-2007
Glenrock Coal Company	IML	431649	4767610	5674	1996-2007
Casper Airport (112)	NWS	380229	4750539	5338	1948-2005
Douglas Airport (118)	NWS	468655	4732910	4820	1909-2005
Dull Center 1SE (71)	NWS	503239	4806131	4420	1926-2005
Kaycee (58)	NWS	368677	4840739	4660	1900-2005
Lance Creek 3 WNW (77)	NWS	528846	4782869	4340	1962-1984
Midwest (59)	NWS	396362	4806926	4820	1939-2005
Reno (68)	NWS	458891	4836243	5080	1963-1983