SECOND QUARTER 2010 DATA REPORT FOR METEOROLOGICAL MONITORING ENERGY FUELS RESOURCES CORPORATION URANIUM MILL LICENSING SUPPORT PIÑON RIDGE MILL MONTROSE COUNTY, COLORADO

July 19, 2010
Revision: 0

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1.0 INTRODUCTION

This quarterly report provides meteorological data required for the assessment of air quality. These data collected during the second quarter 2010 will be used to augment 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 were collected from the second quarter 2008 to the second quarter 2009 and was subsequently summarized in the Meteorology, Air Quality and Climatology Report, revision 1, dated October 9, 2009 and prepared by Kleinfelder. Meteorological and ambient air data were collected at five air monitoring stations (network) from the second quarter 2008 through the first quarter 2009, comprising 24 months of data which is twice the minimum required for permitting purposes. Ambient air monitoring was suspended at the end of the first quarter 2010 per the proposed changes to the monitoring program outlined in a letter to CDPHE dated March 12, 2010 and subsequently approved by CDPHE. In accordance with the approved monitoring program changes, meteorological monitoring will continue through the first quarter 2011. 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 the mill license (radioactive source materials license) will be issued and administered by CDPHE. 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 ¼ of the Southeast ¼ of Section 5, all of Section 8, the North ¼ of Section 17, and the Southeast ¼ of the Northwest ¼ 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
Monitor Site Locations

Site ID	UTM Zone 12 (NAD83)	
	Easting	Northing
Site #1 (North Site) – 10m Tower	695211.43	4237487.24
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% data recovery per quarter so as to meet a 90 percent data recovery requirement for a year.

Meteorological data were collected continuously at Sites #1 and #2 from April 1 to June 30, 2010 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 and AZ – Audit.

Daily, weekly, and monthly checks were performed on meteorological equipment at each 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.

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,
- relative humidity,
- delta temperature,
- 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, relative humidity, delta temperature, barometric pressure, and solar radiation are measured. At the ground level, precipitation and evaporation are measured.

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,
- relative humidity,
- delta temperature,
- 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, relative humidity, delta temperature, barometric pressure, and solar radiation are measured.

Sigma theta values for both sites are calculated from wind monitor readings. Wind gusts are measured at both of the 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 Site 1 was between 94.6 and 99.9 percent for all parameters. Data recovery at Site 2, also shown in Table 2, was 99.7 percent for all parameters. All parameters at both sites exceeded the 90 percent data recovery goal.

Table 2
Data Recovery for Meteorological Parameters

Meteorological Parameter	Data Recovery Site #1	Data Recovery Site #2
Wind Speed	99.9%	99.7%
Wind Direction	99.9%	99.7%
Sigma Theta Wind	99.9%	99.7%
Vertical Wind Speed EPS Avg	99.9%	99.7%
Vertical Wind Speed EPS Std	99.9%	99.7%
Vertical Wind Speed CFT Avg	99.9%	99.7%
Vertical Wind Speed CFT Std	99.9%	99.7%
2m Temperature	99.9%	99.7%
10m Temperature	99.9%	N/A
30m Temperature	N/A	99.7%
DeltaT Avg	99.9%	99.7%
Precipitation Total	94.6%	N/A
Relative Humidity Avg	99.9%	99.7%
RH Temperature Avg	99.9%	99.7%
Barometric Pressure	99.9%	99.7%
Solar Radiation Avg	99.9%	99.7%
Evaporation Level Avg	96.2%	N/A
Gust Speed	99.9%	99.7%
Gust Direction	99.9%	99.7%
Gust Time	99.9%	99.7%

N/A – Not Applicable. Sensors for 10-meter Temperatures, Evaporation, and Precipitation were not installed at Site 2. Sensors for 30-meter Temperature were not installed at Site 1.

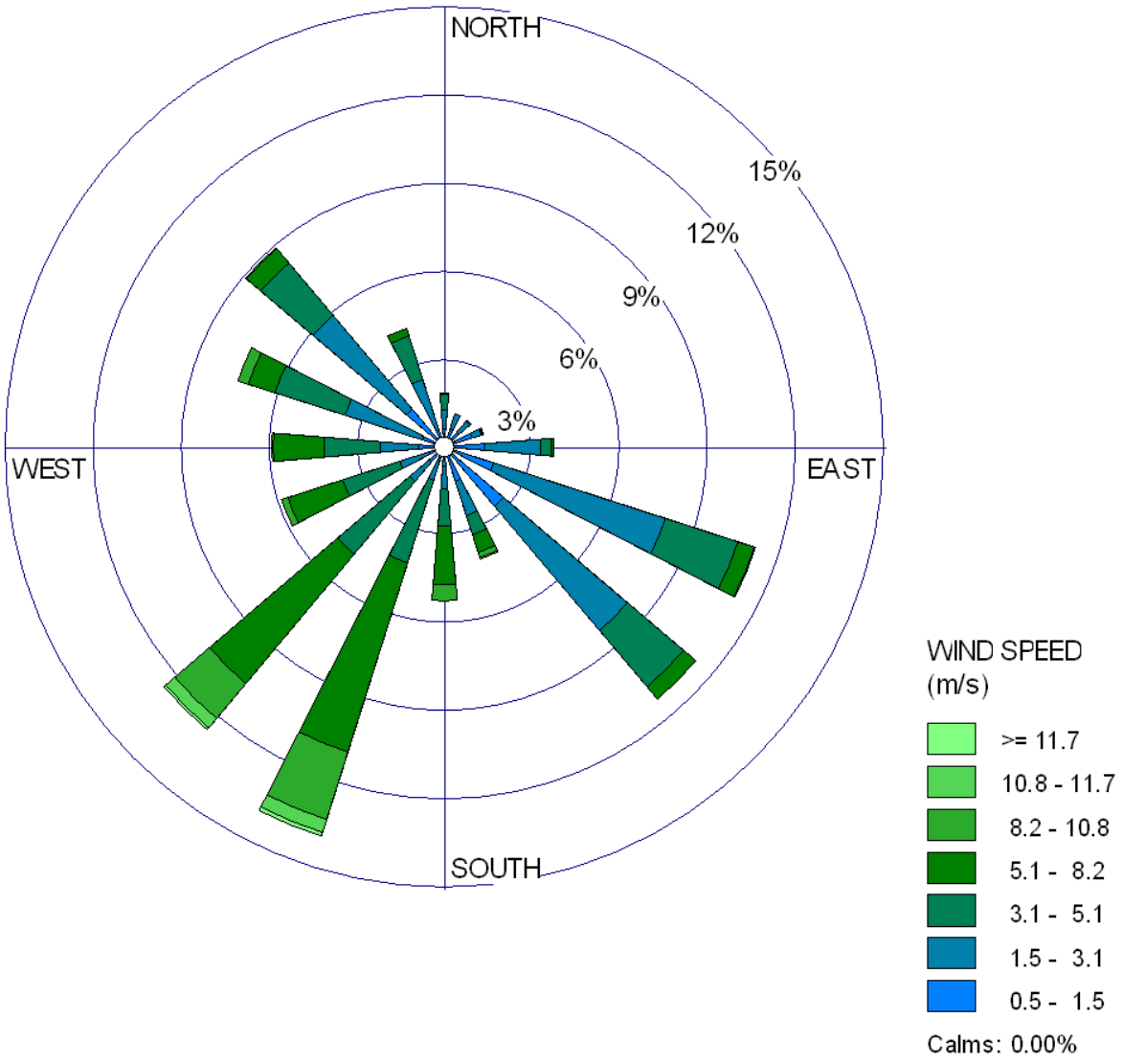
4.0 DATA ANALYSIS

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

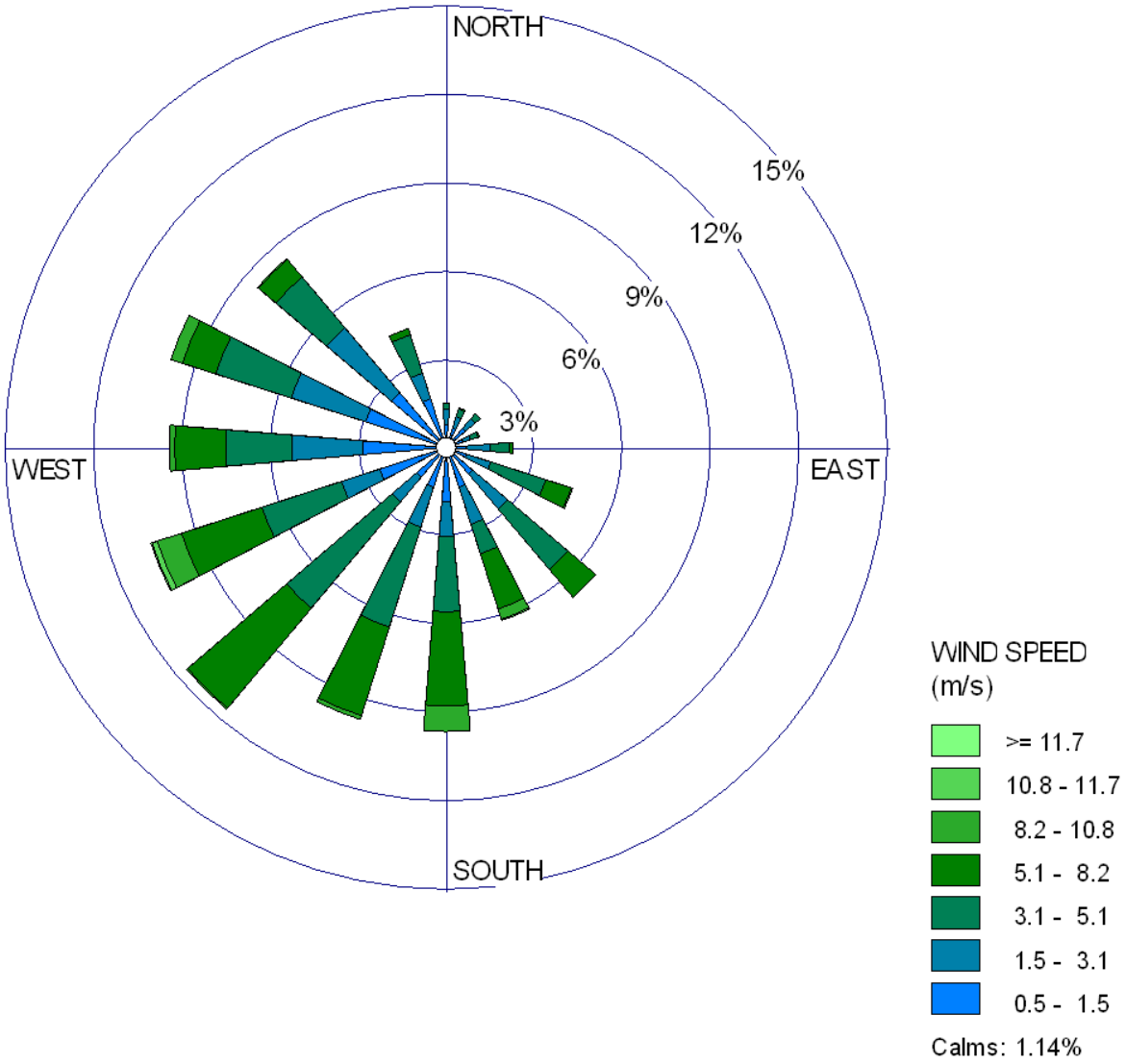
Table 3
Monthly Average Meteorological Parameters

	October		November		December	
Meteorological Parameter	**Site #1**	**Site #2**	**Site #1**	**Site #2**	**Site #1**	**Site #2**
Wind Speed (m/s)	3.86	3.62	4.29	3.75	3.63	3.36
Wind Direction (deg)	215.55	239.97	209.51	228.32	195.21	227.92
Sigma Theta Wind	26.15	31.79	25.53	33.66	26.97	32.88
Vertical Wind Speed EPS (cm/s)	2.48	7.15	2.36	6.36	2.21	6.13
Vertical Wind Speed EPS Std	27.44	54.39	30.33	64.10	23.71	49.26
Vertical Wind Speed CFT (cm/s)	13.78	18.43	17.51	17.81	14.08	18.34
Vertical Wind Speed CFT Std	29.84	60.06	33.38	69.67	26.52	53.97
2m Temperature (ºC)	9.75	9.92	14.21	14.35	22.27	22.55
10m Temperature (ºC)	10.02	N/A	14.42	N/A	22.62	N/A
30m Temperature (ºC)	N/A	9.95	N/A	14.54	N/A	23.01
DeltaT (ºC)	0.27	0.03	0.21	0.19	0.36	0.46
Relative Humidity (%)	39.50	37.81	31.65	30.72	25.27	24.38
RH Temperature (°F)	49.98	50.54	57.99	58.52	72.48	73.32
Barometric Pressure (in. Hg)	24.47	24.40	24.51	24.44	24.59	24.53
Solar Radiation (W/m^2)	255.46	250.43	305.32	301.45	324.98	319.46
Gust Speed (m/s)	8.16	8.49	9.11	9.24	7.56	7.78
Gust Direction (deg)	216.87	238.54	213.37	228.01	199.11	228.33
Total Precipitation (in.)	0.61	N/A	0.40	N/A	0.34	N/A
Total Evaporation (in.)	5.56	N/A	8.93	N/A	10.62	N/A
Average Daily Evaporation (in.)	0.19	N/A	0.29	N/A	0.35	N/A

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



Site 1: 10m Wind Rose



Site 2: 30m Wind Rose

5.0 QUALITY ASSURANCE PROGRAM

5.1 Calibrations

Calibrations of meteorological instruments are performed semi-annually and were not performed in the second quarter 2010. Calibrations of meteorological instruments were performed on January 27, 2010 by IML personnel. A copy of the IML Calibration and Quality Assurance Audit Report was provided in the First Quarter 2010 Ambient Air Monitoring Report.

5.2 Independent Audit Program

Audits of meteorological instruments were performed on April 26, 2010 by IML personnel. A copy of the IML Quality Assurance Audit Report is provided in Appendix B.

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.

One equipment failure occurred in the second quarter 2010. During the audit performed on April 26, 2010, it was discovered that the tip bucket on the rain gauge was not operating correctly due to physical interference from a power cord inside the rain gauge apparatus. The failure was corrected during the audit and the rain gauge subsequently passed the audit.

A rain gauge tip test had been performed during the previous regularly scheduled monthly check on April 6, 2010 and no errors were noted at that time. Based on the evaporation pan level data, it appears that the first precipitation event not recorded on the rain gauge began on April 21, 2010 at 19:00 MST. All rain gauge data from this point in time though the time of the audit and repair was qualified. It was determined that current practices in place, including biweekly visual checks of equipment and monthly tip tests, were adequate to prevent significant data loss. As such, no modifications to the monitoring program were made as a result of this equipment failure.

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 Air 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 West, Inc (KLF).

Project Organization Chart

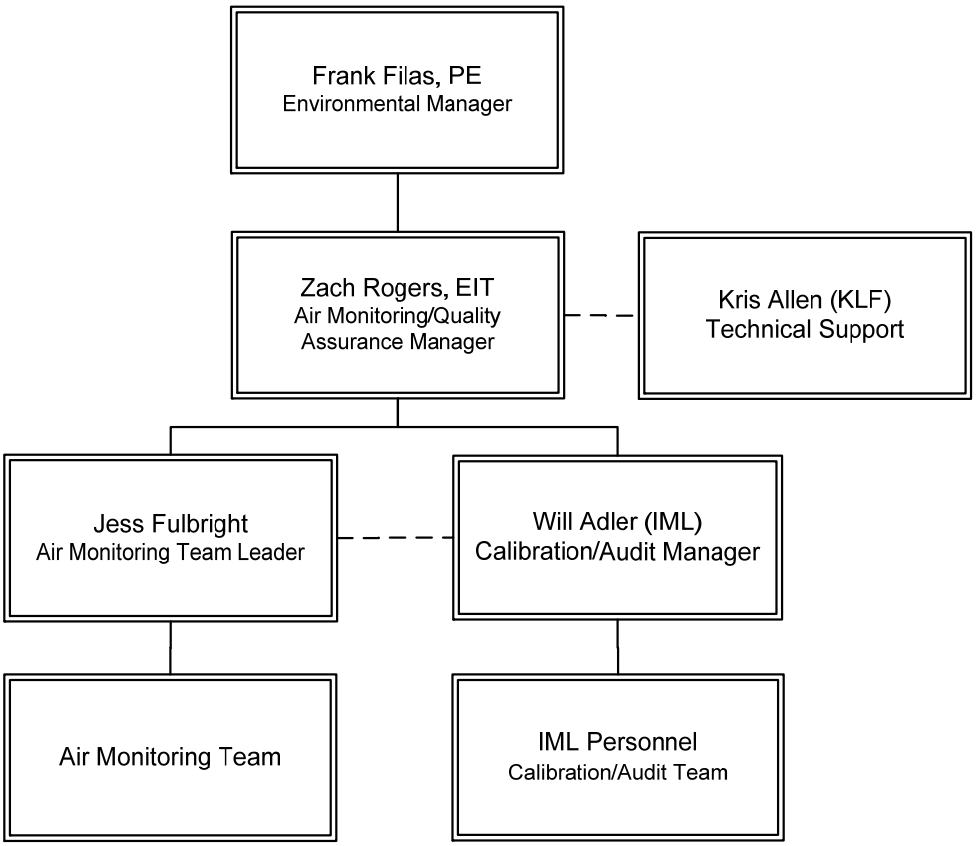


Table 4
Roles and Responsibilities

Name	Project Role	Responsibilities	Experience
Frank Filas, PE	Environmental Manager	Program Management	Engineering, Licensing, Operations Management
Zach Rogers, EIT	Air Monitoring/Quality Assurance Manager	Project Management, Quality Assurance, Report Preparation	Project Management, Field Operations, Air Quality, Quality Control, Meteorology
Jess Fulbright	Air Monitoring Team Leader/ Health & Safety Officer	Field Operations Management, Sampling, Health & Safety Compliance	Field Operations, Health & Safety Compliance
EFR Personnel	Air 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.

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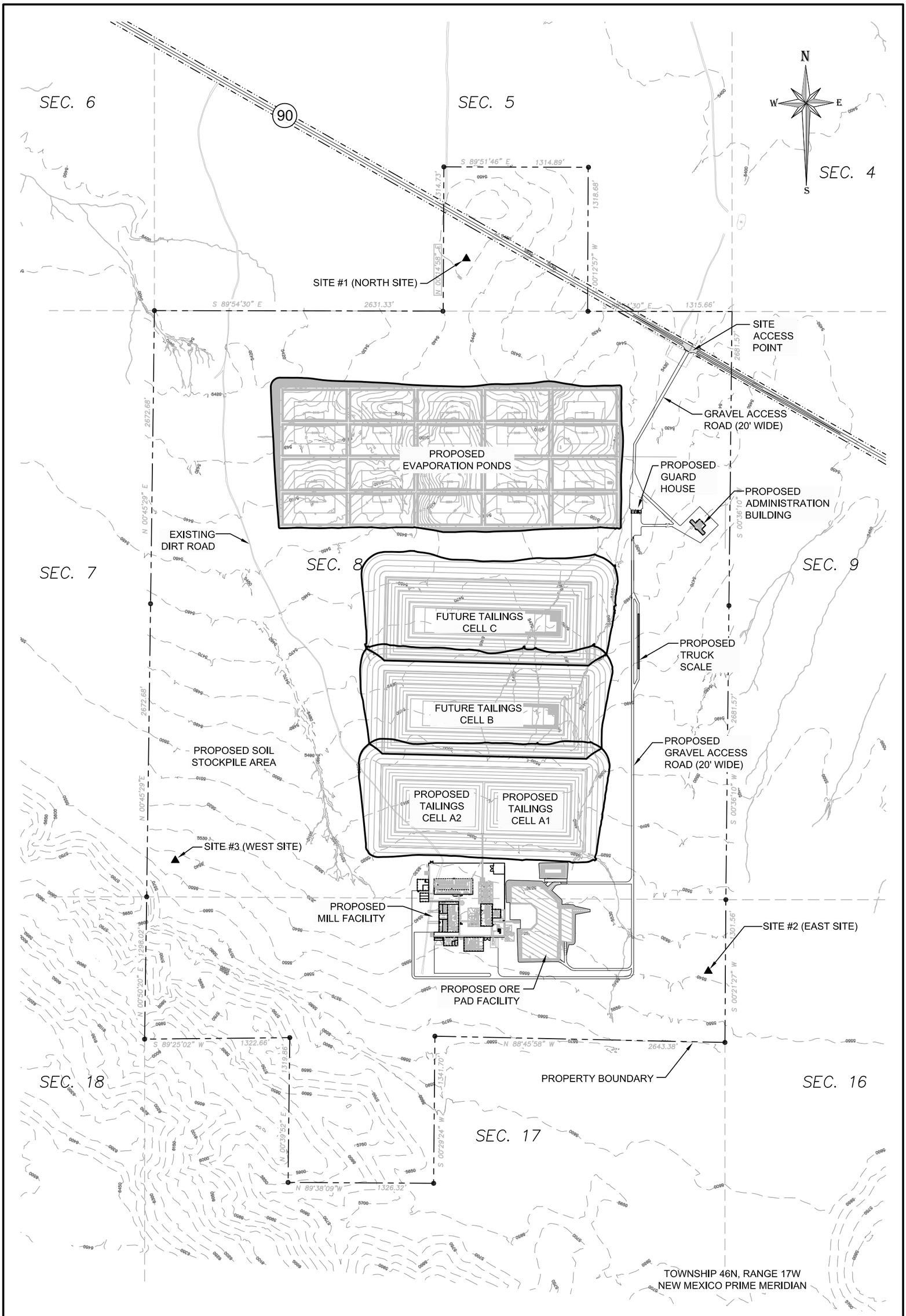
U.S. Nuclear Regulatory Commission Regulatory Guide, Office of Nuclear Regulatory Research, Regulatory Guide 3.63 – Onsite Meteorological Measurement Program For Uranium Recovery Facilities – Data Acquisition and Reporting, March 1988.

FIGURES

Figure 1 – Site Layout



Energy Fuels Resources Corporation

FIGURE 1

PIÑON RIDGE MILL
SITE LAYOUT

Scale	Created	Drawn by
1" = 800'	June 2, 2009	ZTR

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