

**FIRST QUARTER 2011 DATA REPORT
FOR METEOROLOGICAL MONITORING
ENERGY FUELS RESOURCES CORPORATION
URANIUM MILL LICENSING SUPPORT
PIÑON RIDGE MILL
MONTROSE COUNTY, COLORADO**

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Revision: 0**

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1.0 INTRODUCTION

This quarterly report provides meteorological data required for the assessment of air quality. The data collected during the First Quarter 2011 augments the environmental baseline study at Energy Fuels Resources Corporation (EFR) proposed Piñon Ridge Mill (the "Site") located in Montrose County, Colorado. Twelve months of meteorological and air quality data (collected from the second quarter 2008 through the first quarter 2009) were summarized in the Meteorology, Air Quality and Climatology Report, revision 1, dated October 9, 2009 and prepared by Kleinfelder West, Inc. (Kleinfelder). Meteorological data were collected at five air monitoring stations (network) from the second quarter 2008 through the first quarter 2011, comprising 36 months of data which is three times the minimum required for permitting purposes. Meteorological monitoring was suspended at the end of the first quarter 2011 per the proposed changes to the monitoring program outlined in a letter to CDPHE dated March 12, 2010 and subsequently approved by CDPHE. Ambient air and meteorological monitoring will resume prior to the start of mill construction.

The project is under the regulation of the Colorado Department of Public Health and Environment (CDPHE) and will require a mill license (radioactive material license) by CDPHE's Radiation Management Program and construction permits by CDPHE's Air Pollution Control Division (APCD) to construct and operate. Radioactive Material License number 1170-01, Amendment Number 00 was issued by CDPHE on March 7, 2011. The APCD construction permits are currently pending.

Monitoring sites were chosen according to guidance outlined in Nuclear Regulatory Commission (NRC) Regulatory Guide (Reg. Guide) 3.63, Onsite Meteorological Measurement Program for Uranium Recovery Facilities – Data Acquisition and Reporting (NRC Reg. Guide 3.63); and Environmental Protection Agency (EPA) Meteorological Monitoring Guidance for Regulatory Modeling Applications (MMGRMA) (EPA-454/R-99-005).

The Site is located 14 miles northwest of Naturita at 16910 Highway 90, Montrose County, Colorado. The property consists of approximately 880 acres that include the Southwest $\frac{1}{4}$ of the Southeast $\frac{1}{4}$ of Section 5, all of Section 8, the North $\frac{1}{4}$ of Section 17, and the Southeast $\frac{1}{4}$ of the Northwest $\frac{1}{4}$ of Section 17, Township 46 North, Range 17 West, of the New Mexico Principal Meridian. See Figure 1 for the site layout.

2.0 MONITOR SITE DESCRIPTIONS

2.1 Selection of Monitoring Sites

Selection of meteorological monitoring station locations was based on the siting criteria set forth in NRC Reg. Guide 3.63. The monitoring locations were selected near the Site boundaries. Wind direction is predominantly from northwest and from the southeast depending on time of day due to the presence of a down-valley/up-valley flow through the area.

The two meteorological monitoring locations are discussed below:

Air Monitoring Site #1: This location is also referred to as Met Site 1 and is located near the northern boundary of the Site. This location includes the 10 meter (10m) meteorological tower.

Air Monitoring Site #2: This location is also referred to as Met Site 2 and is located near the eastern boundary of the Site. This location includes the 30 meter (30m) meteorological tower.

2.2 Locations

The Site is located at 16910 Highway 90, Montrose County, Colorado. See Table 1 and Figure 1 for locations of the meteorological monitoring sites.

Table 1
Meteorological Site Locations

Site ID	UTM Zone 12 (NAD83)	
	Easting	Northing
Met Site 1 (North Site) – 10m Tower	695211.43	4237487.24
Met Site 2 (East Site) – 30m Tower	695930.42	4235452.56

3.0 DATA COLLECTION AND COMPLETENESS

According to the Prevention of Significant Deterioration (PSD) regulations, the data recovery goal for meteorological data is 90 percent data recovery per quarter. Meteorological data were collected continuously at Met Sites 1 and 2 from January 1 to March 31, 2011 and are reported in Appendix A. EPA Air Quality System (AQS) data qualifiers were used to flag invalid data. Data qualifiers used for meteorological data this quarter include: BA – Maintenance/Routine Repairs, AQ – Collection Error, AT – Calibration, AZ – Audit and IL – Seasonally Out of Service.

Weekly and monthly checks were performed on meteorological equipment at each met site according to standard operating procedures (SOPs) presented in the Energy Fuels Resources Corporation Uranium Mill Licensing Support Ambient Air Monitoring Plan, Piñon Ridge Mill Site, 2008.

Met Site 1 includes the 10m tower and the following parameters are measured based on EPA MMGRMA guidance:

- wind speed, wind direction, and sigma theta
- vertical wind speed,
- temperature,
- delta temperature,
- relative humidity,
- barometric pressure,
- solar radiation,
- precipitation, and
- evaporation.

At the 10m level, wind speed, wind direction, sigma theta, vertical wind speed, and delta temperature are measured. At the 2m level, temperature, delta temperature, relative humidity, barometric pressure, and solar radiation are measured. At the ground level, precipitation and evaporation are measured.

Met Site 2 includes the 30m tower and the following parameters are measured based on EPA MMGRMA guidance:

- wind speed, wind direction, and sigma theta,
- vertical wind speed,
- temperature,
- delta temperature,
- relative humidity,
- barometric pressure, and
- solar radiation.

At the 30m level, wind speed, wind direction, sigma theta, vertical wind speed, and delta temperature are measured. At the 2m level, temperature, delta temperature, relative humidity, barometric pressure, and solar radiation are measured.

Sigma theta values for both met sites are calculated from wind monitor readings. Wind gusts are measured at both of the met sites. The measurement indicates the speed of the gust based on a 3-second average of the wind speed, along with the gust direction and time of the gust.

Data recovery was calculated for each parameter at both of the meteorological sites. As shown in Table 2, data completeness at Met Site 1 was between 99.7 and 99.9 percent for all parameters. Data recovery at Met Site 2, also shown in Table 2, was between 95.0 and 99.5 percent for all parameters. All parameters at both sites exceeded the 90 percent data recovery goal.

The reduction in vertical wind speed CFT (i.e., vertical wind speed monitor with a carbon fiber prop) data completeness was due to the discovery of a blade missing from the prop on during a routine site inspection on March 1. A vertical wind speed monitor with a polystyrene prop is collocated with this vertical wind speed monitor. Comparison of the data from the two monitors shows no significant deviation in the days prior to March 1. Therefore, vertical wind speed and stability data for the carbon fiber prop wind monitor were invalidated from the time of the previous site inspection on February 25, when the prop was last known to be fully intact.

Table 2
Data Recovery for Meteorological Parameters

Meteorological Parameter	Data Recovery Met Site 1	Data Recovery Met Site 2
Wind Speed	99.9%	99.4%
Wind Direction	99.9%	99.4%
Sigma Theta Wind	99.9%	99.4%
Vertical Wind Speed EPS Avg	99.9%	99.4%
Vertical Wind Speed EPS Std	99.9%	99.4%
Vertical Wind Speed CFT Avg	99.9%	95.0%
Vertical Wind Speed CFT Std	99.9%	95.0%
2m Temperature	99.9%	99.4%
10m Temperature	99.9%	N/A
30m Temperature	N/A	99.4%
DeltaT Avg	99.9%	99.4%
Precipitation Total	99.7%	N/A
Relative Humidity Avg	99.9%	99.4%
Barometric Pressure	99.9%	99.4%
Solar Radiation Avg	99.9%	99.5%
Evaporation Level Avg	N/A	N/A
Gust Speed	99.9%	99.4%
Gust Direction	99.9%	99.4%
Gust Time	99.9%	99.4%

N/A – Not Applicable. Sensors for 10-meter Temperatures, Evaporation, and Precipitation were not installed at Met Site 2. Sensors for 30-meter Temperature were not installed at Met Site 1. Evaporation pan was seasonally out-of-service during the First Quarter 2011.

4.0 DATA ANALYSIS

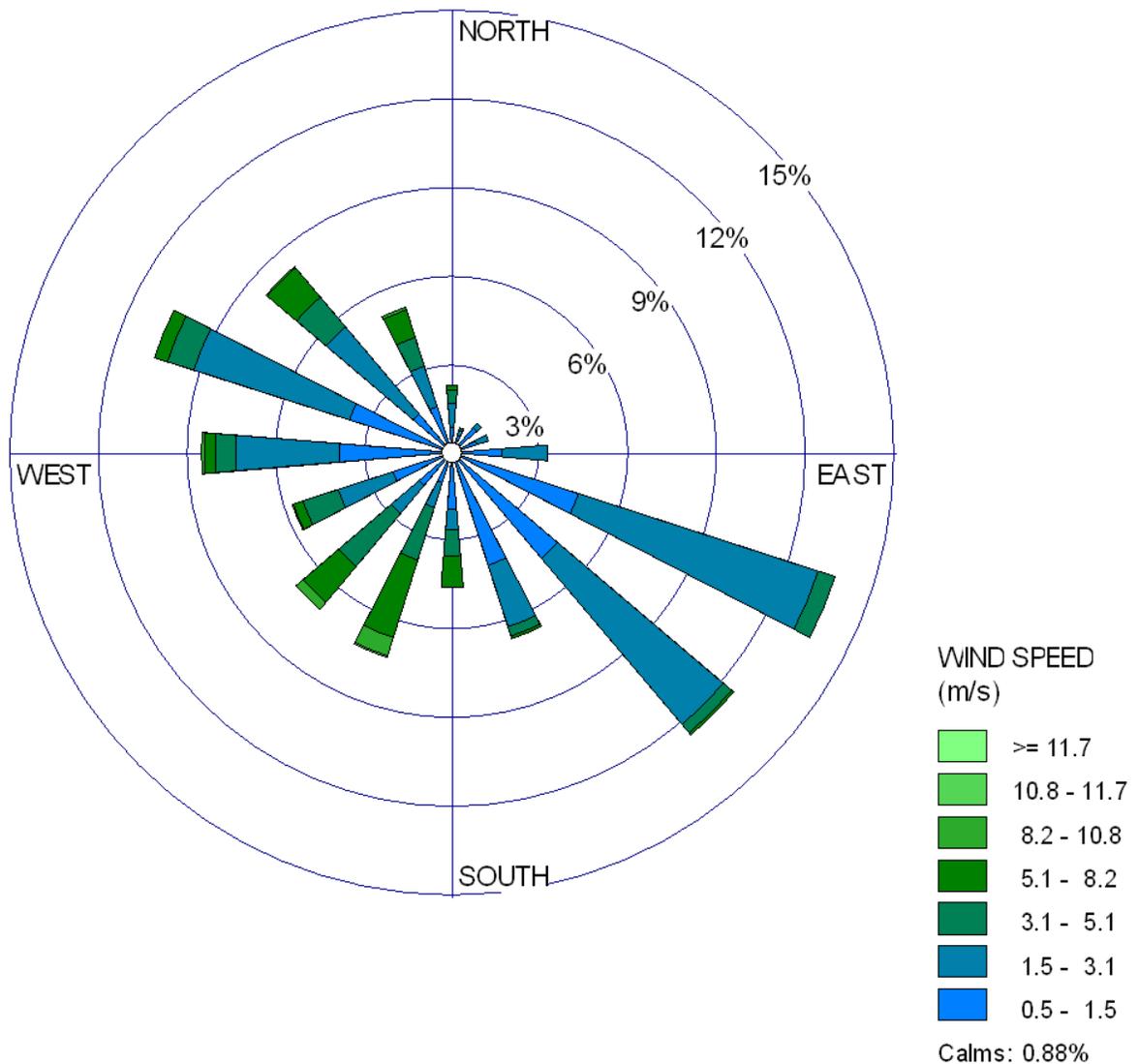
The monthly averages of meteorological parameters are summarized in Table 3.

**Table 3
Monthly Average Meteorological Parameters**

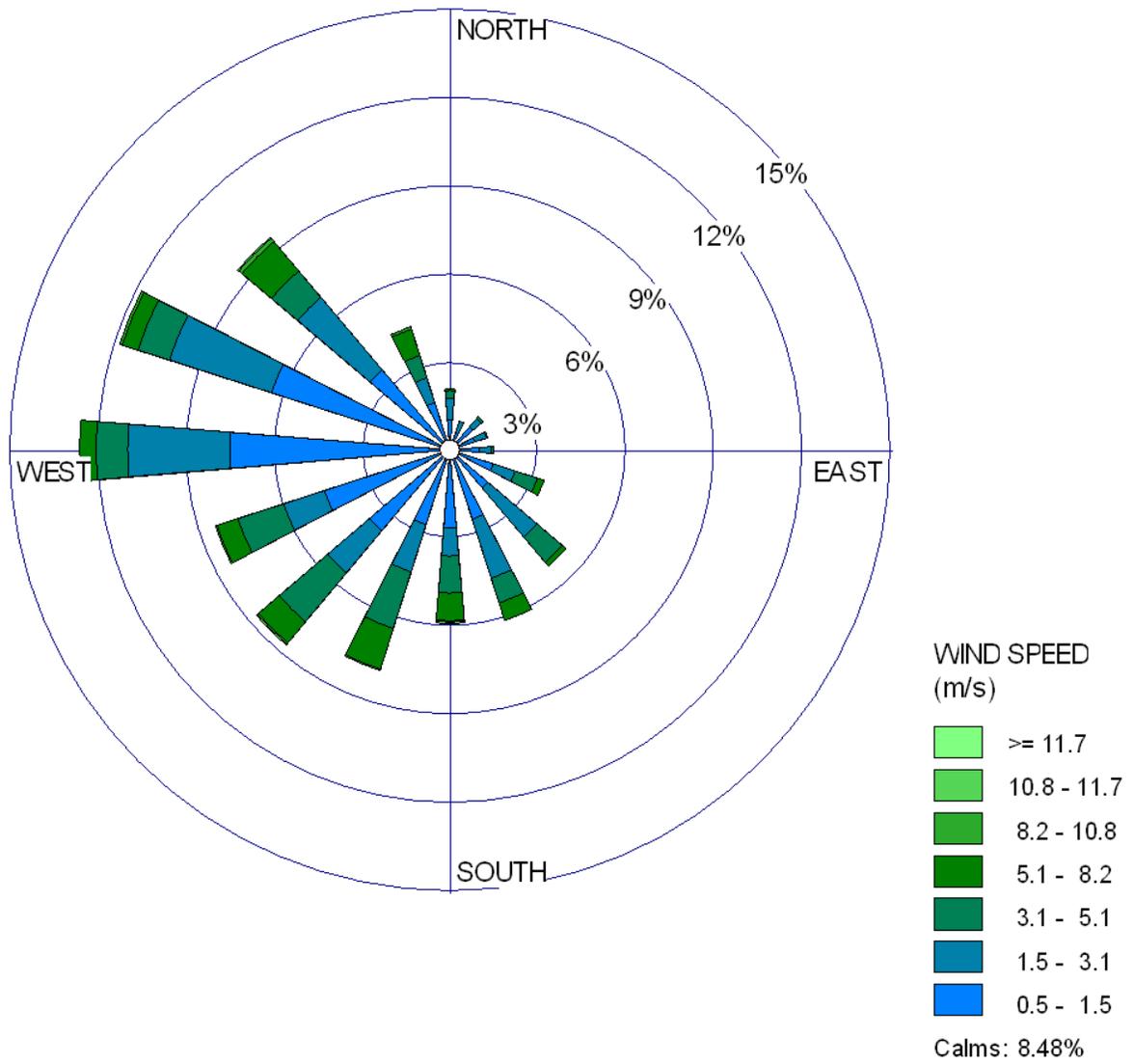
Meteorological Parameter	January		February		March	
	Met Site 1	Met Site 2	Met Site 1	Met Site 2	Met Site 1	Met Site 2
Wind Speed (m/s)	1.59	1.19	3.03	2.79	3.06	2.88
Wind Direction (deg)	209.61	262.68	211.91	241.36	195.69	236.63
Sigma Theta Wind	28.96	27.65	28.48	31.10	28.58	30.12
Vertical Wind Speed EPS (cm/s)	0.89	3.04	2.10	6.28	2.07	6.25
Vertical Wind Speed EPS Std	7.99	11.78	21.16	43.36	21.17	43.00
Vertical Wind Speed CFT (cm/s)	1.28	3.72	9.34	12.06	8.76	13.60
Vertical Wind Speed CFT Std	9.13	11.51	23.24	43.99	23.68	46.36
2m Temperature (°C)	-5.90	-5.23	-1.04	-0.81	6.58	6.87
10m Temperature (°C)	-4.85	N/A	-0.44	N/A	7.08	N/A
30m Temperature (°C)	N/A	-3.80	N/A	0.04	N/A	7.48
DeltaT (°C)	1.05	1.42	0.60	0.84	0.50	0.61
Relative Humidity (%)	71.78	68.89	53.48	51.02	42.81	41.16
Barometric Pressure (in. Hg)	24.69	24.61	24.59	24.50	24.58	24.50
Solar Radiation (W/m ²)	120.88	118.47	148.34	145.00	195.44	189.50
Gust Speed (m/s)	3.27	2.83	6.39	6.54	6.62	6.71
Gust Direction (deg)	243.67	276.91	221.95	245.20	197.10	235.99
Total Precipitation (in.)	0.12	N/A	0.24	N/A	0.46	N/A
Total Evaporation (in.) ⁽¹⁾	N/A	N/A	N/A	N/A	N/A	N/A
Average Daily Evaporation (in.) ⁽¹⁾	N/A	N/A	N/A	N/A	N/A	N/A

(1) The evaporation pan was removed from service on November 1, 2010 for the winter.

The wind roses for Met Sites 1 and 2 are shown below. As can be seen in the wind rose below, the wind direction at the 10m tower site (Met Site 1) is predominantly from the southeast, with less frequent, yet still prominent northwest and southwest components. The southeast/northwest wind directions depict the down-valley/up-valley flow through the area. The wind direction at the 30m tower site (Met Site 2 wind rose, below) is distributed predominantly from the west.



Met Site 1: 10m Wind Rose



Met Site 2: 30m Wind Rose

5.0 QUALITY ASSURANCE PROGRAM

5.1 Calibrations

Calibrations of meteorological instruments were performed on February 16, 2011 by IML personnel. A copy of the IML Calibration Report is provided in Appendix B.

5.2 Independent Audit Program

Independent auditing on the meteorological instruments was performed by IML on March 22, 2011. This was a shutdown audit as the meteorological equipment was subsequently removed from service on April 1, 2011. A copy of the IML Quality Assurance Shutdown Audit Report is included in Appendix C.

5.3 Internal Quality Control Procedures

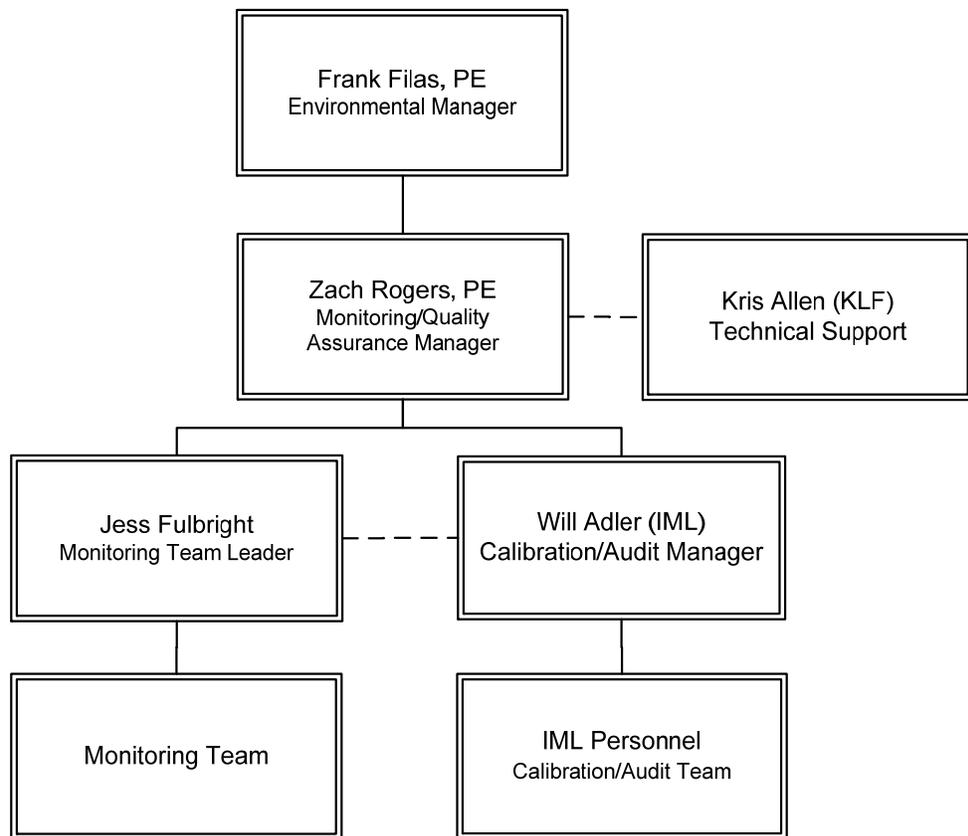
In the event of any operational errors a corrective action procedure is implemented. The quality assurance manager for the site will investigate the cause and effect of the incident, take corrective action, and prepare a letter to the CDPHE Air Pollution Control Division (APCD) and the Radiation Management Unit (RMU), as necessary. No significant operational errors occurred in the First Quarter 2011.

6.0 PERSONNEL

Project staff and their respective roles are detailed in Table 4. The overall project organization is shown schematically in the Project Organization Chart below.

Program administration, management, and quality assurance is performed by Energy Fuels Resources personnel. The Monitoring Team Leader will provide onsite oversight and will assist the field team with technical, operational, or other project-related issues. Meteorological equipment calibrations and audits and ambient air monitoring audits are performed by IML Air Science. Technical support is provided by Kleinfelder (KLF).

Project Organization Chart



**Table 4
Roles and Responsibilities**

Name	Project Role	Responsibilities	Experience
Frank Filas, PE	Environmental Manager	Program Management	Engineering, Licensing, Operations Management
Zach Rogers, PE	Monitoring/Quality Assurance Manager	Project Management, Quality Assurance, Report Preparation	Project Management, Field Operations, Air Quality, Quality Control, Meteorology
Jess Fulbright	Monitoring Team Leader/ Health & Safety Officer	Field Operations Management, Sampling, Health & Safety Compliance	Field Operations, Health & Safety Compliance
EFR Personnel	Monitoring Team	Sampling	Field Operations
Will Adler (IML)	Calibration/Audit Project Manager	Project Management, Field Work/Calibration/Audit	Project Management, Meteorology, Air Quality, Ambient Air Quality Modeling
IML Personnel	Calibration/Audit Team	Field Calibrations and Audits	Meteorology, Air Quality, Ambient Air Quality Modeling
Kris Allen, EIT (KLF)	Technical Support	Field Management, Air Quality Project Management	Air Quality, Field Management, Meteorology

7.0 STANDARDS AND REFERENCES

Colorado Department of Public Health and Environment (CDPHE), 2001. Ambient Air Monitoring Requirements for the Air Pollution Control Division of the Colorado Department of Public Health and Environment, Technical Services Program Air Pollution Control Division, April.

Energy Fuels Resources Corporation, 2008. Work Plan for Ambient Air Monitoring, Piñon Ridge Mill Site, July 18.

Environmental Protection Agency (EPA), 2000. Meteorological Monitoring Guidance for Regulatory Modeling Applications (MMGRMA) (EPA-454/R-99-005).

EPA, 1995. Quality Assurance Handbook for Air Pollution Measurement Systems. Vol. V, Meteorological Measurements. EPA/600/R-94/038d, U.S. Environmental Protection Agency, Research Triangle Park, NC.

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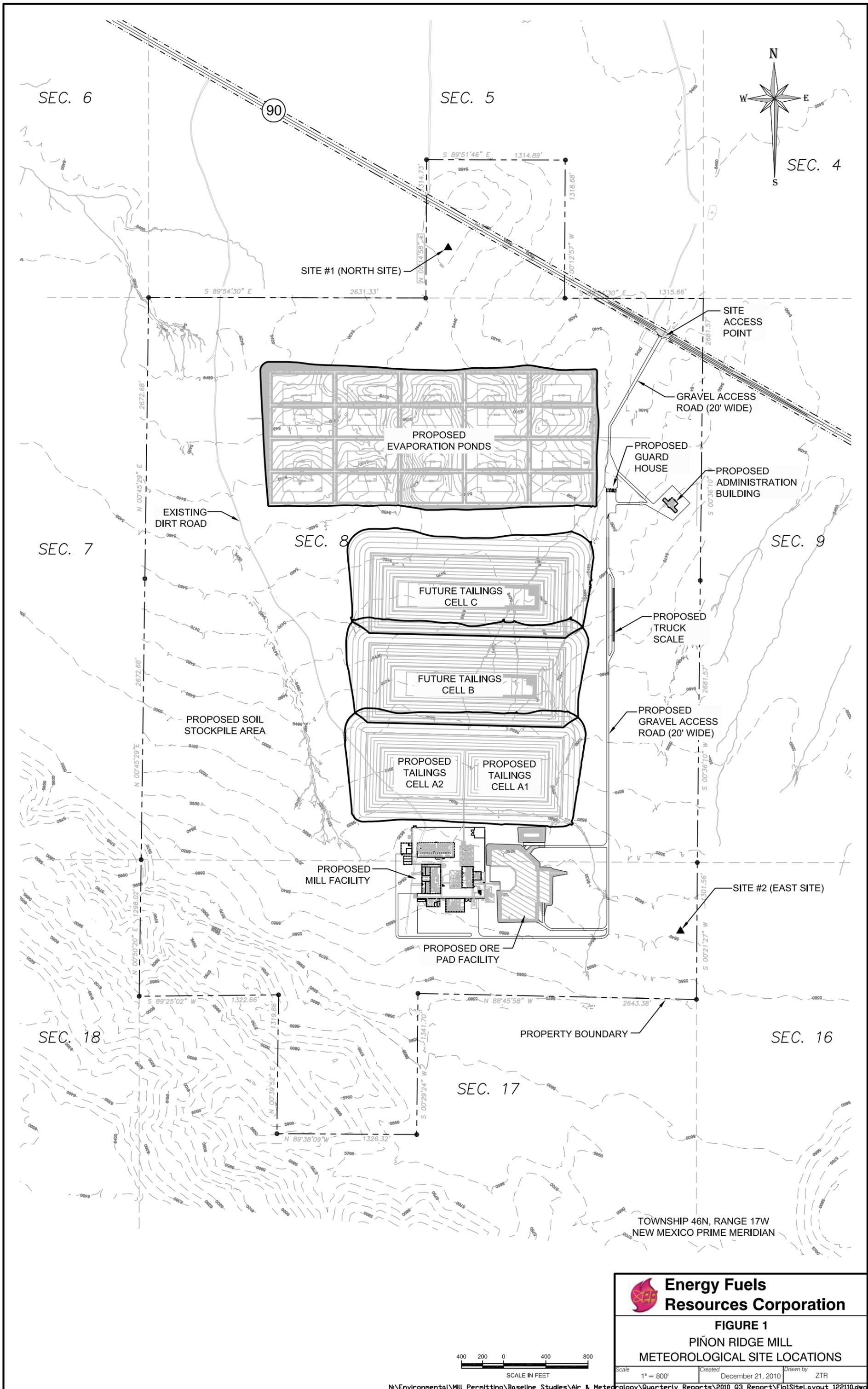
Kleinfelder West, Inc., 2009. Meteorology, Air Quality and Climatology Report, revision 1. October 9.

U.S. Nuclear Regulatory Commission Regulatory Guide, Office of Standards Development, Regulatory Guide 3.8 – Preparation of Environmental Reports for Uranium Mills, Revision 2, October 1982.

U.S. Nuclear Regulatory Commission Regulatory Guide, Office of Nuclear Regulatory Research, Regulatory Guide 3.63 – Onsite Meteorological Measurement Program For Uranium Recovery Facilities – Data Acquisition and Reporting, March 1988.

FIGURES

Figure 1 – Site Layout



Energy Fuels Resources Corporation

FIGURE 1
PIÑON RIDGE MILL
METEOROLOGICAL SITE LOCATIONS

Scale	1" = 800'	Created	December 21, 2010	Drawn by	ZTR
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