

Stand Alone Report 15

Public Radiation Dose Evaluation in Support of the Development of Rare Element Resources Bear Lodge Project

**PUBLIC RADIATION DOSE EVALUATION
RARE ELEMENT RESOURCES, INC.
BEAR LODGE PROJECT**

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List of Acronyms and Abbreviations

AEA	Atomic Energy Act
ALARA	as low as is reasonably achievable
ANSI	American National Standards Institute, Inc.
CDF	Concentration Dose Factor
CFR	U.S. Code of Federal Regulations
Ci	curie
CRCPD	Conference of Radiation Control Program Directors
d	day
DC	dose coefficient
DCF	dose coefficient factor
EEC	equilibrium-equivalent concentration
EPA	U.S. Environmental Protection Agency
g	gram
h	hour
Hydromet	hydrometallurgical
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiation Protection
kg	kilogram
km	kilometer
L	liter
lb	pound
m	meter
m ²	square meter
m ³	cubic meter
mg	milligram
mrem	millirem
MSHA	Mine Safety and Health Administration
NAS-NRC	National Academy of Sciences – National Research Council
NCRP	National Council on Radiation Protection and Measurement
NORM	naturally occurring radioactive material
NRC	U.S. Nuclear Regulatory Commission
OSHA	Occupational Health and Safety Administration
OxCa	oxide carbonate
pCi	picocuries
ppm	parts per million

PUG	physical upgrade
radon	radon-222; and both radon-222 and radon-220 (when discussed collectively)
RG	Regulatory Guide
REE	rare earth element
REO	rare earth oxides
RER	Rare Element Resources, Inc.
s	second
t	tons (not tonnes)
TENORM	technologically enhanced naturally occurring radioactive material
thoron	radon-220
TSF	tailings storage facility
TREO	total rare earth oxide
µg	microgram
U.S.	United States
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
VMT	vehicle mile traveled
wk	week
wt %	weight percent
yr	year

1.0 INTRODUCTION

Rare Element Resources, Inc. (RER) proposes to build and operate a rare earth element (REE) mining and separate processing facility in the Bear Lodge Mountains in Crook County and near Upton in Weston County, Wyoming, respectively. The proposed mining facility consists of an open pit mine to be called the Bull Hill Mine Site and a physical upgrade (PUG) plant. The proposed processing facility will consist of a hydrometallurgical (Hydromet) plant and tailings storage facility (TSF). This report refers to the mining and processing facilities collectively as the Bear Lodge Project.

1.1 PROJECT OVERVIEW

The Bull Hill Mine Site is located in central Crook County, northeastern Wyoming (see Map 1.1-1), in the north-western portion of the Black Hills uplift. The property is situated in the central Bear Lodge Mountains. The Bull Hill Mine Site lies about 12 road miles (19.3 kilometer – km) north of Sundance, Wyoming. The Hydromet Plant is to be located in north-central Weston County, in northeastern Wyoming. The property is located 2 miles (3.2 km) northwest of Upton and approximately 40 miles (64.4 km) south of the Bull Hill Mine Site.

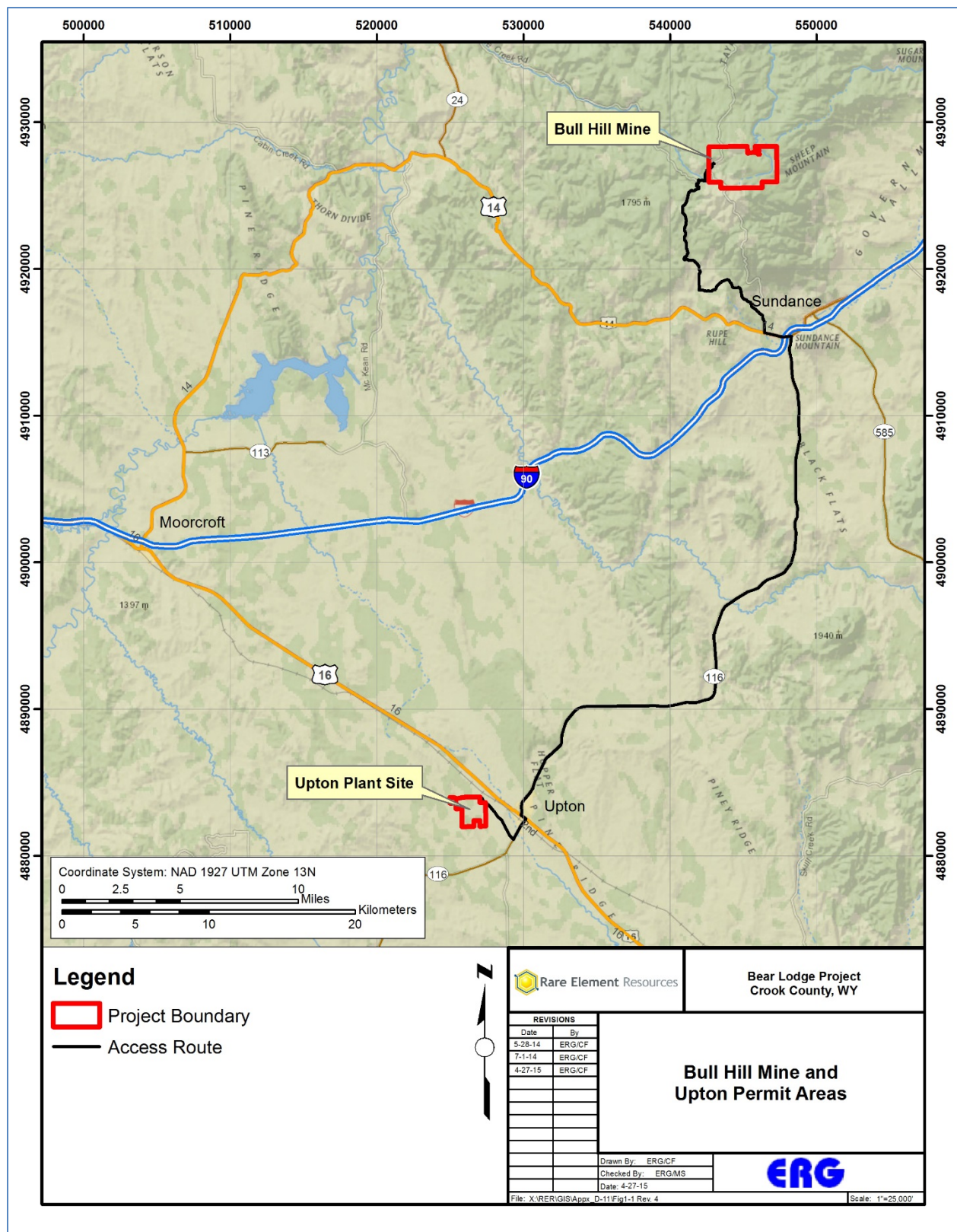
The Bear Lodge Project ore contains naturally occurring radioactive material (NORM) consisting of thorium, uranium, and their associated radioactive decay products. NORM is ubiquitous and present in rocks and soils in varying concentrations, with background concentrations in the United States (U.S.) typically on the order of 1 to 10 parts per million (ppm) (United Nations Scientific Committee on the Effects of Atomic Radiation - UNSCEAR, 2000). Uranium and thorium concentrations in the Bear Lodge Project ore average approximately 109 and 377 ppm, respectively: above typical background levels.

1.2 REPORT OBJECTIVE

The purpose of this report is to:

- identify potential human exposure pathways to naturally occurring radioactivity associated with the mining and processing of the Bear Lodge Project ore; and
- provide a conservative estimate of the magnitude of expected radiation doses to members of the public (the public) resulting from the proposed actions at the Bear Lodge Project. It includes a perspective on the significance of this estimate.

NORM in ore and ore concentrates poses potential risks to members of the public because it emits ionizing radiation. The predominant pathway by which the public can receive doses from the ionizing radiation is inhalation of NORM in dust and exposure to radon gas released from the Bear Lodge Project. Doses from gamma radiation from sources external to the body are also a potential pathway but it is expected that the public will be precluded from spending enough time near the source terms due to fences and closed public access, rendering this pathway an insignificant contributor to the public dose. Additionally, it is expected that engineering controls will be in place to prevent contamination of drinking water sources thus mitigating this pathway for public dose. Consequently, this report only addresses public doses from the inhalation pathway. To help put these potential exposures in context, regulations applicable to radioactive materials and potentially relevant to NORM are discussed.



1.3 NATURALLY OCCURRING SOURCES OF RADIATION AND RADIOACTIVITY

Relevant characteristics of NORM are described in this section, to assist readers who may be unfamiliar with the concepts of natural radiation and radioactivity.

1.3.1 SOURCES OF NATURALLY OCCURRING RADIATION

Radiation is produced from the naturally occurring radionuclides contained in all environmental media. Natural uranium and thorium and their associated radioactive decay products are major constituents of NORM and are most important when considering the ore at the Bear Lodge Project. Natural uranium; i.e., uranium with natural isotopic abundances, consists primarily of uranium-238 and uranium-234 (based on radioactivity) and to a lesser degree uranium-235. Table 1.3-1 shows the natural isotopic abundance of each important uranium isotope based on mass and radioactivity.

Table 1.3-1
Natural Abundances of Uranium Isotopes

Uranium Isotope	Abundance (%) ^a		Half-Life (yr) ^a
	Mass	Radioactivity	
Uranium-238	99.28	48.6	4.5×10^9
Uranium-235	0.71	2.2	7.0×10^8
Uranium-234	0.0058	49.2	2.5×10^5

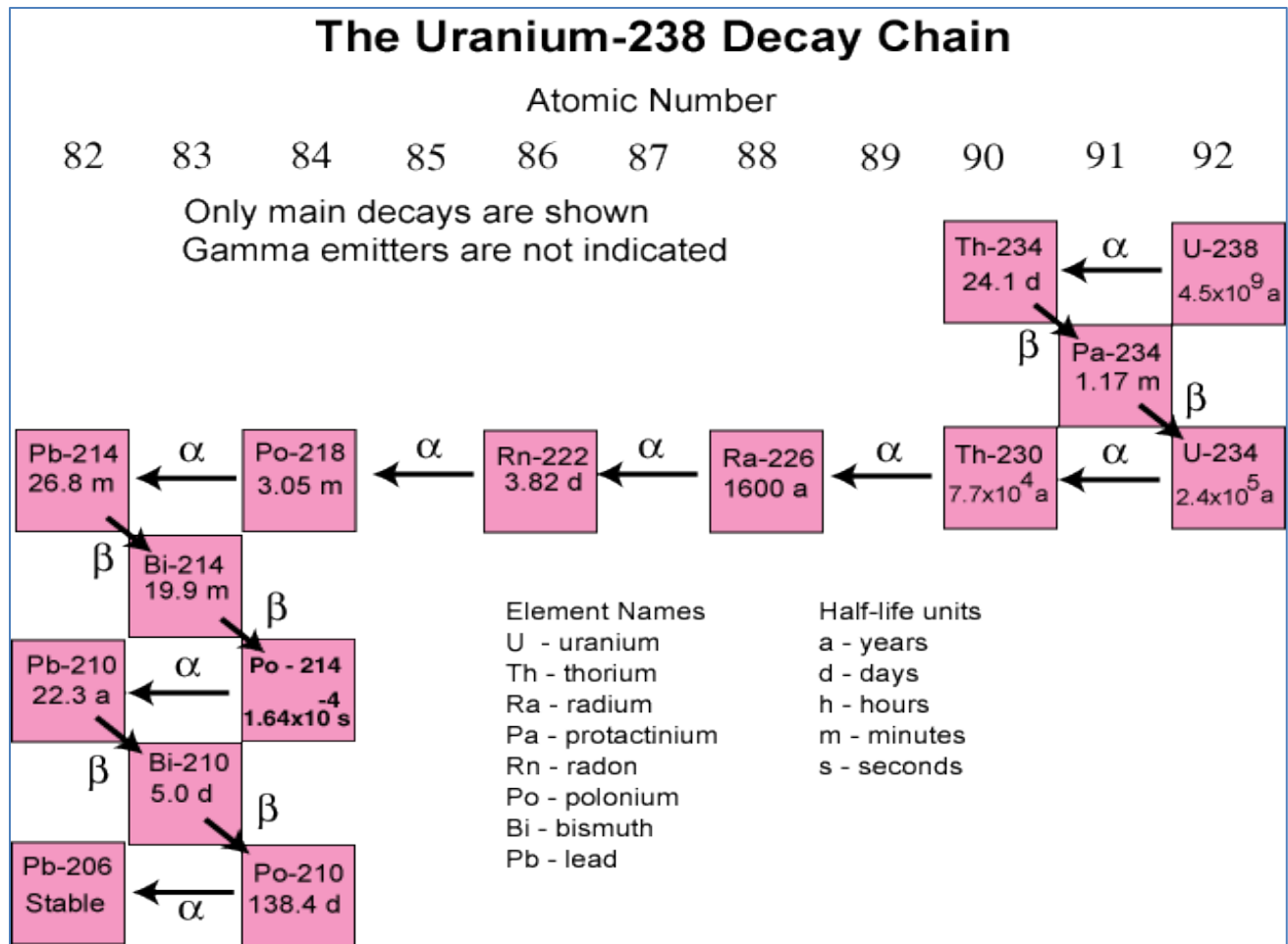
^aAdopted from Eisenbud and Gesell, 1997.
yr = year

Starting with uranium-238, a series of 14 different radionuclides (including uranium-234) are produced through radioactive decay until non-radioactive lead-206 is reached. This radioactive decay chain is called the uranium-238 decay series and its radionuclides emit alpha, beta and gamma radiation (Figure 1.3-1).

In terms of radiation dose to the public, one important member of the uranium-238 decay series is radon-222 (radon). As a noble gas, radon is chemically inert and, if formed in near-surface soil or rock from the decay of radium-226, is free to diffuse into the atmosphere. Radon (and its short-lived decay products) can accumulate inside homes or other structures and in the U.S. is the largest contributor to background radiation dose from natural sources. Generally, radon is not a concern in the outdoor environment because of atmospheric dispersion. Buildings with industrial processes often have high ventilation rates compared to residential houses, thereby mitigating the potential impacts of radon therein.

Natural thorium consists almost entirely of thorium-232 by mass. Like uranium-238, thorium-232 is the first radionuclide in a decay series ending in non-radioactive lead-208. As shown in Figure 1.3-2, there are 11 radionuclides in the series with decays resulting in emission of alpha, beta, and gamma radiation. Radon-220 (thoron), known historically as thoron because it is in the thorium-232 decay series, is an isotope of radon that is released to the atmosphere from radium-224 in near-surface soil and rock. With a half-life of 55 seconds, thoron decays rapidly and, coupled with atmospheric diffusion, is generally not considered an environmental concern.

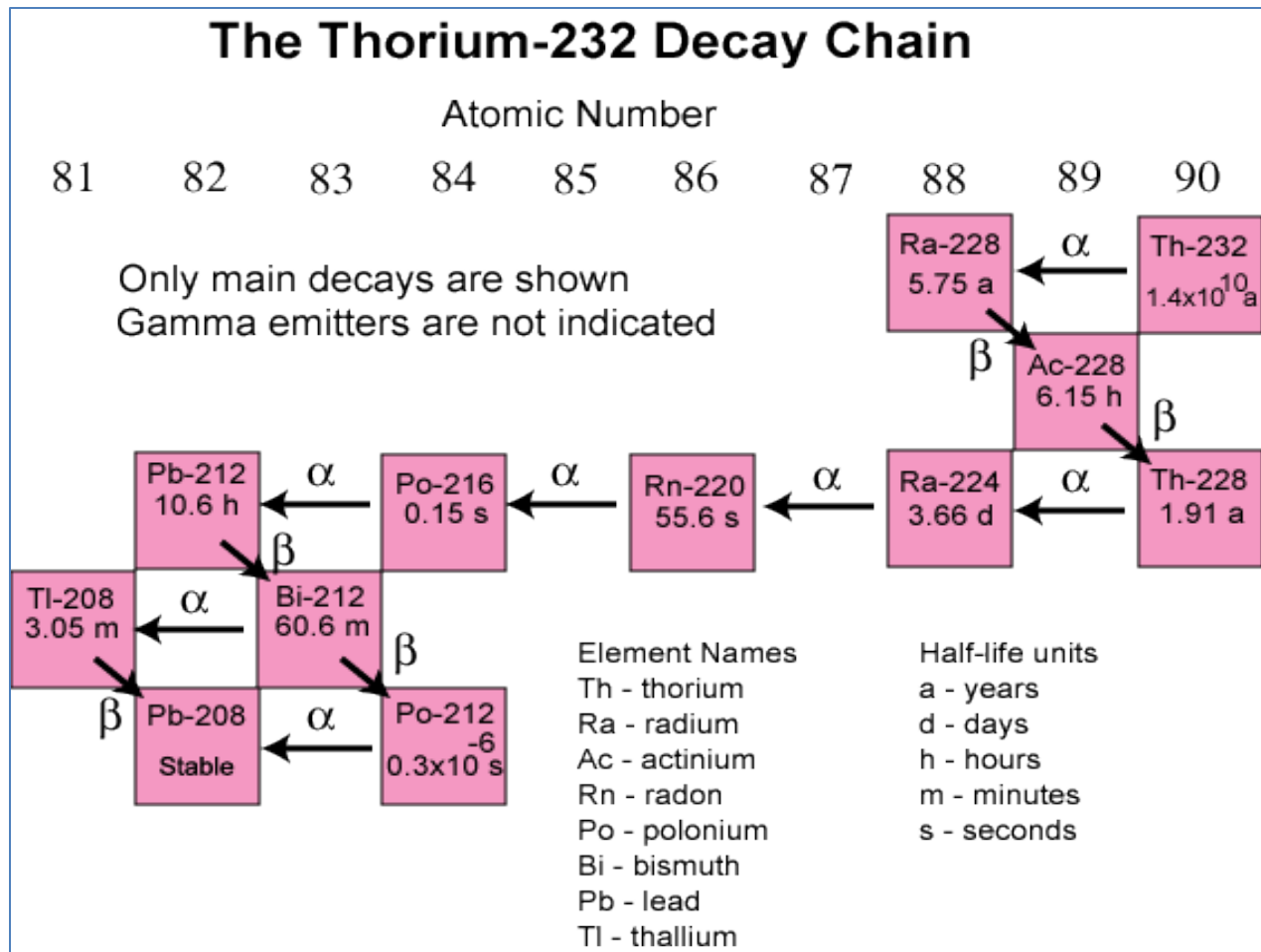
For the purposes of this report, the term radon includes radon-222 and radon-220.



α = alpha decay

β = beta decay

Figure 1.3-1
Uranium-238 Decay Series



α = alpha decay

β = beta decay

Figure 1.3-2
Thorium-232 Decay Series

1.3.2 UNITS OF RADIOACTIVITY AND DOSE

The U.S. has not consistently adopted the International System of Units for radioactivity or radiation dose. The unit for radioactivity in the U.S. is the curie (Ci). The Ci is based on the decay rate of 1 gram (g) of radium-226 and is equal to 3.7×10^{10} radioactive decays per second (s). The Ci is a large amount of radioactivity, consequently environmental levels of NORM are often expressed in picocuries - pCi (1×10^{-12} Ci), which are twelve orders of magnitude less than a Ci. The amount of radioactivity is directly related to the amount of the radionuclide and inversely related to its half-life. The specific activity of a radionuclide relates the amount of radioactivity per unit mass and can be expressed in units of Ci/g. For example, the specific activity of natural uranium is 7.1×10^{-7} Ci/g; therefore a concentration of 1 milligram (mg) per kilogram (kg) of natural uranium in soil is equal to 710 pCi/kg of soil. Similarly, the specific activity of natural thorium is 2.2×10^{-7} Ci/g; therefore 1 mg/kg of natural thorium in soil is equal to 220 pCi/kg of soil. The activities of specific isotopes of uranium can be determined by multiplying the radioactivity percent abundance in Table 1.3-1 by the activity of natural uranium. For natural thorium, the activity is split equally between thorium-232 and thorium-232, provided equilibrium (i.e., the radioactivity is the same) of the series radionuclides exists.

The U.S. unit for dose equivalent is the rem and is equal to the absorbed dose in rad (100 erg/g) multiplied by a radiation weighting factor. The dose equivalent, hereafter referred to as “dose”, is also often expressed as millirem - mrem (10^{-3} rem).

Note that the risk of detrimental stochastic effects resulting from a dose of radiation is assumed to be proportional to the dose (International Commission on Radiological Protection - ICRP, 1991), although this has not been demonstrated at low doses typical of routine public exposures to NORM.

1.3.3 BACKGROUND RADIATION DOSES IN THE UNITED STATES

Background radiation doses from natural sources, while variable, always occur to some degree. Sources of background radiation dose include the following:

- Cosmic radiation from the sun and other celestial sources,
- Terrestrial radiation from radionuclides present in soils and rocks,
- Radon and its short-lived decay products in indoor and outdoor air, and
- Radionuclides in the body, acquired from the inhalation of air, and ingestion of food and water.

The global average background dose rate from naturally occurring sources is approximately 240 mrem/yr: some places in the world have dose rates of up to 1,000 mrem/yr (UNSCEAR, 2000).

Table 1.3-2 lists the average annual dose from natural background radiation in the U.S. (National Council on Radiation Protection and Measurement - NCRP, 2009).

Table 1.3-2
Background Doses in the U.S. from Natural Sources^a

Source	Mean (mrem/yr)	Standard Deviation (mrem/yr)	Percentiles	
			2.5	97.5
Cosmic	33	8	20	52
Terrestrial	21	6	12	35
Internal	29	2	23	36
Radon (includes radon-222 and radon-220)	228	400	9	1110
Composite	311	361	94	1200

^aAdopted from NCRP, 2009
mrem/yr = millirem per year

Exposure to radon, primarily indoors, accounts for approximately 73 percent of the dose from natural sources of background radiation. Background dose rates vary according to factors such as elevation, radionuclide concentrations in soil and rock, construction materials in residential buildings, and lifestyle. Background radiation doses in the Mountain West states, including Wyoming, are higher than the background radiation doses in the west, east and Gulf Coast states.

1.4 RADIOLOGICAL ISSUES AT RARE EARTH FACILITIES

Many ores processed for their mineral content, including REE, contain NORM such as potassium-40 and the uranium and thorium decay series radionuclides (National Academy of Sciences–National Research Council – NAS-NRC, 1999; International Atomic Energy Agency – IAEA, 2007; UNSCEAR, 2000). The minerals used for commercial sources of REE contain elevated concentrations of radionuclides in the thorium decay series and, to a lesser degree, the uranium decay series. These minerals include monazite and bastnasite ores (IAEA, 2007). Radionuclides can mobilize during processing and migrate to dust, scales, and other process residues, therefore potentially having relatively higher concentrations of radionuclides than feedstock. This potential increase in radionuclide concentration can change the magnitude of radiological hazards to the public living near the REE processing facility. An environmental monitoring program designed to evaluate potential impacts from REE recovery operations, including public doses, is typically in place prior to the operation of such facilities.

2.0 PROJECT DESCRIPTION

As planned, the Bear Lodge Project consists of four principal components (RER, 2014a):

- An open-pit mine operation at Bull Hill (includes Bull Hill and Whitetail deposits) and associated support facilities.
- A PUG Plant for mineral pre-concentration adjacent to the mine.
- A Hydromet Plant and TSF for recovery of REE's from the pre-concentrate in Upton.
- The continuation of exploration drilling at the Bull Hill Mine Site.

2.1 RADIONUCLIDE CONTENT OF ORE AND CONCENTRATES

Three general types of material will be produced by the Bear Lodge Project: 1) ore mined from the Bull Hill Mine Site, 2) a pre-concentrate generated from the PUG Plant, and 3) a concentrate product from the Hydromet Plant.

2.1.1 BULL HILL ORE

Ore from the Bull Hill Mine Site can be grouped into the following four general types:

- Oxide high grade ore containing a mass percentage of Total Rare Earth Oxide (TREO) greater than 1.5 percent
- Oxide-carbonate ore containing a mass percent of TREO greater than 1.5.
- Oxide stockwork containing a mass percent of TREO greater than 1.5.
- Oxide low grade ore containing a mass percent of TREO greater than 0.5.

Table 2.1-1 summarizes the natural thorium and uranium content of these materials. These data demonstrate that thorium is much more abundant than uranium in the Bull Hill Mine Site ores.

2.1.2 PUG PROCESS

The PUG process will generate two types of material: 1) a pre-concentrate material with a REE grade as high as approximately 7 percent by mass, and 2) a waste rock with a REE grade of less than 0.5 percent by mass. Table 2.1-1 summarizes the natural thorium and uranium content of these materials. The waste rock stream contains 14 and 12.5 percent of the thorium and uranium concentrations in the ore, respectively. Other radionuclides in the thorium and uranium decay series are expected to be present at activity concentrations equivalent to their respective parent, because REE is physically concentrated in the PUG process (i.e., there is no chemical treatment) and each of the series is assumed to be in secular equilibrium. The pre-concentrate thorium and uranium content varies, depending on the ore type and REE grade, but can be about twice as high as the ore, but their U+Th ratios are similar.

Table 2.1-1
Thorium and Uranium Content of Important Materials at Proposed Bear Lodge Project

Process	Material	Thorium Content (wt%)	Uranium Content (wt%)
Bull Hill Mine ^a	High grade oxide ore	0.063	0.01
	OxCa ore	0.040	0.009
	Oxide Stockwork	—	—
	Oxide low grade	0.013	0.003
PUG	Waste Rock	0.003	0.0007
	Pre-concentrate	0.06	0.009
Hydromet	REO	0.003	0.0
	Leach Residue	0.02	0.003
	Acid Regeneration Solids (metal carbonates)	0.0	0.02
	Tailings to TSF	0.023	0.003
	Thorium Hydroxide Waste	41.9	0.0
Notes ^a (RER, 2014b). Data other than Bull Hill Mine adopted from RER mass balance documents.			

2.1.3 HYDROMET PROCESS

The Hydromet plant will generate a bulk rare earth concentrate with a REE grade in excess of 97% by mass, a thorium hydroxide waste which will be ship to an approved off-site low level waste disposal facility, and neutralized and dewatered tailings. The tailings will be comprised of two intermediate materials, generated independently within the process but conveyed collectively to the TSF as a mixture. Table 2.1-1 summarizes the natural thorium and uranium content of the material produced at the Hydromet Plant. Clearly, the thorium hydroxide contains the highest amount of natural thorium. As mentioned earlier, the Hydromet Plant is the first point where feed material is chemically treated. As a result, radionuclides in the thorium and uranium decay series that have differing chemical characteristics can preferentially collect at different points within the process stream. Radium, for example, has been shown at other rare earth processing facilities to concentrate in other process streams where pH and temperature condition cause the precipitation of sulfates or carbonates within process lines.

3.0 REGULATORY BACKGROUND

The presence of NORM in the Bear Lodge Project ore does not intrinsically trigger any regulatory requirements in the U.S.

The Atomic Energy Act (AEA) provides the framework for regulating certain types of radioactive materials and gives the authority to regulate these materials to the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission (NRC). NORM, specifically natural uranium and thorium below a concentration of 0.05 percent by weight, is considered an unimportant quantity of source material and is not subject to NRC regulations. The Occupational Health and Safety Administration (OSHA) regulates all aspects of occupational hazards, including radiation sources exempt from NRC regulations but provides no framework for regulation of public dose from NORM. The Mine Safety and Health Administration (MSHA) regulates occupational hazards associated with underground and surface mining, but in the case of surface mines such as the Bull Hill Mine, does not specifically address occupational exposures to radioactive materials. MSHA provides no framework for regulation of public dose.

Currently, specific regulation of NORM, including public doses from NORM, not subject to NRC regulation is left up to individual states. Currently, 15 states have adopted regulations specifically applicable to NORM. Wyoming is not one of these.

3.1 U.S. NUCLEAR REGULATORY COMMISSION

The NRC regulates radioactive materials subject to the AEA as amended. This includes source, byproduct, and special nuclear material. *Of these three types of radioactive material, only source material could potentially apply to the Bear Lodge Project.* The NRC defines source material in 10 Code of Federal Regulations (CFR) 40 as follows:

Source Material means: (1) Uranium or thorium, or any combination thereof, in any physical or chemical form; or (2) ores that contain by weight one-twentieth of one percent (0.05 percent) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof. Source material does not include special nuclear material.

The NRC excludes from regulation source material in “unrefined or unprocessed ore” and “in any chemical mixture, compound, solution, or alloys in which the source material is by weight less than 0.05 percent of the mixture, compound, solution or alloy”. Based on this definition and exclusion, the Bear Lodge Project ore is not subject to NRC regulation. Some material produced at the PUG and Hydromet plants would meet the NRC’s definition of source material and would not fall under the “unrefined or unprocessed ore” exemption. This material will require specific licensing and the radiation protection standards in 10 CFR 20 would apply.

The public radiation dose limits in 10 CFR 20 are:

- A total effective dose equivalent to individual members of the public from the licensed operation not to exceed 0.1 rem (100 mrem) in a year, exclusive of the dose contributions from background radiation,
- The dose in any unrestricted area from external sources not to exceed 2 mrem in any one hour (h), and
- A constraint on air emissions of radioactive material to the environment, excluding radon and its daughters, shall be established by licensees such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of 10 mrem/yr from these emissions.

The NRC also requires, to the extent practical, implementation of procedures and engineering controls based on sound radiation protection principle to achieve public doses that are as low as is reasonably achievable (ALARA). ALARA is the optimization component of radiation protection principles. The public dose limits and ALARA requirement are applicable to all radionuclides, not just uranium and thorium.

3.2 GUIDANCE ON PUBLIC EXPOSURES TO NORM OR TENORM

There are several organizations within the U.S. and internationally that provide guidance on public exposures to NORM or Technologically Enhanced Naturally Occurring Radioactive Material (TENORM), defined according to the standard below. These include but are not limited to the following organizations:

- American National Standards Institute, Inc. (ANSI)
- NCRP
- NAS-NRC
- Conference of Radiation Control Program Directors (CRCPD)
- ICRP
- IAEA

The guidance documents regarding public exposure limits for each of these agencies are described briefly below.

3.2.1 AMERICAN NATIONAL STANDARDS INSTITUTE, INC.

ANSI Standard N13.53-2009 *Control and Release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)* (ANSI, 2009) provides guidance on occupational exposure to TENORM. This document defines TENORM as:

“Naturally occurring radioactive material disturbed or altered from natural settings or present in a technologically enhanced state due to past or present human activities and practices, which may result in a relative increase in radionuclide concentrations, radiation exposures and risks to the public and threat to the accessible environment above background level. Technologically enhanced means that the radiological, physical, and chemical properties of the radioactive material have been altered such that there exists a potential for:

- a) redistribution and contamination of environmental media (soil, water, air, biota),
- b) increased environmental mobility in soils and surface and groundwater,
- c) incorporation of elevated levels of radioactivity or increased accessibility in products and construction material, or
- d) improper disposal or use of disposal methods that may result in unnecessary or elevated exposures to individuals and populations via the accessible environment.

TENORM does not include radiation emanating from or radioactivity present in ores, rocks, soils, and materials containing uranium and thorium subject to regulations under the AEA, as amended” (ANSI, 2009).

Given the above definition of TENORM, all material containing thorium or uranium generated at the Bear Lodge Project would be considered TENORM unless it is regulated by the NRC as source material. ANSI-N13-53-2009 provides the following recommendations for occupational radiation protection:

“Occupational doses received from TENORM shall be controlled under normally encountered conditions such that the following limits shall not be exceeded:

- annual dose limit of 100 mrem above background
- annual average radon-222 concentrations in air of 4 pCi/L”

By providing the above limits for occupational dose, which are similar to the NRC’s dose limits to members of the public, ANSI is essentially treating any worker potentially exposed to TENORM as members of the public.

3.2.2 NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENT

NCRP Report No. 116 *Limitation of Exposure to Ionizing Radiation* provides recommendations for public dose limits that are essentially identical to the limits the NRC currently has in place (NCRP, 1993). There have been no revisions to these recommendations.

3.2.3 NATIONAL ACADEMY OF SCIENCE-NATIONAL RESEARCH COUNCIL

At the request of the U.S. Environmental Protection Agency (EPA), the NAS-NRC developed an evaluation of guidelines for exposure to NORM (NAS-NRC, 1999). It concluded that public exposure to NORM is no different than public exposure to other types of radiation, including material licensed by the NRC, and that differences between agencies in regulating exposure to NORM have no scientific or technical basis and are largely based on differences in policies for risk management. It also concludes that ALARA is the most important concept for public exposure to NORM or any radioactive material.

3.2.4 CONFERENCE OF RADIATION CONTROL PROGRAM DIRECTORS

The CRCPD has developed recommendations regarding the regulation and licensing of TENORM. These are contained in Subpart N of its *Suggested State Regulations for Control of Radiation* (CRCPD, 2004). The CRCPD recommends that the standards for protection of the public from TENORM comply with Subpart D, *Standards for Protection Against Radiation*, which are consistent with NRC regulations for radiation protection.

3.2.5 INTERNATIONAL GUIDANCE

The ICRP recommends in ICRP Report 103 *The 2007 Recommendations of the International Commission on Radiological Protection* (ICRP, 2007) that the limits of planned public exposures to radioactive material be consistent with recommendations of ICRP Report 60 *Recommendations of the International Commission on Radiological Protection* (ICRP, 1991). The public dose limits in ICRP Report 60 are as follows:

- An effective dose of 100 mrem/yr
- An equivalent dose to the lens of the eye of 1.5 rem/yr
- An equivalent dose to the skin and hands and feet of 5.0 rem/yr

The ICRP also incorporates the “optimization” component of radiation protection principles, which is keeping radiation doses to levels that are ALARA.

The IAEA published occupational radiation protection guidelines in Report No GSR Part 3 (Interim) *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, Interim Edition* (IAEA, 2007). The IAEA recommends the same public dose limits as those contained in ICRP Report 60 (ICRP, 1991), which are summarized above.

The IAEA also incorporates the “optimization” component of radiation protection principles which is keeping radiation doses to level that are ALARA.

4.0 PUBLIC DOSE ASSESSMENT

This section is intended to provide an overview of the kinds and magnitudes of potential radiological issues associated with the proposed Bear Lodge Project. At this stage of project development, specific estimates of public doses from radiation and radioactivity based on measured values are not available and must be estimated using conservative estimates of source terms coupled with computer modeling. The selection of the most appropriate model is based on likely exposure pathways.

Radiation exposure (i.e., dose) to the public can occur from being exposed to gamma radiation from sources outside of the body and also through radiation that is taken into the body through inhalation or ingestion. The following general comments apply with respect to possible pathways of exposure at the Bear Lodge Project.

- **External Doses:** As discussed previously, gamma emitting radionuclides are present in both the uranium and thorium decay series. An external dose can be received from the gamma radiation generated from these radionuclides. The magnitude of the external dose is directly related to the amounts of uranium and/or thorium in the material being processed and inversely related to the distance from the material or source. Given that the public is not allowed uncontrolled access to the source term areas, the most likely receptor will be a more than 1 km away from sources of NORM. Thus, the external dose pathway is not considered to be an important pathway for public dose estimates, particularly when compared to the inhalation of NORM.
- **Internal Doses from Particulate Inhalation:** An important pathway for internal doses to the public is inhalation. The processes at the Bear Lodge Project have the potential to create dust containing radionuclides in the thorium and uranium decay series. Engineering controls such as water sprays will be used to control dust in the mine area and haul roads. Scrubbers and bag houses will be located at key points in the PUG and Hydromet plants, and active ventilation of process buildings will occur. The Bull Hill Mine is an open pit so, unlike underground mining, natural ventilation will also mitigate the concentration of dust in the mine area.
- **Inhalation of radon (both radon-222 and radon-220) and their short-lived decay products** is another potential pathway for internal dose at the Bear Lodge Project.
- Another potential pathway for internal doses, but less important than inhalation, is the unintended ingestion of dust containing thorium and uranium and their decay products. Due to the insoluble nature of the NORM at the Bear Lodge Project, it is expected that this pathway is not important, particularly when compared to inhalation.

For this public dose evaluation, the inhalation of radon and particulates emitted from the Bear Lodge Project is considered the most important pathway leading to potential public doses and the only pathways considered.

4.1 ATMOSPHERIC DISPERSION MODEL

There are many atmospheric dispersion models that could be used to estimate off-site impacts from radon and particulate emissions from the Bear Lodge Project, including MILDOS-AREA, CAP-88, AERMOD, and CALPUF. For this evaluation, AERMOD was chosen because of its ability to consider complex terrain and surface effects and it is the EPA's preferred model for both simple and complex terrain. MILDOS-AREA, commonly used for uranium recovery facilities, was not chosen because it does not evaluate doses from radionuclides in the thorium decay series.

AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure, scaling concepts including treatment of both surface and elevated sources, and both simple and complex terrain. This assessment used BREEZE AERMOD Version 7.6 air dispersion modeling software which couples the AERMOD computer code to a user-friendly graphical user interface. Output from the AERMOD model was converted to dose by using the dose conversion factors (DCF) discussed below.

4.1.1 AERMOD PARAMETERS

Most of the input parameters, including terrain and metrological data were obtained from Trinity Consultants of Albuquerque, New Mexico. Source parameters, such as area size and location, were established using Autocad files provided by RER.

4.1.2 METEOROLOGY

The metrological data used was from the Bear Lodge and Upton site meteorological stations installed by RER. The meteorological data files were provided by Inter-Mountain Laboratories Inc. and contained information from August 1, 2012 through August 1, 2013.

4.1.3 TERRAIN DATA

Terrain (topographical) data for the AERMOD model was analyzed using AERMAP, the AERMOD terrain data pre-processor, prior to its use in AERMOD. The terrain data 7.5 minute DEM files were obtained from Trinity Consultants with a 30 meter (m) resolution.

4.1.4 SURFACE

The meteorological data obtained from Trinity Consultants also included land surface profile (i.e. surface roughness) data for the area of interest.

4.2 SOURCE TERMS

Three sources of dust and radon at the Bear Lodge Project were chosen to represent the predominant emission sources: 1) the Bull Hill Mine, 2) the low-grade ore stockpile, and 3) the TSF. The Bull Hill Mine and the low-grade ore stockpile are located near Sundance. The TSF is located near Upton. Map 1.1-1 shows the locations of these sources.

As model inputs, each source was assigned dust and radon emission rates. An important parameter for radon emission and dose from dust inhalation is the activity concentration of natural thorium and uranium in the source term material. Table 4.2-1 provides the activity concentrations used for this dose assessment.

Other sources at the Bear Lodge Project, such as ventilation stacks at the PUG and Hydromet plants and mine waste rock piles, were not considered in this evaluation,

because the magnitude of emissions from these sources are expected to be minimal when compared to the sources in Table 4.2-1.

Table 4.2-1
Thorium-232 and Uranium-238 Activity Concentrations for Material Used in Dose Evaluation

Material	Thorium-232 Concentration (pCi/g) ^a	Uranium-238 Concentration (pCi/g) ^a	Source	Comments
Bull Hill Mine	82.8	22.7	Discussion with RER	From mass balance process flow sheet.
Low-Grade Ore Stockpile	2.97	2.3	Discussion with RER	From mass balance process flow sheet.
TSF	20.1	11.8	Discussion with RER	From mass balance process flow sheet.

Notes:

^aActivity units were converted from mass units using a specific activity of 1.1×10^{-7} and 3.3×10^{-7} Ci/g for thorium-232 and uranium-238, respectively.

4.2.1 RADON EMISSION ESTIMATES

Radon flux from all sources is estimated using the following expression from *Sources and Effects of Ionizing Radiation, Annex B* (UNSCEAR, 2000):

$$J_D = C_{Ra} \lambda_{Rn} f \rho_s (1 - \varepsilon) (D_e / \lambda_{Rn})^{0.5} \times 1000$$

Where:

- J_D = the radon flux (pCi/mxs) for radon-220 or radon-222
- C_{Ra} = the activity concentration (pCi/g) of radium-226 or radium-224 in the case of radon-222 and radon-220, respectively
- λ_{Rn} = the decay constant of radon-222 (2.1×10^{-6} /s) or radon-220 (1.26×10^{-2} /s)
- f = the emanation fraction for earth material (assumed at 0.2 -UNSCEAR, 2000)
- ρ = soil or rock density ($2,700 \text{ kg/m}^3$ for the Bull Hill Mine and low-grade ore stockpile and $3,400 \text{ kg/m}^3$ for the TSF (RER, 2012a)
- ε = porosity of dry earth material (assumed at 0.25 -UNSCEAR, 1993)
- D_e = radon diffusion coefficient (assumed at $2 \times 10^{-6} \text{ m}^2/\text{s}$ - UNSCEAR, 2000), and
- 1,000 = a factor to convert g to kg

The above expression is valid only for dry soil or rock. The presence of water in soil affects radon emanation and diffusion coefficients and reduces the radon flux from the material surface. It is a conservative estimate of radon flux because soil or rock material contains moisture, resulting in an over-estimate of actual radon flux. Radium-226 and radium-224 were assumed to be in secular equilibrium with uranium-238 and thorium-232, respectively.

The radionuclide concentrations in Table 4.2-1 were used to estimate the radon flux from each of the three sources. For the purpose of modeling with AERMOD, the estimated radon flux expressed in units of activity (pCi) were converted to units of mass (g) by dividing the flux (pCi m^2/s) by the specific activities of radon-220 (9.22×10^{20} pCi/g) and radon-222 (1.54×10^{17} pCi/g). Table 4.2-4 (below) lists the radon emission from each source.

4.2.2 DUST EMISSION ESTIMATES

Dust containing NORM will be emitted from the Bear Lodge Project and has the potential for delivering an internal radiation dose to the public, predominantly by way of inhalation. Methods used to estimate dust emissions from the three sources are described in the following sub-sections.

4.2.2.1 Tailing Storage Facility and Low-Grade Ore Stockpile

Estimates of dust emissions from the TSF and the low-grade ore stockpile were obtained from methods described in NRC Regulatory Guide (RG) 3.59 *Method for Estimating Radioactive and Toxic Airborne Source Terms for Uranium Milling Operations* (NRC, 1987). While the Bear Lodge Project is not a uranium milling operation, the practices of ore and tailings storage at the Bear Lodge Project are similar and the methods used in RG 3.59 are applicable.

Table 4.2-2 shows how the dust emission factor for the TSF was derived based on wind speed frequency at the Upton Plant Site. For the TSF, the method described in Section 1.2.1 of RG 3.59 was used to estimate dust emissions.

Table 4.2-2
Dust Emission Factor for Tailings Storage Facility

Wind Speed Range ^a (m s ⁻¹)	Wind Speed Frequency (%)	Dust Emission Rate ^b (g/m ² /s)	Dust Emission Factor ^c (g/m ² /s)
< 1.54	44.9	0	0
1.54 – 3.09	36.0	0	0
3.09 – 5.14	16	3.92×10^{-7}	6.27×10^{-8}
5.15 – 8.23	6	9.68×10^{-6}	2.90×10^{-7}
8.23 – 10.8	0	5.71×10^{-5}	0
> 10.8	0	2.08×10^{-4}	0
Total	99.9	—	3.53×10^{-7}
Total with reduction factor of 90%			3.53×10^{-8}

Notes:
^a4.3 percent of the wind speed data was missing
^bValues from NRC Regulatory Guide 3.59 *Method for Estimating Radioactive and Toxic Airborne Source Terms for Uranium Milling Operations* (NRC, 1987).
^cValue is product of Dust Emission Rate and Wind Speed Frequency.

A particulate emission reduction factor of 90 percent was used, because the tailings are comprised of about 30 percent moisture and primarily are carbonate based, forming a hard crust that is similar to a chemical stabilizer when dry. Based on these assumptions, an emission factor of 3.53×10^{-8} g/m²/s (11.1 g/m²/yr) was used to estimate dust emissions from the TSF.

RG 3.59 suggests that particulate emission estimates from ore pads subject to wind erosion be 10 percent of that calculated for the tailings pile. Ten percent of the TSF estimate is 3.53×10^{-9} g/m²/s (1.1 g/m²/yr). A value of 1.36×10^{-6} g/m²/s (43 g/m²/yr) is cited in an example provided in Section 1.2.2 in RG 3.59. The latter was selected as the dust emission rate for the low-grade ore stockpile used for this evaluation, because it is conservative.

4.2.2.2 Bull Hill Mine

Dust emission from the Bull Hill Mine was estimated using methods described in Chapters 11.9 and 13.2.2 of *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources* AP-42 (EPA, 1995). It includes the contributions from blasting, truck loading, dozer operations, and haul vehicle traffic.

4.2.2.2.1 Dust Emission from Blasting

The total suspended particulate (particles ≤ 30 microns) emission from blasting at the Bull Hill Mine was estimated using the equation below, adopted from Table 11.9-2 of AP-42 for overburden:

$$EF_B = 0.00022A^{1.5}$$

Where:

EF_B = dust emission factor for blasting (kg/blast)

A = horizontal area with blasting depth ≤ 21 m (assumed as 1,590 m², the geometric

mean reported in Table 11.9.3 of AP-42)

Based on the equation and assumptions above, the dust emission factor for blasting at the Bull Hill Mine is 13.95 kg/blast. The number of blasts per year is estimated at 26, resulting in a dust emission rate of 36362.7 kg/yr.

4.2.2.2.2 Dust Emission from Truck Loading

The total suspended particulate (particles ≤ 30 microns) emission from loading haul trucks at the Bull Hill Mine was estimated using the equation below adopted from Table 11.9-2 of AP-42 for coal:

$$EF_{TL} = \frac{0.580}{M^{1.2}}$$

Where:

EF_{TL} = dust emission factor for truck loading (kg/tonne)

M = percent moisture content of material (7.9 percent from Table 11.9-3 of AP-42)

Based on the equation and assumptions above, the dust emission factor for truck loading at the Bull Hill Mine is 0.0486 kg/tonne. The number of tonnes loaded per year was conservatively estimated to 6.6×10^6 per year. This mining rate is based predominately on overburden removal and will be significantly reduced over the life of the mine. Based on the dust emission factor for truck loading and the mining rate assumption above, the dust emission rate from truck loading activities is conservatively estimated at 320,100 kg/yr.

4.2.2.2.3 Dust Emission from Dozer Operations

The total suspended particulate (particles ≤ 30 microns) emission from dozer operations at the Bull Hill Mine was estimated using the equation below, adopted from Table 11.9-2 of AP-42 for overburden:

$$EF_D = \frac{2.6s^{1.2}}{M^{1.3}}$$

Where:

EF_D = dust emission factor dozer operation (kg/tonne)

s = silt content of material (6.9 percent from Table 11.9-3 of AP-42)

M = percent moisture content of material (7.9 percent from Table 11.9-3 of AP-42)

Based on the equation and assumptions above, the dust emission factor for dozing at the Bull Hill Mine is 1.8 kg/hour. It is estimated that 2 dozers will operate for 20 hours per day, 5 days per week, 52 weeks per year, or 10,400 hours per year (RER, 2012b). Based on this operating schedule and the dust emission factor for dozers, the estimated dust release rate from dozer operations is 18,720 kg/yr.

4.2.2.2.4 Dust Emission from Haul Trucks

The total suspended particulate (particles ≤ 30 microns) emission from haul truck travel at the Bull Hill Mine was estimated using the equation below, adopted from Chapter 13.2.2 of AP-42 for unpaved road surfaces:

$$EF_{HT} = k(s/12)^a (W/3)^b$$

Where:

EF_{HT} = total suspended particulate (TSP) emission factor (lbs per vehicle mile traveled - VMT)

s = silt content (8.4 percent for western coal mines, from Table 13.2.2-1 of AP-42)

W = mean vehicle weight in tons (assumed 200 tons)

k,a,b = empirical constants from Table 13.2.2-2 of AP-42. (k=4.9, a=0.7, and b=0.45)

Based on the equation and assumptions above, the dust emission factor for haul trucks at the Bull Hill Mine is 25.3 lb/VMT (11.5 kg/VMT). The VMT (vehicles traveled in a year by haul trucks) is estimated using the follow equation:

$$VMT = f_t h S D W N$$

Where:

VMT = VMT/yr by haul trucks

f_t = fraction of time vehicles are traveling on haul roads (assumed 0.7)

h = work hours/day (20 hours/day)

D = work days per week (5 days/week)

S = average speed of haul truck (10 miles/hour)

W = number of weeks per year (52 weeks/year)

N = number of haul trucks (8; from RER, 2014a)

Using this equation, the total VMT is 327,600 miles. Given that the VMT is an annual rate, the estimated dust emission from these vehicles is estimated to be 3.33×10^6 kg/yr.

4.2.2.2.5 Summary of Dust Emission from Four Operations Considered at the Bull Hill Mine

Table 4.2-3 summarizes the dust emission estimates for the Bull Hill Mine as well as other parameters used to model off-site impacts of dust emissions. The total dust emission rate from all sources at the Bull Hill Mine is 4.1×10^6 kg/yr.

Table 4.2-3
Dust Emission Summary for Bull Hill Mine

Source Name	Source Type	Emission Activity	Dust Emission Rate ^a (kg/yr)	Source area (m ²)	Modeled Dust Emission Factor (g/m ² /s)
BHM	Open Pit	Blasting	363	9.63 x 10 ⁵	1.21 x 10 ⁻⁴
		Truck Loading	320,100		
		Dozer Operation	18,720		
		Hauling	3.33 x 10 ⁶		
		Total	3.7x 10 ⁶		

Notes

^aEmission rate is assumed to be emitted homogeneously over the mine area.

4.2.2.3 Summary of Emission from Three Sources Considered at the BLP

Table 4.2-4 summarizes the emission estimates for the Bull Hill Mine, low-grade ore stockpile, and TSF as well as other parameters used to model off-site impacts of dust emissions.

Table 4.2-4
Emission Summary for Bear Lodge Project

Source Name	Source Type	Area (m ²)	Effective Release Height (m)	Dust (g/m ² /s)	Radon-220 (g/m ² /s)	Radon-222 (g/m ² /s)
Low-Grade Ore Stockpile	Area	263,976	0.5	1.36 x 10 ⁻⁶	2.07 x 10 ⁻¹⁹	1.25 x 10 ⁻¹⁷
TSF	Area	1,270,710	0.5	1.35 x 10 ⁻⁷	1.76 x 10 ⁻¹⁸	7.98 x 10 ⁻¹⁷
Bull Hill Mine	Mine Pit	962,505	0	1.21 x 10 ⁻⁴	5.77 x 10 ⁻¹⁸	1.23 x 10 ⁻¹⁶

4.3 DOSE CONVERSION FACTORS

The potential annual dose to members of the public from the inhalation of radon-220, radon-222 and their associated short lived decay products was estimated in part by using DCFs and decay products fraction of equilibrium values (indoors) contained in Annex E of *Sources and Effects of Ionizing Radiation- Volume II* (UNSCEAR, 2006). AERMOD can output radon concentrations in units of pCi per liter (L). Therefore, it is helpful to develop a DCF for this concentration unit to estimate dose at the receptor locations. Doses from radon were assumed to occurring indoors (i.e. average indoor equilibrium factors were used). The radon dose conversion factors were calculated using the following equation:

$$DCF_{Rn} = f_{in} DCF_{EEC} T$$

Where:

DCF_{Rn} = the DCF for estimated radon-222 and radon-220 concentrations (mrem/pCi/L)

f_{in} = the fraction of equilibrium for radon decay products (0.4 for radon-222 decay products and 0.02 for radon-220 decay products)

DCF_{EEC} = DCF equilibrium-equivalent concentration [EEC (0.0226 and 0.148 mrem/pCi/L/hr for radon-222 and radon-220 respectively)]

T = exposure duration (8,760 h/yr)

The above equation and assumptions provides DCF_{Rn} of 79.2 and 25.9 mrem/pCi/L for radon-222 and radon-220, respectively. Annual doses from inhalation of radon and associated decay products were estimated by multiplying the predicted radon concentration by the respective DCF.

Internationally-accepted Dose Coefficients (DCs) of the ICRP (1994a) were used to estimate internal doses from inhalation of NORM in dust. Table 4.2-5 lists the DCs. This evaluation omits the small contributions to dose from the uranium-235 decay series. The DCs for each radionuclide in the thorium and uranium decay series were summed, resulting in two DCs: one each for the thorium and uranium decay series. As in the external dose estimate, radionuclides in each decay series were assumed to be in equilibrium.

Table 4.2-5
Radiation Dose Coefficients for Inhalation Pathway

Decay Series	Radionuclide	Radiation Dose Coefficients (mrem/pCi) ^a
		Inhalation
Uranium	Uranium-238	2.1×10^{-2}
	Uranium-234	2.5×10^{-2}
	Thorium-230	2.7×10^{-2}
	Radium-226	8.1×10^{-3}
	Lead-210	4.1×10^{-3}
	Polonium-210	8.1×10^{-3}
	Sum of all uranium-238 decay series radionuclides except radon-222 (DC_U)	9.3×10^{-2}
Thorium	Thorium-232	4.4×10^{-2}
	Radium-228	6.3×10^{-3}
	Actinium-228	4.4×10^{-5}
	Thorium-228	1.2×10^{-1}
	Radium-224	8.9×10^{-3}
	Lead-212	1.2×10^{-4}
	Bismuth-212	1.4×10^{-4}
	Sum of all thorium-232 decay series radionuclides except radon-220 (DC_{Th})	1.8×10^{-1}
Notes: ^a Radiation DCs from ICRP 68 (ICRP, 1994a) except for revised radium-226 inhalation coefficients from ICRP 72 (ICRP, 1996). All DCs are for the least soluble form. Inhalation dose coefficients are for 5 micron particle size.		

Table 4.2-1 and the DCFs in Table 4.2-5 were used to calculate source specific dose factors to convert AERMOD dust concentration output in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to an annual dose estimated from inhalation. The following equations were used to calculate this factor:

$$CDF_i = BR \times DCF_i \times 365$$

Where:

CDF_i = Concentration dose factor for radionuclide i (mrem/pCi/L)

BR = average human breathing rate (22,200 L/d)

DCF_i = Dose conversion factor for radionuclide i [mrem/ pCi(from Table 4.2-5)]

The calculated CDF_{Th} and CDF_U are 1.45×10^6 and 7.54×10^5 mrem/pCi/L, respectively. These CDFs then were used to calculate source specific, mass based particulate Dose Factors (DF) based on uranium-238 and thorium-232 concentrations in Table 4.1-1 using the following equations:

$$DF_i = \left[\left(\frac{C_{Thi}}{1 \times 10^6} \times CDF_{Th} \right) + \left(\frac{C_{Ui}}{1 \times 10^6} \times CDF_U \right) \right] \times 1 \times 10^{-3}$$

Where:

DF_i = Particulate dose factor for source i (mrem/ μ g/ m^3)

C_{Thi} = Concentration of thorium-232 for source (i) (pCi/g)

C_{Ui} = Concentration of uranium-238 for source (i) (pCi/g)

CDF_{Th} = Concentration dose factors for thorium-232 (mrem/pCi/L)

CDF_U = Concentration dose factors for uranium-238 (mrem/pCi/L)

1×10^6 = factor to convert g to μ g

1×10^3 = factor to convert L to m^3

Table 4.2-6 summarizes the DFs for the three sources used in this assessment.

Table 4.2-6
Dose Factors for Source Terms

Source Name	Particulate Dose Factor (mrem/ μ g/ m^3)	Dose Conversion Factor Radon-222 (mrem/pCi/L)	Dose Conversion Factor Radon-220 (mrem/pCi/L)
Low-Grade Ore Stockpile	6.0×10^{-3}	79.2	25.9
TSF	3.8×10^{-2}	79.2	25.9
Bull Hill Mine	1.4×10^{-1}	79.2	25.9

4.4 RECEPTORS

The AERMOD model was run for the Upton and Bear Lodge areas. A 20 by 20 km receptor grid (with grid nodes at every km) was established at each area, with the respective facilities centered in the grid system. Radon-222, radon-220 and dust concentrations were estimated for each grid. This spacing allows for the development of iso-dose contours around each facility using interpolation methods within ARC-GIS, computer software. Additionally, the towns of Sundance and Upton were specific receptors because they are the closest population centers to each facility. Figures 4.4-1 and 4.4-2 show the grid layout for each area.

4.5 PUBLIC DOSE ESTIMATES

The equation below was used to estimate total internal doses from inhalation of NORM in dust, radon-222, and radon-220.

$$D = \sum_i (M_i \times DF_i) + (Rn_{222} \times DCF_{222}) + (Rn_{220} \times DCF_{220})$$

Where:

- D = annual estimated dose (mrem)
 M_i = Predicted concentration of particulate matter for source (i) ($\mu\text{g}/\text{m}^3$)
 DF_i = Particulate dose factor for source i (mrem/ $\mu\text{g}/\text{m}^3$)
 Rn_{222} = Predicted concentration of radon-222 (pCi/L)
 DFC_{222} = Dose conversion factor for radon-222 (mrem/pCi/L)
 Rn_{220} = Predicted concentration of radon-220 (pCi/L)
 DFC_{220} = Dose conversion factor for radon-220 (mrem/pCi/L)

Table 4.5-1 is a statistical summary of the estimated doses at 484 grid points in and around the Bear Lodge and Upton areas. Figures 4.4-1 and 4.4-2 show the iso-dose contours around the Bear Lodge and Upton areas, respectively. For purposes of developing iso-dose contours, one receptor in the Bear Lodge area (receptor number 253) was omitted as recommended by AERMOD because it was located directly over the Bull Hill Mine pit.

Table 4.5-1
Radiation Dose Estimates to the Public at the Bear Lodge Project

Area	Radiation Dose Estimate (mrem/yr)			Average % Contribution		
	Mean	Median	Max	Dust	Rn-222	Rn-220
Bear Lodge Area (Total)	1.52	0.77	56.7	86.5	8.19	5.34
Low-Grade Ore Stockpile	0.91	0.00	41.9	0.6	11.3	88.1
Bull Hill Mine	1.42	0.77	29.4	92	7.96	0.05
Upton Area	0.26	0.07	4.38	0.1	99.1	0.8
Town of Upton	0.12	—	—	18	82	0
Town of Sundance	0.88	—	—	920	8.0	0

Notes:

^aInternal doses are based on expected uranium and thorium concentrations from the PUG and are intended to provide a conservative estimate of occupational doses resulting from BLP activities.

The dose estimates in Table 4.5-1 demonstrate two key points. First, using conservative dose estimate methods, no grid points, even within the permit boundary, had a dose greater than 100 mrem/yr, the NRC public dose standard. The maximum estimated dose was 58.1 mrem/yr, which occurred within the Bull Hill Mine permit boundary. This location will not be accessible to members of the public and if corrected for a typical work year (2,000 h) would result in a worker dose of 13.2 mrem, which is well below the limit for occupational dose of 5,000 mrem/yr. Secondly, the major contributors to public dose at the Bear Lodge and Upton areas are different. At Bear Lodge, the public dose is driven mainly by NORM in dust emissions from the mine pit and near the low-grade ore stockpile. In the Upton area, the public dose is driven mainly by radon-222 emissions from the TSF. This is important to understand, because engineering controls could be used to mitigate the predominant dose pathways.

The estimated mean doses at Sundance and Upton are 0.88 mrem/yr and 0.12 mrem/yr, respectively. These doses are well below the NRC public dose limit of 100 mrem/yr. Figure 4.4-1 shows that estimated dose rates outside of the proposed permit area are less than 10 mrem/yr. Figure 4.4-2 shows that estimated dose rates outside of the proposed site project area also less than 10 mrem/yr at the Upton property boundary and decrease in magnitude quickly as a function of distance from the site. For example, dose rates are less than 5 mrem/yr at less than 0.5 km from the southern edge of the Upton property boundary.

Attachment A provides summary output from the AERMOD model.

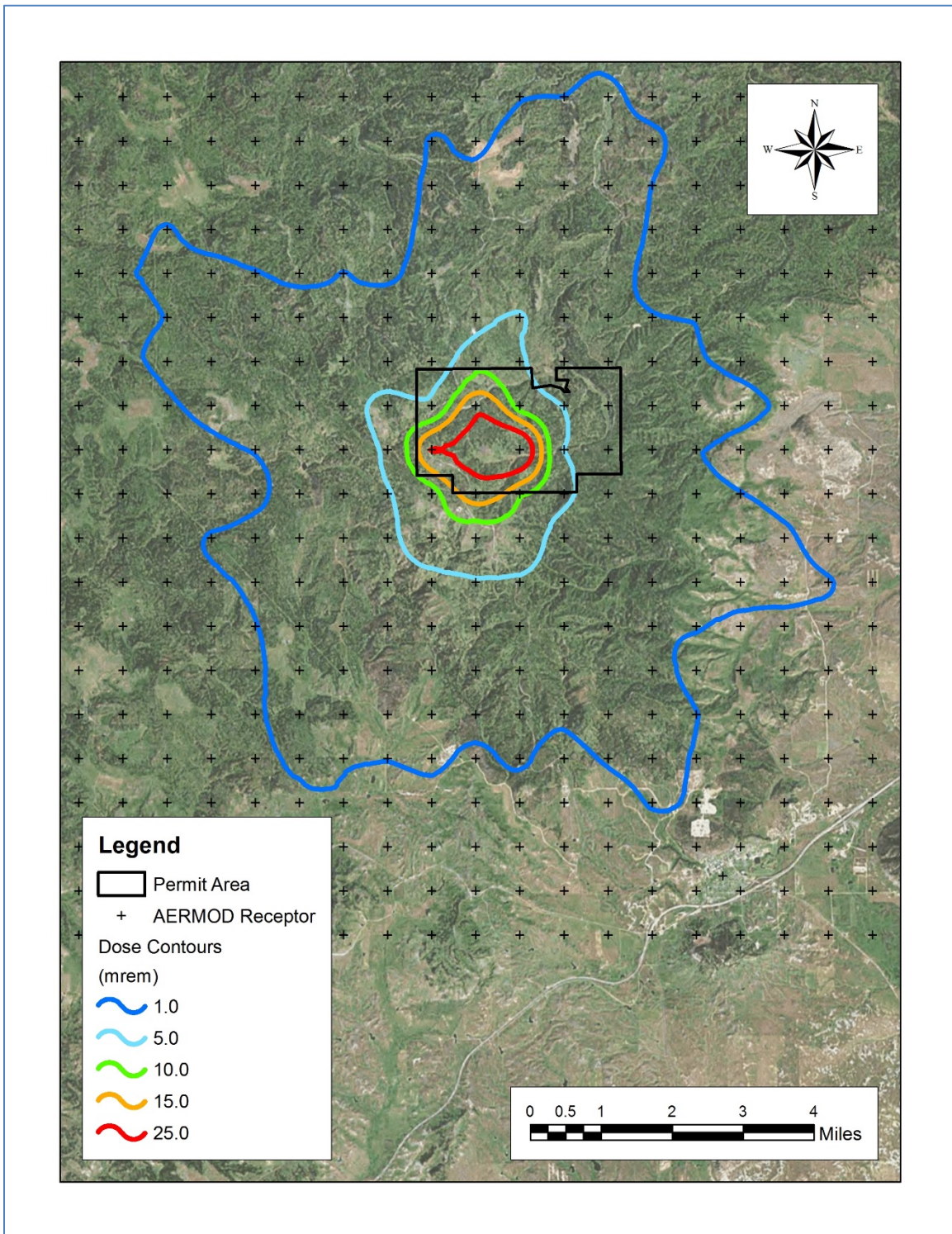


Figure 4.4-1
Iso-dose Contours for Bull Hill Mine

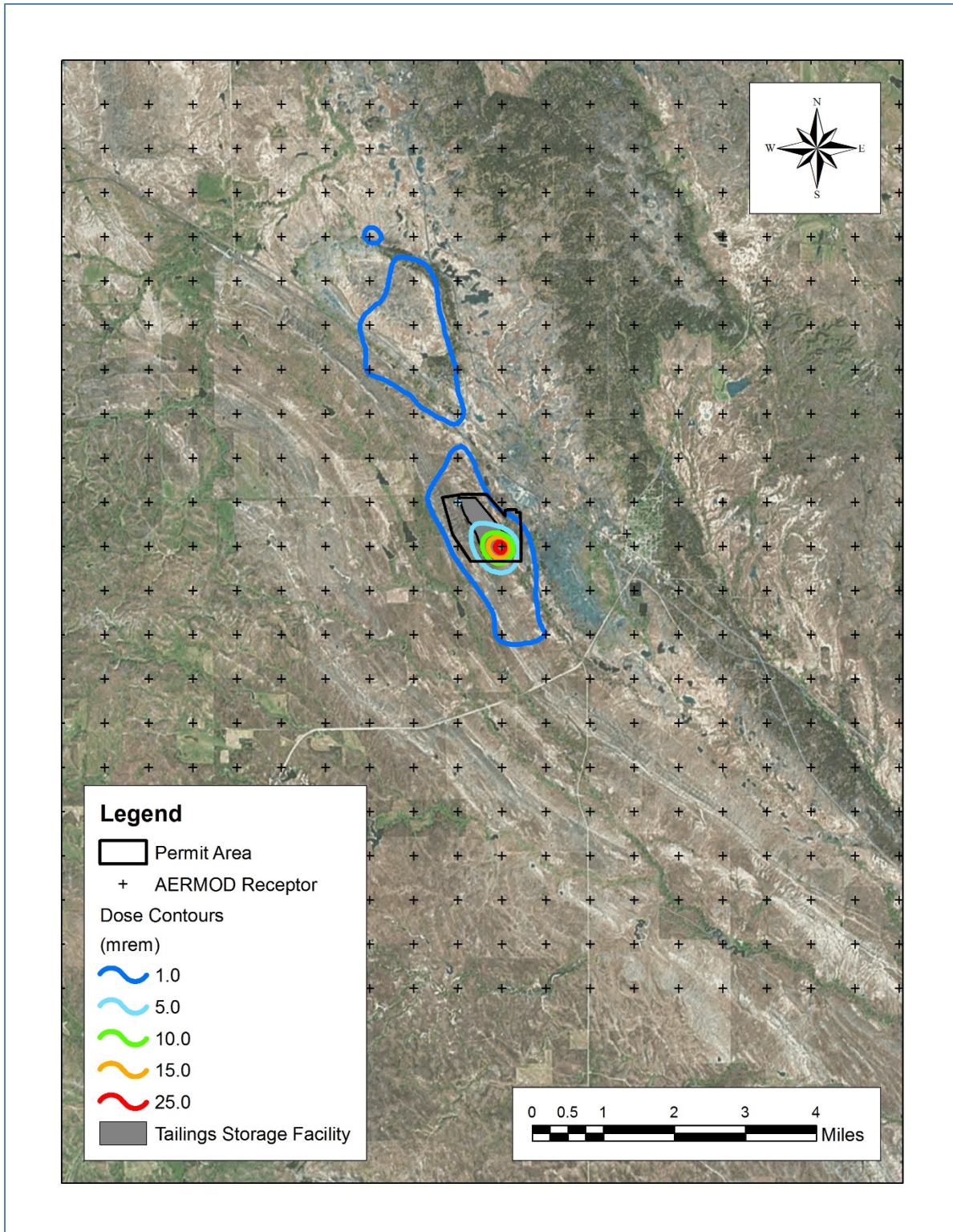


Figure 4.4-2
Iso-dose Contours for Upton Area

5.0 SUMMARY

The proposed Bear Lodge Project is intended to recover and process REE from RER-owned deposits located in the northeast Wyoming. The project facilities will be at two site locations: the Bull Hill Mine and PUG Plant near Sundance, Wyoming and the Hydromet Plant and TSF near Upton, Wyoming.

In addition to the rare earth metals, the Bear Lodge Project ore contains NORM. The NORM consists of naturally occurring thorium and uranium and associated radioactive decay products. The thorium and uranium concentration in the Bear Lodge Project ore is variable but averages approximately 0.036 and 0.01 percent by weight, respectively, which is above typical U.S. background levels of about 1 to 10 ppm in rocks and soils. The presence of NORM in rare earth deposits is not unusual, because it occurs in most other rare earth deposits and in many resource industries around the world. However, the presence of NORM in the Bear Lodge Project ore suggests the need to address potential radiological exposures to members of the public arising from its mining and processing.

Potential radiological doses to the public at the proposed Bear Lodge Project would arise predominantly from inhalation of NORM in dust; and from radon (radon-222 and radon-220) and associated decay products. Based on the information in this report, the largest source of public exposure at the proposed Bear Lodge Project is anticipated to be inhalation of NORM in dust generated from the mining activities in the Bear Lodge area and from inhalation of radon-222 and associated decay products in the Upton area. These components are estimated to account for 74 and 88 percent of the dose, respectively, given the assumptions described in this report. The average estimated radiation dose to the public ranged from 0.1 mrem/yr to 4 mrem/yr. It is expected that given the level of NORM in the Bear Lodge Project ore and products, coupled with reasonable best practices implemented at the site, the public dose from Bear Lodge Project activities would be well below regulatory limits and can be kept ALARA; meeting the optimization component of radiation protection principles.

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ATTACHMENT A

AERMOD MODEL OUTPUT

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*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****

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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9

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CO STARTING
CO TITLEONE AERMOD run for the Bear Lodge mine site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID TSP
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED

```

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SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN003 OPENPIT 543950 4925950 1927.96
** SRCDESCR Mine Pit
SO LOCATION 8T4FN006 AREAPOLY 544880 4926915 1905
** SRCDESCR Low Grade Ore Stockpile
SO SRCPARAM 8T4FN003 0.000121 0 715 1450 1.96E+08 315
SO SRCPARAM 8T4FN006 1.36E-06 0.5 5 0.5
SO AREAVERT 8T4FN006 544880.0 4926915.0 545250.0 4926915.0
SO AREAVERT 8T4FN006 545245.0 4926290.0 544800.0 4926310.0
SO AREAVERT 8T4FN006 544730.0 4926550.0
SO CONCUNIT 1.0E+06 GRAMS/SEC MICROGRAMS/M**3
SO SRCGROUP ALL
SO SRCGROUP MINE 8T4FN003
SO SRCGROUP LGOS 8T4FN006
SO FINISHED

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RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Bull Hill
RE GRIDCART CB8IQ002 XYINC 534000 22 1000 4915500 22 1000

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RE GRIDCART CB8IQ002 ELEV	1	1501.1	1511.0	1545.0	1551.5	1494.2	1515.6
RE GRIDCART CB8IQ002 ELEV	1	1549.8	1567.5	1504.1	1598.4	1621.3	1582.7
RE GRIDCART CB8IQ002 ELEV	1	1535.0	1496.2	1481.8	1569.5	1580.6	1508.9
RE GRIDCART CB8IQ002 ELEV	1	1440.4	1416.5	1425.7	1432.0		
RE GRIDCART CB8IQ002 ELEV	2	1440.7	1432.7	1462.5	1469.6	1465.8	1487.3
RE GRIDCART CB8IQ002 ELEV	2	1515.7	1639.0	1537.6	1543.1	1639.7	1555.5
RE GRIDCART CB8IQ002 ELEV	2	1523.6	1508.2	1514.3	1466.2	1464.4	1443.2
RE GRIDCART CB8IQ002 ELEV	2	1416.3	1418.2	1464.0	1447.6		
RE GRIDCART CB8IQ002 ELEV	3	1467.1	1491.2	1488.1	1557.7	1543.3	1508.6
RE GRIDCART CB8IQ002 ELEV	3	1534.4	1540.7	1561.7	1601.0	1629.0	1593.6
RE GRIDCART CB8IQ002 ELEV	3	1561.0	1566.1	1530.8	1530.7	1448.7	1420.1
RE GRIDCART CB8IQ002 ELEV	3	1409.7	1424.4	1575.3	1447.8		
RE GRIDCART CB8IQ002 ELEV	4	1458.4	1524.7	1566.3	1574.0	1582.0	1541.6
RE GRIDCART CB8IQ002 ELEV	4	1540.8	1546.4	1571.1	1587.2	1696.9	1621.0
RE GRIDCART CB8IQ002 ELEV	4	1600.8	1560.4	1531.6	1558.7	1537.6	1496.9
RE GRIDCART CB8IQ002 ELEV	4	1434.4	1393.7	1427.7	1389.1		
RE GRIDCART CB8IQ002 ELEV	5	1500.9	1563.7	1555.3	1604.0	1573.6	1639.8
RE GRIDCART CB8IQ002 ELEV	5	1648.5	1576.0	1564.1	1587.2	1645.8	1696.7
RE GRIDCART CB8IQ002 ELEV	5	1659.8	1648.8	1643.6	1642.6	1515.1	1455.7
RE GRIDCART CB8IQ002 ELEV	5	1428.1	1400.7	1388.6	1370.5		
RE GRIDCART CB8IQ002 ELEV	6	1540.0	1498.0	1605.0	1631.5	1620.9	1627.6
RE GRIDCART CB8IQ002 ELEV	6	1632.5	1666.2	1604.8	1627.1	1691.7	1762.1
RE GRIDCART CB8IQ002 ELEV	6	1756.6	1835.9	1824.4	1696.3	1602.3	1562.7
RE GRIDCART CB8IQ002 ELEV	6	1437.9	1412.4	1371.0	1363.1		
RE GRIDCART CB8IQ002 ELEV	7	1513.1	1555.4	1578.4	1644.6	1546.1	1649.5
RE GRIDCART CB8IQ002 ELEV	7	1639.8	1664.2	1701.6	1675.4	1852.7	1894.3
RE GRIDCART CB8IQ002 ELEV	7	1836.1	1825.4	1714.0	1694.0	1581.0	1630.2
RE GRIDCART CB8IQ002 ELEV	7	1458.6	1396.6	1374.7	1366.4		
RE GRIDCART CB8IQ002 ELEV	8	1521.7	1563.1	1485.4	1522.2	1620.8	1667.9
RE GRIDCART CB8IQ002 ELEV	8	1651.1	1697.4	1735.1	1828.6	1826.3	1906.0
RE GRIDCART CB8IQ002 ELEV	8	1891.6	1813.9	1732.0	1657.3	1522.0	1513.7
RE GRIDCART CB8IQ002 ELEV	8	1416.8	1395.3	1395.6	1401.0		
RE GRIDCART CB8IQ002 ELEV	9	1457.5	1461.4	1521.1	1617.7	1691.7	1718.3
RE GRIDCART CB8IQ002 ELEV	9	1682.5	1708.9	1785.6	1830.9	1886.7	1878.0
RE GRIDCART CB8IQ002 ELEV	9	1774.3	1770.4	1812.1	1668.0	1531.2	1436.1
RE GRIDCART CB8IQ002 ELEV	9	1427.6	1378.8	1389.0	1382.0		
RE GRIDCART CB8IQ002 ELEV	10	1560.8	1548.4	1476.0	1544.4	1685.6	1749.9
RE GRIDCART CB8IQ002 ELEV	10	1716.1	1761.8	1852.3	1914.1	1900.3	1909.6
RE GRIDCART CB8IQ002 ELEV	10	1805.6	1791.8	1766.1	1697.0	1524.2	1432.5
RE GRIDCART CB8IQ002 ELEV	10	1383.3	1370.8	1348.9	1329.8		
RE GRIDCART CB8IQ002 ELEV	11	1527.0	1570.9	1537.3	1629.4	1643.3	1703.8
RE GRIDCART CB8IQ002 ELEV	11	1745.6	1804.4	1860.4	1943.1	1919.0	1898.4
RE GRIDCART CB8IQ002 ELEV	11	1913.6	1828.0	1744.7	1696.6	1577.6	1507.9
RE GRIDCART CB8IQ002 ELEV	11	1397.2	1363.3	1394.0	1369.7		
RE GRIDCART CB8IQ002 ELEV	12	1534.0	1599.0	1601.5	1621.4	1622.1	1665.2
RE GRIDCART CB8IQ002 ELEV	12	1729.3	1788.6	1828.2	1910.0	1870.0	1839.9
RE GRIDCART CB8IQ002 ELEV	12	1817.5	1792.2	1698.8	1578.9	1514.3	1456.0
RE GRIDCART CB8IQ002 ELEV	12	1434.5	1376.5	1353.8	1342.1		
RE GRIDCART CB8IQ002 ELEV	13	1520.3	1531.1	1614.4	1631.2	1684.6	1706.2
RE GRIDCART CB8IQ002 ELEV	13	1746.3	1809.3	1850.2	1872.0	1804.2	1841.1
RE GRIDCART CB8IQ002 ELEV	13	1770.5	1753.3	1738.6	1626.5	1679.0	1423.7
RE GRIDCART CB8IQ002 ELEV	13	1410.0	1356.1	1332.5	1310.2		
RE GRIDCART CB8IQ002 ELEV	14	1480.5	1598.8	1564.3	1624.1	1653.0	1655.4
RE GRIDCART CB8IQ002 ELEV	14	1688.1	1794.6	1764.5	1838.2	1823.6	1784.0

RE GRIDCART CB8IQ002 ELEV	14	1713.6	1770.5	1737.7	1697.2	1530.9	1441.2
RE GRIDCART CB8IQ002 ELEV	14	1393.1	1354.3	1332.3	1317.1		
RE GRIDCART CB8IQ002 ELEV	15	1461.5	1551.0	1545.9	1559.8	1588.3	1630.4
RE GRIDCART CB8IQ002 ELEV	15	1649.0	1747.0	1746.7	1768.0	1758.7	1753.7
RE GRIDCART CB8IQ002 ELEV	15	1757.4	1756.0	1675.2	1652.2	1628.7	1464.1
RE GRIDCART CB8IQ002 ELEV	15	1418.7	1374.3	1356.5	1341.0		
RE GRIDCART CB8IQ002 ELEV	16	1407.6	1408.6	1530.0	1485.0	1545.0	1563.4
RE GRIDCART CB8IQ002 ELEV	16	1705.0	1731.1	1663.1	1746.0	1691.5	1703.3
RE GRIDCART CB8IQ002 ELEV	16	1679.7	1603.5	1720.0	1643.6	1615.2	1552.3
RE GRIDCART CB8IQ002 ELEV	16	1463.9	1455.5	1389.5	1357.3		
RE GRIDCART CB8IQ002 ELEV	17	1401.9	1406.5	1483.0	1542.5	1507.8	1600.9
RE GRIDCART CB8IQ002 ELEV	17	1636.9	1652.9	1641.2	1638.9	1623.4	1597.9
RE GRIDCART CB8IQ002 ELEV	17	1664.7	1582.0	1622.7	1651.9	1596.0	1536.3
RE GRIDCART CB8IQ002 ELEV	17	1595.7	1523.1	1502.4	1432.4		
RE GRIDCART CB8IQ002 ELEV	18	1393.0	1490.2	1538.0	1584.5	1599.1	1562.6
RE GRIDCART CB8IQ002 ELEV	18	1552.8	1617.5	1568.4	1566.9	1620.3	1649.7
RE GRIDCART CB8IQ002 ELEV	18	1600.8	1573.2	1608.4	1670.2	1655.7	1567.6
RE GRIDCART CB8IQ002 ELEV	18	1462.9	1574.8	1511.9	1440.8		
RE GRIDCART CB8IQ002 ELEV	19	1414.2	1558.2	1542.3	1507.5	1543.2	1589.8
RE GRIDCART CB8IQ002 ELEV	19	1522.7	1510.1	1563.7	1577.2	1669.9	1654.8
RE GRIDCART CB8IQ002 ELEV	19	1562.1	1534.7	1621.0	1624.6	1540.3	1582.2
RE GRIDCART CB8IQ002 ELEV	19	1439.3	1464.1	1407.6	1375.0		
RE GRIDCART CB8IQ002 ELEV	20	1482.6	1561.0	1477.4	1532.9	1450.1	1588.1
RE GRIDCART CB8IQ002 ELEV	20	1454.8	1458.8	1505.1	1604.1	1644.3	1616.0
RE GRIDCART CB8IQ002 ELEV	20	1551.5	1504.7	1570.3	1517.7	1529.0	1547.2
RE GRIDCART CB8IQ002 ELEV	20	1486.6	1408.4	1485.9	1360.7		
RE GRIDCART CB8IQ002 ELEV	21	1397.4	1470.2	1470.9	1513.7	1409.2	1453.3
RE GRIDCART CB8IQ002 ELEV	21	1434.0	1409.0	1472.5	1524.5	1566.9	1621.2
RE GRIDCART CB8IQ002 ELEV	21	1543.7	1511.2	1592.9	1514.4	1439.9	1563.7
RE GRIDCART CB8IQ002 ELEV	21	1506.6	1513.5	1436.7	1435.5		
RE GRIDCART CB8IQ002 ELEV	22	1410.2	1491.1	1490.6	1431.2	1413.0	1387.9
RE GRIDCART CB8IQ002 ELEV	22	1468.8	1417.6	1536.9	1556.0	1606.6	1565.0
RE GRIDCART CB8IQ002 ELEV	22	1542.1	1548.6	1527.2	1540.9	1563.9	1403.7
RE GRIDCART CB8IQ002 ELEV	22	1369.2	1384.4	1344.2	1322.0		
RE GRIDCART CB8IQ002 HILL	1	1529.5	1534.1	1545.0	1559.7	1581.6	1571.2
RE GRIDCART CB8IQ002 HILL	1	1634.0	1639.0	1686.0	1686.0	1686.0	1599.0
RE GRIDCART CB8IQ002 HILL	1	1586.0	1775.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	1	1775.0	1775.0	1608.1	1432.0		
RE GRIDCART CB8IQ002 HILL	2	1525.5	1553.6	1553.6	1572.2	1589.2	1503.3
RE GRIDCART CB8IQ002 HILL	2	1639.0	1639.0	1639.0	1686.0	1654.0	1617.0
RE GRIDCART CB8IQ002 HILL	2	1523.6	1549.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	2	1775.0	1775.0	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	3	1520.0	1541.1	1570.9	1557.7	1589.2	1549.6
RE GRIDCART CB8IQ002 HILL	3	1537.0	1639.0	1619.0	1667.0	1674.0	1615.0
RE GRIDCART CB8IQ002 HILL	3	1898.0	1898.0	1898.0	1775.0	1843.0	1775.0
RE GRIDCART CB8IQ002 HILL	3	1775.0	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	4	1519.4	1543.2	1566.3	1581.6	1593.2	1646.8
RE GRIDCART CB8IQ002 HILL	4	1677.0	1674.0	1601.0	1935.0	1702.0	1946.0
RE GRIDCART CB8IQ002 HILL	4	1958.0	1958.0	1918.0	1898.0	1833.0	1541.7
RE GRIDCART CB8IQ002 HILL	4	1541.7	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	5	1503.0	1567.6	1594.7	1623.4	1657.5	1639.8
RE GRIDCART CB8IQ002 HILL	5	1673.0	1679.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	5	1958.0	1958.0	1898.0	1848.0	1898.0	1848.0
RE GRIDCART CB8IQ002 HILL	5	1688.9	1688.9	1605.7	1605.7		

RE GRIDCART CB8IQ002 HILL	6	1549.3	1608.1	1605.0	1631.5	1645.0	1650.5
RE GRIDCART CB8IQ002 HILL	6	1678.0	1674.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	6	1958.0	1898.0	1824.4	1842.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	6	1688.9	1688.9	1686.8	1363.1		
RE GRIDCART CB8IQ002 HILL	7	1572.2	1555.4	1680.7	1680.7	1680.7	1649.5
RE GRIDCART CB8IQ002 HILL	7	1639.8	1951.0	1951.0	1958.0	1945.0	1958.0
RE GRIDCART CB8IQ002 HILL	7	1958.0	1904.0	1916.0	1835.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	7	1688.9	1688.9	1686.8	1366.4		
RE GRIDCART CB8IQ002 HILL	8	1547.5	1563.1	1680.7	1751.4	1645.3	1679.1
RE GRIDCART CB8IQ002 HILL	8	1707.0	1951.0	1951.0	1951.0	1958.0	1953.0
RE GRIDCART CB8IQ002 HILL	8	1927.0	1904.0	1901.0	1856.0	1913.0	1800.0
RE GRIDCART CB8IQ002 HILL	8	1800.0	1688.9	1432.6	1401.0		
RE GRIDCART CB8IQ002 HILL	9	1570.0	1577.0	1745.6	1624.0	1714.2	1784.0
RE GRIDCART CB8IQ002 HILL	9	1862.0	2023.0	2023.0	2029.0	2029.0	2010.0
RE GRIDCART CB8IQ002 HILL	9	2029.0	1854.0	1820.0	1854.0	1872.0	1876.0
RE GRIDCART CB8IQ002 HILL	9	1800.0	1378.8	1397.2	1382.0		
RE GRIDCART CB8IQ002 HILL	10	1560.8	1568.5	1751.4	1795.0	1751.4	1795.0
RE GRIDCART CB8IQ002 HILL	10	2001.0	2001.0	2001.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	10	2029.0	1952.0	1812.0	1805.0	1952.0	1952.0
RE GRIDCART CB8IQ002 HILL	10	1854.0	1385.0	1348.9	1371.6		
RE GRIDCART CB8IQ002 HILL	11	1532.8	1582.5	1645.3	1632.5	1693.8	1788.0
RE GRIDCART CB8IQ002 HILL	11	1783.0	2001.0	2023.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	11	1952.0	1952.0	1952.0	1800.0	1817.0	1799.0
RE GRIDCART CB8IQ002 HILL	11	1806.0	1772.4	1394.0	1372.8		
RE GRIDCART CB8IQ002 HILL	12	1559.7	1604.2	1604.8	1638.6	1791.0	1796.0
RE GRIDCART CB8IQ002 HILL	12	1929.0	2001.0	2001.0	1970.0	2023.0	2029.0
RE GRIDCART CB8IQ002 HILL	12	1952.0	1952.0	1952.0	1952.0	1952.0	1810.0
RE GRIDCART CB8IQ002 HILL	12	1772.4	1772.4	1359.7	1342.1		
RE GRIDCART CB8IQ002 HILL	13	1590.1	1624.0	1614.4	1728.5	1728.5	1791.0
RE GRIDCART CB8IQ002 HILL	13	1917.0	1952.0	1952.0	1952.0	1996.0	1915.0
RE GRIDCART CB8IQ002 HILL	13	1909.0	1788.0	1777.0	1782.0	1772.4	1799.0
RE GRIDCART CB8IQ002 HILL	13	1772.4	1772.4	1763.9	1310.2		
RE GRIDCART CB8IQ002 HILL	14	1610.6	1598.8	1644.1	1699.3	1728.5	1765.1
RE GRIDCART CB8IQ002 HILL	14	1952.0	1794.6	1952.0	1929.7	1857.8	1851.1
RE GRIDCART CB8IQ002 HILL	14	1909.0	1770.5	1763.0	1742.5	1777.0	1774.0
RE GRIDCART CB8IQ002 HILL	14	1772.4	1772.4	1756.9	1317.1		
RE GRIDCART CB8IQ002 HILL	15	1621.2	1621.2	1607.8	1705.7	1669.7	1755.3
RE GRIDCART CB8IQ002 HILL	15	1917.0	1769.7	1952.0	1871.2	1857.8	1753.7
RE GRIDCART CB8IQ002 HILL	15	1757.4	1756.0	1765.4	1719.4	1702.0	1772.4
RE GRIDCART CB8IQ002 HILL	15	1772.4	1772.4	1648.1	1599.3		
RE GRIDCART CB8IQ002 HILL	16	1621.2	1621.2	1599.9	1656.9	1656.9	1748.6
RE GRIDCART CB8IQ002 HILL	16	1720.9	1742.5	1871.2	1752.6	1745.0	1731.6
RE GRIDCART CB8IQ002 HILL	16	1732.5	1771.2	1720.0	1707.2	1693.5	1686.5
RE GRIDCART CB8IQ002 HILL	16	1686.5	1648.1	1648.1	1648.1		
RE GRIDCART CB8IQ002 HILL	17	1565.5	1619.4	1619.4	1593.5	1721.8	1716.0
RE GRIDCART CB8IQ002 HILL	17	1721.8	1716.6	1710.8	1752.9	1747.1	1749.2
RE GRIDCART CB8IQ002 HILL	17	1696.5	1705.1	1708.7	1693.5	1686.2	1685.8
RE GRIDCART CB8IQ002 HILL	17	1648.1	1648.1	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	18	1607.8	1619.4	1619.4	1584.5	1599.1	1707.8
RE GRIDCART CB8IQ002 HILL	18	1716.0	1696.8	1710.8	1735.8	1688.6	1680.1
RE GRIDCART CB8IQ002 HILL	18	1602.9	1644.1	1683.1	1670.2	1663.6	1663.3
RE GRIDCART CB8IQ002 HILL	18	1664.8	1634.6	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	19	1607.8	1596.2	1607.8	1568.2	1642.9	1642.9
RE GRIDCART CB8IQ002 HILL	19	1637.4	1700.2	1592.9	1681.0	1669.9	1666.6

RE GRIDCART CB8IQ002 HILL 19 1678.5 1660.2 1660.2 1663.6 1676.7 1643.8
RE GRIDCART CB8IQ002 HILL 19 1663.3 1634.6 1634.6 1634.6
RE GRIDCART CB8IQ002 HILL 20 1584.4 1581.0 1596.2 1535.3 1642.9 1588.1
RE GRIDCART CB8IQ002 HILL 20 1642.9 1696.2 1655.1 1655.1 1652.3 1661.2
RE GRIDCART CB8IQ002 HILL 20 1666.3 1659.3 1655.7 1672.7 1567.9 1556.6
RE GRIDCART CB8IQ002 HILL 20 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 21 1584.4 1584.4 1504.2 1513.7 1637.1 1606.3
RE GRIDCART CB8IQ002 HILL 21 1606.3 1618.5 1655.1 1657.8 1650.5 1630.7
RE GRIDCART CB8IQ002 HILL 21 1623.1 1651.4 1651.4 1651.4 1651.4 1600.8
RE GRIDCART CB8IQ002 HILL 21 1611.2 1538.3 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 22 1518.2 1491.1 1490.6 1531.9 1531.9 1606.3
RE GRIDCART CB8IQ002 HILL 22 1505.1 1565.8 1545.0 1614.2 1617.0 1625.2
RE GRIDCART CB8IQ002 HILL 22 1619.4 1558.4 1624.9 1606.9 1604.5 1611.2
RE GRIDCART CB8IQ002 HILL 22 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 END
RE DISCCART 549600 4916840 1446.99 1775 1.5
** RCPDESCR Sundance (S 3rd St & E Park St)
RE FINISHED

ME STARTING

ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"

** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"

ME PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"

** PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"

ME SURFDATA 99999 2012

ME UAIRDATA 94043 2012

ME SITEDATA 00000826 2012

ME PROFBASE 1198 METERS

ME FINISHED

OU STARTING

OU FILEFORM FIX

OU SUMMFILE SUMMARYFILE.SUM

OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000

OU PLOTFILE ANNUAL MINE MINE`ANNUAL.plt 10001

OU PLOTFILE ANNUAL LGOS LGOS`ANNUAL.plt 10002

OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10003

OU POSTFILE MONTH MINE UNIFORM MINE`MONTH.bin 10004

OU POSTFILE MONTH LGOS UNIFORM LGOS`MONTH.bin 10005

OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 10 Warning Message(s)
A Total of 0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320	24	OPARM: Input Parameter May Be Out-of-Range for Parameter	ANGLE
RE W216	216	RE CART: FLAG Input Inconsistent With Option: Defaults Used	CB8IQ002
ME W396	230	ME OPEN: Met data from outdated version of AERMET, version:	12345
OU W565	235	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	OU POST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	239	OU POST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OU POST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	241	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** ***

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: TSP

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 2 Source(s); 3 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor

Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1198.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0

Emission Units = GRAMS/SEC

; Emission Rate Unit Factor = 0.10000E+07

Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site.

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*** AERMET - VERSION 12345 *** **

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER EMISSION RATE LOCATION OF AREA BASE RELEASE NUMBER INIT. URBAN
EMISSION RATE

SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF VERTS. SZ SOURCE SCALAR
VARY

ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) BY

8T4FN006 0 0.13600E-05 544880.0 4926915.0 1905.0 0.50 5 0.50 NO

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site.

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*** AERMET - VERSION 12345 *** **

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** OPENPIT SOURCE DATA ***

NUMBER EMISSION RATE COORD (SW CORNER) BASE RELEASE X-DIM Y-DIM
ORIENT. VOLUME URBAN EMISSION RATE
SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF PIT OF PIT OF PIT OF PIT
SOURCE SCALAR VARY
ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) (METERS) (DEG.)
(M**3) BY

8T4FN003 0 0.12100E-03 543950.0 4925950.0 1928.0 0.00 715.00 1450.00 315.00 .19600E+09 NO
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
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*** AERMET - VERSION 12345 *** *** 18:01:30
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**MODELOPTs: CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs

ALL 8T4FN003 , 8T4FN006 ,
MINE 8T4FN003 ,
LGOS 8T4FN006 ,
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** 18:01:30
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**MODELOPTs: CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

534000.0, 535000.0, 536000.0, 537000.0, 538000.0, 539000.0, 540000.0, 541000.0, 542000.0, 543000.0,
544000.0, 545000.0, 546000.0, 547000.0, 548000.0, 549000.0, 550000.0, 551000.0, 552000.0, 553000.0,
554000.0, 555000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4915500.0, 4916500.0, 4917500.0, 4918500.0, 4919500.0, 4920500.0, 4921500.0, 4922500.0, 4923500.0,
4924500.0,
4925500.0, 4926500.0, 4927500.0, 4928500.0, 4929500.0, 4930500.0, 4931500.0, 4932500.0, 4933500.0,
4934500.0,
4935500.0, 4936500.0,
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***

**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00 542000.00								

4936500.00 | 1536.90	1410.20	1491.10	1490.60	1431.20	1413.00	1387.90	1468.80	1417.60
4935500.00 | 1472.50	1397.40	1470.20	1470.90	1513.70	1409.20	1453.30	1434.00	1409.00
4934500.00 | 1505.10	1482.60	1561.00	1477.40	1532.90	1450.10	1588.10	1454.80	1458.80
4933500.00 | 1563.70	1414.20	1558.20	1542.30	1507.50	1543.20	1589.80	1522.70	1510.10
4932500.00 | 1568.40	1393.00	1490.20	1538.00	1584.50	1599.10	1562.60	1552.80	1617.50
4931500.00 | 1641.20	1401.90	1406.50	1483.00	1542.50	1507.80	1600.90	1636.90	1652.90
4930500.00 | 1663.10	1407.60	1408.60	1530.00	1485.00	1545.00	1563.40	1705.00	1731.10
4929500.00 | 1746.70	1461.50	1551.00	1545.90	1559.80	1588.30	1630.40	1649.00	1747.00
4928500.00 | 1764.50	1480.50	1598.80	1564.30	1624.10	1653.00	1655.40	1688.10	1794.60
4927500.00 | 1850.20	1520.30	1531.10	1614.40	1631.20	1684.60	1706.20	1746.30	1809.30
4926500.00 | 1828.20	1534.00	1599.00	1601.50	1621.40	1622.10	1665.20	1729.30	1788.60
4925500.00 | 1860.40	1527.00	1570.90	1537.30	1629.40	1643.30	1703.80	1745.60	1804.40
4924500.00 | 1852.30	1560.80	1548.40	1476.00	1544.40	1685.60	1749.90	1716.10	1761.80
4923500.00 | 1785.60	1457.50	1461.40	1521.10	1617.70	1691.70	1718.30	1682.50	1708.90
4922500.00 | 1735.10	1521.70	1563.10	1485.40	1522.20	1620.80	1667.90	1651.10	1697.40
4921500.00 | 1701.60	1513.10	1555.40	1578.40	1644.60	1546.10	1649.50	1639.80	1664.20
4920500.00 | 1604.80	1540.00	1498.00	1605.00	1631.50	1620.90	1627.60	1632.50	1666.20
4919500.00 | 1564.10	1500.90	1563.70	1555.30	1604.00	1573.60	1639.80	1648.50	1576.00
4918500.00 | 1571.10	1458.40	1524.70	1566.30	1574.00	1582.00	1541.60	1540.80	1546.40
4917500.00 | 1561.70	1467.10	1491.20	1488.10	1557.70	1543.30	1508.60	1534.40	1540.70

4916500.00 | 1440.70 1432.70 1462.50 1469.60 1465.80 1487.30 1515.70 1639.00
1537.60
4915500.00 | 1501.10 1511.00 1545.00 1551.50 1494.20 1515.60 1549.80 1567.50
1504.10
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
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*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00
550000.00 551000.00							

4936500.00 | 1403.70	1556.00	1606.60	1565.00	1542.10	1548.60	1527.20	1540.90 1563.90
4935500.00 | 1563.70	1524.50	1566.90	1621.20	1543.70	1511.20	1592.90	1514.40 1439.90
4934500.00 | 1547.20	1604.10	1644.30	1616.00	1551.50	1504.70	1570.30	1517.70 1529.00
4933500.00 | 1582.20	1577.20	1669.90	1654.80	1562.10	1534.70	1621.00	1624.60 1540.30
4932500.00 | 1567.60	1566.90	1620.30	1649.70	1600.80	1573.20	1608.40	1670.20 1655.70
4931500.00 | 1536.30	1638.90	1623.40	1597.90	1664.70	1582.00	1622.70	1651.90 1596.00
4930500.00 | 1552.30	1746.00	1691.50	1703.30	1679.70	1603.50	1720.00	1643.60 1615.20
4929500.00 | 1464.10	1768.00	1758.70	1753.70	1757.40	1756.00	1675.20	1652.20 1628.70
4928500.00 | 1441.20	1838.20	1823.60	1784.00	1713.60	1770.50	1737.70	1697.20 1530.90
4927500.00 | 1423.70	1872.00	1804.20	1841.10	1770.50	1753.30	1738.60	1626.50 1679.00
4926500.00 | 1456.00	1910.00	1870.00	1839.90	1817.50	1792.20	1698.80	1578.90 1514.30
4925500.00 | 1507.90	1943.10	1919.00	1898.40	1913.60	1828.00	1744.70	1696.60 1577.60
4924500.00 | 1432.50	1914.10	1900.30	1909.60	1805.60	1791.80	1766.10	1697.00 1524.20
4923500.00 | 1436.10	1830.90	1886.70	1878.00	1774.30	1770.40	1812.10	1668.00 1531.20
4922500.00 | 1513.70	1828.60	1826.30	1906.00	1891.60	1813.90	1732.00	1657.30 1522.00
4921500.00 | 1630.20	1675.40	1852.70	1894.30	1836.10	1825.40	1714.00	1694.00 1581.00
4920500.00 | 1562.70	1627.10	1691.70	1762.10	1756.60	1835.90	1824.40	1696.30 1602.30
4919500.00 |	1587.20	1645.80	1696.70	1659.80	1648.80	1643.60	1642.60 1515.10

1455.70
4918500.00 | 1587.20 1696.90 1621.00 1600.80 1560.40 1531.60 1558.70 1537.60
1496.90
4917500.00 | 1601.00 1629.00 1593.60 1561.00 1566.10 1530.80 1530.70 1448.70
1420.10
4916500.00 | 1543.10 1639.70 1555.50 1523.60 1508.20 1514.30 1466.20 1464.40
1443.20
4915500.00 | 1598.40 1621.30 1582.70 1535.00 1496.20 1481.80 1569.50 1580.60
1508.90
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00
4936500.00 |	1369.20	1384.40	1344.20	1322.00
4935500.00 |	1506.60	1513.50	1436.70	1435.50
4934500.00 |	1486.60	1408.40	1485.90	1360.70
4933500.00 |	1439.30	1464.10	1407.60	1375.00
4932500.00 |	1462.90	1574.80	1511.90	1440.80
4931500.00 |	1595.70	1523.10	1502.40	1432.40
4930500.00 |	1463.90	1455.50	1389.50	1357.30
4929500.00 |	1418.70	1374.30	1356.50	1341.00
4928500.00 |	1393.10	1354.30	1332.30	1317.10
4927500.00 |	1410.00	1356.10	1332.50	1310.20
4926500.00 |	1434.50	1376.50	1353.80	1342.10
4925500.00 |	1397.20	1363.30	1394.00	1369.70
4924500.00 |	1383.30	1370.80	1348.90	1329.80
4923500.00 |	1427.60	1378.80	1389.00	1382.00
4922500.00 |	1416.80	1395.30	1395.60	1401.00
4921500.00 |	1458.60	1396.60	1374.70	1366.40
4920500.00 |	1437.90	1412.40	1371.00	1363.10
4919500.00 |	1428.10	1400.70	1388.60	1370.50
4918500.00 |	1434.40	1393.70	1427.70	1389.10
4917500.00 |	1409.70	1424.40	1575.30	1447.80
4916500.00 |	1416.30	1418.20	1464.00	1447.60
4915500.00	1440.40	1416.50	1425.70	1432.00
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Bear Lodge mine site.			***

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*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00	542000.00							

4936500.00 | 1545.00	1518.20	1491.10	1490.60	1531.90	1531.90	1606.30	1505.10	1565.80
4935500.00 | 1655.10	1584.40	1584.40	1504.20	1513.70	1637.10	1606.30	1606.30	1618.50
4934500.00 | 1655.10	1584.40	1581.00	1596.20	1535.30	1642.90	1588.10	1642.90	1696.20
4933500.00 | 1592.90	1607.80	1596.20	1607.80	1568.20	1642.90	1642.90	1637.40	1700.20
4932500.00 | 1710.80	1607.80	1619.40	1619.40	1584.50	1599.10	1707.80	1716.00	1696.80
4931500.00 | 1710.80	1565.50	1619.40	1619.40	1593.50	1721.80	1716.00	1721.80	1716.60
4930500.00 | 1871.20	1621.20	1621.20	1599.90	1656.90	1656.90	1748.60	1720.90	1742.50
4929500.00 | 1952.00	1621.20	1621.20	1607.80	1705.70	1669.70	1755.30	1917.00	1769.70
4928500.00 | 1952.00	1610.60	1598.80	1644.10	1699.30	1728.50	1765.10	1952.00	1794.60
4927500.00 | 1952.00	1590.10	1624.00	1614.40	1728.50	1728.50	1791.00	1917.00	1952.00
4926500.00 | 2001.00	1559.70	1604.20	1604.80	1638.60	1791.00	1796.00	1929.00	2001.00
4925500.00 | 2023.00	1532.80	1582.50	1645.30	1632.50	1693.80	1788.00	1783.00	2001.00
4924500.00 | 2001.00	1560.80	1568.50	1751.40	1795.00	1751.40	1795.00	2001.00	2001.00
4923500.00 | 2023.00	1570.00	1577.00	1745.60	1624.00	1714.20	1784.00	1862.00	2023.00
4922500.00 | 1951.00	1547.50	1563.10	1680.70	1751.40	1645.30	1679.10	1707.00	1951.00
4921500.00 | 1951.00	1572.20	1555.40	1680.70	1680.70	1680.70	1649.50	1639.80	1951.00
4920500.00 | 1958.00	1549.30	1608.10	1605.00	1631.50	1645.00	1650.50	1678.00	1674.00
4919500.00 | 1958.00	1503.00	1567.60	1594.70	1623.40	1657.50	1639.80	1673.00	1679.00
4918500.00 | 1601.00	1519.40	1543.20	1566.30	1581.60	1593.20	1646.80	1677.00	1674.00
4917500.00 | 1619.00	1520.00	1541.10	1570.90	1557.70	1589.20	1549.60	1537.00	1639.00
4916500.00 | 1639.00	1525.50	1553.60	1553.60	1572.20	1589.20	1503.30	1639.00	1639.00
4915500.00 | 1686.00	1529.50	1534.10	1545.00	1559.70	1581.60	1571.20	1634.00	1639.00
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Bear Lodge mine site.							***
04/15/15								
*** AERMET - VERSION 12345 ***								***
								18:01:30

**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 | 1611.20	1614.20	1617.00	1625.20	1619.40	1558.40	1624.90	1606.90	1604.50
4935500.00 | 1600.80	1657.80	1650.50	1630.70	1623.10	1651.40	1651.40	1651.40	1651.40
4934500.00 | 1556.60	1655.10	1652.30	1661.20	1666.30	1659.30	1655.70	1672.70	1567.90
4933500.00 | 1643.80	1681.00	1669.90	1666.60	1678.50	1660.20	1660.20	1663.60	1676.70
4932500.00 | 1663.30	1735.80	1688.60	1680.10	1602.90	1644.10	1683.10	1670.20	1663.60
4931500.00 | 1685.80	1752.90	1747.10	1749.20	1696.50	1705.10	1708.70	1693.50	1686.20
4930500.00 | 1686.50	1752.60	1745.00	1731.60	1732.50	1771.20	1720.00	1707.20	1693.50
4929500.00 | 1772.40	1871.20	1857.80	1753.70	1757.40	1756.00	1765.40	1719.40	1702.00
4928500.00 | 1774.00	1929.70	1857.80	1851.10	1909.00	1770.50	1763.00	1742.50	1777.00
4927500.00 | 1799.00	1952.00	1996.00	1915.00	1909.00	1788.00	1777.00	1782.00	1772.40
4926500.00 | 1810.00	1970.00	2023.00	2029.00	1952.00	1952.00	1952.00	1952.00	1952.00
4925500.00 | 1799.00	2023.00	2029.00	2029.00	1952.00	1952.00	1952.00	1800.00	1817.00
4924500.00 | 1952.00	2023.00	2029.00	2029.00	2029.00	1952.00	1812.00	1805.00	1952.00
4923500.00 | 1876.00	2029.00	2029.00	2010.00	2029.00	1854.00	1820.00	1854.00	1872.00
4922500.00 | 1800.00	1951.00	1958.00	1953.00	1927.00	1904.00	1901.00	1856.00	1913.00
4921500.00 | 1688.90	1958.00	1945.00	1958.00	1958.00	1904.00	1916.00	1835.00	1842.00
4920500.00 | 1688.90	1958.00	1958.00	1958.00	1958.00	1898.00	1824.40	1842.00	1842.00
4919500.00 | 1848.00	1958.00	1958.00	1958.00	1958.00	1958.00	1898.00	1848.00	1898.00
4918500.00 | 1541.70	1935.00	1702.00	1946.00	1958.00	1958.00	1918.00	1898.00	1833.00
4917500.00 | 1775.00	1667.00	1674.00	1615.00	1898.00	1898.00	1898.00	1775.00	1843.00
4916500.00 | 1775.00	1686.00	1654.00	1617.00	1523.60	1549.00	1775.00	1775.00	1775.00
4915500.00 |	1686.00	1686.00	1599.00	1586.00	1775.00	1775.00	1775.00	1775.00

1775.00
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1611.20	1611.20	1571.50	1571.50
4935500.00 |	1611.20	1538.30	1571.50	1571.50
4934500.00 |	1611.20	1611.20	1571.50	1571.50
4933500.00 |	1663.30	1634.60	1634.60	1634.60
4932500.00 |	1664.80	1634.60	1634.60	1634.60
4931500.00 |	1648.10	1648.10	1634.60	1634.60
4930500.00 |	1686.50	1648.10	1648.10	1648.10
4929500.00 |	1772.40	1772.40	1648.10	1599.30
4928500.00 |	1772.40	1772.40	1756.90	1317.10
4927500.00 |	1772.40	1772.40	1763.90	1310.20
4926500.00 |	1772.40	1772.40	1359.70	1342.10
4925500.00 |	1806.00	1772.40	1394.00	1372.80
4924500.00 |	1854.00	1385.00	1348.90	1371.60
4923500.00 |	1800.00	1378.80	1397.20	1382.00
4922500.00 |	1800.00	1688.90	1432.60	1401.00
4921500.00 |	1688.90	1688.90	1686.80	1366.40
4920500.00 |	1688.90	1688.90	1686.80	1363.10
4919500.00 |	1688.90	1688.90	1605.70	1605.70
4918500.00 |	1541.70	1608.10	1608.10	1608.10
4917500.00 |	1775.00	1608.10	1608.10	1608.10
4916500.00 |	1775.00	1775.00	1608.10	1608.10
4915500.00 |	1775.00	1775.00	1608.10	1432.00

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00	542000.00							

4936500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4935500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

4934500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4918500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4917500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4916500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4915500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00	551000.00							

4936500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4935500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4934500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4918500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

4917500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4916500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4915500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1.50	1.50	1.50	1.50
4935500.00 |	1.50	1.50	1.50	1.50
4934500.00 |	1.50	1.50	1.50	1.50
4933500.00 |	1.50	1.50	1.50	1.50
4932500.00 |	1.50	1.50	1.50	1.50
4931500.00 |	1.50	1.50	1.50	1.50
4930500.00 |	1.50	1.50	1.50	1.50
4929500.00 |	1.50	1.50	1.50	1.50
4928500.00 |	1.50	1.50	1.50	1.50
4927500.00 |	1.50	1.50	1.50	1.50
4926500.00 |	1.50	1.50	1.50	1.50
4925500.00 |	1.50	1.50	1.50	1.50
4924500.00 |	1.50	1.50	1.50	1.50
4923500.00 |	1.50	1.50	1.50	1.50
4922500.00 |	1.50	1.50	1.50	1.50
4921500.00 |	1.50	1.50	1.50	1.50
4920500.00 |	1.50	1.50	1.50	1.50
4919500.00 |	1.50	1.50	1.50	1.50
4918500.00 |	1.50	1.50	1.50	1.50
4917500.00 |	1.50	1.50	1.50	1.50
4916500.00 |	1.50	1.50	1.50	1.50
4915500.00 |	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(549600.0, 4916840.0, 1447.0, 1775.0, 1.5);

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *

LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

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      8T4FN003      544000.0  4926500.0  OPENPIT
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** 18:01:30

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*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

[illegible]

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

```
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** *** *** 18:01:30
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*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

file:///X:/...20Elements%20Bear%20Lodge/AERMOD/Reports/AERMOD%20Output%20PDF%20Reports/BL%20Dust%20-%200041515.txt[4/15/2015 7:19:40 PM]

Name: UNKNOWN
Year: 2012

Name: UNKNOWN
Year: 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													

12	08	01	214	01	-18.1	0.211	-9.000	-9.000	-999.	223.	37.3	0.23	0.83	1.00	2.70	174.	10.0	296.0	2.0
12	08	01	214	02	-14.9	0.173	-9.000	-9.000	-999.	166.	25.2	0.23	0.83	1.00	2.50	176.	10.0	295.8	2.0
12	08	01	214	03	-5.3	0.091	-9.000	-9.000	-999.	65.	10.3	0.38	0.83	1.00	1.50	131.	10.0	294.4	2.0
12	08	01	214	04	-7.4	0.109	-9.000	-9.000	-999.	83.	12.6	0.45	0.83	1.00	1.70	101.	10.0	293.0	2.0
12	08	01	214	05	-10.5	0.128	-9.000	-9.000	-999.	105.	14.4	0.38	0.83	1.00	2.10	120.	10.0	292.1	2.0
12	08	01	214	06	-5.1	0.222	-9.000	-9.000	-999.	240.	155.2	0.38	0.83	0.44	2.00	140.	10.0	292.9	2.0
12	08	01	214	07	12.2	0.281	0.259	0.005	41.	343.	-131.3	0.23	0.83	0.25	2.50	153.	10.0	294.5	2.0
12	08	01	214	08	28.5	0.217	0.476	0.005	108.	234.	-25.9	0.23	0.83	0.18	1.70	172.	10.0	295.6	2.0
12	08	01	214	09	73.2	0.247	1.007	0.005	401.	283.	-14.9	0.23	0.83	0.15	1.80	168.	10.0	295.6	2.0
12	08	01	214	10	219.8	0.370	1.919	0.005	927.	518.	-16.6	0.38	0.83	0.14	2.30	197.	10.0	297.8	2.0
12	08	01	214	11	240.9	0.399	2.217	0.005	1306.	580.	-19.0	0.43	0.83	0.14	2.40	240.	10.0	298.1	2.0
12	08	01	214	12	263.1	0.484	2.644	0.005	2028.	775.	-31.1	0.62	0.83	0.14	2.70	290.	10.0	298.6	2.0
12	08	01	214	13	260.4	0.373	2.774	0.005	2368.	532.	-14.3	0.75	0.83	0.14	1.70	347.	10.0	299.9	2.0
12	08	01	214	14	229.4	0.294	2.763	0.005	2652.	369.	-8.0	0.53	0.83	0.14	1.40	70.	10.0	298.1	2.0
12	08	01	214	15	211.2	0.280	2.850	0.005	3161.	340.	-7.4	0.65	0.83	0.14	1.20	34.	10.0	298.5	2.0
12	08	01	214	16	164.1	0.299	2.735	0.005	3594.	376.	-11.7	0.65	0.83	0.15	1.40	35.	10.0	297.2	2.0
12	08	01	214	17	112.1	0.353	2.466	0.005	3859.	482.	-28.2	0.65	0.83	0.17	1.90	50.	10.0	296.0	2.0
12	08	01	214	18	54.9	0.371	1.961	0.005	3961.	519.	-66.9	0.53	0.83	0.23	2.40	70.	10.0	294.1	2.0
12	08	01	214	19	4.6	0.378	0.857	0.005	3946.	535.	-848.3	0.45	0.83	0.40	2.90	91.	10.0	292.8	2.0
12	08	01	214	20	-17.2	0.196	-9.000	-9.000	-999.	224.	31.7	0.45	0.83	1.00	2.30	102.	10.0	290.6	2.0
12	08	01	214	21	-27.3	0.309	-9.000	-9.000	-999.	396.	78.2	0.45	0.83	1.00	2.90	108.	10.0	288.4	2.0
12	08	01	214	22	-9.4	0.122	-9.000	-9.000	-999.	130.	14.0	0.45	0.83	1.00	1.90	111.	10.0	287.5	2.0
12	08	01	214	23	-3.7	0.077	-9.000	-9.000	-999.	50.	8.8	0.45	0.83	1.00	1.20	116.	10.0	288.1	2.0
12	08	01	214	24	-3.7	0.077	-9.000	-9.000	-999.	49.	8.9	0.45	0.83	1.00	1.20	111.	10.0	291.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	296.1	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	174.	2.70	296.6	9.2	-99.00	0.43	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** ***

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3

**

Y-COORD |

X-COORD (METERS)

(METERS) |	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00	542000.00							

4936500.00 |	2.14534	1.75160	2.82842	1.88848	1.92524	2.55194	2.05261	3.14371
4.71813								
4935500.00 |	2.68508	2.51210	2.22116	2.97288	2.20475	2.87573	2.49720	3.45711
5.10123								
4934500.00 |	3.57648	3.25366	2.98870	2.95454	3.07564	2.65663	3.54510	3.40684
5.46720								
4933500.00 |	5.20104	4.65754	4.03995	3.63728	3.94153	3.38385	3.92572	3.66168
5.91150								
4932500.00 |	4.67421	6.12298	6.26746	5.22012	4.56796	5.06738	4.08307	5.35533
6.49521								
4931500.00 |	4.91607	5.63777	6.96944	8.47944	7.09242	5.96161	6.43113	6.08060
6.84929								
4930500.00 |	4.28384	4.85090	6.87646	8.37953	11.17058	10.53032	8.35703	8.46157
9.34357								
4929500.00 |	6.05601	6.43909	6.63368	7.40576	10.56396	14.51677	16.97788	13.03527
12.41297								
4928500.00 |	5.46675	6.78471	8.43507	10.52467	12.05694	13.38514	19.63534	29.27612
23.70415								
4927500.00 |	3.50770	4.41857	5.80570	7.87942	11.13654	16.30329	24.54880	34.99518
59.34179								
4926500.00 |	3.20061	3.75342	4.46568	5.44842	6.85620	9.05280	12.83557	20.47474
45.04081								
4925500.00 |	2.73410	3.25743	3.89969	4.71709	5.83294	8.33787	14.68776	25.49512
40.22696								
4924500.00 |	2.47860	2.99797	4.10423	6.26450	8.68359	10.71764	14.51487	20.26702
32.81576								
4923500.00 |	3.67012	4.90626	5.52386	5.82102	7.16589	10.43233	13.49035	17.25718
25.03963								
4922500.00 |	3.69086	3.66272	4.38563	5.88033	7.90348	9.83352	11.07685	15.39137
18.71988								
4921500.00 |	3.05423	3.75194	5.02439	6.30506	7.40221	7.66598	10.08172	12.80969
14.06373								
4920500.00 |	3.28426	4.30781	5.16085	5.79209	5.71483	7.24278	9.68859	9.24949
10.72683								
4919500.00 |	3.75294	4.26927	4.65035	4.56417	5.34552	7.30776	8.08978	7.75214
7.89957								
4918500.00 |	3.53565	3.85480	3.80800	4.02577	5.74355	6.35928	6.08021	7.44162
6.30321								
4917500.00 |	3.27291	3.26142	3.07705	4.51002	5.15661	5.68425	4.54141	6.40111
5.17611								
4916500.00 |	2.84654	2.45387	3.54713	4.41675	4.54182	4.59146	4.38281	4.97205
4.32071								
4915500.00 |	2.05994	2.81098	3.83946	3.79671	4.28259	3.34087	4.78857	4.08230
3.75843								

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***
** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 | 5.10819	6.15607	5.32858	4.99844	6.72000	5.21376	6.08036	5.29992	5.54099
4935500.00 | 4.98351	6.99648	6.17138	6.38543	7.38469	6.71881	6.78673	6.47989	6.21032
4934500.00 | 4.51397	8.07991	7.38242	8.34155	8.04909	8.54427	7.65209	7.55310	6.27102
4933500.00 | 3.98928	9.44896	8.99510	11.03532	9.70325	10.24421	9.66351	8.32769	5.70559
4932500.00 | 3.47449	11.34514	11.20959	14.32589	13.16529	12.39336	10.99896	7.57757	4.95933
4931500.00 | 3.67920	13.88305	14.77582	18.17664	17.82280	15.20007	10.32210	6.30273	4.29622
4930500.00 | 5.13535	17.03215	21.18055	26.38217	23.11284	15.35373	8.58608	5.87163	5.30020
4929500.00 | 5.98179	20.18382	34.84822	41.10981	25.16871	12.84957	8.92909	8.14050	7.27898
4928500.00 | 6.62149	26.51700	78.90461	49.53467	23.26243	16.11837	13.23784	9.71052	7.47291
4927500.00 | 9.64035	65.47520	191.33619	65.04960	37.60244	23.15337	17.72448	14.16032	11.63935
4926500.00 | 5.39209	228.32920	0.50999	129.30720	38.27716	20.76754	13.11707	9.21652	6.91586
4925500.00 | 6.59910	68.78489	140.77403	77.54149	57.63714	31.43158	17.95304	11.72976	8.43793
4924500.00 | 7.88510	66.83237	57.69787	62.28209	30.33749	23.17320	20.92927	15.06935	10.51894
4923500.00 | 9.08020	27.66207	34.65147	33.83559	26.43931	17.77042	14.87041	12.55668	11.70651
4922500.00 | 8.24454	18.80544	21.03079	21.63816	27.09916	17.35240	11.77852	9.54803	8.33695
4921500.00 | 6.45543	13.50566	16.56141	14.77035	15.80440	16.80814	11.37209	8.45392	7.11919
4920500.00 | 5.66004	10.80856	11.37642	9.83164	10.27186	14.31902	11.70740	8.60683	6.30863
4919500.00 | 4.89498	8.90834	9.15979	8.27127	7.76555	8.62223	9.96584	7.51670	6.55435
4918500.00 | 5.31462	7.44332	7.68620	6.96149	5.67317	6.35640	7.99641	7.49544	5.79216
4917500.00 | 4.71891	6.28221	6.40178	5.89750	4.69122	5.53420	5.88159	6.98923	5.65224
4916500.00 |	5.32397	5.50211	5.03004	4.30340	4.66269	4.61390	5.69414	5.74468

4.46530
4915500.00 | 4.58780 4.77026 4.34107 4.06353 3.52491 3.89809 4.40967 5.28512
4.66183
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** ** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	4.01926	2.99152	2.31999	1.92459
4935500.00 |	3.64401	2.75943	2.18292	1.71009
4934500.00 |	3.27788	2.49133	1.91126	1.62290
4933500.00 |	2.90121	2.18662	2.07715	2.19118
4932500.00 |	2.70426	2.76612	2.83530	2.62690
4931500.00 |	3.75350	3.56257	3.18639	2.93083
4930500.00 |	4.54938	4.12868	3.57121	2.86337
4929500.00 |	4.68059	3.74539	3.44520	3.35561
4928500.00 |	6.01545	5.38489	4.83046	4.39739
4927500.00 |	8.11590	6.87816	5.85805	5.00056
4926500.00 |	4.33369	3.55770	2.98451	2.54856
4925500.00 |	5.25631	4.27719	3.58046	3.06634
4924500.00 |	5.96141	4.64229	3.87269	3.39236
4923500.00 |	7.06947	5.72355	4.73865	3.90272
4922500.00 |	7.81390	6.31822	5.14392	4.37393
4921500.00 |	5.89932	6.01521	5.67682	4.71437
4920500.00 |	4.89058	4.64312	4.48563	4.66987
4919500.00 |	4.55668	3.96865	3.82320	3.60101
4918500.00 |	3.99267	3.80133	3.36074	3.20722
4917500.00 |	4.36022	3.33562	3.33654	2.92338
4916500.00 |	4.02415	3.66739	2.85924	2.79993
4915500.00 |	3.67390	3.51110	3.12554	2.46130

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
04/15/15
*** AERMET - VERSION 12345 *** ** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,
*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF TSP IN MICROGRAMS/M**3

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
549600.00	4916840.00	6.18423			
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***					
04/15/15					
*** AERMET - VERSION 12345 *** **					
*** 18:01:30					
PAGE 23					
**MODELOPTs: CONC ELEV FLGPOL					

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***

INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00 542000.00								
4936500.00 |	2.13791	1.74416	2.82264	1.87503	1.91879	2.54583	2.04358	3.13710
4.70796								
4935500.00 |	2.67524	2.50320	2.21237	2.96572	2.18964	2.86808	2.48826	3.44812
5.09034								
4934500.00 |	3.56135	3.24091	2.97775	2.94389	3.06604	2.64181	3.53606	3.39408
5.45675								
4933500.00 |	5.18794	4.64017	4.02257	3.62335	3.92833	3.36952	3.91180	3.64922
5.89820								
4932500.00 |	4.66071	6.10819	6.24812	5.19626	4.54935	5.05040	4.06057	5.33996
6.47529								
4931500.00 |	4.90548	5.62310	6.95106	8.45752	7.06176	5.93471	6.40815	6.04663
6.82848								
4930500.00 |	4.27006	4.83677	6.86141	8.35889	11.14327	10.49315	8.31387	8.42794
9.29750								
4929500.00 |	6.03931	6.41875	6.61125	7.38296	10.54013	14.48416	16.93007	12.96431
12.35743								
4928500.00 |	5.45308	6.76784	8.41405	10.49778	12.02141	13.34182	19.58821	29.21069
23.58825								
4927500.00 |	3.49872	4.40773	5.79211	7.86179	11.11263	16.26950	24.49809	34.91152
59.20249								
4926500.00 |	3.19182	3.74322	4.45371	5.43408	6.83862	9.03042	12.80564	20.43156
44.97064								
4925500.00 |	2.72687	3.24887	3.88948	4.70469	5.81774	8.31885	14.66214	25.45121
40.13162								
4924500.00 |	2.47160	2.99009	4.09495	6.25224	8.66497	10.68666	14.47447	20.22295
32.72923								
4923500.00 |	3.66222	4.89543	5.50809	5.79946	7.14497	10.41080	13.45812	17.20497
24.96870								
4922500.00 |	3.67775	3.64819	4.37343	5.86728	7.88492	9.80908	11.04106	15.34536

4926500.00 |	228.15627	0.00000	102.09213	37.50845	20.54998	13.01384	9.15683	6.87705
5.36481								
4925500.00 |	68.72798	140.35712	76.63415	57.03636	31.17640	17.82663	11.66228	8.39591
6.56924								
4924500.00 |	66.67019	57.43410	61.97040	30.10711	23.01986	20.83071	14.98631	10.46305
7.84650								
4923500.00 |	27.55542	34.50579	33.68471	26.33668	17.64734	14.78820	12.50256	11.65986
9.03720								
4922500.00 |	18.73283	20.94686	21.53486	27.01755	17.27120	11.71139	9.50127	8.30137
8.21428								
4921500.00 |	13.46616	16.50463	14.69906	15.74843	16.75378	11.31314	8.41094	7.08739
6.42854								
4920500.00 |	10.76837	11.34080	9.79004	10.23089	14.27954	11.66228	8.56556	6.27789
5.63664								
4919500.00 |	8.87188	9.13299	8.23937	7.73352	8.59884	9.93818	7.48205	6.52658
4.87145								
4918500.00 |	7.41808	7.66363	6.93596	5.64718	6.33641	7.97280	7.47097	5.76466
5.29405								
4917500.00 |	6.26207	6.38200	5.87637	4.66956	5.51584	5.86343	6.97064	5.62950
4.69801								
4916500.00 |	5.30680	5.48431	5.01222	4.28474	4.64626	4.60095	5.67883	5.72762
4.44556								
4915500.00 |	4.57380	4.75431	4.32571	4.04701	3.51041	3.88707	4.39448	5.27123
4.64518								

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	4.00138	2.97708	2.30918	1.91658
4935500.00 |	3.62654	2.74584	2.17339	1.70183
4934500.00 |	3.26053	2.47984	1.90123	1.61638
4933500.00 |	2.88694	2.17454	2.06984	2.18510
4932500.00 |	2.68987	2.75739	2.82710	2.61695
4931500.00 |	3.74250	3.54951	3.17461	2.92049
4930500.00 |	4.53161	4.11379	3.55829	2.85129
4929500.00 |	4.66018	3.72769	3.43183	3.34488
4928500.00 |	5.99449	5.36545	4.81248	4.38129
4927500.00 |	8.08025	6.84723	5.83071	4.97615
4926500.00 |	4.31333	3.54184	2.97172	2.53795
4925500.00 |	5.23379	4.25947	3.56592	3.05404

4924500.00 | 5.93406 4.62220 3.85686 3.37906
4923500.00 | 7.03702 5.69838 4.71866 3.88676
4922500.00 | 7.78438 6.29078 5.12222 4.35610
4921500.00 | 5.87725 5.99476 5.65581 4.69504
4920500.00 | 4.87041 4.62618 4.46980 4.65454
4919500.00 | 4.53892 3.95260 3.80956 3.58810
4918500.00 | 3.97369 3.78717 3.34757 3.19575
4917500.00 | 4.34407 3.31997 3.32452 2.91236
4916500.00 | 4.00808 3.65398 2.84607 2.79008
4915500.00 | 3.65748 3.49829 3.11402 2.45016

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF TSP IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
549600.00	4916840.00	6.16711			

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** *** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)
534000.00	535000.00
536000.00	537000.00
538000.00	539000.00
540000.00	

4936500.00 |	0.00743	0.00743	0.00578	0.01345	0.00645	0.00612	0.00902	0.00661
0.01017								
4935500.00 |	0.00984	0.00890	0.00879	0.00717	0.01511	0.00765	0.00893	0.00899
0.01089								
4934500.00 |	0.01513	0.01275	0.01094	0.01064	0.00960	0.01482	0.00903	0.01276
0.01046								
4933500.00 |	0.01311	0.01737	0.01738	0.01393	0.01321	0.01433	0.01392	0.01246
0.01329								

4932500.00 |	0.01350	0.01479	0.01934	0.02386	0.01862	0.01698	0.02250	0.01537
0.01992								
4931500.00 |	0.01059	0.01467	0.01838	0.02192	0.03067	0.02691	0.02298	0.03397
0.02080								
4930500.00 |	0.01378	0.01413	0.01505	0.02064	0.02731	0.03717	0.04316	0.03362
0.04606								
4929500.00 |	0.01670	0.02034	0.02243	0.02279	0.02383	0.03261	0.04780	0.07096
0.05555								
4928500.00 |	0.01367	0.01687	0.02102	0.02689	0.03553	0.04332	0.04714	0.06543
0.11590								
4927500.00 |	0.00898	0.01083	0.01360	0.01764	0.02391	0.03379	0.05072	0.08366
0.13930								
4926500.00 |	0.00879	0.01020	0.01197	0.01433	0.01758	0.02237	0.02993	0.04318
0.07017								
4925500.00 |	0.00723	0.00856	0.01020	0.01240	0.01520	0.01902	0.02561	0.04390
0.09534								
4924500.00 |	0.00700	0.00788	0.00928	0.01227	0.01861	0.03099	0.04040	0.04407
0.08653								
4923500.00 |	0.00789	0.01083	0.01577	0.02156	0.02092	0.02153	0.03223	0.05221
0.07093								
4922500.00 |	0.01311	0.01453	0.01220	0.01305	0.01856	0.02445	0.03579	0.04601
0.05805								
4921500.00 |	0.00808	0.00907	0.01204	0.01485	0.02075	0.02524	0.03304	0.03210
0.04726								
4920500.00 |	0.00839	0.01054	0.01212	0.01817	0.01861	0.02520	0.01938	0.03474
0.03731								
4919500.00 |	0.00872	0.01090	0.01522	0.01448	0.01998	0.01386	0.02728	0.02810
0.02386								
4918500.00 |	0.01029	0.01243	0.01177	0.01635	0.01110	0.02002	0.02122	0.02383
0.01715								
4917500.00 |	0.01004	0.00991	0.01366	0.00947	0.01362	0.01810	0.01936	0.01775
0.02099								
4916500.00 |	0.00857	0.01164	0.00830	0.00928	0.01573	0.01445	0.01674	0.01125
0.02219								
4915500.00 |	0.01009	0.00742	0.00682	0.01356	0.01297	0.01441	0.01395	0.01033
0.01693								

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

04/15/15

*** AERMET - VERSION 12345 *** ***

*** 18:01:30

**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00	551000.00							

4936500.00 | 0.01573	0.01485	0.01971	0.01956	0.01499	0.02269	0.01669	0.02074	0.01591
4935500.00 | 0.02193	0.01594	0.02221	0.02325	0.01839	0.02661	0.01940	0.02397	0.01986
4934500.00 | 0.02221	0.01712	0.02590	0.02803	0.02368	0.03095	0.02718	0.02333	0.02380
4933500.00 | 0.02309	0.01892	0.03099	0.03487	0.03251	0.03320	0.03727	0.02976	0.03022
4932500.00 | 0.01851	0.02072	0.03748	0.04471	0.04677	0.03932	0.03885	0.04119	0.03176
4931500.00 | 0.01705	0.02361	0.04548	0.06007	0.06810	0.06272	0.05188	0.04516	0.02510
4930500.00 | 0.01709	0.03740	0.05501	0.08753	0.09442	0.07909	0.07133	0.03674	0.02086
4929500.00 | 0.02387	0.06066	0.06807	0.14228	0.14183	0.12405	0.06026	0.02866	0.02966
4928500.00 | 0.02648	0.12400	0.11776	0.28359	0.26933	0.12120	0.05882	0.04757	0.03695
4927500.00 | 0.04240	0.24777	0.45925	0.99706	0.39675	0.15575	0.09090	0.06445	0.05223
4926500.00 | 0.02728	0.17293	0.50999	27.21508	0.76871	0.21756	0.10323	0.05969	0.03881
4925500.00 | 0.02986	0.05690	0.41690	0.90734	0.60078	0.25517	0.12641	0.06748	0.04201
4924500.00 | 0.03860	0.16219	0.26377	0.31169	0.23038	0.15334	0.09856	0.08305	0.05589
4923500.00 | 0.04300	0.10665	0.14568	0.15089	0.10263	0.12308	0.08221	0.05413	0.04665
4922500.00 | 0.03026	0.07261	0.08393	0.10331	0.08161	0.08120	0.06713	0.04675	0.03559
4921500.00 | 0.02688	0.03950	0.05678	0.07128	0.05597	0.05436	0.05895	0.04298	0.03179
4920500.00 | 0.02340	0.04018	0.03562	0.04160	0.04097	0.03949	0.04512	0.04128	0.03074
4919500.00 | 0.02354	0.03647	0.02680	0.03190	0.03202	0.02339	0.02766	0.03464	0.02776
4918500.00 | 0.02057	0.02524	0.02256	0.02553	0.02599	0.01999	0.02361	0.02447	0.02751
4917500.00 | 0.02090	0.02015	0.01978	0.02112	0.02167	0.01836	0.01816	0.01860	0.02275
4916500.00 | 0.01975	0.01717	0.01779	0.01782	0.01866	0.01644	0.01295	0.01531	0.01705
4915500.00 | 0.01664	0.01400	0.01595	0.01536	0.01652	0.01450	0.01102	0.01519	0.01389
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Bear Lodge mine site.							***
04/15/15								
*** AERMET - VERSION 12345 ***								*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	0.01788	0.01443	0.01081	0.00801
4935500.00 |	0.01747	0.01359	0.00953	0.00825
4934500.00 |	0.01734	0.01149	0.01003	0.00652
4933500.00 |	0.01427	0.01208	0.00730	0.00607
4932500.00 |	0.01438	0.00873	0.00820	0.00995
4931500.00 |	0.01100	0.01306	0.01178	0.01034
4930500.00 |	0.01777	0.01488	0.01293	0.01208
4929500.00 |	0.02041	0.01770	0.01337	0.01073
4928500.00 |	0.02096	0.01943	0.01798	0.01609
4927500.00 |	0.03566	0.03094	0.02734	0.02441
4926500.00 |	0.02035	0.01585	0.01279	0.01060
4925500.00 |	0.02252	0.01772	0.01454	0.01230
4924500.00 |	0.02735	0.02009	0.01583	0.01330
4923500.00 |	0.03245	0.02516	0.01999	0.01596
4922500.00 |	0.02952	0.02744	0.02170	0.01783
4921500.00 |	0.02206	0.02044	0.02101	0.01934
4920500.00 |	0.02017	0.01694	0.01583	0.01533
4919500.00 |	0.01776	0.01605	0.01364	0.01292
4918500.00 |	0.01898	0.01416	0.01317	0.01147
4917500.00 |	0.01615	0.01565	0.01202	0.01101
4916500.00 |	0.01606	0.01341	0.01318	0.00985
4915500.00 |	0.01642	0.01280	0.01152	0.01114

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

04/15/15

*** AERMET - VERSION 12345 *** ***

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***

INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF TSP IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
-------------	-------------	------	-------------	-------------	------

549600.00	4916840.00	0.01712			
-----------	------------	---------	--	--	--

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

04/15/15

*** AERMET - VERSION 12345 *** ***

*** 18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF TSP IN MICROGRAMS/M**3

**

GROUP ID GRID-ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE		

ALL CB8IQ002	1ST HIGHEST VALUE IS	228.32920 AT (	543000.00, 4926500.00, 1910.00, 1970.00,	1.50) GC
CB8IQ002	2ND HIGHEST VALUE IS	191.33619 AT (	544000.00, 4927500.00, 1804.20, 1996.00,	1.50) GC
CB8IQ002	3RD HIGHEST VALUE IS	140.77403 AT (	544000.00, 4925500.00, 1919.00, 2029.00,	1.50) GC
CB8IQ002	4TH HIGHEST VALUE IS	129.30720 AT (	545000.00, 4926500.00, 1839.90, 2029.00,	1.50) GC
CB8IQ002	5TH HIGHEST VALUE IS	78.90461 AT (	544000.00, 4928500.00, 1823.60, 1857.80,	1.50) GC
CB8IQ002	6TH HIGHEST VALUE IS	77.54149 AT (	545000.00, 4925500.00, 1898.40, 2029.00,	1.50) GC
CB8IQ002	7TH HIGHEST VALUE IS	68.78489 AT (	543000.00, 4925500.00, 1943.10, 2023.00,	1.50) GC
CB8IQ002	8TH HIGHEST VALUE IS	66.83237 AT (	543000.00, 4924500.00, 1914.10, 2023.00,	1.50) GC
CB8IQ002	9TH HIGHEST VALUE IS	65.47520 AT (	543000.00, 4927500.00, 1872.00, 1952.00,	1.50) GC
CB8IQ002	10TH HIGHEST VALUE IS	65.04960 AT (	545000.00, 4927500.00, 1841.10, 1915.00,	1.50) GC
MINE CB8IQ002	1ST HIGHEST VALUE IS	228.15627 AT (	543000.00, 4926500.00, 1910.00, 1970.00,	1.50) GC
CB8IQ002	2ND HIGHEST VALUE IS	190.87693 AT (	544000.00, 4927500.00, 1804.20, 1996.00,	1.50) GC
CB8IQ002	3RD HIGHEST VALUE IS	140.35712 AT (	544000.00, 4925500.00, 1919.00, 2029.00,	1.50) GC
CB8IQ002	4TH HIGHEST VALUE IS	102.09213 AT (	545000.00, 4926500.00, 1839.90, 2029.00,	1.50) GC
CB8IQ002	5TH HIGHEST VALUE IS	78.78685 AT (	544000.00, 4928500.00, 1823.60, 1857.80,	1.50) GC
CB8IQ002	6TH HIGHEST VALUE IS	76.63415 AT (	545000.00, 4925500.00, 1898.40, 2029.00,	1.50) GC
CB8IQ002	7TH HIGHEST VALUE IS	68.72798 AT (	543000.00, 4925500.00, 1943.10, 2023.00,	1.50) GC
CB8IQ002	8TH HIGHEST VALUE IS	66.67019 AT (	543000.00, 4924500.00, 1914.10, 2023.00,	1.50) GC
CB8IQ002	9TH HIGHEST VALUE IS	65.22743 AT (	543000.00, 4927500.00, 1872.00, 1952.00,	1.50) GC
CB8IQ002	10TH HIGHEST VALUE IS	64.05255 AT (	545000.00, 4927500.00, 1841.10, 1915.00,	1.50) GC
LGOS	1ST HIGHEST VALUE IS	27.21508 AT (	545000.00, 4926500.00, 1839.90, 2029.00,	1.50) GC

CB8IQ002
 2ND HIGHEST VALUE IS 0.99706 AT (545000.00, 4927500.00, 1841.10, 1915.00, 1.50) GC
 CB8IQ002
 3RD HIGHEST VALUE IS 0.90734 AT (545000.00, 4925500.00, 1898.40, 2029.00, 1.50) GC
 CB8IQ002
 4TH HIGHEST VALUE IS 0.76871 AT (546000.00, 4926500.00, 1817.50, 1952.00, 1.50) GC
 CB8IQ002
 5TH HIGHEST VALUE IS 0.60078 AT (546000.00, 4925500.00, 1913.60, 1952.00, 1.50) GC
 CB8IQ002
 6TH HIGHEST VALUE IS 0.50999 AT (544000.00, 4926500.00, 1870.00, 2023.00, 1.50) GC
 CB8IQ002
 7TH HIGHEST VALUE IS 0.45925 AT (544000.00, 4927500.00, 1804.20, 1996.00, 1.50) GC
 CB8IQ002
 8TH HIGHEST VALUE IS 0.41690 AT (544000.00, 4925500.00, 1919.00, 2029.00, 1.50) GC
 CB8IQ002
 9TH HIGHEST VALUE IS 0.39675 AT (546000.00, 4927500.00, 1770.50, 1909.00, 1.50) GC
 CB8IQ002
 10TH HIGHEST VALUE IS 0.31169 AT (545000.00, 4924500.00, 1909.60, 2029.00, 1.50) GC
 CB8IQ002

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

04/15/15

*** AERMET - VERSION 12345 *** ***

18:01:30

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**MODELOPTs: CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)

A Total of 11 Warning Message(s)

A Total of 114 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 34 Calm Hours Identified

A Total of 80 Missing Hours Identified (0.91 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320 24 OPARM: Input Parameter May Be Out-of-Range for Parameter ANGLE
 RE W216 216 RECAR: FLAG Input Inconsistent With Option: Defaults Used CB8IQ002
 ME W396 230 MEOPEN: Met data from outdated version of AERMET, version: 12345

OU W565	235	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	239	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	241	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR
MX W481	8785	MAIN: Data Remaining After End of Year. Number of Hours=	24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***

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*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****
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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9
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```
CO STARTING
CO TITLEONE AERMOD run for the Bear Lodge mine site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID RN-220
CO HALFLIFE 55.6
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED
```

```
SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN003 OPENPIT 543950 4925950 1927.96
** SRCDESCR Mine Pit
SO LOCATION 8T4FN006 AREAPOLY 544880 4926915 1905
** SRCDESCR Low Grade Ore Stockpile
SO SRCPARAM 8T4FN003 5.773E-18 0 715 1450 1.96E+08 315
SO SRCPARAM 8T4FN006 2.071E-19 0.5 5 0.5
SO AREAVERT 8T4FN006 544880.0 4926915.0 545250.0 4926915.0
SO AREAVERT 8T4FN006 545245.0 4926290.0 544800.0 4926310.0
SO AREAVERT 8T4FN006 544730.0 4926550.0
SO CONCUNIT 9.329E17 G/SM2 PCI/L
SO SRCGROUP ALL
SO SRCGROUP MINE 8T4FN003
SO SRCGROUP LGOS 8T4FN006
SO FINISHED
```

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RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Bull Hill
```

RE GRIDCART CB8IQ002 XYINC	534000	22	1000	4915500	22	1000			
RE GRIDCART CB8IQ002 ELEV	1	1501.1	1511.0	1545.0	1551.5	1494.2	1515.6		
RE GRIDCART CB8IQ002 ELEV	1	1549.8	1567.5	1504.1	1598.4	1621.3	1582.7		
RE GRIDCART CB8IQ002 ELEV	1	1535.0	1496.2	1481.8	1569.5	1580.6	1508.9		
RE GRIDCART CB8IQ002 ELEV	1	1440.4	1416.5	1425.7	1432.0				
RE GRIDCART CB8IQ002 ELEV	2	1440.7	1432.7	1462.5	1469.6	1465.8	1487.3		
RE GRIDCART CB8IQ002 ELEV	2	1515.7	1639.0	1537.6	1543.1	1639.7	1555.5		
RE GRIDCART CB8IQ002 ELEV	2	1523.6	1508.2	1514.3	1466.2	1464.4	1443.2		
RE GRIDCART CB8IQ002 ELEV	2	1416.3	1418.2	1464.0	1447.6				
RE GRIDCART CB8IQ002 ELEV	3	1467.1	1491.2	1488.1	1557.7	1543.3	1508.6		
RE GRIDCART CB8IQ002 ELEV	3	1534.4	1540.7	1561.7	1601.0	1629.0	1593.6		
RE GRIDCART CB8IQ002 ELEV	3	1561.0	1566.1	1530.8	1530.7	1448.7	1420.1		
RE GRIDCART CB8IQ002 ELEV	3	1409.7	1424.4	1575.3	1447.8				
RE GRIDCART CB8IQ002 ELEV	4	1458.4	1524.7	1566.3	1574.0	1582.0	1541.6		
RE GRIDCART CB8IQ002 ELEV	4	1540.8	1546.4	1571.1	1587.2	1696.9	1621.0		
RE GRIDCART CB8IQ002 ELEV	4	1600.8	1560.4	1531.6	1558.7	1537.6	1496.9		
RE GRIDCART CB8IQ002 ELEV	4	1434.4	1393.7	1427.7	1389.1				
RE GRIDCART CB8IQ002 ELEV	5	1500.9	1563.7	1555.3	1604.0	1573.6	1639.8		
RE GRIDCART CB8IQ002 ELEV	5	1648.5	1576.0	1564.1	1587.2	1645.8	1696.7		
RE GRIDCART CB8IQ002 ELEV	5	1659.8	1648.8	1643.6	1642.6	1515.1	1455.7		
RE GRIDCART CB8IQ002 ELEV	5	1428.1	1400.7	1388.6	1370.5				
RE GRIDCART CB8IQ002 ELEV	6	1540.0	1498.0	1605.0	1631.5	1620.9	1627.6		
RE GRIDCART CB8IQ002 ELEV	6	1632.5	1666.2	1604.8	1627.1	1691.7	1762.1		
RE GRIDCART CB8IQ002 ELEV	6	1756.6	1835.9	1824.4	1696.3	1602.3	1562.7		
RE GRIDCART CB8IQ002 ELEV	6	1437.9	1412.4	1371.0	1363.1				
RE GRIDCART CB8IQ002 ELEV	7	1513.1	1555.4	1578.4	1644.6	1546.1	1649.5		
RE GRIDCART CB8IQ002 ELEV	7	1639.8	1664.2	1701.6	1675.4	1852.7	1894.3		
RE GRIDCART CB8IQ002 ELEV	7	1836.1	1825.4	1714.0	1694.0	1581.0	1630.2		
RE GRIDCART CB8IQ002 ELEV	7	1458.6	1396.6	1374.7	1366.4				
RE GRIDCART CB8IQ002 ELEV	8	1521.7	1563.1	1485.4	1522.2	1620.8	1667.9		
RE GRIDCART CB8IQ002 ELEV	8	1651.1	1697.4	1735.1	1828.6	1826.3	1906.0		
RE GRIDCART CB8IQ002 ELEV	8	1891.6	1813.9	1732.0	1657.3	1522.0	1513.7		
RE GRIDCART CB8IQ002 ELEV	8	1416.8	1395.3	1395.6	1401.0				
RE GRIDCART CB8IQ002 ELEV	9	1457.5	1461.4	1521.1	1617.7	1691.7	1718.3		
RE GRIDCART CB8IQ002 ELEV	9	1682.5	1708.9	1785.6	1830.9	1886.7	1878.0		
RE GRIDCART CB8IQ002 ELEV	9	1774.3	1770.4	1812.1	1668.0	1531.2	1436.1		
RE GRIDCART CB8IQ002 ELEV	9	1427.6	1378.8	1389.0	1382.0				
RE GRIDCART CB8IQ002 ELEV	10	1560.8	1548.4	1476.0	1544.4	1685.6	1749.9		
RE GRIDCART CB8IQ002 ELEV	10	1716.1	1761.8	1852.3	1914.1	1900.3	1909.6		
RE GRIDCART CB8IQ002 ELEV	10	1805.6	1791.8	1766.1	1697.0	1524.2	1432.5		
RE GRIDCART CB8IQ002 ELEV	10	1383.3	1370.8	1348.9	1329.8				
RE GRIDCART CB8IQ002 ELEV	11	1527.0	1570.9	1537.3	1629.4	1643.3	1703.8		
RE GRIDCART CB8IQ002 ELEV	11	1745.6	1804.4	1860.4	1943.1	1919.0	1898.4		
RE GRIDCART CB8IQ002 ELEV	11	1913.6	1828.0	1744.7	1696.6	1577.6	1507.9		
RE GRIDCART CB8IQ002 ELEV	11	1397.2	1363.3	1394.0	1369.7				
RE GRIDCART CB8IQ002 ELEV	12	1534.0	1599.0	1601.5	1621.4	1622.1	1665.2		
RE GRIDCART CB8IQ002 ELEV	12	1729.3	1788.6	1828.2	1910.0	1870.0	1839.9		
RE GRIDCART CB8IQ002 ELEV	12	1817.5	1792.2	1698.8	1578.9	1514.3	1456.0		
RE GRIDCART CB8IQ002 ELEV	12	1434.5	1376.5	1353.8	1342.1				
RE GRIDCART CB8IQ002 ELEV	13	1520.3	1531.1	1614.4	1631.2	1684.6	1706.2		
RE GRIDCART CB8IQ002 ELEV	13	1746.3	1809.3	1850.2	1872.0	1804.2	1841.1		
RE GRIDCART CB8IQ002 ELEV	13	1770.5	1753.3	1738.6	1626.5	1679.0	1423.7		
RE GRIDCART CB8IQ002 ELEV	13	1410.0	1356.1	1332.5	1310.2				
RE GRIDCART CB8IQ002 ELEV	14	1480.5	1598.8	1564.3	1624.1	1653.0	1655.4		

RE GRIDCART CB8IQ002 ELEV	14	1688.1	1794.6	1764.5	1838.2	1823.6	1784.0
RE GRIDCART CB8IQ002 ELEV	14	1713.6	1770.5	1737.7	1697.2	1530.9	1441.2
RE GRIDCART CB8IQ002 ELEV	14	1393.1	1354.3	1332.3	1317.1		
RE GRIDCART CB8IQ002 ELEV	15	1461.5	1551.0	1545.9	1559.8	1588.3	1630.4
RE GRIDCART CB8IQ002 ELEV	15	1649.0	1747.0	1746.7	1768.0	1758.7	1753.7
RE GRIDCART CB8IQ002 ELEV	15	1757.4	1756.0	1675.2	1652.2	1628.7	1464.1
RE GRIDCART CB8IQ002 ELEV	15	1418.7	1374.3	1356.5	1341.0		
RE GRIDCART CB8IQ002 ELEV	16	1407.6	1408.6	1530.0	1485.0	1545.0	1563.4
RE GRIDCART CB8IQ002 ELEV	16	1705.0	1731.1	1663.1	1746.0	1691.5	1703.3
RE GRIDCART CB8IQ002 ELEV	16	1679.7	1603.5	1720.0	1643.6	1615.2	1552.3
RE GRIDCART CB8IQ002 ELEV	16	1463.9	1455.5	1389.5	1357.3		
RE GRIDCART CB8IQ002 ELEV	17	1401.9	1406.5	1483.0	1542.5	1507.8	1600.9
RE GRIDCART CB8IQ002 ELEV	17	1636.9	1652.9	1641.2	1638.9	1623.4	1597.9
RE GRIDCART CB8IQ002 ELEV	17	1664.7	1582.0	1622.7	1651.9	1596.0	1536.3
RE GRIDCART CB8IQ002 ELEV	17	1595.7	1523.1	1502.4	1432.4		
RE GRIDCART CB8IQ002 ELEV	18	1393.0	1490.2	1538.0	1584.5	1599.1	1562.6
RE GRIDCART CB8IQ002 ELEV	18	1552.8	1617.5	1568.4	1566.9	1620.3	1649.7
RE GRIDCART CB8IQ002 ELEV	18	1600.8	1573.2	1608.4	1670.2	1655.7	1567.6
RE GRIDCART CB8IQ002 ELEV	18	1462.9	1574.8	1511.9	1440.8		
RE GRIDCART CB8IQ002 ELEV	19	1414.2	1558.2	1542.3	1507.5	1543.2	1589.8
RE GRIDCART CB8IQ002 ELEV	19	1522.7	1510.1	1563.7	1577.2	1669.9	1654.8
RE GRIDCART CB8IQ002 ELEV	19	1562.1	1534.7	1621.0	1624.6	1540.3	1582.2
RE GRIDCART CB8IQ002 ELEV	19	1439.3	1464.1	1407.6	1375.0		
RE GRIDCART CB8IQ002 ELEV	20	1482.6	1561.0	1477.4	1532.9	1450.1	1588.1
RE GRIDCART CB8IQ002 ELEV	20	1454.8	1458.8	1505.1	1604.1	1644.3	1616.0
RE GRIDCART CB8IQ002 ELEV	20	1551.5	1504.7	1570.3	1517.7	1529.0	1547.2
RE GRIDCART CB8IQ002 ELEV	20	1486.6	1408.4	1485.9	1360.7		
RE GRIDCART CB8IQ002 ELEV	21	1397.4	1470.2	1470.9	1513.7	1409.2	1453.3
RE GRIDCART CB8IQ002 ELEV	21	1434.0	1409.0	1472.5	1524.5	1566.9	1621.2
RE GRIDCART CB8IQ002 ELEV	21	1543.7	1511.2	1592.9	1514.4	1439.9	1563.7
RE GRIDCART CB8IQ002 ELEV	21	1506.6	1513.5	1436.7	1435.5		
RE GRIDCART CB8IQ002 ELEV	22	1410.2	1491.1	1490.6	1431.2	1413.0	1387.9
RE GRIDCART CB8IQ002 ELEV	22	1468.8	1417.6	1536.9	1556.0	1606.6	1565.0
RE GRIDCART CB8IQ002 ELEV	22	1542.1	1548.6	1527.2	1540.9	1563.9	1403.7
RE GRIDCART CB8IQ002 ELEV	22	1369.2	1384.4	1344.2	1322.0		
RE GRIDCART CB8IQ002 HILL	1	1529.5	1534.1	1545.0	1559.7	1581.6	1571.2
RE GRIDCART CB8IQ002 HILL	1	1634.0	1639.0	1686.0	1686.0	1686.0	1599.0
RE GRIDCART CB8IQ002 HILL	1	1586.0	1775.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	1	1775.0	1775.0	1608.1	1432.0		
RE GRIDCART CB8IQ002 HILL	2	1525.5	1553.6	1553.6	1572.2	1589.2	1503.3
RE GRIDCART CB8IQ002 HILL	2	1639.0	1639.0	1639.0	1686.0	1654.0	1617.0
RE GRIDCART CB8IQ002 HILL	2	1523.6	1549.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	2	1775.0	1775.0	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	3	1520.0	1541.1	1570.9	1557.7	1589.2	1549.6
RE GRIDCART CB8IQ002 HILL	3	1537.0	1639.0	1619.0	1667.0	1674.0	1615.0
RE GRIDCART CB8IQ002 HILL	3	1898.0	1898.0	1898.0	1775.0	1843.0	1775.0
RE GRIDCART CB8IQ002 HILL	3	1775.0	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	4	1519.4	1543.2	1566.3	1581.6	1593.2	1646.8
RE GRIDCART CB8IQ002 HILL	4	1677.0	1674.0	1601.0	1935.0	1702.0	1946.0
RE GRIDCART CB8IQ002 HILL	4	1958.0	1958.0	1918.0	1898.0	1833.0	1541.7
RE GRIDCART CB8IQ002 HILL	4	1541.7	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	5	1503.0	1567.6	1594.7	1623.4	1657.5	1639.8
RE GRIDCART CB8IQ002 HILL	5	1673.0	1679.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	5	1958.0	1958.0	1898.0	1848.0	1898.0	1848.0

RE GRIDCART CB8IQ002 HILL	5	1688.9	1688.9	1605.7	1605.7		
RE GRIDCART CB8IQ002 HILL	6	1549.3	1608.1	1605.0	1631.5	1645.0	1650.5
RE GRIDCART CB8IQ002 HILL	6	1678.0	1674.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	6	1958.0	1898.0	1824.4	1842.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	6	1688.9	1688.9	1686.8	1363.1		
RE GRIDCART CB8IQ002 HILL	7	1572.2	1555.4	1680.7	1680.7	1680.7	1649.5
RE GRIDCART CB8IQ002 HILL	7	1639.8	1951.0	1951.0	1958.0	1945.0	1958.0
RE GRIDCART CB8IQ002 HILL	7	1958.0	1904.0	1916.0	1835.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	7	1688.9	1688.9	1686.8	1366.4		
RE GRIDCART CB8IQ002 HILL	8	1547.5	1563.1	1680.7	1751.4	1645.3	1679.1
RE GRIDCART CB8IQ002 HILL	8	1707.0	1951.0	1951.0	1951.0	1958.0	1953.0
RE GRIDCART CB8IQ002 HILL	8	1927.0	1904.0	1901.0	1856.0	1913.0	1800.0
RE GRIDCART CB8IQ002 HILL	8	1800.0	1688.9	1432.6	1401.0		
RE GRIDCART CB8IQ002 HILL	9	1570.0	1577.0	1745.6	1624.0	1714.2	1784.0
RE GRIDCART CB8IQ002 HILL	9	1862.0	2023.0	2023.0	2029.0	2029.0	2010.0
RE GRIDCART CB8IQ002 HILL	9	2029.0	1854.0	1820.0	1854.0	1872.0	1876.0
RE GRIDCART CB8IQ002 HILL	9	1800.0	1378.8	1397.2	1382.0		
RE GRIDCART CB8IQ002 HILL	10	1560.8	1568.5	1751.4	1795.0	1751.4	1795.0
RE GRIDCART CB8IQ002 HILL	10	2001.0	2001.0	2001.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	10	2029.0	1952.0	1812.0	1805.0	1952.0	1952.0
RE GRIDCART CB8IQ002 HILL	10	1854.0	1385.0	1348.9	1371.6		
RE GRIDCART CB8IQ002 HILL	11	1532.8	1582.5	1645.3	1632.5	1693.8	1788.0
RE GRIDCART CB8IQ002 HILL	11	1783.0	2001.0	2023.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	11	1952.0	1952.0	1952.0	1800.0	1817.0	1799.0
RE GRIDCART CB8IQ002 HILL	11	1806.0	1772.4	1394.0	1372.8		
RE GRIDCART CB8IQ002 HILL	12	1559.7	1604.2	1604.8	1638.6	1791.0	1796.0
RE GRIDCART CB8IQ002 HILL	12	1929.0	2001.0	2001.0	1970.0	2023.0	2029.0
RE GRIDCART CB8IQ002 HILL	12	1952.0	1952.0	1952.0	1952.0	1952.0	1810.0
RE GRIDCART CB8IQ002 HILL	12	1772.4	1772.4	1359.7	1342.1		
RE GRIDCART CB8IQ002 HILL	13	1590.1	1624.0	1614.4	1728.5	1728.5	1791.0
RE GRIDCART CB8IQ002 HILL	13	1917.0	1952.0	1952.0	1952.0	1996.0	1915.0
RE GRIDCART CB8IQ002 HILL	13	1909.0	1788.0	1777.0	1782.0	1772.4	1799.0
RE GRIDCART CB8IQ002 HILL	13	1772.4	1772.4	1763.9	1310.2		
RE GRIDCART CB8IQ002 HILL	14	1610.6	1598.8	1644.1	1699.3	1728.5	1765.1
RE GRIDCART CB8IQ002 HILL	14	1952.0	1794.6	1952.0	1929.7	1857.8	1851.1
RE GRIDCART CB8IQ002 HILL	14	1909.0	1770.5	1763.0	1742.5	1777.0	1774.0
RE GRIDCART CB8IQ002 HILL	14	1772.4	1772.4	1756.9	1317.1		
RE GRIDCART CB8IQ002 HILL	15	1621.2	1621.2	1607.8	1705.7	1669.7	1755.3
RE GRIDCART CB8IQ002 HILL	15	1917.0	1769.7	1952.0	1871.2	1857.8	1753.7
RE GRIDCART CB8IQ002 HILL	15	1757.4	1756.0	1765.4	1719.4	1702.0	1772.4
RE GRIDCART CB8IQ002 HILL	15	1772.4	1772.4	1648.1	1599.3		
RE GRIDCART CB8IQ002 HILL	16	1621.2	1621.2	1599.9	1656.9	1656.9	1748.6
RE GRIDCART CB8IQ002 HILL	16	1720.9	1742.5	1871.2	1752.6	1745.0	1731.6
RE GRIDCART CB8IQ002 HILL	16	1732.5	1771.2	1720.0	1707.2	1693.5	1686.5
RE GRIDCART CB8IQ002 HILL	16	1686.5	1648.1	1648.1	1648.1		
RE GRIDCART CB8IQ002 HILL	17	1565.5	1619.4	1619.4	1593.5	1721.8	1716.0
RE GRIDCART CB8IQ002 HILL	17	1721.8	1716.6	1710.8	1752.9	1747.1	1749.2
RE GRIDCART CB8IQ002 HILL	17	1696.5	1705.1	1708.7	1693.5	1686.2	1685.8
RE GRIDCART CB8IQ002 HILL	17	1648.1	1648.1	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	18	1607.8	1619.4	1619.4	1584.5	1599.1	1707.8
RE GRIDCART CB8IQ002 HILL	18	1716.0	1696.8	1710.8	1735.8	1688.6	1680.1
RE GRIDCART CB8IQ002 HILL	18	1602.9	1644.1	1683.1	1670.2	1663.6	1663.3
RE GRIDCART CB8IQ002 HILL	18	1664.8	1634.6	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	19	1607.8	1596.2	1607.8	1568.2	1642.9	1642.9

RE GRIDCART CB8IQ002 HILL 19 1637.4 1700.2 1592.9 1681.0 1669.9 1666.6
RE GRIDCART CB8IQ002 HILL 19 1678.5 1660.2 1660.2 1663.6 1676.7 1643.8
RE GRIDCART CB8IQ002 HILL 19 1663.3 1634.6 1634.6 1634.6
RE GRIDCART CB8IQ002 HILL 20 1584.4 1581.0 1596.2 1535.3 1642.9 1588.1
RE GRIDCART CB8IQ002 HILL 20 1642.9 1696.2 1655.1 1655.1 1652.3 1661.2
RE GRIDCART CB8IQ002 HILL 20 1666.3 1659.3 1655.7 1672.7 1567.9 1556.6
RE GRIDCART CB8IQ002 HILL 20 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 21 1584.4 1584.4 1504.2 1513.7 1637.1 1606.3
RE GRIDCART CB8IQ002 HILL 21 1606.3 1618.5 1655.1 1657.8 1650.5 1630.7
RE GRIDCART CB8IQ002 HILL 21 1623.1 1651.4 1651.4 1651.4 1651.4 1600.8
RE GRIDCART CB8IQ002 HILL 21 1611.2 1538.3 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 22 1518.2 1491.1 1490.6 1531.9 1531.9 1606.3
RE GRIDCART CB8IQ002 HILL 22 1505.1 1565.8 1545.0 1614.2 1617.0 1625.2
RE GRIDCART CB8IQ002 HILL 22 1619.4 1558.4 1624.9 1606.9 1604.5 1611.2
RE GRIDCART CB8IQ002 HILL 22 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 END
RE DISCCART 549600 4916840 1446.99 1775 1.5
** RCPDESCR Sundance (S 3rd St & E Park St)
RE FINISHED

ME STARTING
ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"
** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"
ME PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"
** PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"
ME SURFDATA 99999 2012
ME UAIRDATA 94043 2012
ME SITEDATA 00000826 2012
ME PROFBASE 1198 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU SUMMFILE SUMMARYFILE.SUM
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000
OU PLOTFILE ANNUAL MINE MINE`ANNUAL.plt 10001
OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10002
OU POSTFILE MONTH MINE UNIFORM MINE`MONTH.bin 10003
OU POSTFILE MONTH LGOS UNIFORM LGOS`MONTH.bin 10004
OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 9 Warning Message(s)
A Total of 0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320	25	OPARM: Input Parameter May Be Out-of-Range for Parameter	ANGLE
RE W216	217	RECAR: FLAG Input Inconsistent With Option: Defaults Used	CB8IQ002
ME W396	231	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	239	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	241	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** ***

*** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. Non-DEFAULT Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: RN-220

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 2 Source(s); 3 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor

Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1198.00 ; Decay Coef. = 0.1246E-01 ; Rot. Angle = 0.0

Emission Units = G/SM2

; Emission Rate Unit Factor = 0.93290E+18

Output Units = PCI/L

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site.

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*** AERMET - VERSION 12345 *** **

*** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER	EMISSION RATE	LOCATION OF AREA	BASE	RELEASE	NUMBER	INIT.	URBAN		
EMISSION RATE									
SOURCE	PART.	(USER UNITS	X	Y	ELEV.	HEIGHT OF VERTS.	SZ	SOURCE	SCALAR
VARY									
ID	CATS.	/METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)		BY

8T4FN006 0 0.20710E-18 544880.0 4926915.0 1905.0 0.50 5 0.50 NO

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site.

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** OPENPIT SOURCE DATA ***

NUMBER EMISSION RATE COORD (SW CORNER) BASE RELEASE X-DIM Y-DIM
ORIENT. VOLUME URBAN EMISSION RATE
SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF PIT OF PIT OF PIT OF PIT
SOURCE SCALAR VARY
ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) (METERS) (DEG.)
(M**3) BY

8T4FN003 0 0.57730E-17 543950.0 4925950.0 1928.0 0.00 715.00 1450.00 315.00 .19600E+09 NO
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs

ALL 8T4FN003 , 8T4FN006 ,
MINE 8T4FN003 ,
LGOS 8T4FN006 ,
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
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*** AERMET - VERSION 12345 *** *** 09:08:09
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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

534000.0, 535000.0, 536000.0, 537000.0, 538000.0, 539000.0, 540000.0, 541000.0, 542000.0, 543000.0,
544000.0, 545000.0, 546000.0, 547000.0, 548000.0, 549000.0, 550000.0, 551000.0, 552000.0, 553000.0,
554000.0, 555000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4915500.0, 4916500.0, 4917500.0, 4918500.0, 4919500.0, 4920500.0, 4921500.0, 4922500.0, 4923500.0,
4924500.0,
4925500.0, 4926500.0, 4927500.0, 4928500.0, 4929500.0, 4930500.0, 4931500.0, 4932500.0, 4933500.0,
4934500.0,
4935500.0, 4936500.0,
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
08/26/14

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00 542000.00								

4936500.00 | 1536.90	1410.20	1491.10	1490.60	1431.20	1413.00	1387.90	1468.80	1417.60
4935500.00 | 1472.50	1397.40	1470.20	1470.90	1513.70	1409.20	1453.30	1434.00	1409.00
4934500.00 | 1505.10	1482.60	1561.00	1477.40	1532.90	1450.10	1588.10	1454.80	1458.80
4933500.00 | 1563.70	1414.20	1558.20	1542.30	1507.50	1543.20	1589.80	1522.70	1510.10
4932500.00 | 1568.40	1393.00	1490.20	1538.00	1584.50	1599.10	1562.60	1552.80	1617.50
4931500.00 | 1641.20	1401.90	1406.50	1483.00	1542.50	1507.80	1600.90	1636.90	1652.90
4930500.00 | 1663.10	1407.60	1408.60	1530.00	1485.00	1545.00	1563.40	1705.00	1731.10
4929500.00 | 1746.70	1461.50	1551.00	1545.90	1559.80	1588.30	1630.40	1649.00	1747.00
4928500.00 | 1764.50	1480.50	1598.80	1564.30	1624.10	1653.00	1655.40	1688.10	1794.60
4927500.00 | 1850.20	1520.30	1531.10	1614.40	1631.20	1684.60	1706.20	1746.30	1809.30
4926500.00 | 1828.20	1534.00	1599.00	1601.50	1621.40	1622.10	1665.20	1729.30	1788.60
4925500.00 | 1860.40	1527.00	1570.90	1537.30	1629.40	1643.30	1703.80	1745.60	1804.40
4924500.00 | 1852.30	1560.80	1548.40	1476.00	1544.40	1685.60	1749.90	1716.10	1761.80
4923500.00 | 1785.60	1457.50	1461.40	1521.10	1617.70	1691.70	1718.30	1682.50	1708.90
4922500.00 | 1735.10	1521.70	1563.10	1485.40	1522.20	1620.80	1667.90	1651.10	1697.40
4921500.00 | 1701.60	1513.10	1555.40	1578.40	1644.60	1546.10	1649.50	1639.80	1664.20
4920500.00 | 1604.80	1540.00	1498.00	1605.00	1631.50	1620.90	1627.60	1632.50	1666.20
4919500.00 | 1564.10	1500.90	1563.70	1555.30	1604.00	1573.60	1639.80	1648.50	1576.00
4918500.00 | 1571.10	1458.40	1524.70	1566.30	1574.00	1582.00	1541.60	1540.80	1546.40
4917500.00 | 1561.70	1467.10	1491.20	1488.10	1557.70	1543.30	1508.60	1534.40	1540.70
4916500.00 |	1440.70	1432.70	1462.50	1469.60	1465.80	1487.30	1515.70	1639.00

1537.60
4915500.00 | 1501.10 1511.00 1545.00 1551.50 1494.20 1515.60 1549.80 1567.50
1504.10
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
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*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 |	1556.00	1606.60	1565.00	1542.10	1548.60	1527.20	1540.90	1563.90
1403.70								
4935500.00 |	1524.50	1566.90	1621.20	1543.70	1511.20	1592.90	1514.40	1439.90
1563.70								
4934500.00 |	1604.10	1644.30	1616.00	1551.50	1504.70	1570.30	1517.70	1529.00
1547.20								
4933500.00 |	1577.20	1669.90	1654.80	1562.10	1534.70	1621.00	1624.60	1540.30
1582.20								
4932500.00 |	1566.90	1620.30	1649.70	1600.80	1573.20	1608.40	1670.20	1655.70
1567.60								
4931500.00 |	1638.90	1623.40	1597.90	1664.70	1582.00	1622.70	1651.90	1596.00
1536.30								
4930500.00 |	1746.00	1691.50	1703.30	1679.70	1603.50	1720.00	1643.60	1615.20
1552.30								
4929500.00 |	1768.00	1758.70	1753.70	1757.40	1756.00	1675.20	1652.20	1628.70
1464.10								
4928500.00 |	1838.20	1823.60	1784.00	1713.60	1770.50	1737.70	1697.20	1530.90
1441.20								
4927500.00 |	1872.00	1804.20	1841.10	1770.50	1753.30	1738.60	1626.50	1679.00
1423.70								
4926500.00 |	1910.00	1870.00	1839.90	1817.50	1792.20	1698.80	1578.90	1514.30
1456.00								
4925500.00 |	1943.10	1919.00	1898.40	1913.60	1828.00	1744.70	1696.60	1577.60
1507.90								
4924500.00 |	1914.10	1900.30	1909.60	1805.60	1791.80	1766.10	1697.00	1524.20
1432.50								
4923500.00 |	1830.90	1886.70	1878.00	1774.30	1770.40	1812.10	1668.00	1531.20
1436.10								
4922500.00 |	1828.60	1826.30	1906.00	1891.60	1813.90	1732.00	1657.30	1522.00
1513.70								
4921500.00 |	1675.40	1852.70	1894.30	1836.10	1825.40	1714.00	1694.00	1581.00
1630.20								
4920500.00 |	1627.10	1691.70	1762.10	1756.60	1835.90	1824.40	1696.30	1602.30
1562.70								
4919500.00 |	1587.20	1645.80	1696.70	1659.80	1648.80	1643.60	1642.60	1515.10
1455.70								

4918500.00 |	1587.20	1696.90	1621.00	1600.80	1560.40	1531.60	1558.70	1537.60
1496.90								
4917500.00 |	1601.00	1629.00	1593.60	1561.00	1566.10	1530.80	1530.70	1448.70
1420.10								
4916500.00 |	1543.10	1639.70	1555.50	1523.60	1508.20	1514.30	1466.20	1464.40
1443.20								
4915500.00	1598.40	1621.30	1582.70	1535.00	1496.20	1481.80	1569.50	1580.60
1508.90								
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***								
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*** AERMET - VERSION 12345 *** ***								
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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1369.20	1384.40	1344.20	1322.00
4935500.00 |	1506.60	1513.50	1436.70	1435.50
4934500.00 |	1486.60	1408.40	1485.90	1360.70
4933500.00 |	1439.30	1464.10	1407.60	1375.00
4932500.00 |	1462.90	1574.80	1511.90	1440.80
4931500.00 |	1595.70	1523.10	1502.40	1432.40
4930500.00 |	1463.90	1455.50	1389.50	1357.30
4929500.00 |	1418.70	1374.30	1356.50	1341.00
4928500.00 |	1393.10	1354.30	1332.30	1317.10
4927500.00 |	1410.00	1356.10	1332.50	1310.20
4926500.00 |	1434.50	1376.50	1353.80	1342.10
4925500.00 |	1397.20	1363.30	1394.00	1369.70
4924500.00 |	1383.30	1370.80	1348.90	1329.80
4923500.00 |	1427.60	1378.80	1389.00	1382.00
4922500.00 |	1416.80	1395.30	1395.60	1401.00
4921500.00 |	1458.60	1396.60	1374.70	1366.40
4920500.00 |	1437.90	1412.40	1371.00	1363.10
4919500.00 |	1428.10	1400.70	1388.60	1370.50
4918500.00 |	1434.40	1393.70	1427.70	1389.10
4917500.00 |	1409.70	1424.40	1575.30	1447.80
4916500.00 |	1416.30	1418.20	1464.00	1447.60
4915500.00 |	1440.40	1416.50	1425.70	1432.00

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** ***

*** 09:08:09

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |		X-COORD (METERS)						
541000.00 542000.00		534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00

4936500.00 | 1545.00	1518.20	1491.10	1490.60	1531.90	1531.90	1606.30	1505.10	1565.80
4935500.00 | 1655.10	1584.40	1584.40	1504.20	1513.70	1637.10	1606.30	1606.30	1618.50
4934500.00 | 1655.10	1584.40	1581.00	1596.20	1535.30	1642.90	1588.10	1642.90	1696.20
4933500.00 | 1592.90	1607.80	1596.20	1607.80	1568.20	1642.90	1642.90	1637.40	1700.20
4932500.00 | 1710.80	1607.80	1619.40	1619.40	1584.50	1599.10	1707.80	1716.00	1696.80
4931500.00 | 1710.80	1565.50	1619.40	1619.40	1593.50	1721.80	1716.00	1721.80	1716.60
4930500.00 | 1871.20	1621.20	1621.20	1599.90	1656.90	1656.90	1748.60	1720.90	1742.50
4929500.00 | 1952.00	1621.20	1621.20	1607.80	1705.70	1669.70	1755.30	1917.00	1769.70
4928500.00 | 1952.00	1610.60	1598.80	1644.10	1699.30	1728.50	1765.10	1952.00	1794.60
4927500.00 | 1952.00	1590.10	1624.00	1614.40	1728.50	1728.50	1791.00	1917.00	1952.00
4926500.00 | 2001.00	1559.70	1604.20	1604.80	1638.60	1791.00	1796.00	1929.00	2001.00
4925500.00 | 2023.00	1532.80	1582.50	1645.30	1632.50	1693.80	1788.00	1783.00	2001.00
4924500.00 | 2001.00	1560.80	1568.50	1751.40	1795.00	1751.40	1795.00	2001.00	2001.00
4923500.00 | 2023.00	1570.00	1577.00	1745.60	1624.00	1714.20	1784.00	1862.00	2023.00
4922500.00 | 1951.00	1547.50	1563.10	1680.70	1751.40	1645.30	1679.10	1707.00	1951.00
4921500.00 | 1951.00	1572.20	1555.40	1680.70	1680.70	1680.70	1649.50	1639.80	1951.00
4920500.00 | 1958.00	1549.30	1608.10	1605.00	1631.50	1645.00	1650.50	1678.00	1674.00
4919500.00 | 1958.00	1503.00	1567.60	1594.70	1623.40	1657.50	1639.80	1673.00	1679.00
4918500.00 | 1601.00	1519.40	1543.20	1566.30	1581.60	1593.20	1646.80	1677.00	1674.00
4917500.00 | 1619.00	1520.00	1541.10	1570.90	1557.70	1589.20	1549.60	1537.00	1639.00
4916500.00 | 1639.00	1525.50	1553.60	1553.60	1572.20	1589.20	1503.30	1639.00	1639.00
4915500.00 | 1686.00	1529.50	1534.10	1545.00	1559.70	1581.60	1571.20	1634.00	1639.00
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***								
08/26/14								
*** AERMET - VERSION 12345 *** ***							***	09:08:09
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL								

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 | 1611.20	1614.20	1617.00	1625.20	1619.40	1558.40	1624.90	1606.90	1604.50
4935500.00 | 1600.80	1657.80	1650.50	1630.70	1623.10	1651.40	1651.40	1651.40	1651.40
4934500.00 | 1556.60	1655.10	1652.30	1661.20	1666.30	1659.30	1655.70	1672.70	1567.90
4933500.00 | 1643.80	1681.00	1669.90	1666.60	1678.50	1660.20	1660.20	1663.60	1676.70
4932500.00 | 1663.30	1735.80	1688.60	1680.10	1602.90	1644.10	1683.10	1670.20	1663.60
4931500.00 | 1685.80	1752.90	1747.10	1749.20	1696.50	1705.10	1708.70	1693.50	1686.20
4930500.00 | 1686.50	1752.60	1745.00	1731.60	1732.50	1771.20	1720.00	1707.20	1693.50
4929500.00 | 1772.40	1871.20	1857.80	1753.70	1757.40	1756.00	1765.40	1719.40	1702.00
4928500.00 | 1774.00	1929.70	1857.80	1851.10	1909.00	1770.50	1763.00	1742.50	1777.00
4927500.00 | 1799.00	1952.00	1996.00	1915.00	1909.00	1788.00	1777.00	1782.00	1772.40
4926500.00 | 1810.00	1970.00	2023.00	2029.00	1952.00	1952.00	1952.00	1952.00	1952.00
4925500.00 | 1799.00	2023.00	2029.00	2029.00	1952.00	1952.00	1952.00	1800.00	1817.00
4924500.00 | 1952.00	2023.00	2029.00	2029.00	2029.00	1952.00	1812.00	1805.00	1952.00
4923500.00 | 1876.00	2029.00	2029.00	2010.00	2029.00	1854.00	1820.00	1854.00	1872.00
4922500.00 | 1800.00	1951.00	1958.00	1953.00	1927.00	1904.00	1901.00	1856.00	1913.00
4921500.00 | 1688.90	1958.00	1945.00	1958.00	1958.00	1904.00	1916.00	1835.00	1842.00
4920500.00 | 1688.90	1958.00	1958.00	1958.00	1958.00	1898.00	1824.40	1842.00	1842.00
4919500.00 | 1848.00	1958.00	1958.00	1958.00	1958.00	1958.00	1898.00	1848.00	1898.00
4918500.00 | 1541.70	1935.00	1702.00	1946.00	1958.00	1958.00	1918.00	1898.00	1833.00
4917500.00 | 1775.00	1667.00	1674.00	1615.00	1898.00	1898.00	1898.00	1775.00	1843.00
4916500.00 | 1775.00	1686.00	1654.00	1617.00	1523.60	1549.00	1775.00	1775.00	1775.00
4915500.00 | 1775.00	1686.00	1686.00	1599.00	1586.00	1775.00	1775.00	1775.00	1775.00

**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1611.20	1611.20	1571.50	1571.50
4935500.00 |	1611.20	1538.30	1571.50	1571.50
4934500.00 |	1611.20	1611.20	1571.50	1571.50
4933500.00 |	1663.30	1634.60	1634.60	1634.60
4932500.00 |	1664.80	1634.60	1634.60	1634.60
4931500.00 |	1648.10	1648.10	1634.60	1634.60
4930500.00 |	1686.50	1648.10	1648.10	1648.10
4929500.00 |	1772.40	1772.40	1648.10	1599.30
4928500.00 |	1772.40	1772.40	1756.90	1317.10
4927500.00 |	1772.40	1772.40	1763.90	1310.20
4926500.00 |	1772.40	1772.40	1359.70	1342.10
4925500.00 |	1806.00	1772.40	1394.00	1372.80
4924500.00 |	1854.00	1385.00	1348.90	1371.60
4923500.00 |	1800.00	1378.80	1397.20	1382.00
4922500.00 |	1800.00	1688.90	1432.60	1401.00
4921500.00 |	1688.90	1688.90	1686.80	1366.40
4920500.00 |	1688.90	1688.90	1686.80	1363.10
4919500.00 |	1688.90	1688.90	1605.70	1605.70
4918500.00 |	1541.70	1608.10	1608.10	1608.10
4917500.00 |	1775.00	1608.10	1608.10	1608.10
4916500.00 |	1775.00	1775.00	1608.10	1608.10
4915500.00 |	1775.00	1775.00	1608.10	1432.00

**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)								
(METERS) |	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00		
541000.00	542000.00								

4936500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4935500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4934500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4918500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4917500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4916500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4915500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4935500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4934500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4918500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4917500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

4916500.00 | 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50
4915500.00 | 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
08/26/14
*** AERMET - VERSION 12345 *** ** 09:08:09
PAGE 14
**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00
4936500.00 |	1.50	1.50	1.50	1.50
4935500.00 |	1.50	1.50	1.50	1.50
4934500.00 |	1.50	1.50	1.50	1.50
4933500.00 |	1.50	1.50	1.50	1.50
4932500.00 |	1.50	1.50	1.50	1.50
4931500.00 |	1.50	1.50	1.50	1.50
4930500.00 |	1.50	1.50	1.50	1.50
4929500.00 |	1.50	1.50	1.50	1.50
4928500.00 |	1.50	1.50	1.50	1.50
4927500.00 |	1.50	1.50	1.50	1.50
4926500.00 |	1.50	1.50	1.50	1.50
4925500.00 |	1.50	1.50	1.50	1.50
4924500.00 |	1.50	1.50	1.50	1.50
4923500.00 |	1.50	1.50	1.50	1.50
4922500.00 |	1.50	1.50	1.50	1.50
4921500.00 |	1.50	1.50	1.50	1.50
4920500.00 |	1.50	1.50	1.50	1.50
4919500.00 |	1.50	1.50	1.50	1.50
4918500.00 |	1.50	1.50	1.50	1.50
4917500.00 |	1.50	1.50	1.50	1.50
4916500.00 |	1.50	1.50	1.50	1.50
4915500.00 |	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
08/26/14
*** AERMET - VERSION 12345 *** ** 09:08:09
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(549600.0, 4916840.0, 1447.0, 1775.0, 1.5);
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
08/26/14
*** AERMET - VERSION 12345 *** ** 09:08:09
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

Year: 2012

Year: 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													

12	08	01	214	01	-18.1	0.211	-9.000	-9.000	-999.	223.	37.3	0.23	0.83	1.00	2.70	174.	10.0	296.0	2.0
12	08	01	214	02	-14.9	0.173	-9.000	-9.000	-999.	166.	25.2	0.23	0.83	1.00	2.50	176.	10.0	295.8	2.0
12	08	01	214	03	-5.3	0.091	-9.000	-9.000	-999.	65.	10.3	0.38	0.83	1.00	1.50	131.	10.0	294.4	2.0
12	08	01	214	04	-7.4	0.109	-9.000	-9.000	-999.	83.	12.6	0.45	0.83	1.00	1.70	101.	10.0	293.0	2.0
12	08	01	214	05	-10.5	0.128	-9.000	-9.000	-999.	105.	14.4	0.38	0.83	1.00	2.10	120.	10.0	292.1	2.0
12	08	01	214	06	-5.1	0.222	-9.000	-9.000	-999.	240.	155.2	0.38	0.83	0.44	2.00	140.	10.0	292.9	2.0
12	08	01	214	07	12.2	0.281	0.259	0.005	41.	343.	-131.3	0.23	0.83	0.25	2.50	153.	10.0	294.5	2.0
12	08	01	214	08	28.5	0.217	0.476	0.005	108.	234.	-25.9	0.23	0.83	0.18	1.70	172.	10.0	295.6	2.0
12	08	01	214	09	73.2	0.247	1.007	0.005	401.	283.	-14.9	0.23	0.83	0.15	1.80	168.	10.0	295.6	2.0
12	08	01	214	10	219.8	0.370	1.919	0.005	927.	518.	-16.6	0.38	0.83	0.14	2.30	197.	10.0	297.8	2.0
12	08	01	214	11	240.9	0.399	2.217	0.005	1306.	580.	-19.0	0.43	0.83	0.14	2.40	240.	10.0	298.1	2.0
12	08	01	214	12	263.1	0.484	2.644	0.005	2028.	775.	-31.1	0.62	0.83	0.14	2.70	290.	10.0	298.6	2.0
12	08	01	214	13	260.4	0.373	2.774	0.005	2368.	532.	-14.3	0.75	0.83	0.14	1.70	347.	10.0	299.9	2.0
12	08	01	214	14	229.4	0.294	2.763	0.005	2652.	369.	-8.0	0.53	0.83	0.14	1.40	70.	10.0	298.1	2.0
12	08	01	214	15	211.2	0.280	2.850	0.005	3161.	340.	-7.4	0.65	0.83	0.14	1.20	34.	10.0	298.5	2.0
12	08	01	214	16	164.1	0.299	2.735	0.005	3594.	376.	-11.7	0.65	0.83	0.15	1.40	35.	10.0	297.2	2.0
12	08	01	214	17	112.1	0.353	2.466	0.005	3859.	482.	-28.2	0.65	0.83	0.17	1.90	50.	10.0	296.0	2.0
12	08	01	214	18	54.9	0.371	1.961	0.005	3961.	519.	-66.9	0.53	0.83	0.23	2.40	70.	10.0	294.1	2.0
12	08	01	214	19	4.6	0.378	0.857	0.005	3946.	535.	-848.3	0.45	0.83	0.40	2.90	91.	10.0	292.8	2.0
12	08	01	214	20	-17.2	0.196	-9.000	-9.000	-999.	224.	31.7	0.45	0.83	1.00	2.30	102.	10.0	290.6	2.0
12	08	01	214	21	-27.3	0.309	-9.000	-9.000	-999.	396.	78.2	0.45	0.83	1.00	2.90	108.	10.0	288.4	2.0
12	08	01	214	22	-9.4	0.122	-9.000	-9.000	-999.	130.	14.0	0.45	0.83	1.00	1.90	111.	10.0	287.5	2.0
12	08	01	214	23	-3.7	0.077	-9.000	-9.000	-999.	50.	8.8	0.45	0.83	1.00	1.20	116.	10.0	288.1	2.0
12	08	01	214	24	-3.7	0.077	-9.000	-9.000	-999.	49.	8.9	0.45	0.83	1.00	1.20	111.	10.0	291.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	296.1	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	174.	2.70	296.6	9.2	-99.00	0.43	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/26/14

*** AERMET - VERSION 12345 *** ***

09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L

**

Y-COORD | X-COORD (METERS)

(METERS) | 534000.00 535000.00 536000.00 537000.00 538000.00 539000.00 540000.00

541000.00 542000.00

4936500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4935500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4934500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4933500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4932500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4931500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4930500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4929500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00001								
4928500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4927500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00003								
4926500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00004								
4925500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4924500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4923500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4922500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4921500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4920500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4919500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4918500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4917500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4916500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4915500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR

SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***
** CONC OF RN-220 IN PCI/L **

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4935500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4934500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4933500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4932500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4931500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4930500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4929500.00 | 0.00000	0.00002	0.00001	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000
4928500.00 | 0.00000	0.00022	0.00026	0.00005	0.00001	0.00000	0.00000	0.00000	0.00000
4927500.00 | 0.00000	0.00056	0.00889	0.00083	0.00004	0.00000	0.00000	0.00000	0.00000
4926500.00 | 0.00000	0.00385	0.00004	1.52344	0.00021	0.00000	0.00000	0.00000	0.00000
4925500.00 | 0.00000	0.00006	0.00121	0.00094	0.00025	0.00002	0.00000	0.00000	0.00000
4924500.00 | 0.00000	0.00000	0.00003	0.00004	0.00005	0.00002	0.00000	0.00000	0.00000
4923500.00 | 0.00000	0.00000	0.00000	0.00001	0.00000	0.00001	0.00000	0.00000	0.00000
4922500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4921500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4920500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4919500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4918500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4917500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4916500.00 | 0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4915500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD | X-COORD (METERS)
(METERS) | 552000.00 553000.00 554000.00 555000.00

4936500.00 |	0.00000	0.00000	0.00000	0.00000
4935500.00 |	0.00000	0.00000	0.00000	0.00000
4934500.00 |	0.00000	0.00000	0.00000	0.00000
4933500.00 |	0.00000	0.00000	0.00000	0.00000
4932500.00 |	0.00000	0.00000	0.00000	0.00000
4931500.00 |	0.00000	0.00000	0.00000	0.00000
4930500.00 |	0.00000	0.00000	0.00000	0.00000
4929500.00 |	0.00000	0.00000	0.00000	0.00000
4928500.00 |	0.00000	0.00000	0.00000	0.00000
4927500.00 |	0.00000	0.00000	0.00000	0.00000
4926500.00 |	0.00000	0.00000	0.00000	0.00000
4925500.00 |	0.00000	0.00000	0.00000	0.00000
4924500.00 |	0.00000	0.00000	0.00000	0.00000
4923500.00 |	0.00000	0.00000	0.00000	0.00000
4922500.00 |	0.00000	0.00000	0.00000	0.00000
4921500.00 |	0.00000	0.00000	0.00000	0.00000
4920500.00 |	0.00000	0.00000	0.00000	0.00000
4919500.00 |	0.00000	0.00000	0.00000	0.00000
4918500.00 |	0.00000	0.00000	0.00000	0.00000
4917500.00 |	0.00000	0.00000	0.00000	0.00000
4916500.00 |	0.00000	0.00000	0.00000	0.00000
4915500.00 |	0.00000	0.00000	0.00000	0.00000

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-220 IN PCI/L

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
549600.00	4916840.00	0.00000			
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***					
08/26/14					
*** AERMET - VERSION 12345 *** ** 09:08:09					

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00 542000.00								
4936500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4935500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4934500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4933500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4932500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4931500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4930500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4929500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00001								
4928500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4927500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00002								
4926500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00004								
4925500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4924500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4923500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4922500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								

4921500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4920500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4919500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4918500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4917500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4916500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4915500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***								
08/26/14								
*** AERMET - VERSION 12345 *** ***								
*** 09:08:09								

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4935500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4934500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4933500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4932500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4931500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4930500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4929500.00 |	0.00002	0.00001	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4928500.00 |	0.00022	0.00026	0.00005	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4927500.00 |	0.00056	0.00888	0.00024	0.00002	0.00000	0.00000	0.00000	0.00000
0.00000								
4926500.00 |	0.00384	0.00000	0.00187	0.00003	0.00000	0.00000	0.00000	0.00000

0.00000
4925500.00 | 0.00006 0.00121 0.00092 0.00016 0.00001 0.00000 0.00000 0.00000
0.00000
4924500.00 | 0.00000 0.00003 0.00004 0.00005 0.00002 0.00000 0.00000 0.00000
0.00000
4923500.00 | 0.00000 0.00000 0.00001 0.00000 0.00001 0.00000 0.00000 0.00000
0.00000
4922500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4921500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4920500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4919500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4918500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4917500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4916500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
4915500.00 | 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/26/14
*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	0.00000	0.00000	0.00000	0.00000
4935500.00 |	0.00000	0.00000	0.00000	0.00000
4934500.00 |	0.00000	0.00000	0.00000	0.00000
4933500.00 |	0.00000	0.00000	0.00000	0.00000
4932500.00 |	0.00000	0.00000	0.00000	0.00000
4931500.00 |	0.00000	0.00000	0.00000	0.00000
4930500.00 |	0.00000	0.00000	0.00000	0.00000
4929500.00 |	0.00000	0.00000	0.00000	0.00000
4928500.00 |	0.00000	0.00000	0.00000	0.00000
4927500.00 |	0.00000	0.00000	0.00000	0.00000
4926500.00 |	0.00000	0.00000	0.00000	0.00000
4925500.00 |	0.00000	0.00000	0.00000	0.00000
4924500.00 |	0.00000	0.00000	0.00000	0.00000

4923500.00 |	0.00000	0.00000	0.00000	0.00000
4922500.00 |	0.00000	0.00000	0.00000	0.00000
4921500.00 |	0.00000	0.00000	0.00000	0.00000
4920500.00 |	0.00000	0.00000	0.00000	0.00000
4919500.00 |	0.00000	0.00000	0.00000	0.00000
4918500.00 |	0.00000	0.00000	0.00000	0.00000
4917500.00 |	0.00000	0.00000	0.00000	0.00000
4916500.00 |	0.00000	0.00000	0.00000	0.00000
4915500.00 |	0.00000	0.00000	0.00000	0.00000

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-220 IN PCI/L **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC

549600.00	4916840.00	0.00000			

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** *** 09:08:09

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD |	X-COORD (METERS)						
(METERS) |	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00
541000.00	542000.00						

4936500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4935500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4934500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4933500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4932500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4936500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4935500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4934500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4933500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4932500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4931500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4930500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4929500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4928500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4927500.00 |	0.00000	0.00001	0.00059	0.00002	0.00000	0.00000	0.00000	0.00000
0.00000								
4926500.00 |	0.00000	0.00004	1.52157	0.00018	0.00000	0.00000	0.00000	0.00000
0.00000								
4925500.00 |	0.00000	0.00000	0.00002	0.00009	0.00001	0.00000	0.00000	0.00000
0.00000								
4924500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4923500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4922500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4921500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4920500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4919500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4918500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4917500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4916500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4915500.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/26/14

*** AERMET - VERSION 12345 *** ***

*** 09:08:09

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L

**

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	0.00000	0.00000	0.00000	0.00000
4935500.00 |	0.00000	0.00000	0.00000	0.00000
4934500.00 |	0.00000	0.00000	0.00000	0.00000
4933500.00 |	0.00000	0.00000	0.00000	0.00000
4932500.00 |	0.00000	0.00000	0.00000	0.00000
4931500.00 |	0.00000	0.00000	0.00000	0.00000
4930500.00 |	0.00000	0.00000	0.00000	0.00000
4929500.00 |	0.00000	0.00000	0.00000	0.00000
4928500.00 |	0.00000	0.00000	0.00000	0.00000
4927500.00 |	0.00000	0.00000	0.00000	0.00000
4926500.00 |	0.00000	0.00000	0.00000	0.00000
4925500.00 |	0.00000	0.00000	0.00000	0.00000
4924500.00 |	0.00000	0.00000	0.00000	0.00000
4923500.00 |	0.00000	0.00000	0.00000	0.00000
4922500.00 |	0.00000	0.00000	0.00000	0.00000
4921500.00 |	0.00000	0.00000	0.00000	0.00000
4920500.00 |	0.00000	0.00000	0.00000	0.00000
4919500.00 |	0.00000	0.00000	0.00000	0.00000
4918500.00 |	0.00000	0.00000	0.00000	0.00000
4917500.00 |	0.00000	0.00000	0.00000	0.00000
4916500.00 |	0.00000	0.00000	0.00000	0.00000
4915500.00 |	0.00000	0.00000	0.00000	0.00000

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/26/14

*** AERMET - VERSION 12345 *** ***

09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: LGOS ***

INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-220 IN PCI/L

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
-------------	-------------	------	-------------	-------------	------

549600.00	4916840.00	0.00000			
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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/26/14

*** AERMET - VERSION 12345 *** ***

09:08:09

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF RN-220 IN PCI/L

**

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE
GRID-ID		

ALL 1ST HIGHEST VALUE IS CB8IQ002	1.52344 AT (545000.00, 4926500.00, 1839.90, 2029.00, 1.50)	GC
2ND HIGHEST VALUE IS CB8IQ002	0.00889 AT (544000.00, 4927500.00, 1804.20, 1996.00, 1.50)	GC
3RD HIGHEST VALUE IS CB8IQ002	0.00385 AT (543000.00, 4926500.00, 1910.00, 1970.00, 1.50)	GC
4TH HIGHEST VALUE IS CB8IQ002	0.00121 AT (544000.00, 4925500.00, 1919.00, 2029.00, 1.50)	GC
5TH HIGHEST VALUE IS CB8IQ002	0.00094 AT (545000.00, 4925500.00, 1898.40, 2029.00, 1.50)	GC
6TH HIGHEST VALUE IS CB8IQ002	0.00083 AT (545000.00, 4927500.00, 1841.10, 1915.00, 1.50)	GC
7TH HIGHEST VALUE IS CB8IQ002	0.00056 AT (543000.00, 4927500.00, 1872.00, 1952.00, 1.50)	GC
8TH HIGHEST VALUE IS CB8IQ002	0.00026 AT (544000.00, 4928500.00, 1823.60, 1857.80, 1.50)	GC
9TH HIGHEST VALUE IS CB8IQ002	0.00025 AT (546000.00, 4925500.00, 1913.60, 1952.00, 1.50)	GC
10TH HIGHEST VALUE IS CB8IQ002	0.00022 AT (543000.00, 4928500.00, 1838.20, 1929.70, 1.50)	GC

MINE 1ST HIGHEST VALUE IS CB8IQ002	0.00888 AT (544000.00, 4927500.00, 1804.20, 1996.00, 1.50)	GC
2ND HIGHEST VALUE IS CB8IQ002	0.00384 AT (543000.00, 4926500.00, 1910.00, 1970.00, 1.50)	GC
3RD HIGHEST VALUE IS CB8IQ002	0.00187 AT (545000.00, 4926500.00, 1839.90, 2029.00, 1.50)	GC
4TH HIGHEST VALUE IS CB8IQ002	0.00121 AT (544000.00, 4925500.00, 1919.00, 2029.00, 1.50)	GC
5TH HIGHEST VALUE IS CB8IQ002	0.00092 AT (545000.00, 4925500.00, 1898.40, 2029.00, 1.50)	GC
6TH HIGHEST VALUE IS CB8IQ002	0.00056 AT (543000.00, 4927500.00, 1872.00, 1952.00, 1.50)	GC
7TH HIGHEST VALUE IS CB8IQ002	0.00026 AT (544000.00, 4928500.00, 1823.60, 1857.80, 1.50)	GC
8TH HIGHEST VALUE IS CB8IQ002	0.00024 AT (545000.00, 4927500.00, 1841.10, 1915.00, 1.50)	GC
9TH HIGHEST VALUE IS CB8IQ002	0.00022 AT (543000.00, 4928500.00, 1838.20, 1929.70, 1.50)	GC
10TH HIGHEST VALUE IS CB8IQ002	0.00016 AT (546000.00, 4925500.00, 1913.60, 1952.00, 1.50)	GC

LGOS 1ST HIGHEST VALUE IS CB8IQ002	1.52157 AT (545000.00, 4926500.00, 1839.90, 2029.00, 1.50)	GC
---------------------------------------	---	----

2ND HIGHEST VALUE IS 0.00059 AT (545000.00, 4927500.00, 1841.10, 1915.00, 1.50) GC
CB8IQ002
3RD HIGHEST VALUE IS 0.00018 AT (546000.00, 4926500.00, 1817.50, 1952.00, 1.50) GC
CB8IQ002
4TH HIGHEST VALUE IS 0.00009 AT (546000.00, 4925500.00, 1913.60, 1952.00, 1.50) GC
CB8IQ002
5TH HIGHEST VALUE IS 0.00004 AT (544000.00, 4926500.00, 1870.00, 2023.00, 1.50) GC
CB8IQ002
6TH HIGHEST VALUE IS 0.00002 AT (545000.00, 4925500.00, 1898.40, 2029.00, 1.50) GC
CB8IQ002
7TH HIGHEST VALUE IS 0.00002 AT (546000.00, 4927500.00, 1770.50, 1909.00, 1.50) GC
CB8IQ002
8TH HIGHEST VALUE IS 0.00001 AT (547000.00, 4925500.00, 1828.00, 1952.00, 1.50) GC
CB8IQ002
9TH HIGHEST VALUE IS 0.00001 AT (544000.00, 4927500.00, 1804.20, 1996.00, 1.50) GC
CB8IQ002
10TH HIGHEST VALUE IS 0.00000 AT (545000.00, 4928500.00, 1784.00, 1851.10, 1.50) GC
CB8IQ002

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/26/14

*** AERMET - VERSION 12345 *** ***

*** 09:08:09

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)

A Total of 10 Warning Message(s)

A Total of 114 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 34 Calm Hours Identified

A Total of 80 Missing Hours Identified (0.91 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320	25	OPARM: Input Parameter May Be Out-of-Range for Parameter	ANGLE
RE W216	217	RECART: FLAG Input Inconsistent With Option: Defaults Used	CB8IQ002
ME W396	231	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE

OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	239	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	241	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR
MX W481	8785	MAIN: Data Remaining After End of Year. Number of Hours=	24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***

```

*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****

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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9

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CO STARTING
CO TITLEONE AERMOD run for the Bear Lodge mine site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID RN-222
CO HALFLIFE 330350.4
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED

```

```

SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN003 OPENPIT 543950 4925950 1927.96
** SRCDESCR Mine Pit
SO LOCATION 8T4FN006 AREAPOLY 544880 4926915 1905
** SRCDESCR Low Grade Ore Stockpile
SO SRCPARAM 8T4FN003 1.23E-16 0 715 1450 1.96E+08 315
SO SRCPARAM 8T4FN006 1.25E-17 0.5 5 0.5
SO AREAVERT 8T4FN006 544880.0 4926915.0 545250.0 4926915.0
SO AREAVERT 8T4FN006 545245.0 4926290.0 544800.0 4926310.0
SO AREAVERT 8T4FN006 544730.0 4926550.0
SO CONCUNIT 1.538E14 G/SM2 PCI/L
SO SRCGROUP ALL
SO SRCGROUP MINE 8T4FN003
SO SRCGROUP SPILE 8T4FN006
SO FINISHED

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RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Bull Hill

```

RE GRIDCART CB8IQ002 XYINC	534000	22	1000	4915500	22	1000			
RE GRIDCART CB8IQ002 ELEV	1	1501.1	1511.0	1545.0	1551.5	1494.2	1515.6		
RE GRIDCART CB8IQ002 ELEV	1	1549.8	1567.5	1504.1	1598.4	1621.3	1582.7		
RE GRIDCART CB8IQ002 ELEV	1	1535.0	1496.2	1481.8	1569.5	1580.6	1508.9		
RE GRIDCART CB8IQ002 ELEV	1	1440.4	1416.5	1425.7	1432.0				
RE GRIDCART CB8IQ002 ELEV	2	1440.7	1432.7	1462.5	1469.6	1465.8	1487.3		
RE GRIDCART CB8IQ002 ELEV	2	1515.7	1639.0	1537.6	1543.1	1639.7	1555.5		
RE GRIDCART CB8IQ002 ELEV	2	1523.6	1508.2	1514.3	1466.2	1464.4	1443.2		
RE GRIDCART CB8IQ002 ELEV	2	1416.3	1418.2	1464.0	1447.6				
RE GRIDCART CB8IQ002 ELEV	3	1467.1	1491.2	1488.1	1557.7	1543.3	1508.6		
RE GRIDCART CB8IQ002 ELEV	3	1534.4	1540.7	1561.7	1601.0	1629.0	1593.6		
RE GRIDCART CB8IQ002 ELEV	3	1561.0	1566.1	1530.8	1530.7	1448.7	1420.1		
RE GRIDCART CB8IQ002 ELEV	3	1409.7	1424.4	1575.3	1447.8				
RE GRIDCART CB8IQ002 ELEV	4	1458.4	1524.7	1566.3	1574.0	1582.0	1541.6		
RE GRIDCART CB8IQ002 ELEV	4	1540.8	1546.4	1571.1	1587.2	1696.9	1621.0		
RE GRIDCART CB8IQ002 ELEV	4	1600.8	1560.4	1531.6	1558.7	1537.6	1496.9		
RE GRIDCART CB8IQ002 ELEV	4	1434.4	1393.7	1427.7	1389.1				
RE GRIDCART CB8IQ002 ELEV	5	1500.9	1563.7	1555.3	1604.0	1573.6	1639.8		
RE GRIDCART CB8IQ002 ELEV	5	1648.5	1576.0	1564.1	1587.2	1645.8	1696.7		
RE GRIDCART CB8IQ002 ELEV	5	1659.8	1648.8	1643.6	1642.6	1515.1	1455.7		
RE GRIDCART CB8IQ002 ELEV	5	1428.1	1400.7	1388.6	1370.5				
RE GRIDCART CB8IQ002 ELEV	6	1540.0	1498.0	1605.0	1631.5	1620.9	1627.6		
RE GRIDCART CB8IQ002 ELEV	6	1632.5	1666.2	1604.8	1627.1	1691.7	1762.1		
RE GRIDCART CB8IQ002 ELEV	6	1756.6	1835.9	1824.4	1696.3	1602.3	1562.7		
RE GRIDCART CB8IQ002 ELEV	6	1437.9	1412.4	1371.0	1363.1				
RE GRIDCART CB8IQ002 ELEV	7	1513.1	1555.4	1578.4	1644.6	1546.1	1649.5		
RE GRIDCART CB8IQ002 ELEV	7	1639.8	1664.2	1701.6	1675.4	1852.7	1894.3		
RE GRIDCART CB8IQ002 ELEV	7	1836.1	1825.4	1714.0	1694.0	1581.0	1630.2		
RE GRIDCART CB8IQ002 ELEV	7	1458.6	1396.6	1374.7	1366.4				
RE GRIDCART CB8IQ002 ELEV	8	1521.7	1563.1	1485.4	1522.2	1620.8	1667.9		
RE GRIDCART CB8IQ002 ELEV	8	1651.1	1697.4	1735.1	1828.6	1826.3	1906.0		
RE GRIDCART CB8IQ002 ELEV	8	1891.6	1813.9	1732.0	1657.3	1522.0	1513.7		
RE GRIDCART CB8IQ002 ELEV	8	1416.8	1395.3	1395.6	1401.0				
RE GRIDCART CB8IQ002 ELEV	9	1457.5	1461.4	1521.1	1617.7	1691.7	1718.3		
RE GRIDCART CB8IQ002 ELEV	9	1682.5	1708.9	1785.6	1830.9	1886.7	1878.0		
RE GRIDCART CB8IQ002 ELEV	9	1774.3	1770.4	1812.1	1668.0	1531.2	1436.1		
RE GRIDCART CB8IQ002 ELEV	9	1427.6	1378.8	1389.0	1382.0				
RE GRIDCART CB8IQ002 ELEV	10	1560.8	1548.4	1476.0	1544.4	1685.6	1749.9		
RE GRIDCART CB8IQ002 ELEV	10	1716.1	1761.8	1852.3	1914.1	1900.3	1909.6		
RE GRIDCART CB8IQ002 ELEV	10	1805.6	1791.8	1766.1	1697.0	1524.2	1432.5		
RE GRIDCART CB8IQ002 ELEV	10	1383.3	1370.8	1348.9	1329.8				
RE GRIDCART CB8IQ002 ELEV	11	1527.0	1570.9	1537.3	1629.4	1643.3	1703.8		
RE GRIDCART CB8IQ002 ELEV	11	1745.6	1804.4	1860.4	1943.1	1919.0	1898.4		
RE GRIDCART CB8IQ002 ELEV	11	1913.6	1828.0	1744.7	1696.6	1577.6	1507.9		
RE GRIDCART CB8IQ002 ELEV	11	1397.2	1363.3	1394.0	1369.7				
RE GRIDCART CB8IQ002 ELEV	12	1534.0	1599.0	1601.5	1621.4	1622.1	1665.2		
RE GRIDCART CB8IQ002 ELEV	12	1729.3	1788.6	1828.2	1910.0	1870.0	1839.9		
RE GRIDCART CB8IQ002 ELEV	12	1817.5	1792.2	1698.8	1578.9	1514.3	1456.0		
RE GRIDCART CB8IQ002 ELEV	12	1434.5	1376.5	1353.8	1342.1				
RE GRIDCART CB8IQ002 ELEV	13	1520.3	1531.1	1614.4	1631.2	1684.6	1706.2		
RE GRIDCART CB8IQ002 ELEV	13	1746.3	1809.3	1850.2	1872.0	1804.2	1841.1		
RE GRIDCART CB8IQ002 ELEV	13	1770.5	1753.3	1738.6	1626.5	1679.0	1423.7		
RE GRIDCART CB8IQ002 ELEV	13	1410.0	1356.1	1332.5	1310.2				
RE GRIDCART CB8IQ002 ELEV	14	1480.5	1598.8	1564.3	1624.1	1653.0	1655.4		

RE GRIDCART CB8IQ002 ELEV	14	1688.1	1794.6	1764.5	1838.2	1823.6	1784.0
RE GRIDCART CB8IQ002 ELEV	14	1713.6	1770.5	1737.7	1697.2	1530.9	1441.2
RE GRIDCART CB8IQ002 ELEV	14	1393.1	1354.3	1332.3	1317.1		
RE GRIDCART CB8IQ002 ELEV	15	1461.5	1551.0	1545.9	1559.8	1588.3	1630.4
RE GRIDCART CB8IQ002 ELEV	15	1649.0	1747.0	1746.7	1768.0	1758.7	1753.7
RE GRIDCART CB8IQ002 ELEV	15	1757.4	1756.0	1675.2	1652.2	1628.7	1464.1
RE GRIDCART CB8IQ002 ELEV	15	1418.7	1374.3	1356.5	1341.0		
RE GRIDCART CB8IQ002 ELEV	16	1407.6	1408.6	1530.0	1485.0	1545.0	1563.4
RE GRIDCART CB8IQ002 ELEV	16	1705.0	1731.1	1663.1	1746.0	1691.5	1703.3
RE GRIDCART CB8IQ002 ELEV	16	1679.7	1603.5	1720.0	1643.6	1615.2	1552.3
RE GRIDCART CB8IQ002 ELEV	16	1463.9	1455.5	1389.5	1357.3		
RE GRIDCART CB8IQ002 ELEV	17	1401.9	1406.5	1483.0	1542.5	1507.8	1600.9
RE GRIDCART CB8IQ002 ELEV	17	1636.9	1652.9	1641.2	1638.9	1623.4	1597.9
RE GRIDCART CB8IQ002 ELEV	17	1664.7	1582.0	1622.7	1651.9	1596.0	1536.3
RE GRIDCART CB8IQ002 ELEV	17	1595.7	1523.1	1502.4	1432.4		
RE GRIDCART CB8IQ002 ELEV	18	1393.0	1490.2	1538.0	1584.5	1599.1	1562.6
RE GRIDCART CB8IQ002 ELEV	18	1552.8	1617.5	1568.4	1566.9	1620.3	1649.7
RE GRIDCART CB8IQ002 ELEV	18	1600.8	1573.2	1608.4	1670.2	1655.7	1567.6
RE GRIDCART CB8IQ002 ELEV	18	1462.9	1574.8	1511.9	1440.8		
RE GRIDCART CB8IQ002 ELEV	19	1414.2	1558.2	1542.3	1507.5	1543.2	1589.8
RE GRIDCART CB8IQ002 ELEV	19	1522.7	1510.1	1563.7	1577.2	1669.9	1654.8
RE GRIDCART CB8IQ002 ELEV	19	1562.1	1534.7	1621.0	1624.6	1540.3	1582.2
RE GRIDCART CB8IQ002 ELEV	19	1439.3	1464.1	1407.6	1375.0		
RE GRIDCART CB8IQ002 ELEV	20	1482.6	1561.0	1477.4	1532.9	1450.1	1588.1
RE GRIDCART CB8IQ002 ELEV	20	1454.8	1458.8	1505.1	1604.1	1644.3	1616.0
RE GRIDCART CB8IQ002 ELEV	20	1551.5	1504.7	1570.3	1517.7	1529.0	1547.2
RE GRIDCART CB8IQ002 ELEV	20	1486.6	1408.4	1485.9	1360.7		
RE GRIDCART CB8IQ002 ELEV	21	1397.4	1470.2	1470.9	1513.7	1409.2	1453.3
RE GRIDCART CB8IQ002 ELEV	21	1434.0	1409.0	1472.5	1524.5	1566.9	1621.2
RE GRIDCART CB8IQ002 ELEV	21	1543.7	1511.2	1592.9	1514.4	1439.9	1563.7
RE GRIDCART CB8IQ002 ELEV	21	1506.6	1513.5	1436.7	1435.5		
RE GRIDCART CB8IQ002 ELEV	22	1410.2	1491.1	1490.6	1431.2	1413.0	1387.9
RE GRIDCART CB8IQ002 ELEV	22	1468.8	1417.6	1536.9	1556.0	1606.6	1565.0
RE GRIDCART CB8IQ002 ELEV	22	1542.1	1548.6	1527.2	1540.9	1563.9	1403.7
RE GRIDCART CB8IQ002 ELEV	22	1369.2	1384.4	1344.2	1322.0		
RE GRIDCART CB8IQ002 HILL	1	1529.5	1534.1	1545.0	1559.7	1581.6	1571.2
RE GRIDCART CB8IQ002 HILL	1	1634.0	1639.0	1686.0	1686.0	1686.0	1599.0
RE GRIDCART CB8IQ002 HILL	1	1586.0	1775.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	1	1775.0	1775.0	1608.1	1432.0		
RE GRIDCART CB8IQ002 HILL	2	1525.5	1553.6	1553.6	1572.2	1589.2	1503.3
RE GRIDCART CB8IQ002 HILL	2	1639.0	1639.0	1639.0	1686.0	1654.0	1617.0
RE GRIDCART CB8IQ002 HILL	2	1523.6	1549.0	1775.0	1775.0	1775.0	1775.0
RE GRIDCART CB8IQ002 HILL	2	1775.0	1775.0	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	3	1520.0	1541.1	1570.9	1557.7	1589.2	1549.6
RE GRIDCART CB8IQ002 HILL	3	1537.0	1639.0	1619.0	1667.0	1674.0	1615.0
RE GRIDCART CB8IQ002 HILL	3	1898.0	1898.0	1898.0	1775.0	1843.0	1775.0
RE GRIDCART CB8IQ002 HILL	3	1775.0	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	4	1519.4	1543.2	1566.3	1581.6	1593.2	1646.8
RE GRIDCART CB8IQ002 HILL	4	1677.0	1674.0	1601.0	1935.0	1702.0	1946.0
RE GRIDCART CB8IQ002 HILL	4	1958.0	1958.0	1918.0	1898.0	1833.0	1541.7
RE GRIDCART CB8IQ002 HILL	4	1541.7	1608.1	1608.1	1608.1		
RE GRIDCART CB8IQ002 HILL	5	1503.0	1567.6	1594.7	1623.4	1657.5	1639.8
RE GRIDCART CB8IQ002 HILL	5	1673.0	1679.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	5	1958.0	1958.0	1898.0	1848.0	1898.0	1848.0

RE GRIDCART CB8IQ002 HILL	5	1688.9	1688.9	1605.7	1605.7		
RE GRIDCART CB8IQ002 HILL	6	1549.3	1608.1	1605.0	1631.5	1645.0	1650.5
RE GRIDCART CB8IQ002 HILL	6	1678.0	1674.0	1958.0	1958.0	1958.0	1958.0
RE GRIDCART CB8IQ002 HILL	6	1958.0	1898.0	1824.4	1842.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	6	1688.9	1688.9	1686.8	1363.1		
RE GRIDCART CB8IQ002 HILL	7	1572.2	1555.4	1680.7	1680.7	1680.7	1649.5
RE GRIDCART CB8IQ002 HILL	7	1639.8	1951.0	1951.0	1958.0	1945.0	1958.0
RE GRIDCART CB8IQ002 HILL	7	1958.0	1904.0	1916.0	1835.0	1842.0	1688.9
RE GRIDCART CB8IQ002 HILL	7	1688.9	1688.9	1686.8	1366.4		
RE GRIDCART CB8IQ002 HILL	8	1547.5	1563.1	1680.7	1751.4	1645.3	1679.1
RE GRIDCART CB8IQ002 HILL	8	1707.0	1951.0	1951.0	1951.0	1958.0	1953.0
RE GRIDCART CB8IQ002 HILL	8	1927.0	1904.0	1901.0	1856.0	1913.0	1800.0
RE GRIDCART CB8IQ002 HILL	8	1800.0	1688.9	1432.6	1401.0		
RE GRIDCART CB8IQ002 HILL	9	1570.0	1577.0	1745.6	1624.0	1714.2	1784.0
RE GRIDCART CB8IQ002 HILL	9	1862.0	2023.0	2023.0	2029.0	2029.0	2010.0
RE GRIDCART CB8IQ002 HILL	9	2029.0	1854.0	1820.0	1854.0	1872.0	1876.0
RE GRIDCART CB8IQ002 HILL	9	1800.0	1378.8	1397.2	1382.0		
RE GRIDCART CB8IQ002 HILL	10	1560.8	1568.5	1751.4	1795.0	1751.4	1795.0
RE GRIDCART CB8IQ002 HILL	10	2001.0	2001.0	2001.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	10	2029.0	1952.0	1812.0	1805.0	1952.0	1952.0
RE GRIDCART CB8IQ002 HILL	10	1854.0	1385.0	1348.9	1371.6		
RE GRIDCART CB8IQ002 HILL	11	1532.8	1582.5	1645.3	1632.5	1693.8	1788.0
RE GRIDCART CB8IQ002 HILL	11	1783.0	2001.0	2023.0	2023.0	2029.0	2029.0
RE GRIDCART CB8IQ002 HILL	11	1952.0	1952.0	1952.0	1800.0	1817.0	1799.0
RE GRIDCART CB8IQ002 HILL	11	1806.0	1772.4	1394.0	1372.8		
RE GRIDCART CB8IQ002 HILL	12	1559.7	1604.2	1604.8	1638.6	1791.0	1796.0
RE GRIDCART CB8IQ002 HILL	12	1929.0	2001.0	2001.0	1970.0	2023.0	2029.0
RE GRIDCART CB8IQ002 HILL	12	1952.0	1952.0	1952.0	1952.0	1952.0	1810.0
RE GRIDCART CB8IQ002 HILL	12	1772.4	1772.4	1359.7	1342.1		
RE GRIDCART CB8IQ002 HILL	13	1590.1	1624.0	1614.4	1728.5	1728.5	1791.0
RE GRIDCART CB8IQ002 HILL	13	1917.0	1952.0	1952.0	1952.0	1996.0	1915.0
RE GRIDCART CB8IQ002 HILL	13	1909.0	1788.0	1777.0	1782.0	1772.4	1799.0
RE GRIDCART CB8IQ002 HILL	13	1772.4	1772.4	1763.9	1310.2		
RE GRIDCART CB8IQ002 HILL	14	1610.6	1598.8	1644.1	1699.3	1728.5	1765.1
RE GRIDCART CB8IQ002 HILL	14	1952.0	1794.6	1952.0	1929.7	1857.8	1851.1
RE GRIDCART CB8IQ002 HILL	14	1909.0	1770.5	1763.0	1742.5	1777.0	1774.0
RE GRIDCART CB8IQ002 HILL	14	1772.4	1772.4	1756.9	1317.1		
RE GRIDCART CB8IQ002 HILL	15	1621.2	1621.2	1607.8	1705.7	1669.7	1755.3
RE GRIDCART CB8IQ002 HILL	15	1917.0	1769.7	1952.0	1871.2	1857.8	1753.7
RE GRIDCART CB8IQ002 HILL	15	1757.4	1756.0	1765.4	1719.4	1702.0	1772.4
RE GRIDCART CB8IQ002 HILL	15	1772.4	1772.4	1648.1	1599.3		
RE GRIDCART CB8IQ002 HILL	16	1621.2	1621.2	1599.9	1656.9	1656.9	1748.6
RE GRIDCART CB8IQ002 HILL	16	1720.9	1742.5	1871.2	1752.6	1745.0	1731.6
RE GRIDCART CB8IQ002 HILL	16	1732.5	1771.2	1720.0	1707.2	1693.5	1686.5
RE GRIDCART CB8IQ002 HILL	16	1686.5	1648.1	1648.1	1648.1		
RE GRIDCART CB8IQ002 HILL	17	1565.5	1619.4	1619.4	1593.5	1721.8	1716.0
RE GRIDCART CB8IQ002 HILL	17	1721.8	1716.6	1710.8	1752.9	1747.1	1749.2
RE GRIDCART CB8IQ002 HILL	17	1696.5	1705.1	1708.7	1693.5	1686.2	1685.8
RE GRIDCART CB8IQ002 HILL	17	1648.1	1648.1	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	18	1607.8	1619.4	1619.4	1584.5	1599.1	1707.8
RE GRIDCART CB8IQ002 HILL	18	1716.0	1696.8	1710.8	1735.8	1688.6	1680.1
RE GRIDCART CB8IQ002 HILL	18	1602.9	1644.1	1683.1	1670.2	1663.6	1663.3
RE GRIDCART CB8IQ002 HILL	18	1664.8	1634.6	1634.6	1634.6		
RE GRIDCART CB8IQ002 HILL	19	1607.8	1596.2	1607.8	1568.2	1642.9	1642.9

RE GRIDCART CB8IQ002 HILL 19 1637.4 1700.2 1592.9 1681.0 1669.9 1666.6
RE GRIDCART CB8IQ002 HILL 19 1678.5 1660.2 1660.2 1663.6 1676.7 1643.8
RE GRIDCART CB8IQ002 HILL 19 1663.3 1634.6 1634.6 1634.6
RE GRIDCART CB8IQ002 HILL 20 1584.4 1581.0 1596.2 1535.3 1642.9 1588.1
RE GRIDCART CB8IQ002 HILL 20 1642.9 1696.2 1655.1 1655.1 1652.3 1661.2
RE GRIDCART CB8IQ002 HILL 20 1666.3 1659.3 1655.7 1672.7 1567.9 1556.6
RE GRIDCART CB8IQ002 HILL 20 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 21 1584.4 1584.4 1504.2 1513.7 1637.1 1606.3
RE GRIDCART CB8IQ002 HILL 21 1606.3 1618.5 1655.1 1657.8 1650.5 1630.7
RE GRIDCART CB8IQ002 HILL 21 1623.1 1651.4 1651.4 1651.4 1651.4 1600.8
RE GRIDCART CB8IQ002 HILL 21 1611.2 1538.3 1571.5 1571.5
RE GRIDCART CB8IQ002 HILL 22 1518.2 1491.1 1490.6 1531.9 1531.9 1606.3
RE GRIDCART CB8IQ002 HILL 22 1505.1 1565.8 1545.0 1614.2 1617.0 1625.2
RE GRIDCART CB8IQ002 HILL 22 1619.4 1558.4 1624.9 1606.9 1604.5 1611.2
RE GRIDCART CB8IQ002 HILL 22 1611.2 1611.2 1571.5 1571.5
RE GRIDCART CB8IQ002 END
RE DISCCART 549600 4916840 1446.99 1775 1.5
** RCPDESCR Sundance (S 3rd St & E Park St)
RE FINISHED

ME STARTING
ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"
** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.SFC"
ME PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"
** PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_BEARLODGE.PFL"
ME SURFDATA 99999 2012
ME UAIRDATA 94043 2012
ME SITEDATA 00000826 2012
ME PROFBASE 1198 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU SUMMFILE SUMMARYFILE.SUM
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000
OU PLOTFILE ANNUAL MINE MINE`ANNUAL.plt 10001
OU PLOTFILE ANNUAL SPILE SPILE`ANNUAL.plt 10002
OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10003
OU POSTFILE MONTH MINE UNIFORM MINE`MONTH.bin 10004
OU POSTFILE MONTH SPILE UNIFORM SPILE`MONTH.bin 10005
OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of	0 Fatal Error Message(s)
A Total of	10 Warning Message(s)
A Total of	0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320	25	OPARM: Input Parameter May Be Out-of-Range for Parameter	ANGLE
RE W216	217	RECart: FLAG Input Inconsistent With Option: Defaults Used	CB8IQ002
ME W396	231	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	239	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	241	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	242	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** ***

*** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. Non-DEFAULT Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: RN-222

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 2 Source(s); 3 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor

Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1198.00 ; Decay Coef. = 0.2098E-05 ; Rot. Angle = 0.0

Emission Units = G/SM2

; Emission Rate Unit Factor = 0.15380E+15

Output Units = PCI/L

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER EMISSION RATE		LOCATION OF AREA		BASE	RELEASE		NUMBER	INIT.	URBAN
EMISSION RATE									
SOURCE	PART.	(USER UNITS	X	Y	ELEV.	HEIGHT OF VERTS.	SZ	SOURCE	SCALAR
VARY									

ID	CATS.	/METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	BY
----	-------	------------	----------	----------	----------	----------	----------	----

8T4FN006 0 0.12500E-16 544880.0 4926915.0 1905.0 0.50 5 0.50 NO

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** OPENPIT SOURCE DATA ***

NUMBER EMISSION RATE COORD (SW CORNER) BASE RELEASE X-DIM Y-DIM
ORIENT. VOLUME URBAN EMISSION RATE
SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF PIT OF PIT OF PIT OF PIT
SOURCE SCALAR VARY
ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) (METERS) (DEG.)
(M**3) BY

8T4FN003 0 0.12300E-15 543950.0 4925950.0 1928.0 0.00 715.00 1450.00 315.00 .19600E+09 NO
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID SOURCE IDs

ALL 8T4FN003 , 8T4FN006 ,

MINE 8T4FN003 ,

SPILE 8T4FN006 ,

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

534000.0, 535000.0, 536000.0, 537000.0, 538000.0, 539000.0, 540000.0, 541000.0, 542000.0, 543000.0,
544000.0, 545000.0, 546000.0, 547000.0, 548000.0, 549000.0, 550000.0, 551000.0, 552000.0, 553000.0,
554000.0, 555000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4915500.0, 4916500.0, 4917500.0, 4918500.0, 4919500.0, 4920500.0, 4921500.0, 4922500.0, 4923500.0,
4924500.0,
4925500.0, 4926500.0, 4927500.0, 4928500.0, 4929500.0, 4930500.0, 4931500.0, 4932500.0, 4933500.0,
4934500.0,
4935500.0, 4936500.0,

**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)						
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00
541000.00 542000.00							

4936500.00 | 1536.90	1410.20	1491.10	1490.60	1431.20	1413.00	1387.90	1468.80 1417.60
4935500.00 | 1472.50	1397.40	1470.20	1470.90	1513.70	1409.20	1453.30	1434.00 1409.00
4934500.00 | 1505.10	1482.60	1561.00	1477.40	1532.90	1450.10	1588.10	1454.80 1458.80
4933500.00 | 1563.70	1414.20	1558.20	1542.30	1507.50	1543.20	1589.80	1522.70 1510.10
4932500.00 | 1568.40	1393.00	1490.20	1538.00	1584.50	1599.10	1562.60	1552.80 1617.50
4931500.00 | 1641.20	1401.90	1406.50	1483.00	1542.50	1507.80	1600.90	1636.90 1652.90
4930500.00 | 1663.10	1407.60	1408.60	1530.00	1485.00	1545.00	1563.40	1705.00 1731.10
4929500.00 | 1746.70	1461.50	1551.00	1545.90	1559.80	1588.30	1630.40	1649.00 1747.00
4928500.00 | 1764.50	1480.50	1598.80	1564.30	1624.10	1653.00	1655.40	1688.10 1794.60
4927500.00 | 1850.20	1520.30	1531.10	1614.40	1631.20	1684.60	1706.20	1746.30 1809.30
4926500.00 | 1828.20	1534.00	1599.00	1601.50	1621.40	1622.10	1665.20	1729.30 1788.60
4925500.00 | 1860.40	1527.00	1570.90	1537.30	1629.40	1643.30	1703.80	1745.60 1804.40
4924500.00 | 1852.30	1560.80	1548.40	1476.00	1544.40	1685.60	1749.90	1716.10 1761.80
4923500.00 | 1785.60	1457.50	1461.40	1521.10	1617.70	1691.70	1718.30	1682.50 1708.90
4922500.00 | 1735.10	1521.70	1563.10	1485.40	1522.20	1620.80	1667.90	1651.10 1697.40
4921500.00 | 1701.60	1513.10	1555.40	1578.40	1644.60	1546.10	1649.50	1639.80 1664.20
4920500.00 | 1604.80	1540.00	1498.00	1605.00	1631.50	1620.90	1627.60	1632.50 1666.20
4919500.00 | 1564.10	1500.90	1563.70	1555.30	1604.00	1573.60	1639.80	1648.50 1576.00
4918500.00 | 1571.10	1458.40	1524.70	1566.30	1574.00	1582.00	1541.60	1540.80 1546.40
4917500.00 |	1467.10	1491.20	1488.10	1557.70	1543.30	1508.60	1534.40 1540.70

1561.70
4916500.00 | 1440.70 1432.70 1462.50 1469.60 1465.80 1487.30 1515.70 1639.00
1537.60
4915500.00 | 1501.10 1511.00 1545.00 1551.50 1494.20 1515.60 1549.80 1567.50
1504.10
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 |	1556.00	1606.60	1565.00	1542.10	1548.60	1527.20	1540.90	1563.90
1403.70								
4935500.00 |	1524.50	1566.90	1621.20	1543.70	1511.20	1592.90	1514.40	1439.90
1563.70								
4934500.00 |	1604.10	1644.30	1616.00	1551.50	1504.70	1570.30	1517.70	1529.00
1547.20								
4933500.00 |	1577.20	1669.90	1654.80	1562.10	1534.70	1621.00	1624.60	1540.30
1582.20								
4932500.00 |	1566.90	1620.30	1649.70	1600.80	1573.20	1608.40	1670.20	1655.70
1567.60								
4931500.00 |	1638.90	1623.40	1597.90	1664.70	1582.00	1622.70	1651.90	1596.00
1536.30								
4930500.00 |	1746.00	1691.50	1703.30	1679.70	1603.50	1720.00	1643.60	1615.20
1552.30								
4929500.00 |	1768.00	1758.70	1753.70	1757.40	1756.00	1675.20	1652.20	1628.70
1464.10								
4928500.00 |	1838.20	1823.60	1784.00	1713.60	1770.50	1737.70	1697.20	1530.90
1441.20								
4927500.00 |	1872.00	1804.20	1841.10	1770.50	1753.30	1738.60	1626.50	1679.00
1423.70								
4926500.00 |	1910.00	1870.00	1839.90	1817.50	1792.20	1698.80	1578.90	1514.30
1456.00								
4925500.00 |	1943.10	1919.00	1898.40	1913.60	1828.00	1744.70	1696.60	1577.60
1507.90								
4924500.00 |	1914.10	1900.30	1909.60	1805.60	1791.80	1766.10	1697.00	1524.20
1432.50								
4923500.00 |	1830.90	1886.70	1878.00	1774.30	1770.40	1812.10	1668.00	1531.20
1436.10								
4922500.00 |	1828.60	1826.30	1906.00	1891.60	1813.90	1732.00	1657.30	1522.00
1513.70								
4921500.00 |	1675.40	1852.70	1894.30	1836.10	1825.40	1714.00	1694.00	1581.00
1630.20								
4920500.00 |	1627.10	1691.70	1762.10	1756.60	1835.90	1824.40	1696.30	1602.30
1562.70								

4919500.00 |	1587.20	1645.80	1696.70	1659.80	1648.80	1643.60	1642.60	1515.10
1455.70								
4918500.00 |	1587.20	1696.90	1621.00	1600.80	1560.40	1531.60	1558.70	1537.60
1496.90								
4917500.00 |	1601.00	1629.00	1593.60	1561.00	1566.10	1530.80	1530.70	1448.70
1420.10								
4916500.00 |	1543.10	1639.70	1555.50	1523.60	1508.20	1514.30	1466.20	1464.40
1443.20								
4915500.00 |	1598.40	1621.30	1582.70	1535.00	1496.20	1481.80	1569.50	1580.60
1508.90								
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***								
08/25/14								
*** AERMET - VERSION 12345 *** ***								
*** 15:02:23								

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1369.20	1384.40	1344.20	1322.00
4935500.00 |	1506.60	1513.50	1436.70	1435.50
4934500.00 |	1486.60	1408.40	1485.90	1360.70
4933500.00 |	1439.30	1464.10	1407.60	1375.00
4932500.00 |	1462.90	1574.80	1511.90	1440.80
4931500.00 |	1595.70	1523.10	1502.40	1432.40
4930500.00 |	1463.90	1455.50	1389.50	1357.30
4929500.00 |	1418.70	1374.30	1356.50	1341.00
4928500.00 |	1393.10	1354.30	1332.30	1317.10
4927500.00 |	1410.00	1356.10	1332.50	1310.20
4926500.00 |	1434.50	1376.50	1353.80	1342.10
4925500.00 |	1397.20	1363.30	1394.00	1369.70
4924500.00 |	1383.30	1370.80	1348.90	1329.80
4923500.00 |	1427.60	1378.80	1389.00	1382.00
4922500.00 |	1416.80	1395.30	1395.60	1401.00
4921500.00 |	1458.60	1396.60	1374.70	1366.40
4920500.00 |	1437.90	1412.40	1371.00	1363.10
4919500.00 |	1428.10	1400.70	1388.60	1370.50
4918500.00 |	1434.40	1393.70	1427.70	1389.10
4917500.00 |	1409.70	1424.40	1575.30	1447.80
4916500.00 |	1416.30	1418.20	1464.00	1447.60
4915500.00 |	1440.40	1416.50	1425.70	1432.00

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** ***

*** 15:02:23

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00	542000.00							

4936500.00 | 1545.00	1518.20	1491.10	1490.60	1531.90	1531.90	1606.30	1505.10	1565.80
4935500.00 | 1655.10	1584.40	1584.40	1504.20	1513.70	1637.10	1606.30	1606.30	1618.50
4934500.00 | 1655.10	1584.40	1581.00	1596.20	1535.30	1642.90	1588.10	1642.90	1696.20
4933500.00 | 1592.90	1607.80	1596.20	1607.80	1568.20	1642.90	1642.90	1637.40	1700.20
4932500.00 | 1710.80	1607.80	1619.40	1619.40	1584.50	1599.10	1707.80	1716.00	1696.80
4931500.00 | 1710.80	1565.50	1619.40	1619.40	1593.50	1721.80	1716.00	1721.80	1716.60
4930500.00 | 1871.20	1621.20	1621.20	1599.90	1656.90	1656.90	1748.60	1720.90	1742.50
4929500.00 | 1952.00	1621.20	1621.20	1607.80	1705.70	1669.70	1755.30	1917.00	1769.70
4928500.00 | 1952.00	1610.60	1598.80	1644.10	1699.30	1728.50	1765.10	1952.00	1794.60
4927500.00 | 1952.00	1590.10	1624.00	1614.40	1728.50	1728.50	1791.00	1917.00	1952.00
4926500.00 | 2001.00	1559.70	1604.20	1604.80	1638.60	1791.00	1796.00	1929.00	2001.00
4925500.00 | 2023.00	1532.80	1582.50	1645.30	1632.50	1693.80	1788.00	1783.00	2001.00
4924500.00 | 2001.00	1560.80	1568.50	1751.40	1795.00	1751.40	1795.00	2001.00	2001.00
4923500.00 | 2023.00	1570.00	1577.00	1745.60	1624.00	1714.20	1784.00	1862.00	2023.00
4922500.00 | 1951.00	1547.50	1563.10	1680.70	1751.40	1645.30	1679.10	1707.00	1951.00
4921500.00 | 1951.00	1572.20	1555.40	1680.70	1680.70	1680.70	1649.50	1639.80	1951.00
4920500.00 | 1958.00	1549.30	1608.10	1605.00	1631.50	1645.00	1650.50	1678.00	1674.00
4919500.00 | 1958.00	1503.00	1567.60	1594.70	1623.40	1657.50	1639.80	1673.00	1679.00
4918500.00 | 1601.00	1519.40	1543.20	1566.30	1581.60	1593.20	1646.80	1677.00	1674.00
4917500.00 | 1619.00	1520.00	1541.10	1570.90	1557.70	1589.20	1549.60	1537.00	1639.00
4916500.00 | 1639.00	1525.50	1553.60	1553.60	1572.20	1589.20	1503.30	1639.00	1639.00
4915500.00 | 1686.00	1529.50	1534.10	1545.00	1559.70	1581.60	1571.20	1634.00	1639.00
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Bear Lodge mine site.							***
08/25/14								
*** AERMET - VERSION 12345 ***							***	15:02:23

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00
550000.00 551000.00							

4936500.00 | 1611.20	1614.20	1617.00	1625.20	1619.40	1558.40	1624.90	1606.90 1604.50
4935500.00 | 1600.80	1657.80	1650.50	1630.70	1623.10	1651.40	1651.40	1651.40 1651.40
4934500.00 | 1556.60	1655.10	1652.30	1661.20	1666.30	1659.30	1655.70	1672.70 1567.90
4933500.00 | 1643.80	1681.00	1669.90	1666.60	1678.50	1660.20	1660.20	1663.60 1676.70
4932500.00 | 1663.30	1735.80	1688.60	1680.10	1602.90	1644.10	1683.10	1670.20 1663.60
4931500.00 | 1685.80	1752.90	1747.10	1749.20	1696.50	1705.10	1708.70	1693.50 1686.20
4930500.00 | 1686.50	1752.60	1745.00	1731.60	1732.50	1771.20	1720.00	1707.20 1693.50
4929500.00 | 1772.40	1871.20	1857.80	1753.70	1757.40	1756.00	1765.40	1719.40 1702.00
4928500.00 | 1774.00	1929.70	1857.80	1851.10	1909.00	1770.50	1763.00	1742.50 1777.00
4927500.00 | 1799.00	1952.00	1996.00	1915.00	1909.00	1788.00	1777.00	1782.00 1772.40
4926500.00 | 1810.00	1970.00	2023.00	2029.00	1952.00	1952.00	1952.00	1952.00 1952.00
4925500.00 | 1799.00	2023.00	2029.00	2029.00	1952.00	1952.00	1952.00	1800.00 1817.00
4924500.00 | 1952.00	2023.00	2029.00	2029.00	2029.00	1952.00	1812.00	1805.00 1952.00
4923500.00 | 1876.00	2029.00	2029.00	2010.00	2029.00	1854.00	1820.00	1854.00 1872.00
4922500.00 | 1800.00	1951.00	1958.00	1953.00	1927.00	1904.00	1901.00	1856.00 1913.00
4921500.00 | 1688.90	1958.00	1945.00	1958.00	1958.00	1904.00	1916.00	1835.00 1842.00
4920500.00 | 1688.90	1958.00	1958.00	1958.00	1958.00	1898.00	1824.40	1842.00 1842.00
4919500.00 | 1848.00	1958.00	1958.00	1958.00	1958.00	1958.00	1898.00	1848.00 1898.00
4918500.00 | 1541.70	1935.00	1702.00	1946.00	1958.00	1958.00	1918.00	1898.00 1833.00
4917500.00 | 1775.00	1667.00	1674.00	1615.00	1898.00	1898.00	1898.00	1775.00 1843.00
4916500.00 | 1775.00	1686.00	1654.00	1617.00	1523.60	1549.00	1775.00	1775.00 1775.00

4915500.00 | 1686.00 1686.00 1599.00 1586.00 1775.00 1775.00 1775.00 1775.00
1775.00

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1611.20	1611.20	1571.50	1571.50
4935500.00 |	1611.20	1538.30	1571.50	1571.50
4934500.00 |	1611.20	1611.20	1571.50	1571.50
4933500.00 |	1663.30	1634.60	1634.60	1634.60
4932500.00 |	1664.80	1634.60	1634.60	1634.60
4931500.00 |	1648.10	1648.10	1634.60	1634.60
4930500.00 |	1686.50	1648.10	1648.10	1648.10
4929500.00 |	1772.40	1772.40	1648.10	1599.30
4928500.00 |	1772.40	1772.40	1756.90	1317.10
4927500.00 |	1772.40	1772.40	1763.90	1310.20
4926500.00 |	1772.40	1772.40	1359.70	1342.10
4925500.00 |	1806.00	1772.40	1394.00	1372.80
4924500.00 |	1854.00	1385.00	1348.90	1371.60
4923500.00 |	1800.00	1378.80	1397.20	1382.00
4922500.00 |	1800.00	1688.90	1432.60	1401.00
4921500.00 |	1688.90	1688.90	1686.80	1366.40
4920500.00 |	1688.90	1688.90	1686.80	1363.10
4919500.00 |	1688.90	1688.90	1605.70	1605.70
4918500.00 |	1541.70	1608.10	1608.10	1608.10
4917500.00 |	1775.00	1608.10	1608.10	1608.10
4916500.00 |	1775.00	1775.00	1608.10	1608.10
4915500.00 |	1775.00	1775.00	1608.10	1432.00

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS)	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	

541000.00 542000.00

4936500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
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4935500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4934500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4918500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4917500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4916500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4915500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00	551000.00							

4936500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4935500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4934500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4933500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4932500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4931500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4930500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4929500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4928500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4927500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4926500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4925500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4924500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4923500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4922500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4921500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4920500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4919500.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

4918500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4917500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4916500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4915500.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	1.50	1.50	1.50	1.50
4935500.00 |	1.50	1.50	1.50	1.50
4934500.00 |	1.50	1.50	1.50	1.50
4933500.00 |	1.50	1.50	1.50	1.50
4932500.00 |	1.50	1.50	1.50	1.50
4931500.00 |	1.50	1.50	1.50	1.50
4930500.00 |	1.50	1.50	1.50	1.50
4929500.00 |	1.50	1.50	1.50	1.50
4928500.00 |	1.50	1.50	1.50	1.50
4927500.00 |	1.50	1.50	1.50	1.50
4926500.00 |	1.50	1.50	1.50	1.50
4925500.00 |	1.50	1.50	1.50	1.50
4924500.00 |	1.50	1.50	1.50	1.50
4923500.00 |	1.50	1.50	1.50	1.50
4922500.00 |	1.50	1.50	1.50	1.50
4921500.00 |	1.50	1.50	1.50	1.50
4920500.00 |	1.50	1.50	1.50	1.50
4919500.00 |	1.50	1.50	1.50	1.50
4918500.00 |	1.50	1.50	1.50	1.50
4917500.00 |	1.50	1.50	1.50	1.50
4916500.00 |	1.50	1.50	1.50	1.50
4915500.00 |	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(549600.0, 4916840.0, 1447.0, 1775.0, 1.5);

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

Surface station no.: 99999
Name: UNKNOWN
Year: 2012

Upper air station no.: 94043
Name: UNKNOWN
Year: 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													
12	08	01	214	01	-18.1	0.211	-9.000	-9.000	-999.	223.	37.3	0.23	0.83	1.00	2.70	174.	10.0 296.0 2.0
12	08	01	214	02	-14.9	0.173	-9.000	-9.000	-999.	166.	25.2	0.23	0.83	1.00	2.50	176.	10.0 295.8 2.0
12	08	01	214	03	-5.3	0.091	-9.000	-9.000	-999.	65.	10.3	0.38	0.83	1.00	1.50	131.	10.0 294.4 2.0
12	08	01	214	04	-7.4	0.109	-9.000	-9.000	-999.	83.	12.6	0.45	0.83	1.00	1.70	101.	10.0 293.0 2.0
12	08	01	214	05	-10.5	0.128	-9.000	-9.000	-999.	105.	14.4	0.38	0.83	1.00	2.10	120.	10.0 292.1 2.0
12	08	01	214	06	-5.1	0.222	-9.000	-9.000	-999.	240.	155.2	0.38	0.83	0.44	2.00	140.	10.0 292.9 2.0
12	08	01	214	07	12.2	0.281	0.259	0.005	41.	343.	-131.3	0.23	0.83	0.25	2.50	153.	10.0 294.5 2.0
12	08	01	214	08	28.5	0.217	0.476	0.005	108.	234.	-25.9	0.23	0.83	0.18	1.70	172.	10.0 295.6 2.0
12	08	01	214	09	73.2	0.247	1.007	0.005	401.	283.	-14.9	0.23	0.83	0.15	1.80	168.	10.0 295.6 2.0
12	08	01	214	10	219.8	0.370	1.919	0.005	927.	518.	-16.6	0.38	0.83	0.14	2.30	197.	10.0 297.8 2.0
12	08	01	214	11	240.9	0.399	2.217	0.005	1306.	580.	-19.0	0.43	0.83	0.14	2.40	240.	10.0 298.1 2.0
12	08	01	214	12	263.1	0.484	2.644	0.005	2028.	775.	-31.1	0.62	0.83	0.14	2.70	290.	10.0 298.6 2.0
12	08	01	214	13	260.4	0.373	2.774	0.005	2368.	532.	-14.3	0.75	0.83	0.14	1.70	347.	10.0 299.9 2.0
12	08	01	214	14	229.4	0.294	2.763	0.005	2652.	369.	-8.0	0.53	0.83	0.14	1.40	70.	10.0 298.1 2.0
12	08	01	214	15	211.2	0.280	2.850	0.005	3161.	340.	-7.4	0.65	0.83	0.14	1.20	34.	10.0 298.5 2.0
12	08	01	214	16	164.1	0.299	2.735	0.005	3594.	376.	-11.7	0.65	0.83	0.15	1.40	35.	10.0 297.2 2.0
12	08	01	214	17	112.1	0.353	2.466	0.005	3859.	482.	-28.2	0.65	0.83	0.17	1.90	50.	10.0 296.0 2.0
12	08	01	214	18	54.9	0.371	1.961	0.005	3961.	519.	-66.9	0.53	0.83	0.23	2.40	70.	10.0 294.1 2.0
12	08	01	214	19	4.6	0.378	0.857	0.005	3946.	535.	-848.3	0.45	0.83	0.40	2.90	91.	10.0 292.8 2.0
12	08	01	214	20	-17.2	0.196	-9.000	-9.000	-999.	224.	31.7	0.45	0.83	1.00	2.30	102.	10.0 290.6 2.0
12	08	01	214	21	-27.3	0.309	-9.000	-9.000	-999.	396.	78.2	0.45	0.83	1.00	2.90	108.	10.0 288.4 2.0
12	08	01	214	22	-9.4	0.122	-9.000	-9.000	-999.	130.	14.0	0.45	0.83	1.00	1.90	111.	10.0 287.5 2.0
12	08	01	214	23	-3.7	0.077	-9.000	-9.000	-999.	50.	8.8	0.45	0.83	1.00	1.20	116.	10.0 288.1 2.0
12	08	01	214	24	-3.7	0.077	-9.000	-9.000	-999.	49.	8.9	0.45	0.83	1.00	1.20	111.	10.0 291.2 2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	296.1	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	174.	2.70	296.6	9.2	-99.00	0.43	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** ***

*** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L

**

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD |	X-COORD (METERS)							
(METERS) |	543000.00	544000.00	545000.00	546000.00	547000.00	548000.00	549000.00	
550000.00 551000.00								

4936500.00 |	0.00095	0.00083	0.00078	0.00104	0.00082	0.00094	0.00083	0.00086
0.00079								
4935500.00 |	0.00109	0.00097	0.00100	0.00115	0.00105	0.00106	0.00101	0.00096
0.00078								
4934500.00 |	0.00126	0.00116	0.00131	0.00126	0.00134	0.00120	0.00117	0.00098
0.00071								
4933500.00 |	0.00147	0.00142	0.00173	0.00153	0.00161	0.00152	0.00130	0.00091
0.00063								
4932500.00 |	0.00177	0.00177	0.00226	0.00208	0.00195	0.00173	0.00121	0.00080
0.00055								
4931500.00 |	0.00217	0.00233	0.00288	0.00283	0.00241	0.00165	0.00102	0.00069
0.00058								
4930500.00 |	0.00268	0.00334	0.00419	0.00368	0.00246	0.00141	0.00095	0.00084
0.00081								
4929500.00 |	0.00321	0.00549	0.00655	0.00407	0.00214	0.00145	0.00129	0.00115
0.00094								
4928500.00 |	0.00427	0.01241	0.00805	0.00394	0.00264	0.00211	0.00155	0.00119
0.00104								
4927500.00 |	0.01049	0.03040	0.01137	0.00633	0.00377	0.00284	0.00225	0.00184
0.00152								
4926500.00 |	0.03573	0.00072	0.05433	0.00690	0.00348	0.00215	0.00149	0.00111
0.00086								
4925500.00 |	0.01076	0.02236	0.01316	0.00967	0.00516	0.00292	0.00188	0.00134
0.00104								
4924500.00 |	0.01050	0.00923	0.00999	0.00497	0.00376	0.00334	0.00241	0.00167
0.00124								
4923500.00 |	0.00437	0.00550	0.00538	0.00418	0.00288	0.00238	0.00199	0.00184
0.00143								
4922500.00 |	0.00296	0.00331	0.00344	0.00424	0.00275	0.00188	0.00151	0.00131
0.00129								
4921500.00 |	0.00210	0.00258	0.00233	0.00247	0.00262	0.00180	0.00134	0.00112
0.00101								
4920500.00 |	0.00168	0.00176	0.00154	0.00161	0.00221	0.00182	0.00135	0.00099
0.00088								
4919500.00 |	0.00138	0.00141	0.00128	0.00121	0.00133	0.00153	0.00117	0.00102
0.00076								
4918500.00 |	0.00114	0.00117	0.00107	0.00088	0.00098	0.00122	0.00115	0.00090
0.00082								
4917500.00 |	0.00096	0.00097	0.00090	0.00073	0.00085	0.00090	0.00106	0.00087
0.00073								

4916500.00 | 0.00081 0.00083 0.00077 0.00066 0.00071 0.00070 0.00086 0.00087
0.00069
4915500.00 | 0.00069 0.00072 0.00066 0.00062 0.00054 0.00059 0.00067 0.00079
0.00071
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/25/14
*** AERMET - VERSION 12345 *** *** 15:02:23

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	0.00063	0.00047	0.00036	0.00030
4935500.00 |	0.00057	0.00043	0.00034	0.00027
4934500.00 |	0.00052	0.00039	0.00030	0.00025
4933500.00 |	0.00046	0.00035	0.00032	0.00034
4932500.00 |	0.00043	0.00043	0.00044	0.00041
4931500.00 |	0.00058	0.00056	0.00050	0.00046
4930500.00 |	0.00072	0.00065	0.00056	0.00045
4929500.00 |	0.00074	0.00059	0.00054	0.00052
4928500.00 |	0.00094	0.00084	0.00075	0.00068
4927500.00 |	0.00127	0.00107	0.00091	0.00078
4926500.00 |	0.00068	0.00056	0.00047	0.00040
4925500.00 |	0.00083	0.00067	0.00056	0.00048
4924500.00 |	0.00094	0.00073	0.00060	0.00052
4923500.00 |	0.00110	0.00089	0.00074	0.00060
4922500.00 |	0.00122	0.00098	0.00080	0.00067
4921500.00 |	0.00092	0.00093	0.00088	0.00073
4920500.00 |	0.00076	0.00072	0.00069	0.00072
4919500.00 |	0.00071	0.00062	0.00059	0.00055
4918500.00 |	0.00062	0.00059	0.00052	0.00049
4917500.00 |	0.00066	0.00051	0.00051	0.00045
4916500.00 |	0.00061	0.00056	0.00044	0.00043
4915500.00 |	0.00056	0.00053	0.00047	0.00038

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/25/14
*** AERMET - VERSION 12345 *** *** 15:02:23

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN003 , 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-222 IN PCI/L

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
549600.00	4916840.00	0.00094			
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***					
08/25/14					
*** AERMET - VERSION 12345 *** ** 15:02:23					
PAGE 23					
**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL					

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00	
541000.00 542000.00								
4936500.00 |	0.00032	0.00026	0.00041	0.00028	0.00029	0.00039	0.00031	0.00048
0.00072								
4935500.00 |	0.00040	0.00037	0.00033	0.00044	0.00033	0.00043	0.00038	0.00053
0.00078								
4934500.00 |	0.00053	0.00049	0.00045	0.00044	0.00046	0.00040	0.00054	0.00052
0.00084								
4933500.00 |	0.00077	0.00070	0.00061	0.00055	0.00059	0.00051	0.00059	0.00056
0.00091								
4932500.00 |	0.00070	0.00092	0.00094	0.00079	0.00069	0.00076	0.00062	0.00082
0.00100								
4931500.00 |	0.00074	0.00085	0.00105	0.00128	0.00107	0.00090	0.00097	0.00093
0.00105								
4930500.00 |	0.00064	0.00073	0.00104	0.00127	0.00170	0.00160	0.00127	0.00129
0.00144								
4929500.00 |	0.00090	0.00096	0.00100	0.00112	0.00161	0.00222	0.00260	0.00199
0.00190								
4928500.00 |	0.00082	0.00102	0.00127	0.00159	0.00183	0.00204	0.00302	0.00451
0.00365								
4927500.00 |	0.00052	0.00066	0.00088	0.00119	0.00169	0.00249	0.00376	0.00539
0.00918								
4926500.00 |	0.00048	0.00056	0.00067	0.00082	0.00104	0.00138	0.00197	0.00315
0.00697								
4925500.00 |	0.00041	0.00049	0.00058	0.00071	0.00088	0.00127	0.00224	0.00391
0.00618								
4924500.00 |	0.00037	0.00045	0.00061	0.00094	0.00131	0.00162	0.00220	0.00309
0.00502								
4923500.00 |	0.00054	0.00073	0.00082	0.00087	0.00107	0.00157	0.00204	0.00261
0.00381								

4922500.00 | 0.00054 0.00054 0.00065 0.00087 0.00118 0.00147 0.00166 0.00232
0.00284
4921500.00 | 0.00045 0.00055 0.00074 0.00093 0.00110 0.00114 0.00151 0.00193
0.00212
4920500.00 | 0.00048 0.00063 0.00076 0.00085 0.00084 0.00107 0.00144 0.00138
0.00161
4919500.00 | 0.00054 0.00062 0.00068 0.00067 0.00078 0.00108 0.00120 0.00115
0.00118
4918500.00 | 0.00051 0.00056 0.00055 0.00058 0.00084 0.00093 0.00090 0.00110
0.00094
4917500.00 | 0.00047 0.00047 0.00044 0.00065 0.00075 0.00083 0.00067 0.00094
0.00077
4916500.00 | 0.00040 0.00035 0.00051 0.00064 0.00066 0.00067 0.00064 0.00073
0.00064
4915500.00 | 0.00029 0.00040 0.00055 0.00055 0.00062 0.00049 0.00069 0.00060
0.00055
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/25/14
*** AERMET - VERSION 12345 *** *** 15:02:23

**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD | X-COORD (METERS)
(METERS) | 543000.00 544000.00 545000.00 546000.00 547000.00 548000.00 549000.00
550000.00 551000.00

4936500.00 | 0.00093 0.00081 0.00076 0.00102 0.00079 0.00092 0.00080 0.00083
0.00077
4935500.00 | 0.00106 0.00094 0.00097 0.00112 0.00102 0.00103 0.00098 0.00093
0.00075
4934500.00 | 0.00123 0.00112 0.00127 0.00123 0.00130 0.00117 0.00114 0.00095
0.00068
4933500.00 | 0.00145 0.00137 0.00168 0.00148 0.00156 0.00147 0.00126 0.00087
0.00060
4932500.00 | 0.00174 0.00172 0.00219 0.00201 0.00190 0.00168 0.00115 0.00075
0.00053
4931500.00 | 0.00214 0.00227 0.00279 0.00273 0.00233 0.00158 0.00096 0.00065
0.00056
4930500.00 | 0.00263 0.00326 0.00406 0.00355 0.00235 0.00131 0.00089 0.00081
0.00078
4929500.00 | 0.00312 0.00539 0.00635 0.00387 0.00196 0.00137 0.00125 0.00111
0.00091
4928500.00 | 0.00410 0.01225 0.00765 0.00356 0.00247 0.00203 0.00148 0.00114
0.00101
4927500.00 | 0.01014 0.02975 0.00996 0.00577 0.00355 0.00271 0.00216 0.00177

4925500.00 |	0.00079	0.00064	0.00054	0.00046
4924500.00 |	0.00090	0.00070	0.00058	0.00051
4923500.00 |	0.00106	0.00086	0.00071	0.00058
4922500.00 |	0.00118	0.00095	0.00077	0.00065
4921500.00 |	0.00089	0.00090	0.00085	0.00070
4920500.00 |	0.00073	0.00069	0.00067	0.00070
4919500.00 |	0.00068	0.00059	0.00057	0.00053
4918500.00 |	0.00059	0.00057	0.00050	0.00048
4917500.00 |	0.00064	0.00049	0.00049	0.00043
4916500.00 |	0.00059	0.00054	0.00042	0.00041
4915500.00 |	0.00054	0.00051	0.00046	0.00036

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: MINE ***
INCLUDING SOURCE(S): 8T4FN003 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-222 IN PCI/L **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC

549600.00	4916840.00	0.00091			

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***

08/25/14

*** AERMET - VERSION 12345 *** *** 15:02:23

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: SPILE ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD |	X-COORD (METERS)						
(METERS) |	534000.00	535000.00	536000.00	537000.00	538000.00	539000.00	540000.00
541000.00	542000.00						

4936500.00 |	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001
0.00001								
4935500.00 |	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001
0.00002								
4934500.00 |	0.00002	0.00002	0.00001	0.00001	0.00001	0.00002	0.00001	0.00002
0.00001								
4933500.00	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site. ***
08/25/14
*** AERMET - VERSION 12345 *** *** *** 15:02:23
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**MODELOPTs:  NonDEFAULT CONC    ELEV    FLGPOL
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*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

e:///X/...ct Data/Rare%20Elements%20Bear%20Lodge/AERMOD/Reports/AERMOD%20Output%20PDF%20Reports/BL%20Rn-222.txt[9/22/2014 5:14:07 PM]

INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L

**

Y-COORD |	X-COORD (METERS)			
(METERS) |	552000.00	553000.00	554000.00	555000.00

4936500.00 |	0.00002	0.00002	0.00001	0.00001
4935500.00 |	0.00002	0.00002	0.00001	0.00001
4934500.00 |	0.00002	0.00002	0.00001	0.00001
4933500.00 |	0.00002	0.00002	0.00001	0.00001
4932500.00 |	0.00002	0.00001	0.00001	0.00001
4931500.00 |	0.00002	0.00002	0.00002	0.00001
4930500.00 |	0.00002	0.00002	0.00002	0.00002
4929500.00 |	0.00003	0.00002	0.00002	0.00001
4928500.00 |	0.00003	0.00003	0.00002	0.00002
4927500.00 |	0.00005	0.00004	0.00004	0.00003
4926500.00 |	0.00003	0.00002	0.00002	0.00001
4925500.00 |	0.00003	0.00002	0.00002	0.00002
4924500.00 |	0.00004	0.00003	0.00002	0.00002
4923500.00 |	0.00004	0.00003	0.00003	0.00002
4922500.00 |	0.00004	0.00004	0.00003	0.00002
4921500.00 |	0.00003	0.00003	0.00003	0.00003
4920500.00 |	0.00003	0.00002	0.00002	0.00002
4919500.00 |	0.00002	0.00002	0.00002	0.00002
4918500.00 |	0.00003	0.00002	0.00002	0.00002
4917500.00 |	0.00002	0.00002	0.00002	0.00001
4916500.00 |	0.00002	0.00002	0.00002	0.00001
4915500.00 |	0.00002	0.00002	0.00002	0.00001

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/25/14

*** AERMET - VERSION 12345 *** ***

15:02:23

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: SPILE ***

INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-222 IN PCI/L

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
-------------	-------------	------	-------------	-------------	------

549600.00	4916840.00	0.00002			
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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/25/14

*** AERMET - VERSION 12345 *** ***

15:02:23

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF RN-222 IN PCI/L

**

GROUP ID GRID-ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE				

ALL	1ST HIGHEST VALUE IS	0.05433	AT (	545000.00,	4926500.00,	1839.90, 2029.00, 1.50) GC
CB8IQ002	2ND HIGHEST VALUE IS	0.03573	AT (	543000.00,	4926500.00,	1910.00, 1970.00, 1.50) GC
CB8IQ002	3RD HIGHEST VALUE IS	0.03040	AT (	544000.00,	4927500.00,	1804.20, 1996.00, 1.50) GC
CB8IQ002	4TH HIGHEST VALUE IS	0.02236	AT (	544000.00,	4925500.00,	1919.00, 2029.00, 1.50) GC
CB8IQ002	5TH HIGHEST VALUE IS	0.01316	AT (	545000.00,	4925500.00,	1898.40, 2029.00, 1.50) GC
CB8IQ002	6TH HIGHEST VALUE IS	0.01241	AT (	544000.00,	4928500.00,	1823.60, 1857.80, 1.50) GC
CB8IQ002	7TH HIGHEST VALUE IS	0.01137	AT (	545000.00,	4927500.00,	1841.10, 1915.00, 1.50) GC
CB8IQ002	8TH HIGHEST VALUE IS	0.01076	AT (	543000.00,	4925500.00,	1943.10, 2023.00, 1.50) GC
CB8IQ002	9TH HIGHEST VALUE IS	0.01050	AT (	543000.00,	4924500.00,	1914.10, 2023.00, 1.50) GC
CB8IQ002	10TH HIGHEST VALUE IS	0.01049	AT (	543000.00,	4927500.00,	1872.00, 1952.00, 1.50) GC
CB8IQ002						
MINE	1ST HIGHEST VALUE IS	0.03549	AT (	543000.00,	4926500.00,	1910.00, 1970.00, 1.50) GC
CB8IQ002	2ND HIGHEST VALUE IS	0.02975	AT (	544000.00,	4927500.00,	1804.20, 1996.00, 1.50) GC
CB8IQ002	3RD HIGHEST VALUE IS	0.02178	AT (	544000.00,	4925500.00,	1919.00, 2029.00, 1.50) GC
CB8IQ002	4TH HIGHEST VALUE IS	0.01587	AT (	545000.00,	4926500.00,	1839.90, 2029.00, 1.50) GC
CB8IQ002	5TH HIGHEST VALUE IS	0.01225	AT (	544000.00,	4928500.00,	1823.60, 1857.80, 1.50) GC
CB8IQ002	6TH HIGHEST VALUE IS	0.01188	AT (	545000.00,	4925500.00,	1898.40, 2029.00, 1.50) GC
CB8IQ002	7TH HIGHEST VALUE IS	0.01068	AT (	543000.00,	4925500.00,	1943.10, 2023.00, 1.50) GC
CB8IQ002	8TH HIGHEST VALUE IS	0.01027	AT (	543000.00,	4924500.00,	1914.10, 2023.00, 1.50) GC
CB8IQ002	9TH HIGHEST VALUE IS	0.01014	AT (	543000.00,	4927500.00,	1872.00, 1952.00, 1.50) GC
CB8IQ002	10TH HIGHEST VALUE IS	0.00996	AT (	545000.00,	4927500.00,	1841.10, 1915.00, 1.50) GC
CB8IQ002						

SPILE 1ST HIGHEST VALUE IS 0.03846 AT (545000.00, 4926500.00, 1839.90, 2029.00, 1.50) GC
CB8IQ002
2ND HIGHEST VALUE IS 0.00141 AT (545000.00, 4927500.00, 1841.10, 1915.00, 1.50) GC
CB8IQ002
3RD HIGHEST VALUE IS 0.00128 AT (545000.00, 4925500.00, 1898.40, 2029.00, 1.50) GC
CB8IQ002
4TH HIGHEST VALUE IS 0.00108 AT (546000.00, 4926500.00, 1817.50, 1952.00, 1.50) GC
CB8IQ002
5TH HIGHEST VALUE IS 0.00085 AT (546000.00, 4925500.00, 1913.60, 1952.00, 1.50) GC
CB8IQ002
6TH HIGHEST VALUE IS 0.00072 AT (544000.00, 4926500.00, 1870.00, 2023.00, 1.50) GC
CB8IQ002
7TH HIGHEST VALUE IS 0.00065 AT (544000.00, 4927500.00, 1804.20, 1996.00, 1.50) GC
CB8IQ002
8TH HIGHEST VALUE IS 0.00059 AT (544000.00, 4925500.00, 1919.00, 2029.00, 1.50) GC
CB8IQ002
9TH HIGHEST VALUE IS 0.00056 AT (546000.00, 4927500.00, 1770.50, 1909.00, 1.50) GC
CB8IQ002
10TH HIGHEST VALUE IS 0.00044 AT (545000.00, 4924500.00, 1909.60, 2029.00, 1.50) GC
CB8IQ002

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Bear Lodge mine site.

08/25/14

*** AERMET - VERSION 12345 *** ***

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)

A Total of 11 Warning Message(s)

A Total of 114 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 34 Calm Hours Identified

A Total of 80 Missing Hours Identified (0.91 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

SO W320 25 OPARM: Input Parameter May Be Out-of-Range for Parameter ANGLE
RE W216 217 RECART: FLAG Input Inconsistent With Option: Defaults Used CB8IQ002

ME W396	231	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	236	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	237	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	238	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	239	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	240	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W565	241	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	242	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR
MX W481	8785	MAIN: Data Remaining After End of Year. Number of Hours=	24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***

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*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****
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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9
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```
CO STARTING
CO TITLEONE AERMOD run for the Upton site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID TSP
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED
```

```
SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN006 AREAPOLY 526050 4883900 1312.5
** SRCDESCR Tailings Pile
SO SRCPARAM 8T4FN006 3.5312E-07 17 5 0.5
SO AREAVERT 8T4FN006 526050.0 4883900.0 526700.0 4882500.0
SO AREAVERT 8T4FN006 527200.0 4882530.0 527200.0 4883000.0
SO AREAVERT 8T4FN006 526440.0 4883900.0
SO CONCUNIT 1.0E+06 Grams/sec Micrograms/m**3
SO SRCGROUP ALL
SO FINISHED
```

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RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Upton Mill
RE GRIDCART CB8IQ002 XYINC 516000 22 1000 4873000 22 1000
RE GRIDCART CB8IQ002 ELEV 1 1392.9 1407.3 1405.2 1429.1 1405.8 1364.2
RE GRIDCART CB8IQ002 ELEV 1 1359.4 1340.6 1322.6 1312.0 1300.5 1291.2
RE GRIDCART CB8IQ002 ELEV 1 1287.4 1308.5 1309.4 1313.2 1290.6 1275.0
RE GRIDCART CB8IQ002 ELEV 1 1257.1 1255.4 1262.0 1245.2
RE GRIDCART CB8IQ002 ELEV 2 1380.6 1422.7 1428.6 1436.2 1397.5 1374.4
```

RE GRIDCART CB8IQ002 ELEV	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 ELEV	2	1302.5	1283.6	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 ELEV	2	1270.9	1281.4	1266.3	1264.8		
RE GRIDCART CB8IQ002 ELEV	3	1388.1	1408.1	1437.2	1440.4	1378.1	1365.9
RE GRIDCART CB8IQ002 ELEV	3	1340.5	1329.4	1322.0	1325.3	1362.5	1332.6
RE GRIDCART CB8IQ002 ELEV	3	1300.3	1289.1	1272.7	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 ELEV	3	1301.4	1274.4	1254.0	1260.7		
RE GRIDCART CB8IQ002 ELEV	4	1418.8	1408.3	1410.8	1409.8	1365.4	1341.0
RE GRIDCART CB8IQ002 ELEV	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 ELEV	4	1283.2	1283.1	1276.0	1281.3	1289.2	1300.3
RE GRIDCART CB8IQ002 ELEV	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 ELEV	5	1375.3	1384.8	1393.6	1395.0	1361.0	1338.6
RE GRIDCART CB8IQ002 ELEV	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 ELEV	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 ELEV	5	1263.5	1271.1	1266.9	1273.9		
RE GRIDCART CB8IQ002 ELEV	6	1376.4	1382.7	1388.9	1405.1	1368.4	1338.9
RE GRIDCART CB8IQ002 ELEV	6	1331.6	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 ELEV	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 ELEV	6	1273.9	1281.4	1277.1	1292.3		
RE GRIDCART CB8IQ002 ELEV	7	1393.8	1392.2	1413.2	1408.3	1359.6	1354.3
RE GRIDCART CB8IQ002 ELEV	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 ELEV	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 ELEV	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 ELEV	8	1411.1	1424.8	1437.1	1421.1	1369.3	1360.9
RE GRIDCART CB8IQ002 ELEV	8	1354.7	1353.3	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 ELEV	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 ELEV	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 ELEV	9	1424.9	1429.9	1453.2	1421.4	1409.2	1370.6
RE GRIDCART CB8IQ002 ELEV	9	1381.5	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 ELEV	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 ELEV	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 ELEV	10	1434.4	1448.6	1444.3	1428.2	1401.4	1394.0
RE GRIDCART CB8IQ002 ELEV	10	1362.8	1341.5	1317.7	1308.8	1309.9	1301.6
RE GRIDCART CB8IQ002 ELEV	10	1289.2	1300.0	1286.9	1305.1	1294.1	1300.3
RE GRIDCART CB8IQ002 ELEV	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 ELEV	11	1391.7	1411.9	1442.3	1420.4	1413.6	1377.7
RE GRIDCART CB8IQ002 ELEV	11	1349.1	1345.9	1321.4	1309.0	1330.7	1289.9
RE GRIDCART CB8IQ002 ELEV	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 ELEV	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 ELEV	12	1387.0	1442.7	1424.1	1415.3	1378.4	1370.0
RE GRIDCART CB8IQ002 ELEV	12	1333.0	1329.5	1329.0	1328.3	1309.8	1295.1
RE GRIDCART CB8IQ002 ELEV	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 ELEV	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 ELEV	13	1418.4	1434.7	1402.5	1385.3	1355.1	1354.9
RE GRIDCART CB8IQ002 ELEV	13	1353.7	1342.6	1320.3	1344.8	1302.1	1299.0
RE GRIDCART CB8IQ002 ELEV	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 ELEV	13	1342.6	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 ELEV	14	1417.9	1382.9	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 ELEV	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 ELEV	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 ELEV	14	1349.5	1366.3	1360.4	1359.5		
RE GRIDCART CB8IQ002 ELEV	15	1367.7	1357.6	1355.2	1360.6	1336.5	1344.1
RE GRIDCART CB8IQ002 ELEV	15	1339.1	1359.7	1326.2	1320.3	1316.6	1302.9
RE GRIDCART CB8IQ002 ELEV	15	1305.7	1319.6	1334.8	1322.0	1333.8	1339.7

RE GRIDCART CB8IQ002 ELEV	15	1366.4	1373.3	1385.0	1383.2		
RE GRIDCART CB8IQ002 ELEV	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 ELEV	16	1373.6	1334.8	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 ELEV	16	1318.2	1332.2	1361.2	1351.7	1392.0	1362.5
RE GRIDCART CB8IQ002 ELEV	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 ELEV	17	1372.2	1354.3	1333.5	1323.9	1339.1	1323.9
RE GRIDCART CB8IQ002 ELEV	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 ELEV	17	1330.2	1349.4	1369.5	1409.4	1372.9	1372.1
RE GRIDCART CB8IQ002 ELEV	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 ELEV	18	1354.6	1354.5	1337.0	1332.0	1315.5	1309.9
RE GRIDCART CB8IQ002 ELEV	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 ELEV	18	1335.4	1354.8	1396.1	1393.0	1362.0	1374.0
RE GRIDCART CB8IQ002 ELEV	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 ELEV	19	1342.3	1332.9	1343.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 ELEV	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 ELEV	19	1348.1	1363.7	1399.9	1388.9	1369.7	1381.9
RE GRIDCART CB8IQ002 ELEV	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 ELEV	20	1316.6	1308.4	1346.3	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 ELEV	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2
RE GRIDCART CB8IQ002 ELEV	20	1355.6	1367.2	1395.5	1357.1	1369.8	1385.8
RE GRIDCART CB8IQ002 ELEV	20	1375.8	1363.0	1365.5	1389.4		
RE GRIDCART CB8IQ002 ELEV	21	1300.1	1321.4	1349.0	1340.5	1299.4	1299.1
RE GRIDCART CB8IQ002 ELEV	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1
RE GRIDCART CB8IQ002 ELEV	21	1339.1	1370.7	1386.3	1352.4	1375.4	1388.1
RE GRIDCART CB8IQ002 ELEV	21	1363.6	1368.5	1373.9	1387.0		
RE GRIDCART CB8IQ002 ELEV	22	1296.4	1312.2	1319.7	1304.2	1292.0	1286.2
RE GRIDCART CB8IQ002 ELEV	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2
RE GRIDCART CB8IQ002 ELEV	22	1326.9	1355.3	1346.4	1357.3	1359.3	1376.1
RE GRIDCART CB8IQ002 ELEV	22	1373.0	1374.8	1372.1	1388.2		
RE GRIDCART CB8IQ002 HILL	1	1392.9	1407.3	1405.2	1429.1	1441.0	1378.0
RE GRIDCART CB8IQ002 HILL	1	1359.4	1340.6	1322.6	1312.0	1318.0	1291.2
RE GRIDCART CB8IQ002 HILL	1	1287.4	1308.5	1314.0	1332.0	1290.6	1275.0
RE GRIDCART CB8IQ002 HILL	1	1257.1	1255.4	1262.0	1245.2		
RE GRIDCART CB8IQ002 HILL	2	1380.6	1427.0	1428.6	1452.0	1405.0	1374.4
RE GRIDCART CB8IQ002 HILL	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 HILL	2	1313.0	1289.0	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 HILL	2	1270.9	1281.4	1274.0	1264.8		
RE GRIDCART CB8IQ002 HILL	3	1388.1	1443.0	1437.2	1466.0	1382.0	1365.9
RE GRIDCART CB8IQ002 HILL	3	1340.5	1329.4	1322.0	1325.3	1362.5	1342.0
RE GRIDCART CB8IQ002 HILL	3	1300.3	1289.1	1282.0	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 HILL	3	1301.4	1306.0	1254.0	1260.7		
RE GRIDCART CB8IQ002 HILL	4	1418.8	1408.3	1410.8	1415.0	1373.0	1413.0
RE GRIDCART CB8IQ002 HILL	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 HILL	4	1283.2	1283.1	1276.0	1281.3	1289.2	1301.0
RE GRIDCART CB8IQ002 HILL	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 HILL	5	1375.3	1384.8	1393.6	1400.0	1375.0	1338.6
RE GRIDCART CB8IQ002 HILL	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 HILL	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 HILL	5	1263.5	1293.0	1266.9	1273.9		
RE GRIDCART CB8IQ002 HILL	6	1376.4	1382.7	1388.9	1405.1	1409.0	1338.9
RE GRIDCART CB8IQ002 HILL	6	1333.0	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 HILL	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 HILL	6	1273.9	1281.4	1277.1	1292.3		
RE GRIDCART CB8IQ002 HILL	7	1393.8	1392.2	1413.2	1419.0	1375.0	1354.3

RE GRIDCART CB8IQ002 HILL	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 HILL	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 HILL	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 HILL	8	1411.1	1433.0	1437.1	1423.0	1369.3	1367.0
RE GRIDCART CB8IQ002 HILL	8	1379.0	1366.0	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 HILL	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 HILL	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 HILL	9	1424.9	1429.9	1456.0	1423.0	1421.0	1421.0
RE GRIDCART CB8IQ002 HILL	9	1397.0	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 HILL	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 HILL	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 HILL	10	1453.0	1466.0	1445.0	1428.2	1443.0	1414.0
RE GRIDCART CB8IQ002 HILL	10	1362.8	1341.5	1317.7	1308.8	1309.9	1305.0
RE GRIDCART CB8IQ002 HILL	10	1289.2	1300.0	1286.9	1305.1	1312.0	1300.3
RE GRIDCART CB8IQ002 HILL	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 HILL	11	1400.0	1411.9	1455.0	1466.0	1413.6	1429.0
RE GRIDCART CB8IQ002 HILL	11	1349.1	1345.9	1321.4	1309.0	1343.0	1289.9
RE GRIDCART CB8IQ002 HILL	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 HILL	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 HILL	12	1387.0	1442.7	1424.1	1462.0	1391.0	1370.0
RE GRIDCART CB8IQ002 HILL	12	1333.0	1329.5	1329.0	1328.3	1318.0	1295.1
RE GRIDCART CB8IQ002 HILL	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 HILL	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 HILL	13	1458.0	1447.0	1431.0	1385.3	1367.0	1354.9
RE GRIDCART CB8IQ002 HILL	13	1353.7	1342.6	1320.3	1356.0	1302.1	1299.0
RE GRIDCART CB8IQ002 HILL	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 HILL	13	1353.0	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 HILL	14	1455.0	1393.0	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 HILL	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 HILL	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 HILL	14	1349.5	1375.0	1360.4	1359.5		
RE GRIDCART CB8IQ002 HILL	15	1367.7	1357.6	1368.0	1370.0	1336.5	1344.1
RE GRIDCART CB8IQ002 HILL	15	1339.1	1359.7	1371.0	1320.3	1319.0	1302.9
RE GRIDCART CB8IQ002 HILL	15	1305.7	1319.6	1354.0	1322.0	1333.8	1353.0
RE GRIDCART CB8IQ002 HILL	15	1366.4	1401.0	1388.0	1383.2		
RE GRIDCART CB8IQ002 HILL	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 HILL	16	1377.0	1389.0	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 HILL	16	1318.2	1332.2	1361.2	1379.0	1398.0	1367.0
RE GRIDCART CB8IQ002 HILL	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 HILL	17	1404.0	1354.3	1333.5	1323.9	1350.0	1323.9
RE GRIDCART CB8IQ002 HILL	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 HILL	17	1330.2	1349.4	1369.5	1409.4	1408.0	1372.1
RE GRIDCART CB8IQ002 HILL	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 HILL	18	1402.0	1354.5	1337.0	1338.0	1315.5	1309.9
RE GRIDCART CB8IQ002 HILL	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 HILL	18	1335.4	1354.8	1396.1	1393.0	1371.0	1374.0
RE GRIDCART CB8IQ002 HILL	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 HILL	19	1342.3	1332.9	1359.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 HILL	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 HILL	19	1348.1	1363.7	1399.9	1405.0	1369.7	1381.9
RE GRIDCART CB8IQ002 HILL	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 HILL	20	1316.6	1308.4	1361.0	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 HILL	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2
RE GRIDCART CB8IQ002 HILL	20	1355.6	1367.2	1395.5	1357.1	1377.0	1385.8

RE GRIDCART CB8IQ002 HILL	20	1375.8	1363.0	1365.5	1389.4						
RE GRIDCART CB8IQ002 HILL	21	1300.1	1321.4	1362.0	1347.0	1299.4	1299.1				
RE GRIDCART CB8IQ002 HILL	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1				
RE GRIDCART CB8IQ002 HILL	21	1361.0	1370.7	1398.0	1352.4	1379.0	1388.1				
RE GRIDCART CB8IQ002 HILL	21	1363.6	1368.5	1373.9	1387.0						
RE GRIDCART CB8IQ002 HILL	22	1296.4	1312.2	1345.0	1304.2	1292.0	1286.2				
RE GRIDCART CB8IQ002 HILL	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2				
RE GRIDCART CB8IQ002 HILL	22	1326.9	1387.0	1346.4	1361.0	1359.3	1376.1				
RE GRIDCART CB8IQ002 HILL	22	1373.0	1374.8	1372.1	1388.2						
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5								

RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5
RE GRIDCART CB8IQ002 END
RE DISCCART 529825 4883280 1297 1294.03 1.5
** RCPDESCR Upton (Whitetail & Ash)
RE FINISHED

ME STARTING
ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
ME PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
** PROFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
ME SURFDATA 99999 2012
ME UAIRDATA 94043 2012
ME SITEDATA 00000826 2012
ME PROFBASE 1308 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU SUMMFILE SUMMARYFILE.SUM
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000
OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10001
OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)

A Total of 4 Warning Message(s)
A Total of 0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396 291 MEOPEN: Met data from outdated version of AERMET, version: 12345
OU W565 296 PERPLT: Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565 297 OUPOST: Possible Conflict With Dynamically Allocated FUNIT POSTFILE
OU W540 298 OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period 720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Bear Lodge mine site. ***

07/17/14

*** AERMET - VERSION 12345 *** **

*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: TSP

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1308.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0

Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 07/17/14

*** AERMET - VERSION 12345 ***

*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER EMISSION RATE LOCATION OF AREA BASE RELEASE NUMBER INIT. URBAN
EMISSION RATE

SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF VERTS. SZ SOURCE SCALAR
VARY

ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) BY

8T4FN006 0 0.35312E-06 526050.0 4883900.0 1312.5 17.00 5 0.50 NO

*** AERMOD - VERSION 14134 *** AERMOD run for the Bear Lodge mine site.

07/17/14

*** AERMET - VERSION 12345 ***

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**MODELOPTs: CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL 8T4FN006 ,
*** AERMOD - VERSION 14134 *** ** AERMOD run for the Upton site. *** 07/17/14
*** AERMET - VERSION 12345 *** ***
*** 08:46:32
PAGE 4
**MODELOPTs: CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

516000.0, 517000.0, 518000.0, 519000.0, 520000.0, 521000.0, 522000.0, 523000.0, 524000.0, 525000.0,
526000.0, 527000.0, 528000.0, 529000.0, 530000.0, 531000.0, 532000.0, 533000.0, 534000.0, 535000.0,
536000.0, 537000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4873000.0, 4874000.0, 4875000.0, 4876000.0, 4877000.0, 4878000.0, 4879000.0, 4880000.0, 4881000.0,
4882000.0,
4883000.0, 4884000.0, 4885000.0, 4886000.0, 4887000.0, 4888000.0, 4889000.0, 4890000.0, 4891000.0,
4892000.0,
4893000.0, 4894000.0,

*** AERMOD - VERSION 14134 *** ** AERMOD run for the Upton site. *** 07/17/14
*** AERMET - VERSION 12345 *** ***
*** 08:46:32
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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS)|	X-COORD (METERS)							
	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00 524000.00								

4894000.00 | 1315.80	1296.40	1312.20	1319.70	1304.20	1292.00	1286.20	1295.30	1290.00
4893000.00 | 1311.00	1300.10	1321.40	1349.00	1340.50	1299.40	1299.10	1303.90	1292.80
4892000.00 | 1299.90	1316.60	1308.40	1346.30	1324.30	1306.10	1305.10	1305.50	1298.50
4891000.00 | 1303.00	1342.30	1332.90	1343.00	1323.10	1317.10	1312.90	1303.00	1301.00
4890000.00 | 1316.10	1354.60	1354.50	1337.00	1332.00	1315.50	1309.90	1312.30	1319.10
4889000.00 | 1341.60	1372.20	1354.30	1333.50	1323.90	1339.10	1323.90	1317.70	1342.50
4888000.00 | 1329.10	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1373.60	1334.80

4887000.00 |	1367.70	1357.60	1355.20	1360.60	1336.50	1344.10	1339.10	1359.70
1326.20								
4886000.00 |	1417.90	1382.90	1365.60	1349.60	1341.80	1366.70	1349.90	1331.30
1344.60								
4885000.00 |	1418.40	1434.70	1402.50	1385.30	1355.10	1354.90	1353.70	1342.60
1320.30								
4884000.00 |	1387.00	1442.70	1424.10	1415.30	1378.40	1370.00	1333.00	1329.50
1329.00								
4883000.00 |	1391.70	1411.90	1442.30	1420.40	1413.60	1377.70	1349.10	1345.90
1321.40								
4882000.00 |	1434.40	1448.60	1444.30	1428.20	1401.40	1394.00	1362.80	1341.50
1317.70								
4881000.00 |	1424.90	1429.90	1453.20	1421.40	1409.20	1370.60	1381.50	1342.90
1322.10								
4880000.00 |	1411.10	1424.80	1437.10	1421.10	1369.30	1360.90	1354.70	1353.30
1327.40								
4879000.00 |	1393.80	1392.20	1413.20	1408.30	1359.60	1354.30	1340.10	1327.90
1335.20								
4878000.00 |	1376.40	1382.70	1388.90	1405.10	1368.40	1338.90	1331.60	1336.70
1312.00								
4877000.00 |	1375.30	1384.80	1393.60	1395.00	1361.00	1338.60	1321.30	1324.80
1317.00								
4876000.00 |	1418.80	1408.30	1410.80	1409.80	1365.40	1341.00	1325.50	1321.60
1316.00								
4875000.00 |	1388.10	1408.10	1437.20	1440.40	1378.10	1365.90	1340.50	1329.40
1322.00								
4874000.00 |	1380.60	1422.70	1428.60	1436.20	1397.50	1374.40	1346.50	1333.70
1316.40								
4873000.00 |	1392.90	1407.30	1405.20	1429.10	1405.80	1364.20	1359.40	1340.60
1322.60								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	07/17/14
*** AERMET - VERSION 12345 ***	***	***					***	08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00	533000.00							

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1355.30	1346.40	1357.30	1359.30
1376.10								
4893000.00 |	1318.00	1332.10	1346.10	1339.10	1370.70	1386.30	1352.40	1375.40
1388.10								
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10	1369.80
1385.80								
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1388.90	1369.70
1381.90								
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00	1362.00
1374.00								

4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40	1372.90
1372.10								
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1351.70	1392.00
1362.50								
4887000.00 |	1320.30	1316.60	1302.90	1305.70	1319.60	1334.80	1322.00	1333.80
1339.70								
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40	1321.70
1331.90								
4885000.00 |	1344.80	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60	1311.80
1320.20								
4884000.00 |	1328.30	1309.80	1295.10	1291.10	1287.90	1306.90	1323.70	1303.00
1323.10								
4883000.00 |	1309.00	1330.70	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1301.60	1289.20	1300.00	1286.90	1305.10	1294.10
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1300.30								
4875000.00 |	1325.30	1362.50	1332.60	1300.30	1289.10	1272.70	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1302.50	1283.60	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1300.50	1291.20	1287.40	1308.50	1309.40	1313.20	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	07/17/14
*** AERMET - VERSION 12345 ***	***	***				***	08:46:32	

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80

4887000.00 |	1366.40	1373.30	1385.00	1383.20
4886000.00 |	1349.50	1366.30	1360.40	1359.50
4885000.00 |	1342.60	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1271.10	1266.90	1273.90
4876000.00 |	1269.40	1258.70	1272.20	1266.20
4875000.00 |	1301.40	1274.40	1254.00	1260.70
4874000.00 |	1270.90	1281.40	1266.30	1264.80
4873000.00 |	1257.10	1255.40	1262.00	1245.20

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 07/17/14

*** AERMET - VERSION 12345 *** *** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00 524000.00								

4894000.00 |	1296.40	1312.20	1345.00	1304.20	1292.00	1286.20	1295.30	1290.00
1315.80								
4893000.00 |	1300.10	1321.40	1362.00	1347.00	1299.40	1299.10	1303.90	1292.80
1311.00								
4892000.00 |	1316.60	1308.40	1361.00	1324.30	1306.10	1305.10	1305.50	1298.50
1299.90								
4891000.00 |	1342.30	1332.90	1359.00	1323.10	1317.10	1312.90	1303.00	1301.00
1303.00								
4890000.00 |	1402.00	1354.50	1337.00	1338.00	1315.50	1309.90	1312.30	1319.10
1316.10								
4889000.00 |	1404.00	1354.30	1333.50	1323.90	1350.00	1323.90	1317.70	1342.50
1341.60								
4888000.00 |	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1377.00	1389.00
1329.10								
4887000.00 |	1367.70	1357.60	1368.00	1370.00	1336.50	1344.10	1339.10	1359.70
1371.00								
4886000.00 |	1455.00	1393.00	1365.60	1349.60	1341.80	1366.70	1349.90	1331.30
1344.60								
4885000.00 |	1458.00	1447.00	1431.00	1385.30	1367.00	1354.90	1353.70	1342.60
1320.30								
4884000.00 |	1387.00	1442.70	1424.10	1462.00	1391.00	1370.00	1333.00	1329.50
1329.00								
4883000.00 |	1400.00	1411.90	1455.00	1466.00	1413.60	1429.00	1349.10	1345.90
1321.40								
4882000.00 |	1453.00	1466.00	1445.00	1428.20	1443.00	1414.00	1362.80	1341.50

1317.70
4881000.00 | 1424.90 1429.90 1456.00 1423.00 1421.00 1421.00 1397.00 1342.90
1322.10
4880000.00 | 1411.10 1433.00 1437.10 1423.00 1369.30 1367.00 1379.00 1366.00
1327.40
4879000.00 | 1393.80 1392.20 1413.20 1419.00 1375.00 1354.30 1340.10 1327.90
1335.20
4878000.00 | 1376.40 1382.70 1388.90 1405.10 1409.00 1338.90 1333.00 1336.70
1312.00
4877000.00 | 1375.30 1384.80 1393.60 1400.00 1375.00 1338.60 1321.30 1324.80
1317.00
4876000.00 | 1418.80 1408.30 1410.80 1415.00 1373.00 1413.00 1325.50 1321.60
1316.00
4875000.00 | 1388.10 1443.00 1437.20 1466.00 1382.00 1365.90 1340.50 1329.40
1322.00
4874000.00 | 1380.60 1427.00 1428.60 1452.00 1405.00 1374.40 1346.50 1333.70
1316.40
4873000.00 | 1392.90 1407.30 1405.20 1429.10 1441.00 1378.00 1359.40 1340.60
1322.60
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 07/17/14
*** AERMET - VERSION 12345 *** *** *** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00
532000.00 533000.00							

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1387.00	1346.40	1361.00 1359.30
1376.10							
4893000.00 |	1318.00	1332.10	1346.10	1361.00	1370.70	1398.00	1352.40 1379.00
1388.10							
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10 1377.00
1385.80							
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1405.00 1369.70
1381.90							
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00 1371.00
1374.00							
4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40 1408.00
1372.10							
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1379.00 1398.00
1367.00							
4887000.00 |	1320.30	1319.00	1302.90	1305.70	1319.60	1354.00	1322.00 1333.80
1353.00							
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40 1321.70
1331.90							
4885000.00 |	1356.00	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60 1311.80
1320.20							
4884000.00 |	1328.30	1318.00	1295.10	1291.10	1287.90	1306.90	1323.70 1303.00

1323.10								
4883000.00 |	1309.00	1343.00	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1305.00	1289.20	1300.00	1286.90	1305.10	1312.00
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1301.00								
4875000.00 |	1325.30	1362.50	1342.00	1300.30	1289.10	1282.00	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1313.00	1289.00	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1318.00	1291.20	1287.40	1308.50	1314.00	1332.00	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	07/17/14
*** AERMET - VERSION 12345 ***	***	***				***	08:46:32	

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80
4887000.00 |	1366.40	1401.00	1388.00	1383.20
4886000.00 |	1349.50	1375.00	1360.40	1359.50
4885000.00 |	1353.00	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1293.00	1266.90	1273.90

4876000.00 |	1269.40	1258.70	1272.20	1266.20
4875000.00 |	1301.40	1306.00	1254.00	1260.70
4874000.00 |	1270.90	1281.40	1274.00	1264.80
4873000.00 |	1257.10	1255.40	1262.00	1245.20

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site.

*** 07/17/14

*** AERMET - VERSION 12345 *** ***

*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00	524000.00							

4894000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4893000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site.

*** 07/17/14

*** AERMET - VERSION 12345 *** ***

*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)						
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00
532000.00	533000.00						

4894000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4893000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 07/17/14

*** AERMET - VERSION 12345 *** *** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00	1.50	1.50	1.50	1.50
4893000.00	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50

*** 07/17/14
*** 08:46:32

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**MODELOPTs: CONC ELEV ELGPOL

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(529825.0, 4883280.0, 1297.0, 1294.0, 1.5);

*** 07/17/14
*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

[illegible]

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** 07/17/14
*** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

```

Surface file:  X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC           Met Version: 12345
Profile file:  X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET DATA\RER_UPTON.PFL
Surface format: FREE
Profile format: FREE
Surface station no.:  99999           Upper air station no.:  94043
      Name: UNKNOWN           Name: UNKNOWN
      Year: 2012           Year: 2012

```

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													
12	08	01	214	01	-0.6	0.027	-9.000	-9.000	-999.	10.	2.7	0.13	2.63	1.00	0.60	163.	10.0 292.4 2.0
12	08	01	214	02	-0.8	0.032	-9.000	-9.000	-999.	13.	3.1	0.13	2.63	1.00	0.70	158.	10.0 292.1 2.0
12	08	01	214	03	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	160.	10.0 292.4 2.0
12	08	01	214	04	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	170.	10.0 292.2 2.0
12	08	01	214	05	-1.7	0.046	-9.000	-9.000	-999.	23.	4.5	0.13	2.63	1.00	1.00	337.	10.0 292.9 2.0
12	08	01	214	06	-0.3	0.025	-9.000	-9.000	-999.	9.	4.7	0.19	2.63	0.50	0.50	48.	10.0 293.5 2.0
12	08	01	214	07	2.6	0.137	0.116	0.005	18.	116.	-74.9	0.12	2.63	0.31	1.40	232.	10.0 294.6 2.0
12	08	01	214	08	18.3	0.157	0.322	0.005	56.	144.	-16.5	0.12	2.63	0.24	1.40	205.	10.0 296.1 2.0
12	08	01	214	09	40.9	0.168	0.565	0.005	136.	159.	-9.0	0.15	2.63	0.21	1.30	150.	10.0 296.0 2.0
12	08	01	214	10	25.5	0.163	0.610	0.005	275.	152.	-13.2	0.13	2.63	0.20	1.40	152.	10.0 295.5 2.0
12	08	01	214	11	142.7	0.267	1.557	0.005	822.	317.	-10.4	0.15	2.63	0.20	2.10	149.	10.0 297.1 2.0
12	08	01	214	12	346.7	0.312	2.370	0.005	1194.	401.	-6.8	0.15	2.63	0.20	2.30	140.	10.0 302.9 2.0
12	08	01	214	13	413.6	0.263	3.053	0.005	2142.	311.	-3.4	0.19	2.63	0.20	1.60	53.	10.0 305.9 2.0
12	08	01	214	14	395.2	0.379	3.229	0.005	2648.	536.	-10.7	0.13	2.63	0.20	3.10	333.	10.0 307.1 2.0
12	08	01	214	15	348.8	0.425	3.394	0.005	3487.	637.	-17.0	0.13	2.63	0.20	3.70	348.	10.0 306.9 2.0
12	08	01	214	16	252.3	0.431	3.190	0.005	4000.	650.	-24.5	0.13	2.63	0.21	3.90	350.	10.0 306.1 2.0
12	08	01	214	17	177.6	0.371	2.838	0.005	4000.	521.	-22.2	0.14	2.63	0.23	3.30	16.	10.0 304.9 2.0
12	08	01	214	18	80.7	0.364	2.183	0.005	4000.	506.	-46.4	0.19	2.63	0.29	3.20	54.	10.0 302.9 2.0
12	08	01	214	19	9.9	0.275	1.085	0.005	4000.	334.	-161.8	0.19	2.63	0.46	2.60	50.	10.0 301.0 2.0
12	08	01	214	20	-10.0	0.116	-9.000	-9.000	-999.	111.	11.9	0.19	2.63	1.00	2.30	43.	10.0 298.9 2.0
12	08	01	214	21	-10.1	0.116	-9.000	-9.000	-999.	90.	11.9	0.19	2.63	1.00	2.30	44.	10.0 296.8 2.0
12	08	01	214	22	-7.9	0.102	-9.000	-9.000	-999.	75.	10.6	0.20	2.63	1.00	2.00	80.	10.0 294.6 2.0
12	08	01	214	23	-5.7	0.087	-9.000	-9.000	-999.	59.	8.9	0.20	2.63	1.00	1.70	68.	10.0 292.9 2.0
12	08	01	214	24	-0.4	0.024	-9.000	-9.000	-999.	11.	2.4	0.15	2.63	1.00	0.50	144.	10.0 291.9 2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	292.5	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	163.	0.60	293.6	28.8	-99.00	0.27	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 07/17/14
*** AERMET - VERSION 12345 *** *** *** 08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD | X-COORD (METERS)
(METERS)| 516000.00 517000.00 518000.00 519000.00 520000.00 521000.00 522000.00
523000.00 524000.00

4894000.00 |	0.02892	0.04289	0.06607	0.07705	0.10276	0.15006	0.20104	0.23032
0.22531								
4893000.00 |	0.02924	0.04047	0.02158	0.05695	0.08829	0.13374	0.20255	0.23973
0.28123								
4892000.00 |	0.03326	0.03543	0.02172	0.06359	0.07624	0.11410	0.18441	0.24102
0.26116								
4891000.00 |	0.02045	0.03808	0.02718	0.05317	0.06535	0.10199	0.14444	0.22881
0.29615								
4890000.00 |	0.00604	0.00838	0.03598	0.05667	0.05043	0.07441	0.12927	0.26076
0.35610								
4889000.00 |	0.00214	0.00637	0.03418	0.04696	0.04561	0.07535	0.10031	0.11625
0.20669								
4888000.00 |	0.00270	0.00902	0.02123	0.03540	0.05501	0.06681	0.01357	0.20100
0.51997								
4887000.00 |	0.00156	0.00327	0.00376	0.00354	0.02876	0.02334	0.05448	0.01976
0.49493								
4886000.00 |	0.00053	0.00078	0.00174	0.00628	0.01453	0.00392	0.01056	0.10928
0.04716								
4885000.00 |	0.00048	0.00052	0.00065	0.00098	0.00269	0.00374	0.00508	0.01987
0.07768								
4884000.00 |	0.00076	0.00058	0.00068	0.00073	0.00110	0.00158	0.03307	0.05426
0.08667								
4883000.00 |	0.00065	0.00067	0.00068	0.00080	0.00099	0.00149	0.00463	0.00668
0.03589								
4882000.00 |	0.00065	0.00071	0.00082	0.00097	0.00118	0.00147	0.00345	0.01426
0.03212								
4881000.00 |	0.00075	0.00080	0.00081	0.00105	0.00135	0.00282	0.00312	0.01474
0.04050								
4880000.00 |	0.00081	0.00079	0.00089	0.00133	0.00346	0.00436	0.00548	0.00764
0.04553								
4879000.00 |	0.00137	0.00167	0.00145	0.00144	0.00341	0.00529	0.01651	0.03175
0.03182								
4878000.00 |	0.00209	0.00183	0.00163	0.00145	0.00243	0.01532	0.02337	0.02224
0.02685								
4877000.00 |	0.00183	0.00146	0.00138	0.00161	0.00389	0.01495	0.02026	0.02631
0.02669								
4876000.00 |	0.00089	0.00111	0.00132	0.00168	0.00436	0.01244	0.02062	0.02328
0.02632								
4875000.00 |	0.00116	0.00115	0.00129	0.00153	0.00347	0.00416	0.01367	0.02568
0.03075								
4874000.00 |	0.00157	0.00123	0.00149	0.00156	0.00210	0.00314	0.00913	0.02313
0.02539								
4873000.00 |	0.00161	0.00164	0.00193	0.00144	0.00156	0.00366	0.00418	0.01663
0.02676								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	07/17/14
*** AERMET - VERSION 12345 ***	***	***					***	08:46:32

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**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 | 0.00106	0.17591	0.10102	0.07617	0.05822	0.00824	0.01159	0.00365	0.00259
4893000.00 | 0.00092	0.18363	0.15430	0.03590	0.03991	0.00448	0.00136	0.00490	0.00115
4892000.00 | 0.00128	0.18134	0.13736	0.08709	0.01321	0.00439	0.00135	0.00320	0.00137
4891000.00 | 0.00168	0.20966	0.15493	0.10980	0.02005	0.00447	0.00123	0.00094	0.00199
4890000.00 | 0.00202	0.27270	0.16314	0.15049	0.05781	0.00604	0.00127	0.00126	0.00286
4889000.00 | 0.00179	0.59035	0.19803	0.10719	0.08355	0.00786	0.00224	0.00132	0.00178
4888000.00 | 0.00195	0.43264	0.26444	0.11699	0.05342	0.04908	0.00359	0.00446	0.00125
4887000.00 | 0.01123	0.56107	0.33553	0.10956	0.03830	0.03243	0.03418	0.01881	0.02035
4886000.00 | 0.01590	0.30865	0.36653	0.11092	0.02956	0.02352	0.02010	0.01411	0.01821
4885000.00 | 0.01305	0.05621	0.40789	0.10205	0.02470	0.01779	0.02710	0.01406	0.01304
4884000.00 | 0.02366	0.21187	0.29298	0.07430	0.02387	0.02062	0.02124	0.03105	0.01796
4883000.00 | 0.02542	0.03097	0.50163	0.54102	0.04786	0.04175	0.03582	0.03826	0.02612
4882000.00 | 0.02849	0.04717	0.06664	0.26776	0.17796	0.07840	0.05036	0.04443	0.03280
4881000.00 | 0.03363	0.05950	0.05847	0.43116	0.28999	0.14646	0.07884	0.04965	0.04137
4880000.00 | 0.03713	0.03931	0.04601	0.09223	0.19843	0.20839	0.11352	0.07336	0.04890
4879000.00 | 0.04862	0.05174	0.04795	0.07353	0.12554	0.19652	0.14584	0.09131	0.06557
4878000.00 | 0.05862	0.05732	0.04246	0.06967	0.09147	0.15305	0.19092	0.11145	0.07631
4877000.00 | 0.06515	0.02884	0.03665	0.05267	0.07676	0.11887	0.14005	0.13004	0.09490
4876000.00 | 0.08143	0.03943	0.04456	0.04849	0.06287	0.09299	0.12365	0.12083	0.09842
4875000.00 | 0.07893	0.03981	0.00859	0.07473	0.05885	0.07604	0.10776	0.11172	0.10105
4874000.00 | 0.08385	0.03124	0.04121	0.04913	0.05367	0.06368	0.09130	0.10429	0.09848
4873000.00 | 0.08719	0.02834	0.02949	0.03542	0.04551	0.06475	0.09232	0.12027	0.09763

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site.

*** 07/17/14

**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF TSP IN MICROGRAMS/M**3 **

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	0.00137	0.00167	0.00163	0.00080
4893000.00 |	0.00244	0.00197	0.00129	0.00081
4892000.00 |	0.00189	0.00186	0.00143	0.00091
4891000.00 |	0.00165	0.00154	0.00136	0.00085
4890000.00 |	0.00151	0.00127	0.00095	0.00062
4889000.00 |	0.00130	0.00111	0.00091	0.00072
4888000.00 |	0.00107	0.00082	0.00101	0.00075
4887000.00 |	0.00183	0.00120	0.00105	0.00110
4886000.00 |	0.00338	0.00179	0.00227	0.00231
4885000.00 |	0.00691	0.00250	0.00709	0.00366
4884000.00 |	0.01894	0.00678	0.01887	0.00904
4883000.00 |	0.03266	0.02401	0.01896	0.02127
4882000.00 |	0.02527	0.02466	0.02230	0.02233
4881000.00 |	0.02910	0.02614	0.02509	0.02858
4880000.00 |	0.03160	0.02926	0.02898	0.02814
4879000.00 |	0.03667	0.02866	0.02593	0.02581
4878000.00 |	0.04689	0.03569	0.02765	0.02476
4877000.00 |	0.05283	0.04438	0.03514	0.02768
4876000.00 |	0.05669	0.04793	0.04195	0.03457
4875000.00 |	0.07081	0.05035	0.04370	0.03920
4874000.00 |	0.06705	0.05624	0.04471	0.04017
4873000.00 |	0.07068	0.05790	0.04873	0.03999

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 07/17/14
*** AERMET - VERSION 12345 *** *** *** 08:46:32

**MODELOPTs: CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF TSP IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC

529825.00	4883280.00	0.03148			

**MODELOPTs: CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF TSP IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
----------	--------------	--

ALL	1ST HIGHEST VALUE IS	0.59035 AT (525000.00, 4889000.00, 1332.00, 1332.00, 1.50) GC
CB8IQ002	2ND HIGHEST VALUE IS	0.56107 AT (525000.00, 4887000.00, 1320.30, 1320.30, 1.50) GC
CB8IQ002	3RD HIGHEST VALUE IS	0.54102 AT (527000.00, 4883000.00, 1289.90, 1289.90, 1.50) GC
CB8IQ002	4TH HIGHEST VALUE IS	0.51997 AT (524000.00, 4888000.00, 1329.10, 1329.10, 1.50) GC
CB8IQ002	5TH HIGHEST VALUE IS	0.50163 AT (526000.00, 4883000.00, 1330.70, 1343.00, 1.50) GC
CB8IQ002	6TH HIGHEST VALUE IS	0.49493 AT (524000.00, 4887000.00, 1326.20, 1371.00, 1.50) GC
CB8IQ002	7TH HIGHEST VALUE IS	0.43264 AT (525000.00, 4888000.00, 1337.10, 1337.10, 1.50) GC
CB8IQ002	8TH HIGHEST VALUE IS	0.43116 AT (527000.00, 4881000.00, 1324.90, 1324.90, 1.50) GC
CB8IQ002	9TH HIGHEST VALUE IS	0.40789 AT (526000.00, 4885000.00, 1302.10, 1302.10, 1.50) GC
CB8IQ002	10TH HIGHEST VALUE IS	0.36653 AT (526000.00, 4886000.00, 1300.00, 1300.00, 1.50) GC

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

**MODELOPTs: CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of	0 Fatal Error Message(s)
A Total of	5 Warning Message(s)
A Total of	133 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 54 Calm Hours Identified

A Total of 79 Missing Hours Identified (0.90 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396 291 MEOPEN: Met data from outdated version of AERMET, version: 12345
OU W565 296 PERPLT: Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565 297 OUPOST: Possible Conflict With Dynamically Allocated FUNIT POSTFILE
OU W540 298 OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period 720-HR
MX W481 8785 MAIN: Data Remaining After End of Year. Number of Hours= 24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***

```

*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****

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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9

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CO STARTING
CO TITLEONE AERMOD run for the Upton site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID RN-220
CO HALFLIFE 55.6
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED

```

```

SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN006 AREAPOLY 526050 4883900 1312.5
** SRCDESCR Tailings Pile
SO SRCPARAM 8T4FN006 1.763E-18 17 5 0.5
SO AREAVERT 8T4FN006 526050.0 4883900.0 526700.0 4882500.0
SO AREAVERT 8T4FN006 527200.0 4882530.0 527200.0 4883000.0
SO AREAVERT 8T4FN006 526440.0 4883900.0
SO CONCUNIT 9.329E17 G/SM2 PCI/L
SO SRCGROUP ALL
SO FINISHED

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RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Upton Mill
RE GRIDCART CB8IQ002 XYINC 516000 22 1000 4873000 22 1000
RE GRIDCART CB8IQ002 ELEV 1 1392.9 1407.3 1405.2 1429.1 1405.8 1364.2
RE GRIDCART CB8IQ002 ELEV 1 1359.4 1340.6 1322.6 1312.0 1300.5 1291.2
RE GRIDCART CB8IQ002 ELEV 1 1287.4 1308.5 1309.4 1313.2 1290.6 1275.0
RE GRIDCART CB8IQ002 ELEV 1 1257.1 1255.4 1262.0 1245.2

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RE GRIDCART CB8IQ002 ELEV	2	1380.6	1422.7	1428.6	1436.2	1397.5	1374.4
RE GRIDCART CB8IQ002 ELEV	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 ELEV	2	1302.5	1283.6	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 ELEV	2	1270.9	1281.4	1266.3	1264.8		
RE GRIDCART CB8IQ002 ELEV	3	1388.1	1408.1	1437.2	1440.4	1378.1	1365.9
RE GRIDCART CB8IQ002 ELEV	3	1340.5	1329.4	1322.0	1325.3	1362.5	1332.6
RE GRIDCART CB8IQ002 ELEV	3	1300.3	1289.1	1272.7	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 ELEV	3	1301.4	1274.4	1254.0	1260.7		
RE GRIDCART CB8IQ002 ELEV	4	1418.8	1408.3	1410.8	1409.8	1365.4	1341.0
RE GRIDCART CB8IQ002 ELEV	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 ELEV	4	1283.2	1283.1	1276.0	1281.3	1289.2	1300.3
RE GRIDCART CB8IQ002 ELEV	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 ELEV	5	1375.3	1384.8	1393.6	1395.0	1361.0	1338.6
RE GRIDCART CB8IQ002 ELEV	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 ELEV	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 ELEV	5	1263.5	1271.1	1266.9	1273.9		
RE GRIDCART CB8IQ002 ELEV	6	1376.4	1382.7	1388.9	1405.1	1368.4	1338.9
RE GRIDCART CB8IQ002 ELEV	6	1331.6	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 ELEV	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 ELEV	6	1273.9	1281.4	1277.1	1292.3		
RE GRIDCART CB8IQ002 ELEV	7	1393.8	1392.2	1413.2	1408.3	1359.6	1354.3
RE GRIDCART CB8IQ002 ELEV	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 ELEV	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 ELEV	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 ELEV	8	1411.1	1424.8	1437.1	1421.1	1369.3	1360.9
RE GRIDCART CB8IQ002 ELEV	8	1354.7	1353.3	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 ELEV	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 ELEV	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 ELEV	9	1424.9	1429.9	1453.2	1421.4	1409.2	1370.6
RE GRIDCART CB8IQ002 ELEV	9	1381.5	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 ELEV	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 ELEV	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 ELEV	10	1434.4	1448.6	1444.3	1428.2	1401.4	1394.0
RE GRIDCART CB8IQ002 ELEV	10	1362.8	1341.5	1317.7	1308.8	1309.9	1301.6
RE GRIDCART CB8IQ002 ELEV	10	1289.2	1300.0	1286.9	1305.1	1294.1	1300.3
RE GRIDCART CB8IQ002 ELEV	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 ELEV	11	1391.7	1411.9	1442.3	1420.4	1413.6	1377.7
RE GRIDCART CB8IQ002 ELEV	11	1349.1	1345.9	1321.4	1309.0	1330.7	1289.9
RE GRIDCART CB8IQ002 ELEV	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 ELEV	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 ELEV	12	1387.0	1442.7	1424.1	1415.3	1378.4	1370.0
RE GRIDCART CB8IQ002 ELEV	12	1333.0	1329.5	1329.0	1328.3	1309.8	1295.1
RE GRIDCART CB8IQ002 ELEV	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 ELEV	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 ELEV	13	1418.4	1434.7	1402.5	1385.3	1355.1	1354.9
RE GRIDCART CB8IQ002 ELEV	13	1353.7	1342.6	1320.3	1344.8	1302.1	1299.0
RE GRIDCART CB8IQ002 ELEV	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 ELEV	13	1342.6	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 ELEV	14	1417.9	1382.9	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 ELEV	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 ELEV	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 ELEV	14	1349.5	1366.3	1360.4	1359.5		
RE GRIDCART CB8IQ002 ELEV	15	1367.7	1357.6	1355.2	1360.6	1336.5	1344.1
RE GRIDCART CB8IQ002 ELEV	15	1339.1	1359.7	1326.2	1320.3	1316.6	1302.9

RE GRIDCART CB8IQ002 ELEV	15	1305.7	1319.6	1334.8	1322.0	1333.8	1339.7
RE GRIDCART CB8IQ002 ELEV	15	1366.4	1373.3	1385.0	1383.2		
RE GRIDCART CB8IQ002 ELEV	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 ELEV	16	1373.6	1334.8	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 ELEV	16	1318.2	1332.2	1361.2	1351.7	1392.0	1362.5
RE GRIDCART CB8IQ002 ELEV	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 ELEV	17	1372.2	1354.3	1333.5	1323.9	1339.1	1323.9
RE GRIDCART CB8IQ002 ELEV	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 ELEV	17	1330.2	1349.4	1369.5	1409.4	1372.9	1372.1
RE GRIDCART CB8IQ002 ELEV	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 ELEV	18	1354.6	1354.5	1337.0	1332.0	1315.5	1309.9
RE GRIDCART CB8IQ002 ELEV	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 ELEV	18	1335.4	1354.8	1396.1	1393.0	1362.0	1374.0
RE GRIDCART CB8IQ002 ELEV	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 ELEV	19	1342.3	1332.9	1343.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 ELEV	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 ELEV	19	1348.1	1363.7	1399.9	1388.9	1369.7	1381.9
RE GRIDCART CB8IQ002 ELEV	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 ELEV	20	1316.6	1308.4	1346.3	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 ELEV	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2
RE GRIDCART CB8IQ002 ELEV	20	1355.6	1367.2	1395.5	1357.1	1369.8	1385.8
RE GRIDCART CB8IQ002 ELEV	20	1375.8	1363.0	1365.5	1389.4		
RE GRIDCART CB8IQ002 ELEV	21	1300.1	1321.4	1349.0	1340.5	1299.4	1299.1
RE GRIDCART CB8IQ002 ELEV	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1
RE GRIDCART CB8IQ002 ELEV	21	1339.1	1370.7	1386.3	1352.4	1375.4	1388.1
RE GRIDCART CB8IQ002 ELEV	21	1363.6	1368.5	1373.9	1387.0		
RE GRIDCART CB8IQ002 ELEV	22	1296.4	1312.2	1319.7	1304.2	1292.0	1286.2
RE GRIDCART CB8IQ002 ELEV	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2
RE GRIDCART CB8IQ002 ELEV	22	1326.9	1355.3	1346.4	1357.3	1359.3	1376.1
RE GRIDCART CB8IQ002 ELEV	22	1373.0	1374.8	1372.1	1388.2		
RE GRIDCART CB8IQ002 HILL	1	1392.9	1407.3	1405.2	1429.1	1441.0	1378.0
RE GRIDCART CB8IQ002 HILL	1	1359.4	1340.6	1322.6	1312.0	1318.0	1291.2
RE GRIDCART CB8IQ002 HILL	1	1287.4	1308.5	1314.0	1332.0	1290.6	1275.0
RE GRIDCART CB8IQ002 HILL	1	1257.1	1255.4	1262.0	1245.2		
RE GRIDCART CB8IQ002 HILL	2	1380.6	1427.0	1428.6	1452.0	1405.0	1374.4
RE GRIDCART CB8IQ002 HILL	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 HILL	2	1313.0	1289.0	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 HILL	2	1270.9	1281.4	1274.0	1264.8		
RE GRIDCART CB8IQ002 HILL	3	1388.1	1443.0	1437.2	1466.0	1382.0	1365.9
RE GRIDCART CB8IQ002 HILL	3	1340.5	1329.4	1322.0	1325.3	1362.5	1342.0
RE GRIDCART CB8IQ002 HILL	3	1300.3	1289.1	1282.0	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 HILL	3	1301.4	1306.0	1254.0	1260.7		
RE GRIDCART CB8IQ002 HILL	4	1418.8	1408.3	1410.8	1415.0	1373.0	1413.0
RE GRIDCART CB8IQ002 HILL	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 HILL	4	1283.2	1283.1	1276.0	1281.3	1289.2	1301.0
RE GRIDCART CB8IQ002 HILL	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 HILL	5	1375.3	1384.8	1393.6	1400.0	1375.0	1338.6
RE GRIDCART CB8IQ002 HILL	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 HILL	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 HILL	5	1263.5	1293.0	1266.9	1273.9		
RE GRIDCART CB8IQ002 HILL	6	1376.4	1382.7	1388.9	1405.1	1409.0	1338.9
RE GRIDCART CB8IQ002 HILL	6	1333.0	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 HILL	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 HILL	6	1273.9	1281.4	1277.1	1292.3		

RE GRIDCART CB8IQ002 HILL	7	1393.8	1392.2	1413.2	1419.0	1375.0	1354.3
RE GRIDCART CB8IQ002 HILL	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 HILL	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 HILL	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 HILL	8	1411.1	1433.0	1437.1	1423.0	1369.3	1367.0
RE GRIDCART CB8IQ002 HILL	8	1379.0	1366.0	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 HILL	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 HILL	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 HILL	9	1424.9	1429.9	1456.0	1423.0	1421.0	1421.0
RE GRIDCART CB8IQ002 HILL	9	1397.0	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 HILL	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 HILL	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 HILL	10	1453.0	1466.0	1445.0	1428.2	1443.0	1414.0
RE GRIDCART CB8IQ002 HILL	10	1362.8	1341.5	1317.7	1308.8	1309.9	1305.0
RE GRIDCART CB8IQ002 HILL	10	1289.2	1300.0	1286.9	1305.1	1312.0	1300.3
RE GRIDCART CB8IQ002 HILL	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 HILL	11	1400.0	1411.9	1455.0	1466.0	1413.6	1429.0
RE GRIDCART CB8IQ002 HILL	11	1349.1	1345.9	1321.4	1309.0	1343.0	1289.9
RE GRIDCART CB8IQ002 HILL	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 HILL	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 HILL	12	1387.0	1442.7	1424.1	1462.0	1391.0	1370.0
RE GRIDCART CB8IQ002 HILL	12	1333.0	1329.5	1329.0	1328.3	1318.0	1295.1
RE GRIDCART CB8IQ002 HILL	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 HILL	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 HILL	13	1458.0	1447.0	1431.0	1385.3	1367.0	1354.9
RE GRIDCART CB8IQ002 HILL	13	1353.7	1342.6	1320.3	1356.0	1302.1	1299.0
RE GRIDCART CB8IQ002 HILL	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 HILL	13	1353.0	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 HILL	14	1455.0	1393.0	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 HILL	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 HILL	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 HILL	14	1349.5	1375.0	1360.4	1359.5		
RE GRIDCART CB8IQ002 HILL	15	1367.7	1357.6	1368.0	1370.0	1336.5	1344.1
RE GRIDCART CB8IQ002 HILL	15	1339.1	1359.7	1371.0	1320.3	1319.0	1302.9
RE GRIDCART CB8IQ002 HILL	15	1305.7	1319.6	1354.0	1322.0	1333.8	1353.0
RE GRIDCART CB8IQ002 HILL	15	1366.4	1401.0	1388.0	1383.2		
RE GRIDCART CB8IQ002 HILL	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 HILL	16	1377.0	1389.0	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 HILL	16	1318.2	1332.2	1361.2	1379.0	1398.0	1367.0
RE GRIDCART CB8IQ002 HILL	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 HILL	17	1404.0	1354.3	1333.5	1323.9	1350.0	1323.9
RE GRIDCART CB8IQ002 HILL	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 HILL	17	1330.2	1349.4	1369.5	1409.4	1408.0	1372.1
RE GRIDCART CB8IQ002 HILL	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 HILL	18	1402.0	1354.5	1337.0	1338.0	1315.5	1309.9
RE GRIDCART CB8IQ002 HILL	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 HILL	18	1335.4	1354.8	1396.1	1393.0	1371.0	1374.0
RE GRIDCART CB8IQ002 HILL	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 HILL	19	1342.3	1332.9	1359.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 HILL	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 HILL	19	1348.1	1363.7	1399.9	1405.0	1369.7	1381.9
RE GRIDCART CB8IQ002 HILL	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 HILL	20	1316.6	1308.4	1361.0	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 HILL	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2

RE GRIDCART CB8IQ002 HILL	20	1355.6	1367.2	1395.5	1357.1	1377.0	1385.8				
RE GRIDCART CB8IQ002 HILL	20	1375.8	1363.0	1365.5	1389.4						
RE GRIDCART CB8IQ002 HILL	21	1300.1	1321.4	1362.0	1347.0	1299.4	1299.1				
RE GRIDCART CB8IQ002 HILL	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1				
RE GRIDCART CB8IQ002 HILL	21	1361.0	1370.7	1398.0	1352.4	1379.0	1388.1				
RE GRIDCART CB8IQ002 HILL	21	1363.6	1368.5	1373.9	1387.0						
RE GRIDCART CB8IQ002 HILL	22	1296.4	1312.2	1345.0	1304.2	1292.0	1286.2				
RE GRIDCART CB8IQ002 HILL	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2				
RE GRIDCART CB8IQ002 HILL	22	1326.9	1387.0	1346.4	1361.0	1359.3	1376.1				
RE GRIDCART CB8IQ002 HILL	22	1373.0	1374.8	1372.1	1388.2						
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

RE GRIDCART CB8IQ002 FLAG 15 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5
RE GRIDCART CB8IQ002 END
RE DISCCART 529825 4883280 1297 1294.03 1.5
** RCPDESCR Upton (Whitetail & Ash)
RE FINISHED

ME STARTING
ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
ME PROFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
** PROFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
ME SURFDATA 99999 2012
ME UAIRDATA 94043 2012
ME SITEDATA 00000826 2012
ME PROFBASE 1308 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU SUMMFILE SUMMARYFILE.SUM
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000
OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10001
OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396 292 MEOPEN: Met data from outdated version of AERMET, version: 12345
OU W565 297 PERPLT: Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565 298 OUPOST: Possible Conflict With Dynamically Allocated FUNIT POSTFILE
OU W540 299 OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period 720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. Non-DEFAULT Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: RN-220

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1308.00 ; Decay Coef. = 0.1246E-01 ; Rot. Angle = 0.0

Emission Units = G/SM2 ; Emission Rate Unit Factor = 0.93290E+18
Output Units = PCI/L

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER EMISSION RATE LOCATION OF AREA BASE RELEASE NUMBER INIT. URBAN
EMISSION RATE

SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF VERTS. SZ SOURCE SCALAR
VARY

ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) BY

8T4FN006 0 0.17630E-17 526050.0 4883900.0 1312.5 17.00 5 0.50 NO

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL 8T4FN006 ,
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** 12:23:05

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

516000.0, 517000.0, 518000.0, 519000.0, 520000.0, 521000.0, 522000.0, 523000.0, 524000.0, 525000.0,
526000.0, 527000.0, 528000.0, 529000.0, 530000.0, 531000.0, 532000.0, 533000.0, 534000.0, 535000.0,
536000.0, 537000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4873000.0, 4874000.0, 4875000.0, 4876000.0, 4877000.0, 4878000.0, 4879000.0, 4880000.0, 4881000.0,
4882000.0,
4883000.0, 4884000.0, 4885000.0, 4886000.0, 4887000.0, 4888000.0, 4889000.0, 4890000.0, 4891000.0,
4892000.0,
4893000.0, 4894000.0,

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** 12:23:05

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00 524000.00								

4894000.00 |	1296.40	1312.20	1319.70	1304.20	1292.00	1286.20	1295.30	1290.00
1315.80								
4893000.00 |	1300.10	1321.40	1349.00	1340.50	1299.40	1299.10	1303.90	1292.80
1311.00								
4892000.00 |	1316.60	1308.40	1346.30	1324.30	1306.10	1305.10	1305.50	1298.50
1299.90								
4891000.00 |	1342.30	1332.90	1343.00	1323.10	1317.10	1312.90	1303.00	1301.00
1303.00								
4890000.00 |	1354.60	1354.50	1337.00	1332.00	1315.50	1309.90	1312.30	1319.10
1316.10								
4889000.00 |	1372.20	1354.30	1333.50	1323.90	1339.10	1323.90	1317.70	1342.50
1341.60								
4888000.00 |	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1373.60	1334.80
1329.10								
4887000.00 |	1367.70	1357.60	1355.20	1360.60	1336.50	1344.10	1339.10	1359.70

1326.20								
4886000.00 |	1417.90	1382.90	1365.60	1349.60	1341.80	1366.70	1349.90	1331.30
1344.60								
4885000.00 |	1418.40	1434.70	1402.50	1385.30	1355.10	1354.90	1353.70	1342.60
1320.30								
4884000.00 |	1387.00	1442.70	1424.10	1415.30	1378.40	1370.00	1333.00	1329.50
1329.00								
4883000.00 |	1391.70	1411.90	1442.30	1420.40	1413.60	1377.70	1349.10	1345.90
1321.40								
4882000.00 |	1434.40	1448.60	1444.30	1428.20	1401.40	1394.00	1362.80	1341.50
1317.70								
4881000.00 |	1424.90	1429.90	1453.20	1421.40	1409.20	1370.60	1381.50	1342.90
1322.10								
4880000.00 |	1411.10	1424.80	1437.10	1421.10	1369.30	1360.90	1354.70	1353.30
1327.40								
4879000.00 |	1393.80	1392.20	1413.20	1408.30	1359.60	1354.30	1340.10	1327.90
1335.20								
4878000.00 |	1376.40	1382.70	1388.90	1405.10	1368.40	1338.90	1331.60	1336.70
1312.00								
4877000.00 |	1375.30	1384.80	1393.60	1395.00	1361.00	1338.60	1321.30	1324.80
1317.00								
4876000.00 |	1418.80	1408.30	1410.80	1409.80	1365.40	1341.00	1325.50	1321.60
1316.00								
4875000.00 |	1388.10	1408.10	1437.20	1440.40	1378.10	1365.90	1340.50	1329.40
1322.00								
4874000.00 |	1380.60	1422.70	1428.60	1436.20	1397.50	1374.40	1346.50	1333.70
1316.40								
4873000.00 |	1392.90	1407.30	1405.20	1429.10	1405.80	1364.20	1359.40	1340.60
1322.60								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***					***	12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1355.30	1346.40	1357.30	1359.30
1376.10								
4893000.00 |	1318.00	1332.10	1346.10	1339.10	1370.70	1386.30	1352.40	1375.40
1388.10								
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10	1369.80
1385.80								
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1388.90	1369.70
1381.90								
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00	1362.00
1374.00								
4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40	1372.90

1372.10								
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1351.70	1392.00
1362.50								
4887000.00 |	1320.30	1316.60	1302.90	1305.70	1319.60	1334.80	1322.00	1333.80
1339.70								
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40	1321.70
1331.90								
4885000.00 |	1344.80	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60	1311.80
1320.20								
4884000.00 |	1328.30	1309.80	1295.10	1291.10	1287.90	1306.90	1323.70	1303.00
1323.10								
4883000.00 |	1309.00	1330.70	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1301.60	1289.20	1300.00	1286.90	1305.10	1294.10
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1300.30								
4875000.00 |	1325.30	1362.50	1332.60	1300.30	1289.10	1272.70	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1302.50	1283.60	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1300.50	1291.20	1287.40	1308.50	1309.40	1313.20	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.						***	08/25/14
*** AERMET - VERSION 12345 ***	***						***	12:23:05

**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80
4887000.00 |	1366.40	1373.30	1385.00	1383.20

4886000.00 |	1349.50	1366.30	1360.40	1359.50
4885000.00 |	1342.60	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1271.10	1266.90	1273.90
4876000.00 |	1269.40	1258.70	1272.20	1266.20
4875000.00 |	1301.40	1274.40	1254.00	1260.70
4874000.00 |	1270.90	1281.40	1266.30	1264.80
4873000.00 |	1257.10	1255.40	1262.00	1245.20

*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.	***	08/25/14
*** AERMET - VERSION 12345 ***	***	***	12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00 524000.00								

4894000.00 |	1296.40	1312.20	1345.00	1304.20	1292.00	1286.20	1295.30	1290.00
1315.80								
4893000.00 |	1300.10	1321.40	1362.00	1347.00	1299.40	1299.10	1303.90	1292.80
1311.00								
4892000.00 |	1316.60	1308.40	1361.00	1324.30	1306.10	1305.10	1305.50	1298.50
1299.90								
4891000.00 |	1342.30	1332.90	1359.00	1323.10	1317.10	1312.90	1303.00	1301.00
1303.00								
4890000.00 |	1402.00	1354.50	1337.00	1338.00	1315.50	1309.90	1312.30	1319.10
1316.10								
4889000.00 |	1404.00	1354.30	1333.50	1323.90	1350.00	1323.90	1317.70	1342.50
1341.60								
4888000.00 |	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1377.00	1389.00
1329.10								
4887000.00 |	1367.70	1357.60	1368.00	1370.00	1336.50	1344.10	1339.10	1359.70
1371.00								
4886000.00 |	1455.00	1393.00	1365.60	1349.60	1341.80	1366.70	1349.90	1331.30
1344.60								
4885000.00 |	1458.00	1447.00	1431.00	1385.30	1367.00	1354.90	1353.70	1342.60
1320.30								
4884000.00 |	1387.00	1442.70	1424.10	1462.00	1391.00	1370.00	1333.00	1329.50
1329.00								
4883000.00 |	1400.00	1411.90	1455.00	1466.00	1413.60	1429.00	1349.10	1345.90
1321.40								
4882000.00 |	1453.00	1466.00	1445.00	1428.20	1443.00	1414.00	1362.80	1341.50
1317.70								

4881000.00 |	1424.90	1429.90	1456.00	1423.00	1421.00	1421.00	1397.00	1342.90
1322.10								
4880000.00 |	1411.10	1433.00	1437.10	1423.00	1369.30	1367.00	1379.00	1366.00
1327.40								
4879000.00 |	1393.80	1392.20	1413.20	1419.00	1375.00	1354.30	1340.10	1327.90
1335.20								
4878000.00 |	1376.40	1382.70	1388.90	1405.10	1409.00	1338.90	1333.00	1336.70
1312.00								
4877000.00 |	1375.30	1384.80	1393.60	1400.00	1375.00	1338.60	1321.30	1324.80
1317.00								
4876000.00 |	1418.80	1408.30	1410.80	1415.00	1373.00	1413.00	1325.50	1321.60
1316.00								
4875000.00 |	1388.10	1443.00	1437.20	1466.00	1382.00	1365.90	1340.50	1329.40
1322.00								
4874000.00 |	1380.60	1427.00	1428.60	1452.00	1405.00	1374.40	1346.50	1333.70
1316.40								
4873000.00 |	1392.90	1407.30	1405.20	1429.10	1441.00	1378.00	1359.40	1340.60
1322.60								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	12:23:05	

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1387.00	1346.40	1361.00	1359.30
1376.10								
4893000.00 |	1318.00	1332.10	1346.10	1361.00	1370.70	1398.00	1352.40	1379.00
1388.10								
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10	1377.00
1385.80								
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1405.00	1369.70
1381.90								
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00	1371.00
1374.00								
4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40	1408.00
1372.10								
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1379.00	1398.00
1367.00								
4887000.00 |	1320.30	1319.00	1302.90	1305.70	1319.60	1354.00	1322.00	1333.80
1353.00								
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40	1321.70
1331.90								
4885000.00 |	1356.00	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60	1311.80
1320.20								
4884000.00 |	1328.30	1318.00	1295.10	1291.10	1287.90	1306.90	1323.70	1303.00
1323.10								

4883000.00 |	1309.00	1343.00	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1305.00	1289.20	1300.00	1286.90	1305.10	1312.00
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1301.00								
4875000.00 |	1325.30	1362.50	1342.00	1300.30	1289.10	1282.00	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1313.00	1289.00	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1318.00	1291.20	1287.40	1308.50	1314.00	1332.00	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	12:23:05	

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80
4887000.00 |	1366.40	1401.00	1388.00	1383.20
4886000.00 |	1349.50	1375.00	1360.40	1359.50
4885000.00 |	1353.00	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1293.00	1266.90	1273.90
4876000.00 |	1269.40	1258.70	1272.20	1266.20

4875000.00 |	1301.40	1306.00	1254.00	1260.70					
4874000.00 |	1270.90	1281.40	1274.00	1264.80					
4873000.00 |	1257.10	1255.40	1262.00	1245.20					
*** AERMOD - VERSION 14134 ***					*** AERMOD run for the Upton site.			***	08/25/14
*** AERMET - VERSION 12345 ***								***	12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00	524000.00							

4894000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4893000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 ***					*** AERMOD run for the Upton site.			***	08/25/14
*** AERMET - VERSION 12345 ***								***	12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00	533000.00							

4894000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
------------	------	------	------	------	------	------	------	------	------

4893000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14

*** AERMET - VERSION 12345 *** *** *** 12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00	1.50	1.50	1.50	1.50
4893000.00	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50
4875000.00	1.50	1.50	1.50	1.50

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 12:23:05
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**MODELOPTs:  NonDEFAULT CONC    ELEV    FLGPOL
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*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(529825.0, 4883280.0, 1297.0, 1294.0, 1.5);

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 12:23:05
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**MODELOPTs: NonDEFAULT CONC    ELEV    FLGPOL
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*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

[illegible]

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 12:23:05
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**MODELOPTs:  NonDEFAULT CONC    ELEV    FLGPOL
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*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

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Surface file:  X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC      Met Version: 12345
Profile file:  X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET DATA\RER_UPTON.PFL
Surface format: FREE
Profile format: FREE
Surface station no.:  99999      Upper air station no.:  94043
      Name: UNKNOWN      Name: UNKNOWN
      Year: 2012      Year: 2012

```

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													
12	08	01	214	01	-0.6	0.027	-9.000	-9.000	-999.	10.	2.7	0.13	2.63	1.00	0.60	163.	10.0 292.4 2.0
12	08	01	214	02	-0.8	0.032	-9.000	-9.000	-999.	13.	3.1	0.13	2.63	1.00	0.70	158.	10.0 292.1 2.0
12	08	01	214	03	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	160.	10.0 292.4 2.0
12	08	01	214	04	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	170.	10.0 292.2 2.0
12	08	01	214	05	-1.7	0.046	-9.000	-9.000	-999.	23.	4.5	0.13	2.63	1.00	1.00	337.	10.0 292.9 2.0
12	08	01	214	06	-0.3	0.025	-9.000	-9.000	-999.	9.	4.7	0.19	2.63	0.50	0.50	48.	10.0 293.5 2.0
12	08	01	214	07	2.6	0.137	0.116	0.005	18.	116.	-74.9	0.12	2.63	0.31	1.40	232.	10.0 294.6 2.0
12	08	01	214	08	18.3	0.157	0.322	0.005	56.	144.	-16.5	0.12	2.63	0.24	1.40	205.	10.0 296.1 2.0
12	08	01	214	09	40.9	0.168	0.565	0.005	136.	159.	-9.0	0.15	2.63	0.21	1.30	150.	10.0 296.0 2.0
12	08	01	214	10	25.5	0.163	0.610	0.005	275.	152.	-13.2	0.13	2.63	0.20	1.40	152.	10.0 295.5 2.0
12	08	01	214	11	142.7	0.267	1.557	0.005	822.	317.	-10.4	0.15	2.63	0.20	2.10	149.	10.0 297.1 2.0
12	08	01	214	12	346.7	0.312	2.370	0.005	1194.	401.	-6.8	0.15	2.63	0.20	2.30	140.	10.0 302.9 2.0
12	08	01	214	13	413.6	0.263	3.053	0.005	2142.	311.	-3.4	0.19	2.63	0.20	1.60	53.	10.0 305.9 2.0
12	08	01	214	14	395.2	0.379	3.229	0.005	2648.	536.	-10.7	0.13	2.63	0.20	3.10	333.	10.0 307.1 2.0
12	08	01	214	15	348.8	0.425	3.394	0.005	3487.	637.	-17.0	0.13	2.63	0.20	3.70	348.	10.0 306.9 2.0
12	08	01	214	16	252.3	0.431	3.190	0.005	4000.	650.	-24.5	0.13	2.63	0.21	3.90	350.	10.0 306.1 2.0
12	08	01	214	17	177.6	0.371	2.838	0.005	4000.	521.	-22.2	0.14	2.63	0.23	3.30	16.	10.0 304.9 2.0
12	08	01	214	18	80.7	0.364	2.183	0.005	4000.	506.	-46.4	0.19	2.63	0.29	3.20	54.	10.0 302.9 2.0
12	08	01	214	19	9.9	0.275	1.085	0.005	4000.	334.	-161.8	0.19	2.63	0.46	2.60	50.	10.0 301.0 2.0
12	08	01	214	20	-10.0	0.116	-9.000	-9.000	-999.	111.	11.9	0.19	2.63	1.00	2.30	43.	10.0 298.9 2.0
12	08	01	214	21	-10.1	0.116	-9.000	-9.000	-999.	90.	11.9	0.19	2.63	1.00	2.30	44.	10.0 296.8 2.0
12	08	01	214	22	-7.9	0.102	-9.000	-9.000	-999.	75.	10.6	0.20	2.63	1.00	2.00	80.	10.0 294.6 2.0
12	08	01	214	23	-5.7	0.087	-9.000	-9.000	-999.	59.	8.9	0.20	2.63	1.00	1.70	68.	10.0 292.9 2.0
12	08	01	214	24	-0.4	0.024	-9.000	-9.000	-999.	11.	2.4	0.15	2.63	1.00	0.50	144.	10.0 291.9 2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	292.5	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	163.	0.60	293.6	28.8	-99.00	0.27	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** 12:23:05

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD | X-COORD (METERS)
(METERS)| 516000.00 517000.00 518000.00 519000.00 520000.00 521000.00 522000.00
523000.00 524000.00

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 12:23:05
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**MODELOPTs: NonDEFAULT CONC    ELEV    FLGPOL
```

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4893000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4892000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4891000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4890000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4889000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4888000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4887000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4886000.00 |	0.00003	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4885000.00 |	0.00006	0.00088	0.00006	0.00003	0.00000	0.00000	0.00000	0.00000
0.00000								
4884000.00 |	0.00003	0.09269	0.00433	0.00030	0.00002	0.00000	0.00000	0.00000
0.00000								
4883000.00 |	0.00002	0.01139	0.73965	0.00148	0.00005	0.00000	0.00000	0.00000
0.00000								
4882000.00 |	0.00001	0.00033	0.02612	0.00136	0.00002	0.00000	0.00000	0.00000
0.00000								
4881000.00 |	0.00000	0.00001	0.00037	0.00029	0.00002	0.00000	0.00000	0.00000
0.00000								
4880000.00 |	0.00000	0.00000	0.00001	0.00002	0.00001	0.00000	0.00000	0.00000
0.00000								
4879000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4878000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4877000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4876000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4875000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4874000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
4873000.00 |	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00000								
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.						***	08/25/14
*** AERMET - VERSION 12345 ***							***	12:23:05

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-220 IN PCI/L **

Y-COORD | (METERS) |	534000.00	535000.00	536000.00	537000.00
4894000.00 |	0.00000	0.00000	0.00000	0.00000
4893000.00 |	0.00000	0.00000	0.00000	0.00000
4892000.00 |	0.00000	0.00000	0.00000	0.00000
4891000.00 |	0.00000	0.00000	0.00000	0.00000
4890000.00 |	0.00000	0.00000	0.00000	0.00000
4889000.00 |	0.00000	0.00000	0.00000	0.00000
4888000.00 |	0.00000	0.00000	0.00000	0.00000
4887000.00 |	0.00000	0.00000	0.00000	0.00000
4886000.00 |	0.00000	0.00000	0.00000	0.00000
4885000.00 |	0.00000	0.00000	0.00000	0.00000
4884000.00 |	0.00000	0.00000	0.00000	0.00000
4883000.00 |	0.00000	0.00000	0.00000	0.00000
4882000.00 |	0.00000	0.00000	0.00000	0.00000
4881000.00 |	0.00000	0.00000	0.00000	0.00000
4880000.00 |	0.00000	0.00000	0.00000	0.00000
4879000.00 |	0.00000	0.00000	0.00000	0.00000
4878000.00 |	0.00000	0.00000	0.00000	0.00000
4877000.00 |	0.00000	0.00000	0.00000	0.00000
4876000.00 |	0.00000	0.00000	0.00000	0.00000
4875000.00 |	0.00000	0.00000	0.00000	0.00000
4874000.00 |	0.00000	0.00000	0.00000	0.00000
4873000.00 |	0.00000	0.00000	0.00000	0.00000

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 *** ***

*** 12:23:05

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-220 IN PCI/L **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
529825.00	4883280.00	0.00000			

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site.

*** 08/25/14

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF RN-220 IN PCI/L

**

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE
GRID-ID		

ALL 1ST HIGHEST VALUE IS	0.73965 AT (527000.00, 4883000.00, 1289.90, 1289.90, 1.50)	GC
CB8IQ002		
2ND HIGHEST VALUE IS	0.09269 AT (526000.00, 4884000.00, 1309.80, 1318.00, 1.50)	GC
CB8IQ002		
3RD HIGHEST VALUE IS	0.02612 AT (527000.00, 4882000.00, 1301.60, 1305.00, 1.50)	GC
CB8IQ002		
4TH HIGHEST VALUE IS	0.01139 AT (526000.00, 4883000.00, 1330.70, 1343.00, 1.50)	GC
CB8IQ002		
5TH HIGHEST VALUE IS	0.00433 AT (527000.00, 4884000.00, 1295.10, 1295.10, 1.50)	GC
CB8IQ002		
6TH HIGHEST VALUE IS	0.00148 AT (528000.00, 4883000.00, 1297.90, 1297.90, 1.50)	GC
CB8IQ002		
7TH HIGHEST VALUE IS	0.00136 AT (528000.00, 4882000.00, 1289.20, 1289.20, 1.50)	GC
CB8IQ002		
8TH HIGHEST VALUE IS	0.00088 AT (526000.00, 4885000.00, 1302.10, 1302.10, 1.50)	GC
CB8IQ002		
9TH HIGHEST VALUE IS	0.00037 AT (527000.00, 4881000.00, 1324.90, 1324.90, 1.50)	GC
CB8IQ002		
10TH HIGHEST VALUE IS	0.00033 AT (526000.00, 4882000.00, 1309.90, 1309.90, 1.50)	GC
CB8IQ002		

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 12:23:05

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of	0 Fatal Error Message(s)
A Total of	5 Warning Message(s)
A Total of	133 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 54 Calm Hours Identified

A Total of 79 Missing Hours Identified (0.90 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396	292	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	297	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	298	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	299	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR
MX W481	8785	MAIN: Data Remaining After End of Year. Number of Hours=	24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***

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*****
***      BREEZE AERMOD Parallel v1.7.0      (EPA 14134)      ***
***      Completed using 2 processors.      ***
***                                     ***
***      BREEZE SOFTWARE      ***
***      Advanced Desktop Modeling Systems - Air, Risk, Hazard, Explosion ***
***      Data Products and Services - Meteorology, Terrain, Landuse ***
***      Massively Parallel Remote Modeling System for AERMOD ***
***      Custom Software Development      ***
***                                     ***
*** www.breeze-software.com breeze@trinityconsultants.com +1-972-661-8881 ***
*****
```

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** BREEZE AERMOD
** Trinity Consultants
** VERSION 7.9
```

```
CO STARTING
CO TITLEONE AERMOD run for the Upton site.
CO MODELOPT CONC
CO RUNORNOT RUN
CO AVERTIME MONTH ANNUAL
CO POLLUTID RN-222
CO HALFLIFE 330350.4
CO FLAGPOLE 1.5
CO EVENTFIL EVENTS.INP DETAIL
CO SAVEFILE TMP.FIL
CO DEBUGOPT MODEL MODEL.DBG
CO ERRORFIL ERRORS.LST
CO FINISHED
```

```
SO STARTING
SO ELEVUNIT METERS
SO LOCATION 8T4FN006 AREAPOLY 526050 4883900 1312.5
** SRCDESCR Tailings Pile
SO SRCPARAM 8T4FN006 7.98E-17 17 5 0.5
SO AREAVERT 8T4FN006 526050.0 4883900.0 526700.0 4882500.0
SO AREAVERT 8T4FN006 527200.0 4882530.0 527200.0 4883000.0
SO AREAVERT 8T4FN006 526440.0 4883900.0
SO CONCUNIT 1.538E14 G/SM2 PCI/L
SO SRCGROUP ALL
SO FINISHED
```

```
RE STARTING
RE ELEVUNIT METERS
RE GRIDCART CB8IQ002 STA
** GRDDESCR Coarse - Upton Mill
RE GRIDCART CB8IQ002 XYINC 516000 22 1000 4873000 22 1000
RE GRIDCART CB8IQ002 ELEV 1 1392.9 1407.3 1405.2 1429.1 1405.8 1364.2
RE GRIDCART CB8IQ002 ELEV 1 1359.4 1340.6 1322.6 1312.0 1300.5 1291.2
RE GRIDCART CB8IQ002 ELEV 1 1287.4 1308.5 1309.4 1313.2 1290.6 1275.0
RE GRIDCART CB8IQ002 ELEV 1 1257.1 1255.4 1262.0 1245.2
```

RE GRIDCART CB8IQ002 ELEV	2	1380.6	1422.7	1428.6	1436.2	1397.5	1374.4
RE GRIDCART CB8IQ002 ELEV	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 ELEV	2	1302.5	1283.6	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 ELEV	2	1270.9	1281.4	1266.3	1264.8		
RE GRIDCART CB8IQ002 ELEV	3	1388.1	1408.1	1437.2	1440.4	1378.1	1365.9
RE GRIDCART CB8IQ002 ELEV	3	1340.5	1329.4	1322.0	1325.3	1362.5	1332.6
RE GRIDCART CB8IQ002 ELEV	3	1300.3	1289.1	1272.7	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 ELEV	3	1301.4	1274.4	1254.0	1260.7		
RE GRIDCART CB8IQ002 ELEV	4	1418.8	1408.3	1410.8	1409.8	1365.4	1341.0
RE GRIDCART CB8IQ002 ELEV	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 ELEV	4	1283.2	1283.1	1276.0	1281.3	1289.2	1300.3
RE GRIDCART CB8IQ002 ELEV	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 ELEV	5	1375.3	1384.8	1393.6	1395.0	1361.0	1338.6
RE GRIDCART CB8IQ002 ELEV	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 ELEV	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 ELEV	5	1263.5	1271.1	1266.9	1273.9		
RE GRIDCART CB8IQ002 ELEV	6	1376.4	1382.7	1388.9	1405.1	1368.4	1338.9
RE GRIDCART CB8IQ002 ELEV	6	1331.6	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 ELEV	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 ELEV	6	1273.9	1281.4	1277.1	1292.3		
RE GRIDCART CB8IQ002 ELEV	7	1393.8	1392.2	1413.2	1408.3	1359.6	1354.3
RE GRIDCART CB8IQ002 ELEV	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 ELEV	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 ELEV	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 ELEV	8	1411.1	1424.8	1437.1	1421.1	1369.3	1360.9
RE GRIDCART CB8IQ002 ELEV	8	1354.7	1353.3	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 ELEV	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 ELEV	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 ELEV	9	1424.9	1429.9	1453.2	1421.4	1409.2	1370.6
RE GRIDCART CB8IQ002 ELEV	9	1381.5	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 ELEV	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 ELEV	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 ELEV	10	1434.4	1448.6	1444.3	1428.2	1401.4	1394.0
RE GRIDCART CB8IQ002 ELEV	10	1362.8	1341.5	1317.7	1308.8	1309.9	1301.6
RE GRIDCART CB8IQ002 ELEV	10	1289.2	1300.0	1286.9	1305.1	1294.1	1300.3
RE GRIDCART CB8IQ002 ELEV	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 ELEV	11	1391.7	1411.9	1442.3	1420.4	1413.6	1377.7
RE GRIDCART CB8IQ002 ELEV	11	1349.1	1345.9	1321.4	1309.0	1330.7	1289.9
RE GRIDCART CB8IQ002 ELEV	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 ELEV	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 ELEV	12	1387.0	1442.7	1424.1	1415.3	1378.4	1370.0
RE GRIDCART CB8IQ002 ELEV	12	1333.0	1329.5	1329.0	1328.3	1309.8	1295.1
RE GRIDCART CB8IQ002 ELEV	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 ELEV	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 ELEV	13	1418.4	1434.7	1402.5	1385.3	1355.1	1354.9
RE GRIDCART CB8IQ002 ELEV	13	1353.7	1342.6	1320.3	1344.8	1302.1	1299.0
RE GRIDCART CB8IQ002 ELEV	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 ELEV	13	1342.6	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 ELEV	14	1417.9	1382.9	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 ELEV	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 ELEV	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 ELEV	14	1349.5	1366.3	1360.4	1359.5		
RE GRIDCART CB8IQ002 ELEV	15	1367.7	1357.6	1355.2	1360.6	1336.5	1344.1
RE GRIDCART CB8IQ002 ELEV	15	1339.1	1359.7	1326.2	1320.3	1316.6	1302.9

RE GRIDCART CB8IQ002 ELEV	15	1305.7	1319.6	1334.8	1322.0	1333.8	1339.7
RE GRIDCART CB8IQ002 ELEV	15	1366.4	1373.3	1385.0	1383.2		
RE GRIDCART CB8IQ002 ELEV	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 ELEV	16	1373.6	1334.8	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 ELEV	16	1318.2	1332.2	1361.2	1351.7	1392.0	1362.5
RE GRIDCART CB8IQ002 ELEV	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 ELEV	17	1372.2	1354.3	1333.5	1323.9	1339.1	1323.9
RE GRIDCART CB8IQ002 ELEV	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 ELEV	17	1330.2	1349.4	1369.5	1409.4	1372.9	1372.1
RE GRIDCART CB8IQ002 ELEV	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 ELEV	18	1354.6	1354.5	1337.0	1332.0	1315.5	1309.9
RE GRIDCART CB8IQ002 ELEV	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 ELEV	18	1335.4	1354.8	1396.1	1393.0	1362.0	1374.0
RE GRIDCART CB8IQ002 ELEV	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 ELEV	19	1342.3	1332.9	1343.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 ELEV	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 ELEV	19	1348.1	1363.7	1399.9	1388.9	1369.7	1381.9
RE GRIDCART CB8IQ002 ELEV	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 ELEV	20	1316.6	1308.4	1346.3	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 ELEV	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2
RE GRIDCART CB8IQ002 ELEV	20	1355.6	1367.2	1395.5	1357.1	1369.8	1385.8
RE GRIDCART CB8IQ002 ELEV	20	1375.8	1363.0	1365.5	1389.4		
RE GRIDCART CB8IQ002 ELEV	21	1300.1	1321.4	1349.0	1340.5	1299.4	1299.1
RE GRIDCART CB8IQ002 ELEV	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1
RE GRIDCART CB8IQ002 ELEV	21	1339.1	1370.7	1386.3	1352.4	1375.4	1388.1
RE GRIDCART CB8IQ002 ELEV	21	1363.6	1368.5	1373.9	1387.0		
RE GRIDCART CB8IQ002 ELEV	22	1296.4	1312.2	1319.7	1304.2	1292.0	1286.2
RE GRIDCART CB8IQ002 ELEV	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2
RE GRIDCART CB8IQ002 ELEV	22	1326.9	1355.3	1346.4	1357.3	1359.3	1376.1
RE GRIDCART CB8IQ002 ELEV	22	1373.0	1374.8	1372.1	1388.2		
RE GRIDCART CB8IQ002 HILL	1	1392.9	1407.3	1405.2	1429.1	1441.0	1378.0
RE GRIDCART CB8IQ002 HILL	1	1359.4	1340.6	1322.6	1312.0	1318.0	1291.2
RE GRIDCART CB8IQ002 HILL	1	1287.4	1308.5	1314.0	1332.0	1290.6	1275.0
RE GRIDCART CB8IQ002 HILL	1	1257.1	1255.4	1262.0	1245.2		
RE GRIDCART CB8IQ002 HILL	2	1380.6	1427.0	1428.6	1452.0	1405.0	1374.4
RE GRIDCART CB8IQ002 HILL	2	1346.5	1333.7	1316.4	1319.5	1323.3	1318.5
RE GRIDCART CB8IQ002 HILL	2	1313.0	1289.0	1276.9	1274.5	1264.5	1261.5
RE GRIDCART CB8IQ002 HILL	2	1270.9	1281.4	1274.0	1264.8		
RE GRIDCART CB8IQ002 HILL	3	1388.1	1443.0	1437.2	1466.0	1382.0	1365.9
RE GRIDCART CB8IQ002 HILL	3	1340.5	1329.4	1322.0	1325.3	1362.5	1342.0
RE GRIDCART CB8IQ002 HILL	3	1300.3	1289.1	1282.0	1272.9	1273.8	1274.0
RE GRIDCART CB8IQ002 HILL	3	1301.4	1306.0	1254.0	1260.7		
RE GRIDCART CB8IQ002 HILL	4	1418.8	1408.3	1410.8	1415.0	1373.0	1413.0
RE GRIDCART CB8IQ002 HILL	4	1325.5	1321.6	1316.0	1322.1	1318.9	1300.5
RE GRIDCART CB8IQ002 HILL	4	1283.2	1283.1	1276.0	1281.3	1289.2	1301.0
RE GRIDCART CB8IQ002 HILL	4	1269.4	1258.7	1272.2	1266.2		
RE GRIDCART CB8IQ002 HILL	5	1375.3	1384.8	1393.6	1400.0	1375.0	1338.6
RE GRIDCART CB8IQ002 HILL	5	1321.3	1324.8	1317.0	1301.6	1293.0	1293.5
RE GRIDCART CB8IQ002 HILL	5	1298.8	1277.1	1281.0	1298.9	1297.9	1272.0
RE GRIDCART CB8IQ002 HILL	5	1263.5	1293.0	1266.9	1273.9		
RE GRIDCART CB8IQ002 HILL	6	1376.4	1382.7	1388.9	1405.1	1409.0	1338.9
RE GRIDCART CB8IQ002 HILL	6	1333.0	1336.7	1312.0	1329.9	1304.9	1308.3
RE GRIDCART CB8IQ002 HILL	6	1291.7	1284.5	1315.9	1286.2	1274.0	1263.2
RE GRIDCART CB8IQ002 HILL	6	1273.9	1281.4	1277.1	1292.3		

RE GRIDCART CB8IQ002 HILL	7	1393.8	1392.2	1413.2	1419.0	1375.0	1354.3
RE GRIDCART CB8IQ002 HILL	7	1340.1	1327.9	1335.2	1322.7	1307.9	1298.9
RE GRIDCART CB8IQ002 HILL	7	1289.1	1294.2	1281.0	1271.9	1266.0	1275.8
RE GRIDCART CB8IQ002 HILL	7	1294.0	1279.4	1277.3	1295.6		
RE GRIDCART CB8IQ002 HILL	8	1411.1	1433.0	1437.1	1423.0	1369.3	1367.0
RE GRIDCART CB8IQ002 HILL	8	1379.0	1366.0	1327.4	1311.8	1299.6	1300.4
RE GRIDCART CB8IQ002 HILL	8	1293.3	1280.4	1282.5	1273.4	1275.4	1293.0
RE GRIDCART CB8IQ002 HILL	8	1281.4	1287.3	1303.6	1315.7		
RE GRIDCART CB8IQ002 HILL	9	1424.9	1429.9	1456.0	1423.0	1421.0	1421.0
RE GRIDCART CB8IQ002 HILL	9	1397.0	1342.9	1322.1	1322.5	1313.6	1324.9
RE GRIDCART CB8IQ002 HILL	9	1284.5	1289.0	1280.0	1284.5	1299.6	1285.1
RE GRIDCART CB8IQ002 HILL	9	1291.1	1299.5	1307.0	1322.6		
RE GRIDCART CB8IQ002 HILL	10	1453.0	1466.0	1445.0	1428.2	1443.0	1414.0
RE GRIDCART CB8IQ002 HILL	10	1362.8	1341.5	1317.7	1308.8	1309.9	1305.0
RE GRIDCART CB8IQ002 HILL	10	1289.2	1300.0	1286.9	1305.1	1312.0	1300.3
RE GRIDCART CB8IQ002 HILL	10	1303.4	1313.7	1310.8	1333.8		
RE GRIDCART CB8IQ002 HILL	11	1400.0	1411.9	1455.0	1466.0	1413.6	1429.0
RE GRIDCART CB8IQ002 HILL	11	1349.1	1345.9	1321.4	1309.0	1343.0	1289.9
RE GRIDCART CB8IQ002 HILL	11	1297.9	1287.9	1296.5	1319.0	1300.9	1308.0
RE GRIDCART CB8IQ002 HILL	11	1329.2	1321.2	1313.6	1330.4		
RE GRIDCART CB8IQ002 HILL	12	1387.0	1442.7	1424.1	1462.0	1391.0	1370.0
RE GRIDCART CB8IQ002 HILL	12	1333.0	1329.5	1329.0	1328.3	1318.0	1295.1
RE GRIDCART CB8IQ002 HILL	12	1291.1	1287.9	1306.9	1323.7	1303.0	1323.1
RE GRIDCART CB8IQ002 HILL	12	1334.5	1349.8	1327.9	1343.5		
RE GRIDCART CB8IQ002 HILL	13	1458.0	1447.0	1431.0	1385.3	1367.0	1354.9
RE GRIDCART CB8IQ002 HILL	13	1353.7	1342.6	1320.3	1356.0	1302.1	1299.0
RE GRIDCART CB8IQ002 HILL	13	1293.5	1300.0	1322.2	1308.6	1311.8	1320.2
RE GRIDCART CB8IQ002 HILL	13	1353.0	1371.5	1342.0	1356.8		
RE GRIDCART CB8IQ002 HILL	14	1455.0	1393.0	1365.6	1349.6	1341.8	1366.7
RE GRIDCART CB8IQ002 HILL	14	1349.9	1331.3	1344.6	1311.5	1300.0	1300.5
RE GRIDCART CB8IQ002 HILL	14	1297.2	1309.7	1336.6	1312.4	1321.7	1331.9
RE GRIDCART CB8IQ002 HILL	14	1349.5	1375.0	1360.4	1359.5		
RE GRIDCART CB8IQ002 HILL	15	1367.7	1357.6	1368.0	1370.0	1336.5	1344.1
RE GRIDCART CB8IQ002 HILL	15	1339.1	1359.7	1371.0	1320.3	1319.0	1302.9
RE GRIDCART CB8IQ002 HILL	15	1305.7	1319.6	1354.0	1322.0	1333.8	1353.0
RE GRIDCART CB8IQ002 HILL	15	1366.4	1401.0	1388.0	1383.2		
RE GRIDCART CB8IQ002 HILL	16	1363.0	1345.7	1335.9	1332.8	1328.1	1334.2
RE GRIDCART CB8IQ002 HILL	16	1377.0	1389.0	1329.1	1337.1	1317.1	1309.8
RE GRIDCART CB8IQ002 HILL	16	1318.2	1332.2	1361.2	1379.0	1398.0	1367.0
RE GRIDCART CB8IQ002 HILL	16	1390.6	1410.8	1389.8	1397.8		
RE GRIDCART CB8IQ002 HILL	17	1404.0	1354.3	1333.5	1323.9	1350.0	1323.9
RE GRIDCART CB8IQ002 HILL	17	1317.7	1342.5	1341.6	1332.0	1307.8	1316.5
RE GRIDCART CB8IQ002 HILL	17	1330.2	1349.4	1369.5	1409.4	1408.0	1372.1
RE GRIDCART CB8IQ002 HILL	17	1381.5	1378.0	1389.0	1410.9		
RE GRIDCART CB8IQ002 HILL	18	1402.0	1354.5	1337.0	1338.0	1315.5	1309.9
RE GRIDCART CB8IQ002 HILL	18	1312.3	1319.1	1316.1	1305.0	1306.7	1325.2
RE GRIDCART CB8IQ002 HILL	18	1335.4	1354.8	1396.1	1393.0	1371.0	1374.0
RE GRIDCART CB8IQ002 HILL	18	1374.4	1378.6	1380.8	1398.6		
RE GRIDCART CB8IQ002 HILL	19	1342.3	1332.9	1359.0	1323.1	1317.1	1312.9
RE GRIDCART CB8IQ002 HILL	19	1303.0	1301.0	1303.0	1298.6	1315.7	1334.3
RE GRIDCART CB8IQ002 HILL	19	1348.1	1363.7	1399.9	1405.0	1369.7	1381.9
RE GRIDCART CB8IQ002 HILL	19	1376.7	1367.0	1370.8	1385.6		
RE GRIDCART CB8IQ002 HILL	20	1316.6	1308.4	1361.0	1324.3	1306.1	1305.1
RE GRIDCART CB8IQ002 HILL	20	1305.5	1298.5	1299.9	1301.8	1315.9	1336.2

RE GRIDCART CB8IQ002 HILL	20	1355.6	1367.2	1395.5	1357.1	1377.0	1385.8				
RE GRIDCART CB8IQ002 HILL	20	1375.8	1363.0	1365.5	1389.4						
RE GRIDCART CB8IQ002 HILL	21	1300.1	1321.4	1362.0	1347.0	1299.4	1299.1				
RE GRIDCART CB8IQ002 HILL	21	1303.9	1292.8	1311.0	1318.0	1332.1	1346.1				
RE GRIDCART CB8IQ002 HILL	21	1361.0	1370.7	1398.0	1352.4	1379.0	1388.1				
RE GRIDCART CB8IQ002 HILL	21	1363.6	1368.5	1373.9	1387.0						
RE GRIDCART CB8IQ002 HILL	22	1296.4	1312.2	1345.0	1304.2	1292.0	1286.2				
RE GRIDCART CB8IQ002 HILL	22	1295.3	1290.0	1315.8	1321.6	1337.2	1317.2				
RE GRIDCART CB8IQ002 HILL	22	1326.9	1387.0	1346.4	1361.0	1359.3	1376.1				
RE GRIDCART CB8IQ002 HILL	22	1373.0	1374.8	1372.1	1388.2						
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	1	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	2	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	3	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	4	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	5	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	6	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	7	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	8	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	9	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	10	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	11	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	12	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	13	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	14	1.5	1.5								
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
RE GRIDCART CB8IQ002 FLAG	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

RE GRIDCART CB8IQ002 FLAG 15 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 16 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 17 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 18 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 19 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 20 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 21 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5
RE GRIDCART CB8IQ002 FLAG 22 1.5 1.5
RE GRIDCART CB8IQ002 END
RE DISCCART 529825 4883280 1297 1294.03 1.5
** RCPDESCR Upton (Whitetail & Ash)
RE FINISHED

ME STARTING
ME SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
** SURFFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC"
ME PROFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
** PROFILE "X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.PFL"
ME SURFDATA 99999 2012
ME UAIRDATA 94043 2012
ME SITEDATA 00000826 2012
ME PROFBASE 1308 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU SUMMFILE SUMMARYFILE.SUM
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000
OU POSTFILE MONTH ALL UNIFORM ALL`MONTH.bin 10001
OU FINISHED

*** Message Summary For AERMOD Model Setup ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 0 Informational Message(s)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396 292 MEOPEN: Met data from outdated version of AERMET, version: 12345
OU W565 297 PERPLT: Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565 298 OUPOST: Possible Conflict With Dynamically Allocated FUNIT POSTFILE
OU W540 299 OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period 720-HR

*** SETUP Finishes Successfully ***

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

**NO GAS DEPOSITION Data Provided.

**NO PARTICLE DEPOSITION Data Provided.

**Model Uses NO DRY DEPLETION. DRYDPLT = F

**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. Non-DEFAULT Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: RN-222

**Model Calculates 1 Short Term Average(s) of: MONTH
and Calculates ANNUAL Averages

**This Run Includes: 1 Source(s); 1 Source Group(s); and 485 Receptor(s)

**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date: 12345

**Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 1308.00 ; Decay Coef. = 0.2098E-05 ; Rot. Angle = 0.0

Emission Units = G/SM2 ; Emission Rate Unit Factor = 0.15380E+15
Output Units = PCI/L

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Debug Options Selected: DEBUG

**File for Saving Result Arrays: TMP.FIL

**Detailed Error/Message File: ERRORS.LST

**File Created for Event Model: EVENTS.INP

**File for Summary of Results: SUMMARYFILE.SUM

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** AREAPOLY SOURCE DATA ***

NUMBER EMISSION RATE LOCATION OF AREA BASE RELEASE NUMBER INIT. URBAN
EMISSION RATE

SOURCE PART.(USER UNITS X Y ELEV. HEIGHT OF VERTS. SZ SOURCE SCALAR
VARY

ID CATS. /METER**2) (METERS) (METERS) (METERS) (METERS) (METERS) BY

8T4FN006 0 0.79800E-16 526050.0 4883900.0 1312.5 17.00 5 0.50 NO

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL 8T4FN006 ,
*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

516000.0, 517000.0, 518000.0, 519000.0, 520000.0, 521000.0, 522000.0, 523000.0, 524000.0, 525000.0,
526000.0, 527000.0, 528000.0, 529000.0, 530000.0, 531000.0, 532000.0, 533000.0, 534000.0, 535000.0,
536000.0, 537000.0,

*** Y-COORDINATES OF GRID ***
(METERS)

4873000.0, 4874000.0, 4875000.0, 4876000.0, 4877000.0, 4878000.0, 4879000.0, 4880000.0, 4881000.0,
4882000.0,
4883000.0, 4884000.0, 4885000.0, 4886000.0, 4887000.0, 4888000.0, 4889000.0, 4890000.0, 4891000.0,
4892000.0,
4893000.0, 4894000.0,

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD | (METERS) |	X-COORD (METERS)							
	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00 524000.00								

4894000.00 |	1296.40	1312.20	1319.70	1304.20	1292.00	1286.20	1295.30	1290.00
1315.80								
4893000.00 |	1300.10	1321.40	1349.00	1340.50	1299.40	1299.10	1303.90	1292.80
1311.00								
4892000.00 |	1316.60	1308.40	1346.30	1324.30	1306.10	1305.10	1305.50	1298.50
1299.90								
4891000.00 |	1342.30	1332.90	1343.00	1323.10	1317.10	1312.90	1303.00	1301.00
1303.00								
4890000.00 |	1354.60	1354.50	1337.00	1332.00	1315.50	1309.90	1312.30	1319.10
1316.10								
4889000.00 |	1372.20	1354.30	1333.50	1323.90	1339.10	1323.90	1317.70	1342.50
1341.60								
4888000.00 |	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1373.60	1334.80
1329.10								
4887000.00 |	1367.70	1357.60	1355.20	1360.60	1336.50	1344.10	1339.10	1359.70

1326.20								
4886000.00 |	1417.90	1382.90	1365.60	1349.60	1341.80	1366.70	1349.90	1331.30
1344.60								
4885000.00 |	1418.40	1434.70	1402.50	1385.30	1355.10	1354.90	1353.70	1342.60
1320.30								
4884000.00 |	1387.00	1442.70	1424.10	1415.30	1378.40	1370.00	1333.00	1329.50
1329.00								
4883000.00 |	1391.70	1411.90	1442.30	1420.40	1413.60	1377.70	1349.10	1345.90
1321.40								
4882000.00 |	1434.40	1448.60	1444.30	1428.20	1401.40	1394.00	1362.80	1341.50
1317.70								
4881000.00 |	1424.90	1429.90	1453.20	1421.40	1409.20	1370.60	1381.50	1342.90
1322.10								
4880000.00 |	1411.10	1424.80	1437.10	1421.10	1369.30	1360.90	1354.70	1353.30
1327.40								
4879000.00 |	1393.80	1392.20	1413.20	1408.30	1359.60	1354.30	1340.10	1327.90
1335.20								
4878000.00 |	1376.40	1382.70	1388.90	1405.10	1368.40	1338.90	1331.60	1336.70
1312.00								
4877000.00 |	1375.30	1384.80	1393.60	1395.00	1361.00	1338.60	1321.30	1324.80
1317.00								
4876000.00 |	1418.80	1408.30	1410.80	1409.80	1365.40	1341.00	1325.50	1321.60
1316.00								
4875000.00 |	1388.10	1408.10	1437.20	1440.40	1378.10	1365.90	1340.50	1329.40
1322.00								
4874000.00 |	1380.60	1422.70	1428.60	1436.20	1397.50	1374.40	1346.50	1333.70
1316.40								
4873000.00 |	1392.90	1407.30	1405.20	1429.10	1405.80	1364.20	1359.40	1340.60
1322.60								
*** AERMOD - VERSION 14134 ***	***	AERMOD run for the Upton site.					***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03	
PAGE 6								
**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL								
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***								
* ELEVATION HEIGHTS IN METERS *								
Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00	533000.00							

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1355.30	1346.40	1357.30	1359.30
1376.10								
4893000.00 |	1318.00	1332.10	1346.10	1339.10	1370.70	1386.30	1352.40	1375.40
1388.10								
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10	1369.80
1385.80								
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1388.90	1369.70
1381.90								
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00	1362.00
1374.00								
4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40	1372.90

1372.10								
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1351.70	1392.00
1362.50								
4887000.00 |	1320.30	1316.60	1302.90	1305.70	1319.60	1334.80	1322.00	1333.80
1339.70								
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40	1321.70
1331.90								
4885000.00 |	1344.80	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60	1311.80
1320.20								
4884000.00 |	1328.30	1309.80	1295.10	1291.10	1287.90	1306.90	1323.70	1303.00
1323.10								
4883000.00 |	1309.00	1330.70	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1301.60	1289.20	1300.00	1286.90	1305.10	1294.10
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1300.30								
4875000.00 |	1325.30	1362.50	1332.60	1300.30	1289.10	1272.70	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1302.50	1283.60	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1300.50	1291.20	1287.40	1308.50	1309.40	1313.20	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.						***	08/25/14
*** AERMET - VERSION 12345 ***							***	10:07:03

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80
4887000.00 |	1366.40	1373.30	1385.00	1383.20

4886000.00 |	1349.50	1366.30	1360.40	1359.50
4885000.00 |	1342.60	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1271.10	1266.90	1273.90
4876000.00 |	1269.40	1258.70	1272.20	1266.20
4875000.00 |	1301.40	1274.40	1254.00	1260.70
4874000.00 |	1270.90	1281.40	1266.30	1264.80
4873000.00 |	1257.10	1255.40	1262.00	1245.20

*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.	***	08/25/14
*** AERMET - VERSION 12345 ***	***	***	10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD | (METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00
523000.00 524000.00							

4894000.00 |	1296.40	1312.20	1345.00	1304.20	1292.00	1286.20	1295.30 1290.00
1315.80							
4893000.00 |	1300.10	1321.40	1362.00	1347.00	1299.40	1299.10	1303.90 1292.80
1311.00							
4892000.00 |	1316.60	1308.40	1361.00	1324.30	1306.10	1305.10	1305.50 1298.50
1299.90							
4891000.00 |	1342.30	1332.90	1359.00	1323.10	1317.10	1312.90	1303.00 1301.00
1303.00							
4890000.00 |	1402.00	1354.50	1337.00	1338.00	1315.50	1309.90	1312.30 1319.10
1316.10							
4889000.00 |	1404.00	1354.30	1333.50	1323.90	1350.00	1323.90	1317.70 1342.50
1341.60							
4888000.00 |	1363.00	1345.70	1335.90	1332.80	1328.10	1334.20	1377.00 1389.00
1329.10							
4887000.00 |	1367.70	1357.60	1368.00	1370.00	1336.50	1344.10	1339.10 1359.70
1371.00							
4886000.00 |	1455.00	1393.00	1365.60	1349.60	1341.80	1366.70	1349.90 1331.30
1344.60							
4885000.00 |	1458.00	1447.00	1431.00	1385.30	1367.00	1354.90	1353.70 1342.60
1320.30							
4884000.00 |	1387.00	1442.70	1424.10	1462.00	1391.00	1370.00	1333.00 1329.50
1329.00							
4883000.00 |	1400.00	1411.90	1455.00	1466.00	1413.60	1429.00	1349.10 1345.90
1321.40							
4882000.00 |	1453.00	1466.00	1445.00	1428.20	1443.00	1414.00	1362.80 1341.50
1317.70							

4881000.00 |	1424.90	1429.90	1456.00	1423.00	1421.00	1421.00	1397.00	1342.90
1322.10								
4880000.00 |	1411.10	1433.00	1437.10	1423.00	1369.30	1367.00	1379.00	1366.00
1327.40								
4879000.00 |	1393.80	1392.20	1413.20	1419.00	1375.00	1354.30	1340.10	1327.90
1335.20								
4878000.00 |	1376.40	1382.70	1388.90	1405.10	1409.00	1338.90	1333.00	1336.70
1312.00								
4877000.00 |	1375.30	1384.80	1393.60	1400.00	1375.00	1338.60	1321.30	1324.80
1317.00								
4876000.00 |	1418.80	1408.30	1410.80	1415.00	1373.00	1413.00	1325.50	1321.60
1316.00								
4875000.00 |	1388.10	1443.00	1437.20	1466.00	1382.00	1365.90	1340.50	1329.40
1322.00								
4874000.00 |	1380.60	1427.00	1428.60	1452.00	1405.00	1374.40	1346.50	1333.70
1316.40								
4873000.00 |	1392.90	1407.30	1405.20	1429.10	1441.00	1378.00	1359.40	1340.60
1322.60								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03	

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**MODELOPTs: NonDFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 |	1321.60	1337.20	1317.20	1326.90	1387.00	1346.40	1361.00	1359.30
1376.10								
4893000.00 |	1318.00	1332.10	1346.10	1361.00	1370.70	1398.00	1352.40	1379.00
1388.10								
4892000.00 |	1301.80	1315.90	1336.20	1355.60	1367.20	1395.50	1357.10	1377.00
1385.80								
4891000.00 |	1298.60	1315.70	1334.30	1348.10	1363.70	1399.90	1405.00	1369.70
1381.90								
4890000.00 |	1305.00	1306.70	1325.20	1335.40	1354.80	1396.10	1393.00	1371.00
1374.00								
4889000.00 |	1332.00	1307.80	1316.50	1330.20	1349.40	1369.50	1409.40	1408.00
1372.10								
4888000.00 |	1337.10	1317.10	1309.80	1318.20	1332.20	1361.20	1379.00	1398.00
1367.00								
4887000.00 |	1320.30	1319.00	1302.90	1305.70	1319.60	1354.00	1322.00	1333.80
1353.00								
4886000.00 |	1311.50	1300.00	1300.50	1297.20	1309.70	1336.60	1312.40	1321.70
1331.90								
4885000.00 |	1356.00	1302.10	1299.00	1293.50	1300.00	1322.20	1308.60	1311.80
1320.20								
4884000.00 |	1328.30	1318.00	1295.10	1291.10	1287.90	1306.90	1323.70	1303.00
1323.10								

4883000.00 |	1309.00	1343.00	1289.90	1297.90	1287.90	1296.50	1319.00	1300.90
1308.00								
4882000.00 |	1308.80	1309.90	1305.00	1289.20	1300.00	1286.90	1305.10	1312.00
1300.30								
4881000.00 |	1322.50	1313.60	1324.90	1284.50	1289.00	1280.00	1284.50	1299.60
1285.10								
4880000.00 |	1311.80	1299.60	1300.40	1293.30	1280.40	1282.50	1273.40	1275.40
1293.00								
4879000.00 |	1322.70	1307.90	1298.90	1289.10	1294.20	1281.00	1271.90	1266.00
1275.80								
4878000.00 |	1329.90	1304.90	1308.30	1291.70	1284.50	1315.90	1286.20	1274.00
1263.20								
4877000.00 |	1301.60	1293.00	1293.50	1298.80	1277.10	1281.00	1298.90	1297.90
1272.00								
4876000.00 |	1322.10	1318.90	1300.50	1283.20	1283.10	1276.00	1281.30	1289.20
1301.00								
4875000.00 |	1325.30	1362.50	1342.00	1300.30	1289.10	1282.00	1272.90	1273.80
1274.00								
4874000.00 |	1319.50	1323.30	1318.50	1313.00	1289.00	1276.90	1274.50	1264.50
1261.50								
4873000.00 |	1312.00	1318.00	1291.20	1287.40	1308.50	1314.00	1332.00	1290.60
1275.00								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03	

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00 |	1373.00	1374.80	1372.10	1388.20
4893000.00 |	1363.60	1368.50	1373.90	1387.00
4892000.00 |	1375.80	1363.00	1365.50	1389.40
4891000.00 |	1376.70	1367.00	1370.80	1385.60
4890000.00 |	1374.40	1378.60	1380.80	1398.60
4889000.00 |	1381.50	1378.00	1389.00	1410.90
4888000.00 |	1390.60	1410.80	1389.80	1397.80
4887000.00 |	1366.40	1401.00	1388.00	1383.20
4886000.00 |	1349.50	1375.00	1360.40	1359.50
4885000.00 |	1353.00	1371.50	1342.00	1356.80
4884000.00 |	1334.50	1349.80	1327.90	1343.50
4883000.00 |	1329.20	1321.20	1313.60	1330.40
4882000.00 |	1303.40	1313.70	1310.80	1333.80
4881000.00 |	1291.10	1299.50	1307.00	1322.60
4880000.00 |	1281.40	1287.30	1303.60	1315.70
4879000.00 |	1294.00	1279.40	1277.30	1295.60
4878000.00 |	1273.90	1281.40	1277.10	1292.30
4877000.00 |	1263.50	1293.00	1266.90	1273.90
4876000.00 |	1269.40	1258.70	1272.20	1266.20

4875000.00 |	1301.40	1306.00	1254.00	1260.70					
4874000.00 |	1270.90	1281.40	1274.00	1264.80					
4873000.00 |	1257.10	1255.40	1262.00	1245.20					
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14	
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03		

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS) |	516000.00	517000.00	518000.00	519000.00	520000.00	521000.00	522000.00	
523000.00	524000.00							

4894000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4893000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00 |	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14	
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03		

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)							
(METERS)	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00	533000.00							

4894000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
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4893000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4875000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4874000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
4873000.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14

*** AERMET - VERSION 12345 *** *** *** 10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD |	X-COORD (METERS)			
(METERS) |	534000.00	535000.00	536000.00	537000.00

4894000.00	1.50	1.50	1.50	1.50
4893000.00	1.50	1.50	1.50	1.50
4892000.00	1.50	1.50	1.50	1.50
4891000.00	1.50	1.50	1.50	1.50
4890000.00	1.50	1.50	1.50	1.50
4889000.00	1.50	1.50	1.50	1.50
4888000.00	1.50	1.50	1.50	1.50
4887000.00	1.50	1.50	1.50	1.50
4886000.00	1.50	1.50	1.50	1.50
4885000.00	1.50	1.50	1.50	1.50
4884000.00	1.50	1.50	1.50	1.50
4883000.00	1.50	1.50	1.50	1.50
4882000.00	1.50	1.50	1.50	1.50
4881000.00	1.50	1.50	1.50	1.50
4880000.00	1.50	1.50	1.50	1.50
4879000.00	1.50	1.50	1.50	1.50
4878000.00	1.50	1.50	1.50	1.50
4877000.00	1.50	1.50	1.50	1.50
4876000.00	1.50	1.50	1.50	1.50
4875000.00	1.50	1.50	1.50	1.50

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*** AERMOD - VERSION 14134 *** ** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03
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**MODELOPTs:  NonDEFAULT CONC    ELEV    FLGPOL
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*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(529825.0, 4883280.0, 1297.0, 1294.0, 1.5);

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*** AERMOD - VERSION 14134 *** ** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03
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**MODELOPTs: NonDEFAULT CONC    ELEV    FLGPOL
```

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

[illegible]

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

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*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03

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**MODELOPTs: NonDEFAULT CONC    ELEV    FLGPOL
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*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET
DATA\RER_UPTON.SFC Met Version: 12345
Profile file: X:\PROJECT_DATA\RARE ELEMENTS BEAR LODGE\AERMOD\MET DATA\RER_UPTON.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 99999 Upper air station no.: 94043
Name: UNKNOWN Name: UNKNOWN
Year: 2012 Year: 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
WD	HT	REF	TA	HT													
12	08	01	214	01	-0.6	0.027	-9.000	-9.000	-999.	10.	2.7	0.13	2.63	1.00	0.60	163.	10.0 292.4 2.0
12	08	01	214	02	-0.8	0.032	-9.000	-9.000	-999.	13.	3.1	0.13	2.63	1.00	0.70	158.	10.0 292.1 2.0
12	08	01	214	03	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	160.	10.0 292.4 2.0
12	08	01	214	04	-2.0	0.050	-9.000	-9.000	-999.	26.	4.9	0.13	2.63	1.00	1.10	170.	10.0 292.2 2.0
12	08	01	214	05	-1.7	0.046	-9.000	-9.000	-999.	23.	4.5	0.13	2.63	1.00	1.00	337.	10.0 292.9 2.0
12	08	01	214	06	-0.3	0.025	-9.000	-9.000	-999.	9.	4.7	0.19	2.63	0.50	0.50	48.	10.0 293.5 2.0
12	08	01	214	07	2.6	0.137	0.116	0.005	18.	116.	-74.9	0.12	2.63	0.31	1.40	232.	10.0 294.6 2.0
12	08	01	214	08	18.3	0.157	0.322	0.005	56.	144.	-16.5	0.12	2.63	0.24	1.40	205.	10.0 296.1 2.0
12	08	01	214	09	40.9	0.168	0.565	0.005	136.	159.	-9.0	0.15	2.63	0.21	1.30	150.	10.0 296.0 2.0
12	08	01	214	10	25.5	0.163	0.610	0.005	275.	152.	-13.2	0.13	2.63	0.20	1.40	152.	10.0 295.5 2.0
12	08	01	214	11	142.7	0.267	1.557	0.005	822.	317.	-10.4	0.15	2.63	0.20	2.10	149.	10.0 297.1 2.0
12	08	01	214	12	346.7	0.312	2.370	0.005	1194.	401.	-6.8	0.15	2.63	0.20	2.30	140.	10.0 302.9 2.0
12	08	01	214	13	413.6	0.263	3.053	0.005	2142.	311.	-3.4	0.19	2.63	0.20	1.60	53.	10.0 305.9 2.0
12	08	01	214	14	395.2	0.379	3.229	0.005	2648.	536.	-10.7	0.13	2.63	0.20	3.10	333.	10.0 307.1 2.0
12	08	01	214	15	348.8	0.425	3.394	0.005	3487.	637.	-17.0	0.13	2.63	0.20	3.70	348.	10.0 306.9 2.0
12	08	01	214	16	252.3	0.431	3.190	0.005	4000.	650.	-24.5	0.13	2.63	0.21	3.90	350.	10.0 306.1 2.0
12	08	01	214	17	177.6	0.371	2.838	0.005	4000.	521.	-22.2	0.14	2.63	0.23	3.30	16.	10.0 304.9 2.0
12	08	01	214	18	80.7	0.364	2.183	0.005	4000.	506.	-46.4	0.19	2.63	0.29	3.20	54.	10.0 302.9 2.0
12	08	01	214	19	9.9	0.275	1.085	0.005	4000.	334.	-161.8	0.19	2.63	0.46	2.60	50.	10.0 301.0 2.0
12	08	01	214	20	-10.0	0.116	-9.000	-9.000	-999.	111.	11.9	0.19	2.63	1.00	2.30	43.	10.0 298.9 2.0
12	08	01	214	21	-10.1	0.116	-9.000	-9.000	-999.	90.	11.9	0.19	2.63	1.00	2.30	44.	10.0 296.8 2.0
12	08	01	214	22	-7.9	0.102	-9.000	-9.000	-999.	75.	10.6	0.20	2.63	1.00	2.00	80.	10.0 294.6 2.0
12	08	01	214	23	-5.7	0.087	-9.000	-9.000	-999.	59.	8.9	0.20	2.63	1.00	1.70	68.	10.0 292.9 2.0
12	08	01	214	24	-0.4	0.024	-9.000	-9.000	-999.	11.	2.4	0.15	2.63	1.00	0.50	144.	10.0 291.9 2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB	TMP	sigmaA	sigmaW	sigmaV
12	08	01	01	2.0	0	-999.	-99.00	292.5	99.0	-99.00	-99.00	
12	08	01	01	10.0	1	163.	0.60	293.6	28.8	-99.00	0.27	

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** 10:07:03

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**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD | X-COORD (METERS)
(METERS)| 516000.00 517000.00 518000.00 519000.00 520000.00 521000.00 522000.00
523000.00 524000.00

4894000.00 |	0.00093	0.00140	0.00217	0.00254	0.00341	0.00501	0.00674	0.00774
0.00760								
4893000.00 |	0.00094	0.00132	0.00071	0.00188	0.00293	0.00447	0.00681	0.00808
0.00949								
4892000.00 |	0.00108	0.00115	0.00071	0.00210	0.00254	0.00382	0.00621	0.00815
0.00885								
4891000.00 |	0.00067	0.00124	0.00089	0.00175	0.00218	0.00342	0.00487	0.00775
0.01007								
4890000.00 |	0.00020	0.00028	0.00118	0.00187	0.00168	0.00249	0.00436	0.00884
0.01214								
4889000.00 |	0.00007	0.00021	0.00113	0.00156	0.00152	0.00252	0.00338	0.00395
0.00705								
4888000.00 |	0.00009	0.00030	0.00070	0.00118	0.00184	0.00224	0.00046	0.00681
0.01774								
4887000.00 |	0.00005	0.00011	0.00013	0.00012	0.00096	0.00078	0.00184	0.00068
0.01688								
4886000.00 |	0.00002	0.00003	0.00006	0.00021	0.00049	0.00013	0.00036	0.00371
0.00162								
4885000.00 |	0.00002	0.00002	0.00002	0.00003	0.00009	0.00013	0.00017	0.00068
0.00266								
4884000.00 |	0.00003	0.00002	0.00002	0.00002	0.00004	0.00005	0.00112	0.00185
0.00297								
4883000.00 |	0.00002	0.00002	0.00002	0.00003	0.00003	0.00005	0.00016	0.00023
0.00123								
4882000.00 |	0.00002	0.00002	0.00003	0.00003	0.00004	0.00005	0.00012	0.00049
0.00111								
4881000.00 |	0.00003	0.00003	0.00003	0.00004	0.00005	0.00010	0.00011	0.00051
0.00139								
4880000.00 |	0.00003	0.00003	0.00003	0.00005	0.00012	0.00015	0.00019	0.00026
0.00156								
4879000.00 |	0.00005	0.00006	0.00005	0.00005	0.00012	0.00018	0.00056	0.00108
0.00108								
4878000.00 |	0.00007	0.00006	0.00006	0.00005	0.00008	0.00052	0.00079	0.00075
0.00092								
4877000.00 |	0.00006	0.00005	0.00005	0.00005	0.00013	0.00050	0.00068	0.00089
0.00091								
4876000.00 |	0.00003	0.00004	0.00004	0.00006	0.00015	0.00042	0.00069	0.00079
0.00089								
4875000.00 |	0.00004	0.00004	0.00004	0.00005	0.00012	0.00014	0.00046	0.00086
0.00103								
4874000.00 |	0.00005	0.00004	0.00005	0.00005	0.00007	0.00011	0.00031	0.00077
0.00085								
4873000.00 |	0.00005	0.00005	0.00006	0.00005	0.00005	0.00012	0.00014	0.00056
0.00089								
*** AERMOD - VERSION 14134 ***	***	***	AERMOD run for the Upton site.				***	08/25/14
*** AERMET - VERSION 12345 ***	***	***				***	10:07:03	
PAGE 18								
**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL								
*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR								
SOURCE GROUP: ALL ***								
INCLUDING SOURCE(S): 8T4FN006 ,								
*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***								

** CONC OF RN-222 IN PCI/L

**

Y-COORD | (METERS) |	X-COORD (METERS)							
	525000.00	526000.00	527000.00	528000.00	529000.00	530000.00	531000.00	
532000.00 533000.00								

4894000.00 | 0.00004	0.00591	0.00339	0.00256	0.00195	0.00028	0.00039	0.00012	0.00009
4893000.00 | 0.00003	0.00620	0.00519	0.00121	0.00134	0.00015	0.00005	0.00017	0.00004
4892000.00 | 0.00004	0.00614	0.00465	0.00294	0.00045	0.00015	0.00005	0.00011	0.00005
4891000.00 | 0.00006	0.00713	0.00526	0.00372	0.00068	0.00015	0.00004	0.00003	0.00007
4890000.00 | 0.00007	0.00931	0.00556	0.00511	0.00196	0.00021	0.00004	0.00004	0.00010
4889000.00 | 0.00006	0.02017	0.00678	0.00366	0.00284	0.00027	0.00008	0.00005	0.00006
4888000.00 | 0.00007	0.01482	0.00908	0.00401	0.00183	0.00167	0.00012	0.00015	0.00004
4887000.00 | 0.00038	0.01928	0.01156	0.00377	0.00132	0.00111	0.00117	0.00064	0.00069
4886000.00 | 0.00054	0.01064	0.01266	0.00383	0.00102	0.00081	0.00069	0.00048	0.00062
4885000.00 | 0.00045	0.00194	0.01412	0.00353	0.00085	0.00061	0.00093	0.00048	0.00045
4884000.00 | 0.00081	0.00730	0.01016	0.00258	0.00083	0.00071	0.00073	0.00107	0.00062
4883000.00 | 0.00087	0.00107	0.01737	0.01880	0.00166	0.00145	0.00124	0.00132	0.00090
4882000.00 | 0.00097	0.00163	0.00231	0.00929	0.00617	0.00271	0.00174	0.00153	0.00113
4881000.00 | 0.00115	0.00205	0.00202	0.01487	0.01004	0.00506	0.00272	0.00171	0.00142
4880000.00 | 0.00127	0.00135	0.00159	0.00318	0.00685	0.00720	0.00391	0.00252	0.00167
4879000.00 | 0.00166	0.00177	0.00165	0.00253	0.00431	0.00677	0.00502	0.00313	0.00224
4878000.00 | 0.00199	0.00195	0.00145	0.00238	0.00313	0.00524	0.00656	0.00382	0.00261
4877000.00 | 0.00222	0.00098	0.00125	0.00180	0.00261	0.00405	0.00479	0.00445	0.00324
4876000.00 | 0.00277	0.00133	0.00151	0.00165	0.00213	0.00315	0.00420	0.00412	0.00336
4875000.00 | 0.00268	0.00134	0.00029	0.00252	0.00199	0.00256	0.00364	0.00379	0.00344
4874000.00 | 0.00284	0.00105	0.00139	0.00165	0.00180	0.00214	0.00306	0.00351	0.00333
4873000.00 | 0.00294	0.00095	0.00099	0.00119	0.00152	0.00216	0.00308	0.00403	0.00328
*** AERMOD - VERSION 14134 ***	*** AERMOD run for the Upton site.						***	08/25/14
*** AERMET - VERSION 12345 ***							***	10:07:03

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** NETWORK ID: CB8IQ002 ; NETWORK TYPE: GRIDCART ***

** CONC OF RN-222 IN PCI/L **

Y-COORD | (METERS) |	534000.00	535000.00	536000.00	537000.00
4894000.00 |	0.00005	0.00006	0.00005	0.00003
4893000.00 |	0.00008	0.00007	0.00004	0.00003
4892000.00 |	0.00006	0.00006	0.00005	0.00003
4891000.00 |	0.00006	0.00005	0.00005	0.00003
4890000.00 |	0.00005	0.00004	0.00003	0.00002
4889000.00 |	0.00004	0.00004	0.00003	0.00002
4888000.00 |	0.00004	0.00003	0.00003	0.00003
4887000.00 |	0.00006	0.00004	0.00004	0.00004
4886000.00 |	0.00012	0.00006	0.00008	0.00008
4885000.00 |	0.00024	0.00009	0.00024	0.00012
4884000.00 |	0.00064	0.00023	0.00064	0.00031
4883000.00 |	0.00111	0.00082	0.00064	0.00072
4882000.00 |	0.00086	0.00084	0.00076	0.00075
4881000.00 |	0.00099	0.00089	0.00085	0.00096
4880000.00 |	0.00107	0.00099	0.00098	0.00095
4879000.00 |	0.00124	0.00097	0.00087	0.00087
4878000.00 |	0.00159	0.00121	0.00093	0.00083
4877000.00 |	0.00179	0.00150	0.00118	0.00093
4876000.00 |	0.00192	0.00161	0.00141	0.00115
4875000.00 |	0.00240	0.00170	0.00146	0.00131
4874000.00 |	0.00226	0.00189	0.00150	0.00134
4873000.00 |	0.00239	0.00195	0.00163	0.00134

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14
*** AERMET - VERSION 12345 *** *** *** 10:07:03

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR
SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 8T4FN006 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF RN-222 IN PCI/L **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
529825.00	4883280.00	0.00109			

*** AERMOD - VERSION 14134 *** *** AERMOD run for the Upton site. *** 08/25/14

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS

** CONC OF RN-222 IN PCI/L

**

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
----------	--------------	--

ALL 1ST HIGHEST VALUE IS	0.02017 AT (525000.00, 4889000.00, 1332.00, 1332.00, 1.50)	GC
CB8IQ002		
2ND HIGHEST VALUE IS	0.01928 AT (525000.00, 4887000.00, 1320.30, 1320.30, 1.50)	GC
CB8IQ002		
3RD HIGHEST VALUE IS	0.01880 AT (527000.00, 4883000.00, 1289.90, 1289.90, 1.50)	GC
CB8IQ002		
4TH HIGHEST VALUE IS	0.01774 AT (524000.00, 4888000.00, 1329.10, 1329.10, 1.50)	GC
CB8IQ002		
5TH HIGHEST VALUE IS	0.01737 AT (526000.00, 4883000.00, 1330.70, 1343.00, 1.50)	GC
CB8IQ002		
6TH HIGHEST VALUE IS	0.01688 AT (524000.00, 4887000.00, 1326.20, 1371.00, 1.50)	GC
CB8IQ002		
7TH HIGHEST VALUE IS	0.01487 AT (527000.00, 4881000.00, 1324.90, 1324.90, 1.50)	GC
CB8IQ002		
8TH HIGHEST VALUE IS	0.01482 AT (525000.00, 4888000.00, 1337.10, 1337.10, 1.50)	GC
CB8IQ002		
9TH HIGHEST VALUE IS	0.01412 AT (526000.00, 4885000.00, 1302.10, 1302.10, 1.50)	GC
CB8IQ002		
10TH HIGHEST VALUE IS	0.01266 AT (526000.00, 4886000.00, 1300.00, 1300.00, 1.50)	GC
CB8IQ002		

*** RECEPTOR TYPES: GC = GRIDCART

GP = GRIDPOLR

DC = DISCCART

DP = DISCPOLR

*** AERMOD - VERSION 14134 *** AERMOD run for the Upton site.

*** 08/25/14

*** AERMET - VERSION 12345 ***

*** 10:07:03

**MODELOPTs: NonDEFAULT CONC ELEV FLGPOL

*** Message Summary : AERMOD Model Execution ***

----- Summary of Total Messages -----

A Total of	0 Fatal Error Message(s)
A Total of	5 Warning Message(s)
A Total of	133 Informational Message(s)

A Total of 8784 Hours Were Processed

A Total of 54 Calm Hours Identified

A Total of 79 Missing Hours Identified (0.90 Percent)

***** FATAL ERROR MESSAGES *****

*** NONE ***

***** WARNING MESSAGES *****

ME W396	292	MEOPEN: Met data from outdated version of AERMET, version:	12345
OU W565	297	PERPLT: Possible Conflict With Dynamically Allocated FUNIT	PLOTFILE
OU W565	298	OUPOST: Possible Conflict With Dynamically Allocated FUNIT	POSTFILE
OU W540	299	OUTQA: No RECTABLE/MAXTABLE/DAYTABLE for Average Period	720-HR
MX W481	8785	MAIN: Data Remaining After End of Year. Number of Hours=	24

*** AERMOD Finishes Successfully ***

*** BREEZE AERMOD Parallel - VERSION 1.7.0 ***