Uranerz
ENERGY CORPORATION

March 4, 2015

Attn: Document Control Desk
Director
Office of Federal and State Materials and
Environmental Management Programs
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Protection
Mail Stop T-8F5
11545 Rockville Pike
Two White Flint North
Rockville, MD 20852-2738

Re: Semi-Annual Report Uranerz Energy Corporation Nichols Ranch ISR Project SUA-1597

Dear Director and Deputy Director,

This letter and attachment serves as the Semi-Annual Report for the Uranerz Energy Corporation Nichols Ranch ISR Project that is required by License Condition 11.1 B and D in SUA-1597.

Revised pages to the license application are enclosed in accordance with SUA-1597 License Condition 9.4E. An index of change has been included to guide insertion into the license application.

If you have any questions regarding the provided information, please contact me at 307-265-8900 or by email at mthomas@uranerz.com.

Sincerely,

Michael P. Thomas
Vice President Regulatory and Public Affairs
Uranerz Energy Corporation

MT/th

Attachments – July -December 2014 Semi-Annual Report

cc: Ron Linton, NRC Project Manager (email)
Mark Rogaczewski, WDEQ-LQD District III Supervisor (email)

FSME20

USA OPERATIONS
P.O. Box 50850 T: 307 265 8900
1701 East E Street F: 307 265 8904
Casper WY 82605-0850

CANADA OPERATIONS
Suite 1410 T: 604 689 1659
800 West Pender Street F: 604 689 1722
Vancouver BC V6C 2V6

NYSE Amex Exchange: URZ
Toronto Stock Exchange: URZ
Frankfurt Stock Exchange: U9E
www.uranerz.com

Uranerz
ENERGY CORPORATION

Nichols Ranch ISR Project
License Number SUA-1597
Docket No.40-9067

Semi-Annual Report

July - December 2014

Table of Contents

List of Appendices

1.0 INTRODUCTION

Uranerz received Source Material License SUA-1597 on July 19, 2011. In accordance with 10 CFR 40.65 and Source Material License SUA-1597 Uranerz Energy Corporation submits the 2014 Semi-Annual Effluent, Monitoring Report and Annual Report summarizing the operational and environmental activities monitored for the Nichols Ranch and Hank Units. Semi-Annual reporting is performed according to SUA-1597 License Condition 11.1 and includes information for the period of July 1, 2014 through December 31, 2014. Annual Reporting is submitted per License Conditions 9.4E, 10.11, 11.2 and 11.7.

2.0 OPERATIONAL MONITORING

2.1 Activities Summary

Uranerz continued production of the Nichols Ranch Unit Production Area #1 (PA#1) during the report period as summarized in Quarterly Reports submitted to the NRC on April 29, 2014 for first quarter, July 23, 2014 for second quarter, October 28, 2014 for the third quarter and January 28, 2015 for the fourth quarter. Production occurred in Header Houses 1 through 4 of PA #1. Please refer to the Quarterly Reports for additional information (e.g. production and bleed rates) as it is not going to be reproduced in the Semi-annual report.

Uranerz has no wellfields in restoration.

No operational activities occurred at the Hank Unit during the report period. The Environmental Assessment (EA) is pending with the Bureau of Land Management (BLM) for the 280 acres that the BLM manages.

2.2 Excursion Well Status

License Condition 11.1(B) requires a status update of any long term excursion. As reported in the Quarterly reports mentioned above, no wells were on excursion status during the report period.

2.3 Disposal Well Volumes

Uranerz presently has two permitted deep disposal permitted through the Wyoming Department of Environmental Quality, Water Quality Division (WDEQ-WQD).

License Condition 10.11 requires the volume disposed in each disposal well to be reported annually. The two deep disposal wells at the Nichols Ranch Unit, NICH DW-1 and NICH DW-4, were permitted for use by the WDEQ-WQD (permit 10-392) for the purpose of disposing the wellfield bleed to maintain a hydrologic inward gradient during production. The deep disposal wells were utilized subsequent to start-up in April 2014. Quarterly and annual reports pertaining to the use of the deep disposal wells are submitted to the WDEQ-WQD. As of the 4th Quarter Report submitted to WQD, 207,812 barrels (bbls), year to date, have been disposed using the deep wells.

2.4 Flow Rates and Manifold Pressures

Per License Condition 11.1C Uranerz is required to record flow rates and manifold pressures daily. A summary of these items was submitted in the above named Quarterly Reports.

Otherwise, these records are compiled and available to inspectors on site upon their request as required by License Condition 11.1C.

2.5 Summary of Mechanical Integrity Testing (MIT) Data

The number of wells installed and mechanical integrity test (MIT) status (License Condition 11.1B) is reported in Quarterly Reports to the NRC. Please refer to Quarterly Reports submitted April 29, 2014, July 23, 2014, October 28, 2014 and January 28, 2015.

2.6 Restoration

No areas are in restoration for the reporting period.

3.0 ENVIRONMENTAL MONITORING

3.1 Ground Water Monitoring

In accordance with License Condition 11.5 monitor wells in the production area (perimeter, overlying and underlying wells) are sampled for excursion parameters. Results of the monitor well samples are provided in Quarterly Reports submitted to the NRC.

License Condition 11.7 requires sampling of domestic and livestock wells to be sampled within 1 km of the production area on an annual basis. Collected samples are analyzed at an offsite laboratory for natural uranium, radium-226, and those constituents, chloride, conductivity, and alkalinity, as listed in Section 5.7.8.9 of the license application. The results for Nichols Ranch are located in Appendix A of this report. As per discussion with NRC staff, the Hank Unit is not operational at this time, therefore, ground water monitoring will not occur until production begins in that area. Baseline sampling for the Hank Unit was completed and approved with the issuance of the NRC license.

The surficial aquifer well, URNZG-15, located in Production Area #1 was sampled during the report period. In accordance with License Condition 11.3C the surficial well is analyzed for parameters listed in Table D6-6a of the license application. Sampling was attempted; however, no water was available to sample during the report period. The sampling dates for the surficial well are as follows.

Date	Water Level Results
7/1/2014	dry
8/14/2014	dry
9/15/2014	dry
10/16/2014	dry
11/20/2014	dry
12/8/2014	dry

3.2 Surface Water Monitoring

In accordance with Section 5.7.7.3.1 of the license application surface water will be collected and analyzed for total uranium, Th-230, Ra-226, and Pb-210. There are two surface water self-samplers located at the Nichols Ranch Unit. Grab samples from the surface water sampling locations were collected in August, 2014. Sample results are provided in Appendix B. As per discussion with NRC staff, the Hank Unit is not operational at this time, therefore, surface water monitoring will not occur until production begins in that area. Baseline sampling for the Hank Unit was completed and approved with the issuance of the NRC license.

3.3 Summary of Unplanned Releases

There were four reportable unplanned releases of production solution during the reporting period. Verbal notifications, emails, and written notifications regarding the reportable unplanned releases were provided to the NRC and WDEQ-LQD in accordance with regulation. Please refer to the written notifications for information regarding documentation pertaining to the unplanned releases. Unplanned release documents are maintained onsite per License Condition 11.6.

3.4 Sediment and Soil Sampling

In accordance with Volume I, Section 5.7.7.5 of the license application, sediment samples will be collected annually and analyzed for uranium, radium-226, lead-210 and thorium.

Soil samples are also collected annually in the vicinity of air particulate stations as described in NRC Regulatory Guide 4.14. The sediment and soil analyses will be included in the Annual and Semi-Annual Effluent Report submitted in January 2015. Appendices C and D contain the Nichols Ranch sediment and soil sampling results, respectively. As per discussion with NRC staff, the Hank Unit is not operational at this time, therefore, sediment and soil monitoring will not occur until production begins in that area. Baseline sampling for the Hank Unit was completed and approved with the issuance of the NRC license.

3.5 Air Particulate, Radon, and Gamma Radiation Monitoring

Uranerz maintains an environmental air monitoring program at six locations around the licensed Nichols Ranch facility. These stations are used to monitor air particulates, radon, and passive gamma measurements. Uranerz also maintains radon monitors at four locations surrounding the active wellfield and eight surrounding the CPP. These are compared to background for use in calculating annual dose to the public.

The air station locations are as follows:

- NA-1 monitors the nearest full time resident at Dry Fork Ranch
- NA-2 is at the southern license boundary and monitors the down wind conditions of the north west winds for the CPP.
- NA-3 is at the northern license boundary and monitors the downwind conditions of south west winds for the wellfield and the CPP
- NA-4 is at the easterly license boundary and is the background station being upwind from the wellfield and the CPP.
- NA-5 is located on the westerly boundary and monitors the down wind conditions of the easterly winds that occur at night.

- NA-6 is located north east of the CPP and monitors the man camp that is the maximally exposed member of the public.

Air Particulate samples are collected weekly and then composited quarterly for analysis by an outside laboratory. Review of the data shows that the concentration of the parameters are less than the 10 CFR 20 Appendix B, Effluent Concentration Limits. Appendix E shows the air particulate data collected for 2014.

Radon gas is monitored continuously at the six air particulate stations. These locations are used for environmental monitoring. There are eight additional radon detectors surrounding the CPP which are used for public dose assessments and for personnel dose assessments. There are also four radon monitors surrounding the active wellfield which are used for public as well as personnel dose assessments. Passive outdoor radon detectors are exchanged quarterly or semi-annually, as required, and sent to Landauer for analysis. The data is shown in Appendix F. Data is given as raw data without subtracting the background location. These values will be compared to radon daughter effluent releases found in 10 CFR 20 Appendix B values to assess dose to the public.

Passive gamma radiation is monitored continuously at the six air particulate stations and at other monitoring stations located throughout the licensed area. The added locations are additional data points that are intended to be used for determining dose to the public. The monitoring is performed using Optically Stimulated Luminescence (OSL) dosimeters that are exchanged and analyzed by Landauer quarterly. The passive gamma radiation monitoring data is shown in Appendix G. Data is given as raw data without subtracting the control badge.

3.6 Effluent Monitoring Program

The effluent monitoring program is designed to meet the requirements of 10 CFR 40.65. Sampling occurs inside the central processing plant and the header houses to measure long-lived particulate effluents. These measurements were initially taken once a week for at least four weeks and are now being measured once a month in accordance with NRC Regulatory Guide 8.30. The Deep Disposal Wells (DDW) are sampled once a month for long-lived particulate effluents and radon effluents. These results are summarized in Appendix H.

Sampling occurs inside the central processing plant and the header houses using the modified Kusnetz method to measure radon effluents. These measurements were initially taken once a week for at least four weeks and are now being measured once a month in accordance with NRC Regulatory Guide 8.30. The DDW are sampled once a month for radon effluents using the modified Kusnetz method. Radon monitoring also includes quarterly samples of at least 10% of operational recovery wells using the modified Kusnetz method as well as measurements of radon emitted from point source tank ventilation located in the CPP using Method 115 from 40 CFR 61 Appendix B. These results are summarized in Appendix I.

The total effluents emitted during 2014 are a sum of each sources effluents and are calculated for long-lived particulate and radon effluents below. These amounts will be compared to operational projections in the license application and will be analyzed and summarized in the annual ALARA report. Average concentrations are taken from Appendix H and Appendix I and the background (BKD) concentration for U-Nat is taken from averaging the concentration of U-Nat for NA-4 for the year (which is 1.0E-16 uCi/ml). The average concentration of radon is taken from averaging the concentration of radon for NR-5 for the year (which is 5.67E-10).

$$Total\ Effluent\ of\ U-Nat\ (2014) = (CPP\ \ uCi) + (Header\ House\ uCi) + (DDW\ uCi)$$

$$CPP\ (uCi) = \left[Avg.Conc\left(\frac{uCi}{ml}\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 13{,}500(cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$Header\ House\ (uCi) = \left[Avg.Conc\left(\frac{uCi}{ml}\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 1{,}275(cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$DDW\ (uCi) = \left[Avg.Conc\left(\frac{uCi}{ml}\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 1{,}275(cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$CPP\ (uCi) = (1.22E^{-12} - 1.0E^{-16}) * 13{,}500 * 28{,}316 * 374{,}400 = 175\ uCi$$

$$Header\ House\ (uCi) = (1.03E^{-12} - 1.0E^{-16}) * 1{,}275 * 28{,}316 * 374{,}400 = 14\ uCi$$

$$DDW\ (uCi) = (9.98E^{-13} - 1.0E^{-16}) * 1{,}275 * 28{,}316 * 374400 = 13\ uCi$$

$$\boldsymbol{Total\ Effluents\ of\ U-Nat\ (2014) = 175 + 14 + 13 = 202\ uCi\ of\ U-Nat}$$

$$Total\ Effluents\ of\ Radon\ and\ its\ Progeny\ (2014) = (CPP\ \ (uCi) + (CPP\ Tanks\ (uCi) + (Header\ House\ (uCi) + (DDW\ (uCi) + (Spills\ (uCi)$$

$$CPP\ (uCi) = \left[\left(Avg.Conc\ (WL) * 9.1E^{-8}\left(\frac{uCi/ml}{WL}\right)\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 13{,}500\ (cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$CPP\ Tanks(uCi) = \left[\left(Avg.Conc\ (WL) * 9.1E^{-8}\left(\frac{uCi/ml}{WL}\right)\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 293\ (cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$Header\ House\ (uCi) = \left[\left(Avg.Conc\ (WL) * 9.1E^{-8}\left(\frac{uCi/_{ml}}{WL}\right)\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 1{,}750\ (cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$DDW\ (uCi) = \left[\left(Avg.Conc\ (WL) * 9.1E^{-8}\left(\frac{uCi/_{ml}}{WL}\right)\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 1{,}750\ (cfm) * 28{,}316\left(\frac{ml}{ft^3}\right) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$Recovery\ Wells\ (uCi) = \left[\left(\frac{Avg.Conc\ (WL)}{Well} * 9.1E^{-8}\left(\frac{uCi/_{ml}}{WL}\right)\right) - BKD\ Conc.\left(\frac{uCi}{ml}\right)\right] * 110(average\ number\ of\ operational\ recovery\ wells) * 15{,}000\ (emmision\ rate\ in\ ml) * 374{,}400(minutes\ of\ operations\ in\ 2014)$$

$$CPP\ (uCi) = [(0.0085 * 9.1E^{-8}) - 5.67E^{-10}] * 13{,}500 * 28{,}316 * 374{,}400 = 30{,}151\ uCi$$

$$CPP\ Tanks\ (uCi) = [(1.7958 * 9.1E^{-8}) - 5.67E^{-10}] * 293 * 28{,}316 * 374{,}400 = 505{,}840\ uCi$$

$$Header\ House\ (uCi) = [(0.0087 * 9.1E^{-8}) - 5.67E^{-10}] * 1{,}750 * 28{,}316 * 374{,}400 = 3{,}060\ uCi$$

$$DDW\ (uCi) = [(0.0071 * 9.1E^{-8}) - 5.67E^{-10}] * 1{,}750 * 28{,}316 * 374{,}400 = 1{,}083\ uCi$$

$$Recovery\ Wells\ (uCi) = [(0.0372 * 9.1E^{-9}) - 5.67E^{-10}] * 110 * 15{,}000 * 374{,}400 = 349\ uCi$$

$$\textbf{\textit{Total Effluents of Radon and its Progeny}}\ \textbf{(2014)} = \mathbf{30{,}151 + 505{,}840 + 3{,}060 + 1{,}083 + 349} = \mathbf{540{,}483\ uCi\ of\ Radon\ and\ its\ Progeny}$$

4.0 SUMMARY OF EMPLOYEE URINALYSIS RESULTS

Bioassay samples are collected on all employees at initial hiring. Monthly samples are collected from plant operators. Analysis is performed by an outside laboratory. The bioassay results are summarized annually, pursuant to 10 CFR Part 20, Subpart M and will be included in the annual ALARA review. During the year of 2014 no employees exceeded detectable limits on a bioassay sample.

5.0 PUBLIC DOSE

10 CFR 20.1301 requires that each NRC licensee conduct their operations in a manner that the total effective dose equivalent (TEDE) to members of the public does not exceed 100 mrem in a year, and that the dose from external sources in any unrestricted area does not exceed 2 mrem in any hour.

Additionally, 10 CFR 20.1302 requires licensees to show compliance to these dose limits by demonstrating one of the following:

1. Show by actual measurement or calculation that the TEDE to the public does not exceed 100 mrem; or
2. Show that the annual average concentration of radioactive effluent released at the restricted boundary does not exceed the values in Table 2 of Appendix B in 10 CFR 20. Also, that the external dose to an individual continuously present in an unrestricted area would not exceed 2 mrem in an hour.

The public dose is summarized annually and will be included in the annual ALARA report as required in license condition 11.2. As previously stated some measurements used for public dose determination are completed on a semi-annual basis. Since these monitors were placed in service in October of 2014 results will not be received until after the measurements have been completed at the beginning of April 2015.

6.0 SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP) EVAULATIONS

Per License Condition 9.4E, Uranerz shall furnish, in an annual report to the NRC, a description of such changes, tests, or experiments, including a summary of the evaluations made by the safety and environmental evaluation panel (SERP). Uranerz held a total of six (6) SERPs, four of which were completed during the year. A summary of SERPs completed in 2014 is included in Appendix J.

7.0 ALARA REVIEW

As required by License condition 11.2, the licensee shall submit the results of the annual review of the radiation protection program content and implementation performed in accordance with 10 CFR 20.1101(c). These results shall include doses to individual members of the public. This submittal will occur once the Nichols Ranch facility has processed licensed material for a calendar year. After the year, an ALARA audit will occur and will be submitted with the semi-annual effluent report in July 2015. This allows all data from the fourth quarter to arrive before issuing doses to the public.

8.0 SURETY

All activities conducted, to date, at the Nichols Ranch ISR Project are covered in the surety estimate as required by License Condition 9.5. The surety estimate is reviewed annually and submitted to the NRC by December 29. The WDEQ-LQD also requires an annual surety review in December and therefore Uranerz reviews the surety annually in December, thus aligning the NRC and LQD surety reviews for consistency, standardization and reduced redundancy. Uranerz updated the surety estimate and submitted it to the NRC on December 18, 2014.

Appendix A

Livestock and Domestic Wells Within 1 Kilometer

Water Quality Analysis

July to December 2014 Semi-Annual Report

Sample Location	Sample Date	Uranium-Natural (Total)		Radium 226			Alkalinity (mg/L)	Conductivity (umhos/cm)	Chloride (mg/L)
		Concentration (mg/L)	Reporting Limit (mg/L)	Concentration (pCi/L)	Precision (±) (pCi/l)	MDC or RL (pCi/L)			
Nichols Ranch Unit									
DW-4L	1 Jul 14	0.0199	0.0003	0.11	0.11	0.16	113	607	10
DW-4M	26 Jun 14	ND	0.0003	0.17	0.11	0.14	147	1520	31
DW-4U	26 Jun 14	0.0668	0.0003	0.54	0.17	0.16	129	1450	6
Nichols #1	1 Jul 14	0.0269	0.0003	0.06	0.10	0.16	133	492	6
Pats #1	11 Dec 14	0.0431	0.0003	0.39	0.14	0.15	126	614	7
Pug #2	11 Dec 14	ND	0.0003	0.08	0.10	0.14	251	491	4
Red Springs Artesian	26 Jun 14	0.0159	0.0003	0.25	0.13	0.15	401	2500	7
Dry Fork #3	Not Sampled, Dry Well (Checked November 18, 2014)								
Pug #1	Not Sampled, Dry Well (Checked November 18, 2014)								

Notes:

ND =Not Detected at the Reporting Limit

MDC = Minimum Detectable Concentration

RL = Reporting Limit

Appendix B

Uranerz Surface Water Quality Analysis

July-December 2014 Semi-Annual Report

Sample Location	Sample Date	Uranium-Natural (Total)		Radium 226			Lead 210			Thorium 230		
		Concentration (mg/L)	Reporting Limit (mg/L)	Concentration (pCi/L)	Precision (±) (pCi/L)	MDC or RL (pCi/L)	Concentration (pCi/L)	Precision (±) (pCi/L)	MDC or RL (pCi/L)	Concentration (pCi/L)	Precision (±) (pCi/L)	MDC or RL (pCi/L)
NRSSW (Cottonwood D Nichols)	6 Aug 14	0.0007	0.0003	0.43	0.14	0.16	1.3	0.7	1.1	0.16	0.07	0.2
NRSSE (Cottonwood U Nichols)	6 Aug 14	0.0017	0.0003	1.1	0.19	0.15	2.8	0.7	1.1	0.10	0.10	0.2

Notes:

ND =Not Detected at the Reporting Limit

MDC = Minimum Detectable Concentration

RL = Reporting Limit

Appendix C

Uranerz Sediment Analysis

July-December 2014 Semi-Annual Report

Sample Location	Sample Date	Uranium-Natural (Total)		Radium 226			Lead 210			Thorium 230		
		Concentration (mg/kg-dry)	Reporting Limit (mg/kg-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)
NRSSW (Cottonwood D Nichols)	5 Aug 14	2.8	0.02	1.1	0.09	0.03	2.4	0.2	0.2	0.8	0.3	0.2
NRSSE (Cottonwood U Nichols)	5 Aug 14	5.0	0.02	1.1	0.10	0.04	1.8	0.2	0.2	0.6	0.2	0.2

Notes:

ND =Not Detected at the Reporting Limit

MDC = Minimum Detectable Concentration

RL = Reporting Limit

Appendix D

Uranerz Soil Analysis

July-December 2014 Semi-Annual Report

Sample Location	Sample Date	Uranium-Natural (Dissolved)		Radium 226			Lead 210			Thorium 230		
		Concentration (mg/kg-dry)	Reporting Limit (mg/kg-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)	Concentration (pCi/g-dry)	Precision (±) (pCi/g-dry)	MDC or RL (pCi/g-dry)
SS-1 (Previously reported as NA-1)	19 Jun 14	1.7	0.1 *	0.8	0.08	0.03	0.6	0.1	0.2	0.8	0.3	0.2
SS-2 (Previously reported as NA-2)	19 Jun 14	1.0	0.1 *	1.5	0.10	0.03	1.2	0.1	0.2	1.2	0.3	0.2
SS-3 (Previously reported as NA-3)	19 Jun 14	0.4	0.1 *	0.5	0.06	0.03	0.3	0.1	0.2	0.4	0.2	0.1
SS-3 (Duplicate)	19 Jun 14	0.4	0.1 *	0.4	0.05	0.03	0.3	0.1	0.2	0.4	0.2	0.1
SS-4 (Previously reported as NA-4)	19 Jun 14	0.7	0.1 *	0.7	0.07	0.03	0.5	0.1	0.2	0.4	0.2	0.2
SS-5 (Previously reported as NA-5)	19 Jun 14	0.6	0.1 *	0.6	0.06	0.03	0.4	0.1	0.2	0.4	0.2	0.1
SS-6 (Previously reported as NA-6)	19 Jun 14	0.9	0.1 *	0.4	0.05	0.03	1.0	0.1	0.2	0.4	0.2	0.2
SS-7	19 Jun 14	1.0	0.1 *	0.7	0.07	0.03	0.8	0.1	0.2	0.8	0.2	0.2

Notes:

ND =Not Detected at the Reporting Limit

MDC = Minimum Detectable Concentration

RL = Reporting Limit

*** Reporting limit incresed due to sample matrix**

Uranerz Energy Corporation
Appendix E
Air Particulate Data
July - December 2014

Sample Location	Sample Period	Radionuclide	Concentration (µCi/ml)	Error ±(µCi/ml)	LLD (µCi/ml)	10CFR 20 APP B Table 2 Values (µCi/ml)	Percent Concentration %
NA-1 Air Station Nearest Resident	1st Quarter 2014	U-Nat	1.1E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.7E-14	1.6E-15	2.0E-15	6E-13	2.8
	2nd Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.2E-16	3.7E-17	1.0E-16	9E-13	0.0
		Pb-210	1.7E-14	1.7E-15	2.0E-15	6E-13	2.8
		Po-210	5.8E-15	1.9E-15	0.0E+00	9E-13	0.6
	3rd Quarter 2014	U-Nat	1.4E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	1.1E-16	8.4E-17	1.0E-16	3E-14	0.4
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb-210	1.8E-14	2.9E-15	2.0E-15	6E-13	3.0
		Po-210	3.4E-15	9.3E-16	0.0E+00	9E-13	0.4
	4th Quarter 2014	U-Nat	2.8E-16	NA***	1.0E-16	9E-14	0.3
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.1E-16	3.7E-17	1.0E-16	9E-13	0.0
		Pb-210	2.0E-14	2.2E-15	2.0E-15	6E-13	3.3
		Po-210	2.6E-15	1.1E-15	0.0E+00	9E-13	0.3
NA-2 Air Station Downwind Southern Boundary	1st Quarter 2014	U-Nat	1.0E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.1E-14	1.2E-15	2.0E-15	6E-13	1.8
	2nd Quarter 2014	U-Nat	2.0E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.4E-16	3.2E-17	1.0E-16	9E-13	0.0
		Pb-210	1.3E-14	1.4E-15	2.0E-15	6E-13	2.2
		Po-210	6.8E-15	1.9E-15	0.0E+00	9E-13	0.8
	3rd Quarter 2014	U-Nat	1.2E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb-210	2.5E-14	2.9E-15	2.0E-15	6E-13	4.2
		Po-210	3.5E-15	8.1E-16	0.0E+00	9E-13	0.4
	4th Quarter 2014	U-Nat	2.7E-16	NA***	1.0E-16	9E-14	0.3
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.1E-16	3.8E-17	1.0E-16	9E-13	0.0
		Pb-210	2.0E-14	2.2E-16	2.0E-15	6E-13	3.3
		Po-210	2.0E-15	9.6E-16	0.0E+00	9E-13	0.2

Uranerz Energy Corporation
Appendix E
Air Particulate Data
July - December 2014

Sample Location	Sample Period	Radionuclide	Concentration (µCi/ml)	Error ±(µCi/ml)	LLD (µCi/ml)	10CFR 20 APP B Table 2 Values (µCi/ml)	Percent Concentration %
NA-3 Air Station Downwind North Boundary	1st Quarter 2014	U-Nat	1.1E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.4E-14	1.4E-15	2.0E-15	6E-13	2.3
	2nd Quarter 2014	U-Nat	1.3E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.5E-16	3.6E-17	1.0E-16	9E-13	0.0
		Pb-210	1.2E-14	1.6E-15	2.0E-15	6E-13	2.0
		Po-210	9.1E-15	2.5E-15	0.0E+00	9E-13	1.0
	3rd Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	3.6E-16	7.1E-17	1.0E-16	9E-13	0.0
		Pb-210	1.7E-14	2.6E-15	2.0E-15	6E-13	2.8
		Po-210	3.4E-15	8.2E-16	0.0E+00	9E-13	0.4
	4th Quarter 2014	U-Nat	1.9E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb-210	1.9E-14	2.1E-15	2.0E-15	6E-13	3.2
		Po-210	3.8E-15	1.3E-15	0.0E+00	9E-13	0.4
NA-4 Air Station Background Site	1st Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.5E-14	1.3E-15	2.0E-15	6E-13	2.5
	2nd Quarter 2014	U-Nat	5.1E-15	NA***	1.0E-16	9E-14	5.7
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb-210	1.2E-14	1.4E-15	2.0E-15	6E-13	2.0
		Po-210	8.9E-15	2.3E-15	0.0E+00	9E-13	1.0
	3rd Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.8E-16	6.6E-17	1.0E-16	9E-13	0.0
		Pb-210	1.4E-14	2.3E-15	2.0E-15	6E-13	2.3
		Po-210	2.2E-15	6.6E-16	0.0E+00	9E-13	0.2
	4th Quarter 2014	U-Nat	2.6E-16	NA***	1.0E-16	9E-14	0.3
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.3E-16	7.0E-17	1.0E-16	9E-13	0.0
		Pb-210	5.0E-14	3.0E-15	2.0E-15	6E-13	8.3
		Po-210	7.4E-15	1.8E-15	0.0E+00	9E-13	0.8

Uranerz Energy Corporation
Appendix E
Air Particulate Data
July - December 2014

Sample Location	Sample Period	Radionuclide	Concentration (µCi/ml)	Error ±(µCi/ml)	LLD (µCi/ml)	10CFR 20 APP B Table 2 Values (µCi/ml)	Percent Concentration %
NA-5 Air Station Downwind West of CPP	1st Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	1.4E-16	6.8E-17	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.5E-14	1.5E-15	2.0E-15	6E-13	0.0
	2nd Quarter 2014	U-Nat	2.2E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.5E-16	3.6E-17	1.0E-16	9E-13	0.0
		Pb-210	1.0E-14	1.5E-15	2.0E-15	6E-13	1.7
		Po-210	7.1E-15	2.2E-15	0.0E+00	9E-13	0.8
	3rd Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	2.7E-16	6.7E-17	1.0E-16	9E-13	0.0
		Pb-210	8.8E-15	2.0E-15	2.0E-15	6E-13	1.5
		Po-210	2.5E-15	7.4E-17	0.0E+00	9E-13	0.3
	4th Quarter 2014	U-Nat	1.5E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb-210	2.0E-14	1.9E-15	2.0E-15	6E-13	3.3
		Po-210	5.1E-15	1.4E-15	0.0E+00	9E-13	0.6
NA-6 Air Station Downwind North East of CPP	1st Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	ND*	NA**	1.0E-16	9E-13	0.0
		Pb210	1.3E-14	1.3E-15	2.0E-15	6E-13	2.2
	2nd Quarter 2014	U-Nat	ND*	NA***	1.0E-16	9E-14	0.0
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	3.5E-16	6.4E-17	1.0E-16	9E-13	0.0
		Pb-210	1.4E-14	1.5E-15	2.0E-15	6E-13	2.3
		Po-210	5.5E-15	1.8E-15	0.0E+00	9E-13	
	3rd Quarter 2014	U-Nat	1.1E-16	NA***	1.0E-16	9E-14	0.1
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	3.2E-16	6.6E-17	1.0E-16	9E-13	0.0
		Pb-210	1.5E-14	2.4E-15	2.0E-15	6E-13	2.5
		Po-210	2.5E-15	6.9E-16	0.0E+00	9E-13	0.3
	4th Quarter 2014	U-Nat	1.8E-16	NA***	1.0E-16	9E-14	0.2
		Th-230	ND*	NA**	1.0E-16	3E-14	0.0
		Ra-226	1.4E-16	3.8E-17	1.0E-16	9E-13	0.0
		Pb-210	2.5E-14	2.3E-15	2.0E-15	6E-13	4.2
		Po-210	4.2E-15	1.4E-15	0.0E+00	9E-13	0.5

* and
** provided as results from laboratory
*** No result provided from laboratory

Uranerz Energy Corporation
Appendix F
Radon Monitoring
July-December 2014

Location	1st Quarter (µCi/ml)	Uncertainty (µCi/ml)	2nd Quarter (µCi/ml)	Uncertainty (µCi/ml)	3rd Quarter (µCi/ml)	Uncertainty (µCi/ml)	4th Quarter (µCi/ml)	Uncertainty (µCi/ml)	Location Average (µCi/ml)	10CFR 20 APP B Table 2 Values (µCi/ml)
Nichols Ranch Project										
NR-1 (Nearest Resident)	5.00E-10	5.00E-11	4.00E-10	4.00E-11	6.00E-10	5.00E-11	8.00E-10	6.00E-11	5.75E-10	1.00E-10
NR-2 (Southern Boundary Downwind)	6.00E-10	5.00E-11	3.00E-10*	3.00E-11	1.00E-10	8.00E-11	7.00E-10	6.00E-11	4.67E-10	1.00E-10
NR-3 (North Boundary Downwind)	5.00E-10	5.00E-11	5.00E-10	5.00E-11	5.00E-10	4.00E-11	6.00E-10	5.00E-11	5.25E-10	1.00E-10
NR-5 (Background)	3.00E-10	4.00E-11	7.00E-10	6.00E-11	7.00E-10	6.00E-11	3.00E-10*	3.00E-11	5.67E-10	1.00E-10
NR-6 (West of CPP downwind)	3.00E-10*	4.00E-11	6.00E-10	6.00E-11	7.00E-10	6.00E-11	8.00E-10	6.00E-11	7.00E-10	1.00E-10
NR-7 (North East of CPP Downwind Maximally Exposed Member of the Public)	5.00E-10	5.00E-11	7.00E-10	6.00E-11	1.10E-10	8.00E-11	9.00E-10	7.00E-11	5.53E-10	1.00E-10
NR-1 (Duplicate #1)	5.00E-10	5.00E-11	9.00E-10	7.00E-11	8.00E-10	7.00E-11	9.00E-10	6.00E-11	7.75E-10	1.00E-10
NR-1 (Duplicate #2)			5.00E-10	5.00E-11	5.00E-10	5.00E-11	1.20E-10	7.00E-11	3.73E-10	1.00E-10
Nichols Ranch CPP Locations (8 locations)										
Man Camp					3.00E-10*	1.00E-11			3.00E-10	1.00E-10
CPP Ranch (East Side)					6.00E-10	4.00E-11			6.00E-10	1.00E-10
CPP Fence (SW Corner)					7.00E-10	5.00E-11			7.00E-10	1.00E-10
CPP Fence (South Corner)					7.00E-10	5.00E-11			7.00E-10	1.00E-10
CPP Fence (SE Corner)					6.00E-10	4.00E-11			6.00E-10	1.00E-10
CPP Fence (NW Corner)					5.00E-10	4.00E-11			5.00E-10	1.00E-10
CPP Fence (North Side)					5.00E-10	4.00E-11			5.00E-10	1.00E-10
CPP Fence (NE Side)					8.00E-10	5.00E-11			8.00E-10	1.00E-10
CPP Fence (West Side)					6.00E-10	4.00E-11			6.00E-10	1.00E-10

Uranerz Energy Corporation
Appendix F
Radon Monitoring
July-December 2014

Nichols Ranch Wellfield Locations (4 locations)										
NCBM-5	4.00E-10	5.00E-11			6.00E-10	4.00E-11			5.00E-10	1.00E-10
NCBM-6	5.00E-10	5.00E-11			6.00E-10	4.00E-11			5.50E-10	1.00E-10
Wellfield (Fence)					8.00E-10	5.00E-11			8.00E-10	1.00E-10
NR-4 (North Wellfield Boundary)	3.00E-10*	4.00E-11			7.00E-10	5.00E-11			7.00E-10	1.00E-10

MDA for all samples is 3.00E-10

* Values less than MDA

Green box indicates no data was collected during that time

Appendix G
Passive Gamma Radiation Monitoring
July - December 2014

Location Nichols Ranch Project (2014)	1st Quarter (mrem/quarter)	2nd Quarter (mrem/quarter)	3rd Quarter (mrem/quarter)	4th Quarter (mrem/quarter)	Location Average (Net mrem/quarter)
Control Badge	28.3	42.6	51.8	52.7	43.9
NR-1(Nearest Resident)	33.6	38.0	44.4	46.3	40.6
NR-2 (Southern Boundary Downwind)	34.8	41.7	42.6	48.2	41.8
NR-3 (North Boundary Downwind)	35.9	40.2	41.4	47.9	41.4
NR-5 (Background Upwind)	35.7	40.4	40.5	42.3	39.7
NR-6 (West of CPP downwind)	33.2	*	41.4	46.1	40.2
NR-7 (North East of CPP Downwind, maximally exposed member of the public)	34.6	36.7	43.8	47.9	40.8
Quarterly Average	34.6	39.4	42.4	46.5	40.7

* Indicates lost badge

Appendix H
Effluent Program Particulates
January - December 2014

Sample Location	Sample Date	Radionuclide	Concentration (µCi/ml)	Error ±(µCi/ml)	MDC (µCi/ml)	10CFR 20 APP B Table 2 Values (µCi/ml)	Percent Concentration %
CPP*	4/16/2014	U-Nat	9.33E-13	2.30E-13	8.32E-13	9.00E-14	1036.48
Header House**	4/16/2014	U-Nat	8.78E-13	1.05E-13	7.69E-13	9.00E-14	975.56
CPP*	4/21/2014	U-Nat	9.46E-13	8.85E-14	9.13E-13	9.00E-14	1051.11
Header House**	4/23/2014	U-Nat	2.23E-12	9.63E-13	3.33E-13	9.00E-14	2480.56
DDW***	4/24/2014	U-Nat	3.38E-13	6.00E-15	3.38E-13	9.00E-14	375.56
CPP*	4/28/2014	U-Nat	7.57E-13	1.17E-13	3.32E-13	9.00E-14	840.74
Header House**	5/1/2014	U-Nat	3.39E-13	8.37E-14	3.39E-13	9.00E-14	376.67
CPP*	5/6/2014	U-Nat	1.49E-12	6.14E-13	4.24E-13	9.00E-14	1651.85
DDW***	5/6/2014	U-Nat	8.60E-13	2.40E-13	3.39E-13	9.00E-14	955.56
Header House**	5/7/2014	U-Nat	4.64E-13	4.66E-15	3.97E-13	9.00E-14	515.83
CPP*	5/12/2014	U-Nat	1.19E-12	3.39E-14	1.19E-12	9.00E-14	1320.37
Header House**	5/14/2014	U-Nat	4.62E-13	5.81E-14	4.19E-13	9.00E-14	513.06
CPP*	5/19/2014	U-Nat	1.25E-12	8.99E-14	1.25E-12	9.00E-14	1387.04
CPP*	6/4/2014	U-Nat	6.17E-13	3.08E-13	3.71E-13	9.00E-14	685.56
Header House**	6/5/2014	U-Nat	7.32E-13	1.66E-13	4.16E-13	9.00E-14	813.33
DDW***	6/5/2014	U-Nat	7.83E-13	3.17E-13	4.57E-13	9.00E-14	870.00
DDW***	7/22/2014	U-Nat	1.80E-12	8.01E-13	1.10E-12	9.00E-14	1998.89
Header House**	7/22/2014	U-Nat	8.83E-13	8.61E-13	7.01E-13	9.00E-14	981.22
CPP*	7/24/2014	U-Nat	1.26E-12	8.12E-14	1.26E-12	9.00E-14	1400.00
CPP*	8/19/2014	U-Nat	1.92E-12	6.69E-13	1.39E-12	9.00E-14	2129.63
Header House**	8/20/2014	U-Nat	2.06E-12	6.40E-13	1.49E-12	9.00E-14	2288.89
DDW***	8/20/2014	U-Nat	1.47E-12	0	1.47E-12	9.00E-14	1633.33
CPP*	9/3/2014	U-Nat	1.83E-12	1.08E-12	1.12E-12	9.00E-14	2027.78
DDW***	9/10/2014	U-Nat	1.17E-12	0	1.17E-12	9.00E-14	1300.00
Header House**	9/10/2014	U-Nat	1.17E-12	0	1.17E-12	9.00E-14	1300.00
CPP*	10/2/2014	U-Nat	9.02E-13	3.48E-13	4.90E-13	9.00E-14	1002.41
Header House**	10/2/2014	U-Nat	4.93E-13	0	4.93E-13	9.00E-14	547.78
DDW***	10/3/2014	U-Nat	5.14E-13	0	5.14E-13	9.00E-14	571.11
DDW***	11/5/2014	U-Nat	1.36E-12	0	1.36E-12	9.00E-14	1511.11
Header House**	11/5/2014	U-Nat	1.36E-12	0	1.36E-12	9.00E-14	1511.11
CPP*	11/11/2014	U-Nat	1.37E-12	0	1.37E-12	9.00E-14	1522.22
CPP*	12/4/2014	U-Nat	1.38E-12	0	1.38E-12	9.00E-14	1533.33
Header House**	12/10/2014	U-Nat	1.29E-12	1.43E-13	1.27E-12	9.00E-14	1427.78
DDW***	12/10/2014	U-Nat	1.16E-12	1.92E-13	1.16E-12	9.00E-14	1286.67
Average of CPP measurements			1.22E-12	2.81E-13	9.48E-13	9.00E-14	1352.96
Average of Header House measurements			1.03E-12	2.52E-13	7.63E-13	9.00E-14	1144.31
Average of DDW measurements			9.98E-13	1.95E-13	8.04E-13	9.00E-14	1108.61

	uCi/mL	uCi
CPP	1.22E-12	174.2586167
HH	1.03E-12	13.91950684
DDW	9.98E-13	13.48516098
		201.6632845

*CPP concentrations are taken from an average of six different sampling locations inside the CPP
** Header House concentrations are taken from an average of each operational header house (currently 4)
***DDW concentrations are taken from an average of each operational DDW (crruently 2)

Appendix I
Effluent Program
Radon
January - December 2014

Sample Location	Sample Date	Radionuclide	Concentration (Working Levels)	Error ±(Working Levels)	MDC (Working Levels)
CPP*	4/16/2014	Rn-222 and progeny	0.0062	0.0004	0.0062
Header House**	4/16/2014	Rn-222 and progeny	0.0073	0.0013	0.0073
CPP*	4/21/2014	Rn-222 and progeny	0.0060	0.0000	0.0060
Header House**	4/23/2014	Rn-222 and progeny	0.0060	0.0000	0.0060
DDW***	4/24/2014	Rn-222 and progeny	0.0075	0.0005	0.0075
CPP*	4/28/2014	Rn-222 and progeny	0.0070	0.0000	0.0070
Header House**	5/1/2014	Rn-222 and progeny	0.0085	0.0017	0.0085
DDW***	5/6/2014	Rn-222 and progeny	0.0085	0.0015	0.0085
CPP*	5/7/2014	Rn-222 and progeny	0.0075	0.0005	0.0073
Header House**	5/7/2014	Rn-222 and progeny	0.0095	0.0023	0.0095
CPP*	5/12/2014	Rn-222 and progeny	0.0085	0.0019	0.0085
Header House**	5/14/2014	Rn-222 and progeny	0.0068	0.0008	0.0068
CPP*	6/4/2014	Rn-222 and progeny	0.0122	0.0072	0.0060
Header House**	6/5/2014	Rn-222 and progeny	0.0078	0.0015	0.0078
DDW***	6/11/2014	Rn-222 and progeny	0.0080	0.0020	0.0080
Recovery Wells****	6/25/2014	Rn-222 and progeny	0.0187	0.0358	0.0074
Header House**	7/22/2014	Rn-222 and progeny	0.0085	0.0023	0.0085
DDW***	7/22/2014	Rn-222 and progeny	0.0070	0.0000	0.0070
CPP*	7/24/2014	Rn-222 and progeny	0.0083	0.0025	0.0083
CPP*	8/19/2014	Rn-222 and progeny	0.0077	0.0015	0.0077
Header House**	8/20/2014	Rn-222 and progeny	0.0196	0.0214	0.0075
DDW***	8/20/2014	Rn-222 and progeny	0.0060	0.0000	0.0060
Recovery Wells****	8/21/2014	Rn-222 and progeny	0.0092	0.0086	0.0061
CPP*	9/3/2014	Rn-222 and progeny	0.0072	0.0017	0.0072
DDW***	9/10/2014	Rn-222 and progeny	0.0070	0.0010	0.0070
Header House**	9/10/2014	Rn-222 and progeny	0.0073	0.0011	0.0073
CPP Tanks	9/30/2014	Rn-222 and progeny	2.6917	1.6406	0.0082
CPP*	10/2/2014	Rn-222 and progeny	0.0094	0.0028	0.0092
Header House**	10/2/2014	Rn-222 and progeny	0.0078	0.0018	0.0078
DDW***	10/9/2014	Rn-222 and progeny	0.0060	0.0000	0.0060
DDW***	11/5/2014	Rn-222 and progeny	0.0070	0.0010	0.0070
Header House**	11/5/2014	Rn-222 and progeny	0.0078	0.0018	0.0078
CPP*	11/11/2014	Rn-222 and progeny	0.0151	0.0059	0.0080
CPP*	12/4/2014	Rn-222 and progeny	0.0075	0.0010	0.0075
Header House**	12/10/2014	Rn-222 and progeny	0.0080	0.0024	0.0080
DDW***	12/10/2014	Rn-222 and progeny	0.0070	0.0010	0.0070
CPP Tanks	12/10/2014	Rn-222 and progeny	0.8998	0.9486	0.0091
Recovery Wells****	12/11/2014	Rn-222 and progeny	0.0838	0.2462	0.0069
Average of CPP measurements			0.0085	0.0021	0.0074
Average of Header House measurements			0.0087	0.0032	0.0077
Average of DDW measurements			0.0071	0.0008	0.0071
Average of Recovery Wells			0.0372	0.0969	0.0068
Average of CPP Tanks			1.7958	1.2946	0.0087

	uCi/mL	uCi
CPP	7.77671E-10	30151.29191
HH	7.93406E-10	3060.316473
DDW	6.47111E-10	1082.855941
Recovery Wells	3.38906E-09	348.671232
CPP Tanks	1.63413E-07	505839.9504
Total activity from NR		540483.086

*CPP concentrations are taken from an average of six different sampling locations inside the CPP

** Header House concentrations are taken from an average of each operational header house (currently 4)

***DDW concentrations are taken from an average of each operational DDW (crruently 2)

****Recovery well concentrations are an average of at least 10% of active recovery wells during the sampling period. Each sampling period had 12 recovery wells sampled for the ~110 recovery wells operating during the year 2014.

Appendix J
Annual SERP Summary
January-December 2014

SERP No.	Date	SERP Topic	Evaluation Summary
SERP-1-2014	2/3/2014	Relocation of Air Sampling Monitor Locations	Per license condition 11.9, the licensee shall establish air particulate sampling stations consistent with Regulatory Guide 4.14. The license condition was imposed through the NRC SER which evaluated that the applicant had not demonstrated that the proposed radon monitoring ,air particulate sampling and gamma sampling locations are at locations or in sectors representing the highest predicted airborne concentrations for rlesease from the facility. Specifically the NRC indicated that the applicant did not demonstrate sample conditions are at the predicted highest down wind concentrations for radioactive effluents. Additionally license condition 12.7 required additional meteorological data be collected to obtain data to determinelong term conditions at the site. The SERP evaluated the existing air monitoring station locations and concluded that the meteorlogical data collected showed a need to relocate three air monitoring stations. The SERP concluded and approved new locations which were only slightly removed from the original locations. Figure 2-25 of the Mine Plan was revised. A copy of this SERP was submitted to the NRC on February 3, 2014.
SERP-2-2014	5/22/2014	Relocation of Restricted/Collected Area Locations	The SERP evaluated increasing the restricted area in the Central Processing Plant to include the hallway outside of the planned locker rooms and remove the controlled areas surrounding the deep disposal well buildings. In order to help maintain exposures to radioactive material to ALARA, Uranerz established restricted areas which restrict access to personnel and members of the public. Uranerz also established controlled areas that are outside restricted areas but inside the licensed boundary for which access is limited by Uranerz. Restricted areas are maintained within most areas of the Central Processing Plant. Personnel entering the restricted area inside the processing plant are required to scan out prior to leaving the area. Scanning is performed to ensure that that contamination is not present above amounts set by regulation and company policy. To that end Uranerz evaluated increasing the restricted area inside the processing plant. The hallway area outside the locker rooms will now be a restricted area and will no longer be a clean area. This is necessary because since commencement of operations gamma radiation levels from waste water tanks has increased and the tanks are located near a scanning station. With this close proximity, beta/gamma levels cannot be reliably detected below release requirements. Therefore, to allow personnel to scan out of the restricted area near the locker rooms it is necessary to move the location of the scan station. Uranerz also evaluated removing the controlled areas surrounding the DDW buildings. It was determined that the DDW buildings were shown as controlled in error because access is not limited near the DDW buildings. The DDW buildings will still be maintained as controlled areas where access is limited by keypad locked doors, but the area surrounding the buildings will be maintained as unrestricted. The SERP concluded that the revisions were acceptable.
SERP-3-2014	6/10/2014	RST Qualifications	The SERP was presented with employee qualifications for Radiation Safety Technicians. The qualifications were reviewed with Regulatory Guide 8.31. Both employees were found to be well qualified and the SERP concluded that they met requirements to be radiation safety technicians.

Appendix J
Annual SERP Summary
January-December 2014

SERP No.	Date	SERP Topic	Evaluation Summary
SERP-6-2014	12/16/2014	Management - Organizational Structure Change	The SERP evaluated changes to Chapter 5 of the Mine Plan regarding Management. Two changes were evaluated. The first was the edition of the position of the Chief Operating Officer (COO) and the next was a title change pertaining to the Vice President Regulatory Affairs. The title change simply was revised to Vice President Regulatory and Public Affairs. The COO is a similiar position to the Exceutive Vice President position initially provided in the license application. The COO responsibilities an authorities were included. Text narrative and Figure 5-1 were revised to reflect the changes. The SERP concluded that the changes will not result in increased safety or radiological hazards and will ultimately result in additional management resources similiar to that already described in the SER.

Do not make corrections to this form after printing. Forms bearing strikeouts, ink changes, etc will not be accepted.

INDEX SHEET FOR MINE PERMIT AMENDMENTS OR REVISIONS

Date 3/4/2015

MINE COMPANY NAME: Uranerz Energy Corporation
MINE NAME: Nichols Ranch ISR Project

License NO.: SUA-1597

Statement: I, Michael P. Thomas, an authorized representative of Uranerz Energy Corporation declare that only the items listed on this and all consecutively numbered Index Sheets are intended as revisions to the current permit document. In the event that other changes inadvertently occurred due to this revision, those unintentional alterations will not be considered approved. Please initial and date.

MPT 3.2.15

NOTES:
1) Include all revision or change elements and a brief description of or reason for each revision element.
2) List all revision or change elements in sequence by volume number; number index sheets sequentially as needed.

Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
Volume I	Mine Plan Section 5.1.1, Pages TR-202 through TR-204 (Revised October 2013), Page TR-205 (Revised June 2012) , Page TR-206 (Revised October 2013 and Figure 5-1 (October 29, 2007)	Mine Plan Section 5.1.1, Pgs. TR-201 through TR-204 and Figure 5-1 (Revised December 22 2014)	Pages revised for Section 5.1.1 Management, Figure 5-1 revised to reflect narrative changes
Volume I	Mine Plan Section 2.0 , Figure 2-25 (Date: 12/02/2008)	Mine Plan Section 2.0, Figure 2-25 (01/30/2014)	Figure 2-25 has been updated and requires replacement.

5.0 OPERATIONS

Operations at the Nichols Ranch ISR Project site and facilities are conducted in conformance with applicable laws, regulations and requirements of the various Federal and State regulatory agencies. The organization and management controls described below are established to ensure compliance and further implement the company's policy for providing a safe working environment including the philosophy of maintaining radiation exposures as low as is reasonably achievable (ALARA).

5.1 ORGANIZATION

The management structure and responsibilities of the Uranerz Energy Corporation (Uranerz) organization are described in the following section. The organization function is to provide for development, review, approval, implementation, and adherence to operating procedures, radiation safety programs, environmental and groundwater monitoring programs, quality assurance programs, routine and non-routine maintenance activities, and changes to any of these programs or activities.

5.1.1 Management

The Uranerz organization management structure is shown in Figure 5-1 (see map pocket). The structure is applicable to site construction and site management. The structure is applicable to the central processing facility and the satellite facility. The responsibilities and authorities are described below for these management positions.

A Safety and Environmental Review Panel (SERP) will be established, in whole or part, from these management positions. The SERP is described in Section 5.2.

Chief Executive Officer

The Chief Executive Officer (CEO) has the overall responsibility and authority for the radiation safety and environmental compliance programs. The CEO is responsible for ensuring that operations are compliant with applicable regulations and permit/license conditions. The CEO is also responsible for maintenance of the license. The CEO provides for direct supervision of the Chief Operating Officer.

Chief Operating Officer

The Chief Operating Officer (COO) reports to the CEO and is directly responsible for ensuring that operations personnel comply with radiation safety and environmental protection programs. The COO is also responsible for compliance with all federal and state regulations, license conditions, and reporting requirements. The COO has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations. The COO directly supervises the other Vice Presidents.

Senior Vice President, Operations

The Senior Vice President, Operations reports directly to the COO. The Senior Vice President, Operations is responsible for all production activity at the site. In addition to production activities, the Senior Vice President, Operations is also responsible for implementation of industrial and radiation safety, and environmental protection programs associated with operations. The Senior Vice President, Operations directly supervises the Mine Manager.

Mine Manager

The Mine Manager reports directly to the Senior Vice President, Operations. All site operations, maintenance, construction, environmental health and safety, and support groups report to the Mine Manager. The Mine Manager is authorized to implement immediately any action to correct or prevent hazards. The Mine Manager has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations.

Line Management

Line management reports directly to the Mine Manager. Line management is responsible for management oversight and direct supervision of activities including construction, operations, maintenance, and support for the respective functional area. Line management is responsible for line implementation of industrial and radiation safety, and environmental protection program

requirements associated with the respective functional area. Line management is responsible for line conduct and enforcing compliance with management controls (e.g. operating procedures, radiation work permits, and ALARA requirements within the respective functional area). Line management has the authority to stop any activity, immediately if necessary, that is determined to be a threat to employee or public health, the environment, or a potential violation of state or federal regulations. Line management oversees all wellfield, production, and lab personnel.

Vice President Regulatory and Public Affairs

The Vice President Regulatory and Public Affairs reports directly to the COO. The Vice President Regulatory and Public Affairs is responsible to oversee the preparation and submittal of permit and license applications to pertinent regulatory agencies. This position supports the Manager Environment, Safety, and Health (ESH) as a resource and ensures permit conditions, agency responses, and regulatory notifications are met. The Vice President Regulatory and Public Affairs also has the responsibility to advise senior management on matters involving radiation safety and to implement changes and/or corrective actions involving radiation safety authorized by senior management. The Vice President Regulatory and Public Affairs is tasked to ensure that the environmental and radiation safety programs are conducted in a manner consistent with regulatory requirements. The Vice President Regulatory and Public Affairs has no production-related responsibilities.

Manager Environment, Safety, and Health

The Manager Environment, Safety, and Health (ESH) reports directly to the Mine Manager, and indirectly to the Vice President Regulatory and Public Affairs. This position has the responsibility and authority for, environmental, occupational safety and radiation safety programs, ensuring compliance with all applicable regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager ESH has no production related responsibilities. As such, the Manager ESH has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state or federal

regulations. Additionally, this position could fulfill the duties of the RSO on an interim basis. If required to fulfill RSO duties, the position will meet the requirements of the NRC Regulatory Guide 8.31 for the RSO.

Radiation Safety Officer

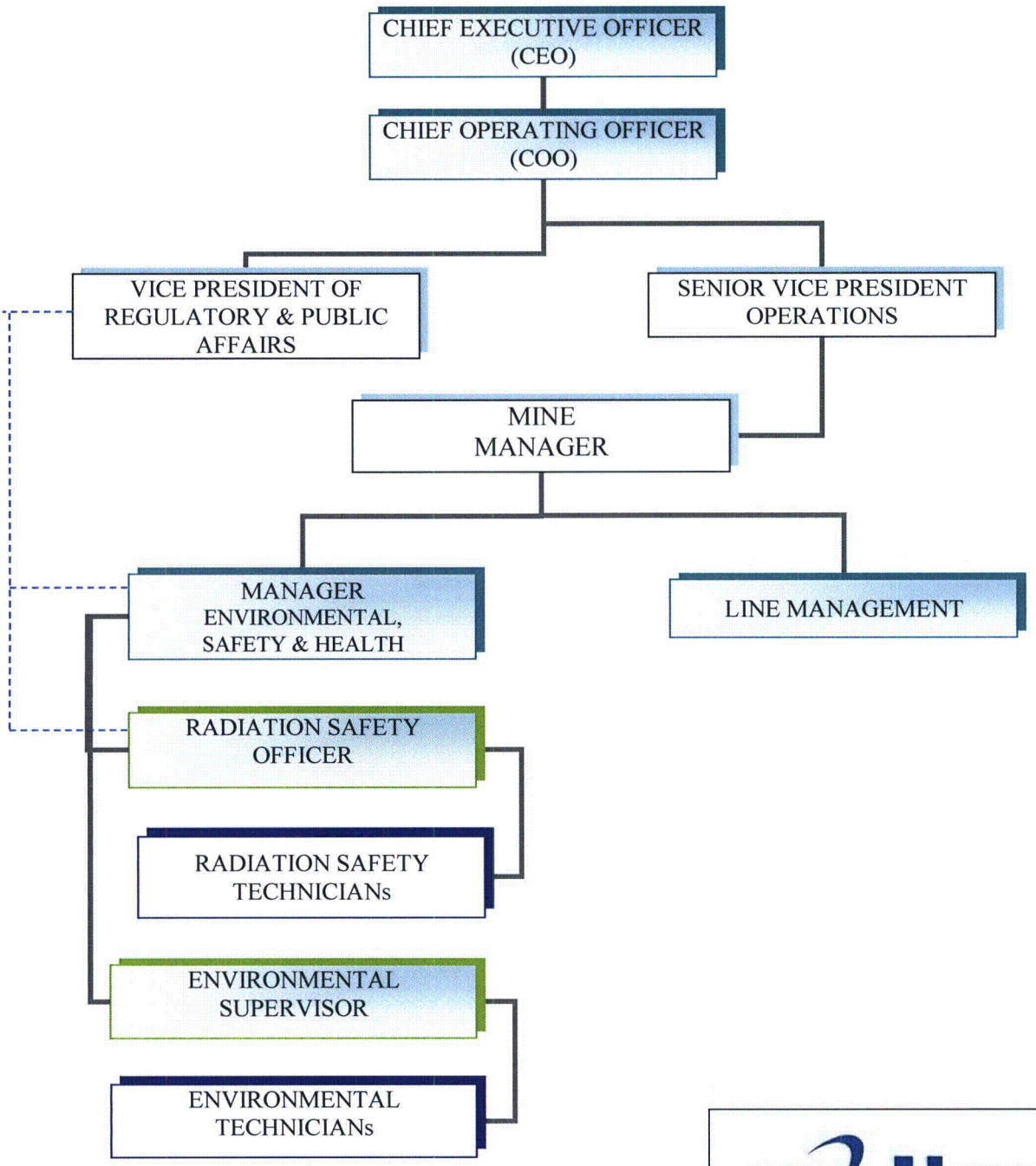
The Radiation Safety Officer (RSO) reports directly to the Manager ESH. The RSO is responsible for conducting the radiation safety program and for providing assistance in ensuring compliance with NRC regulations and license conditions applicable to worker health protection. The RSO is responsible for overseeing the day-to-day operation of the radiation safety program and for ensuring that records required by NRC are maintained. The RSO has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations, including the ALARA program. The RSO has no production-related responsibilities. As such, the RSO has an indirect line to the Vice President, Regulatory and Public Affairs. The RSO supervises the Radiation Safety Technician(s).

Environmental Supervisor and Environmental and Radiation Safety Technicians

The Environmental Supervisor reports directly to the Manager ESH. The Environmental Technicians report to the Environmental Supervisor. The Radiation Safety Technicians report to the RSO. The Environmental Supervisor, Environmental Technicians and Radiation Safety Technicians assist the Manager ESH and the RSO with the implementation of the environmental monitoring and radiation safety programs. The Environmental Supervisor and Environmental and Radiation Safety Technicians are responsible for the orderly collection and recording of all data from environmental and radiological safety programs. The Environmental Supervisor and Environmental and Radiation Safety Technicians have no production-related responsibilities.

5.1.2 ALARA

The radiation safety and environmental programs at the Nichols Ranch ISR Project site will be implemented in the context of keeping personnel and environmental exposure to radiation and radioactive material as low as is reasonably achievable (ALARA).



Uranerz ENERGY CORPORATION
1701 EAST "E" STREET P.O. BOX 50850
CASPER, WYOMING, USA 82605-0850
PHONE 307.265.8900 FAX 307.265.8904

NICHOLS RANCH ISR PROJECT

FIGURE 5-1

URANERZ ORGANIZATION

BY: Dalton Timm	DATE: OCTOBER 29, 2007
CONTOUR INTERVAL: N/A	REV. DATE: December 22, 2014
SCALE: N/A	REV. #: 2
FILE LOCATION: t:\it\drafting\nichols ranch\permitting-licensing\figure 5-1 REV-.doc	

Chief Operating Officer

Formatted: Font: Not Bold

The Chief Operating Officer (COO) reports to the CEO and is directly responsible for ensuring that operations personnel comply with radiation safety and environmental protection programs. The COO is also responsible for compliance with all federal and state regulations, license conditions, and reporting requirements. The COO has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations. The COO directly supervises the other Vice Presidents.

Senior Vice President, Operations

The Senior Vice President, Operations reports directly to the ~~CEO~~COO. The Senior Vice President, Operations is responsible for all production activity at the site. In addition to production activities, the Senior Vice President, Operations is also responsible for implementation of industrial and radiation safety, and environmental protection programs associated with operations. The Senior Vice President, Operations directly supervises the Mine Manager.

Mine Manager

The Mine Manager reports directly to the Senior Vice President, Operations. All site operations, maintenance, construction, environmental health and safety, and support groups report to the Mine Manager. The Mine Manager is authorized to implement immediately any action to correct or prevent hazards. The Mine Manager has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations.

Line Management

Line management reports directly to the Mine Manager. Line management is responsible for management oversight and direct supervision of activities including construction, operations, maintenance, and support for the respective functional area. Line management is responsible for

line implementation of industrial and radiation safety, and environmental protection program requirements associated with the respective functional area. Line management is responsible for line conduct and enforcing compliance with management controls (e.g. operating procedures, radiation work permits, and ALARA requirements within the respective functional area). Line management has the authority to stop any activity, immediately if necessary, that is determined to be a threat to employee or public health, the environment, or a potential violation of state or federal regulations. Line management oversees all wellfield, production, and lab personnel.

Vice President Regulatory and Public Affairs

The Vice President Regulatory and Public Affairs reports directly to the ~~CEO~~COO. The Vice President Regulatory and Public Affairs is responsible to oversee the preparation and submittal of permit and license applications to pertinent regulatory agencies. This position supports the Manager Environment, Safety, and Health (ESH) as a resource and ensures permit conditions, agency responses, and regulatory notifications are met. The Vice President Regulatory and Public Affairs also has the responsibility to advise senior management on matters involving radiation safety and to implement changes and/or corrective actions involving radiation safety authorized by senior management. The Vice President Regulatory and Public Affairs is tasked to ensure that the environmental and radiation safety programs are conducted in a manner consistent with regulatory requirements. The Vice President Regulatory and Public Affairs has no production-related responsibilities.

Manager Environment, Safety, and Health

The Manager Environment, Safety, and Health (ESH) reports directly to the Mine Manager, and indirectly to the Vice President Regulatory and Public Affairs. This position has the responsibility and authority for, environmental, occupational safety and radiation safety programs, ensuring compliance with all applicable regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager ESH has no production related responsibilities. As such, the Manager ESH has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state or federal regulations. Additionally, this position could fulfill the duties of the RSO on an interim basis. If required to fulfill RSO duties, the position will meet the requirements of the NRC Regulatory Guide 8.31 for the RSO.

Radiation Safety Officer

The Radiation Safety Officer (RSO) reports directly to the Manager ESH. The RSO is responsible for conducting the radiation safety program and for providing assistance in ensuring compliance with NRC regulations and license conditions applicable to worker health protection. The RSO is responsible for overseeing the day-to-day operation of the radiation safety program and for ensuring that records required by NRC are maintained. The RSO has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations, including the ALARA program. The RSO has no production-related responsibilities. As such, the RSO has an indirect line to the Vice President, Regulatory and Public Affairs. The RSO supervises the Radiation Safety Technician(s).

Environmental Supervisor and Environmental and Radiation Safety Technicians

The Environmental Supervisor reports directly to the Manager ESH. The Environmental Technicians report to the Environmental Supervisor. The Radiation Safety Technicians report to the RSO. The Environmental Supervisor, Environmental Technicians and Radiation Safety Technicians assist the Manager ESH and the RSO with the implementation of the environmental monitoring and radiation safety programs. The Environmental Supervisor and Environmental and Radiation Safety Technicians are responsible for the orderly collection and recording of all data from environmental and radiological safety programs. The Environmental Supervisor and Environmental and Radiation Safety Technicians have no production-related responsibilities.

5.1.2 ALARA

The radiation safety and environmental programs at the Nichols Ranch ISR Project site will be implemented in the context of keeping personnel and environmental exposure to radiation and radioactive material as low as is reasonably achievable (ALARA).

5.1.2.1 Philosophy

The considered purpose of the radiation safety and environmental protection programs at the Nichols Ranch ISR Project site are to maintain exposure to radiation and radioactive materials ALARA for all employees, contractors, visitors, and the environment. The implementation and effectiveness of a successful ALARA program is the responsibility of everyone involved in conducting operations at the site.

5.1.2.2 Responsibilities

Responsibilities for implementation of the ALARA philosophy are shared by management, the RSO, and all workers at the Nichols Ranch ISR Project site.

Management

Management is responsible for developing, implementing, and enforcing the policies and procedures necessary for effective radiation safety, environmental protection, and ALARA programs to ensure the health and safety of workers and visitors, and protection of the environment.

Management will provide the following:

1. A strong commitment to and continuing support for the development and implementation of the radiation safety, environmental protection, and ALARA programs;
2. Information and policy statements to employees, contractors, and visitors.
3. Periodic management review of operational and procedural efforts to maintain ALARA;
4. Continuing management evaluation of the radiation safety and environmental protection programs including staffing, and allocations of space and funding; and
5. Appropriate briefings and training in radiation safety, environmental protection, and ALARA concepts for all employees, and, when appropriate, for contractors and visitors.

Manager ESH and RSO

The Manager ESH and the RSO have primary responsibility for the technical adequacy and correctness of an ALARA application for the environmental protection and radiation safety programs. Each has continuing responsibility for surveillance and supervisory action in the enforcement of the ALARA program.

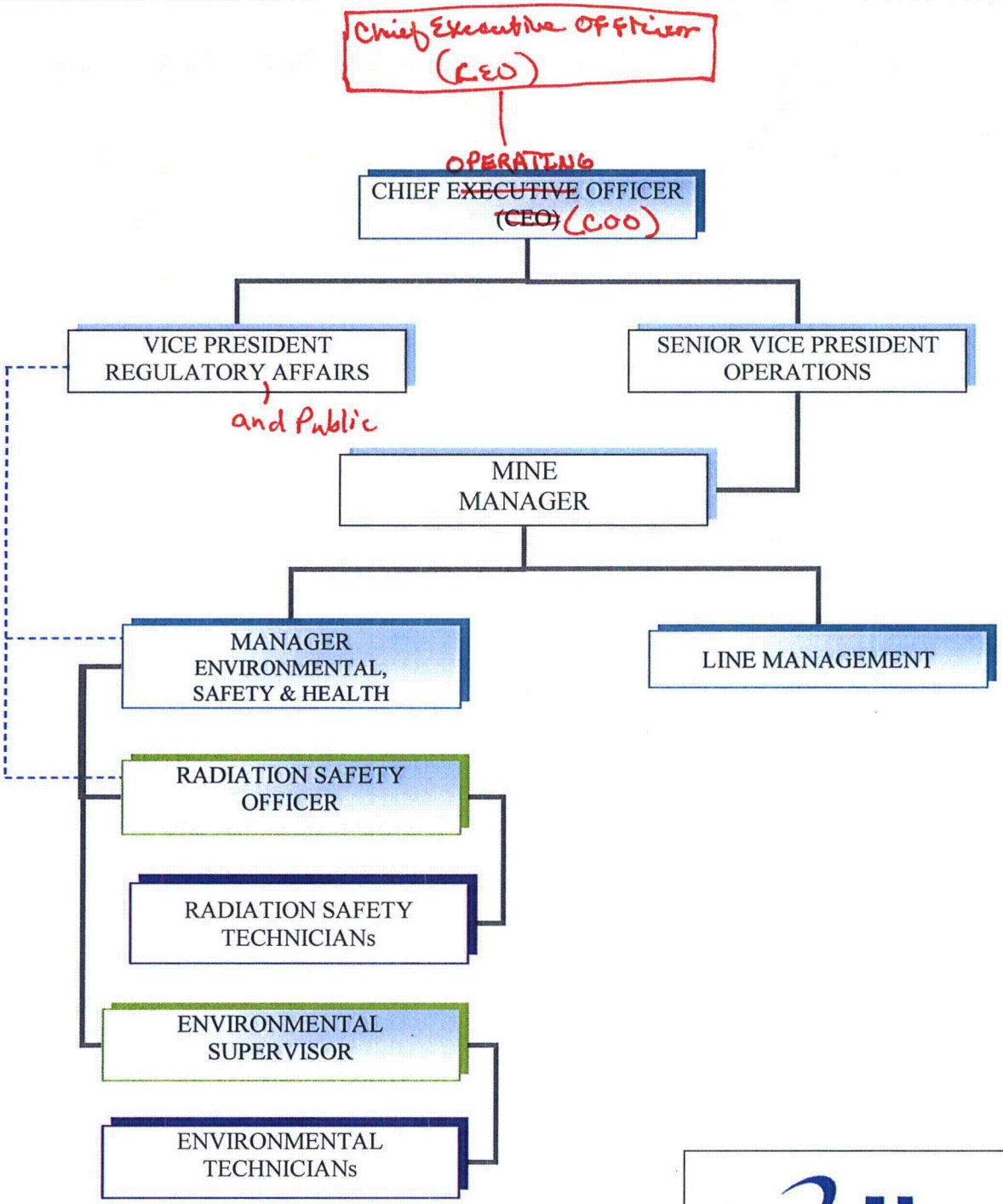
The Manager ESH and the RSO will be assigned the following:

1. Major responsibility for the development and administration of the environmental protection, radiation safety, and ALARA programs;
2. Sufficient authority to enforce regulations and administrative policies that affect any aspect of the environmental protection and radiation safety;
3. Responsibility to review and approve plans for new equipment, process changes, or changes in operating procedures to ensure that the plans do not adversely affect the environmental protection and radiation safety programs; and
4. Adequate equipment and facilities to monitor relative attainment of the ALARA objective.

Workers

Environmental protection, radiation safety, and ALARA programs are only as effective as the workers' adherence to the program. All workers at the Nichols Ranch ISR Project site will be responsible for the following:

1. Adhering to all policies, operating procedures, and instruction for environmental protection and radiation safety as established by management;
2. Reporting promptly to management equipment malfunctions or violations of standard practices or procedures that could result in increased radiological hazard;
3. Suggesting improvements for the environmental protection, radiation safety, and ALARA programs.



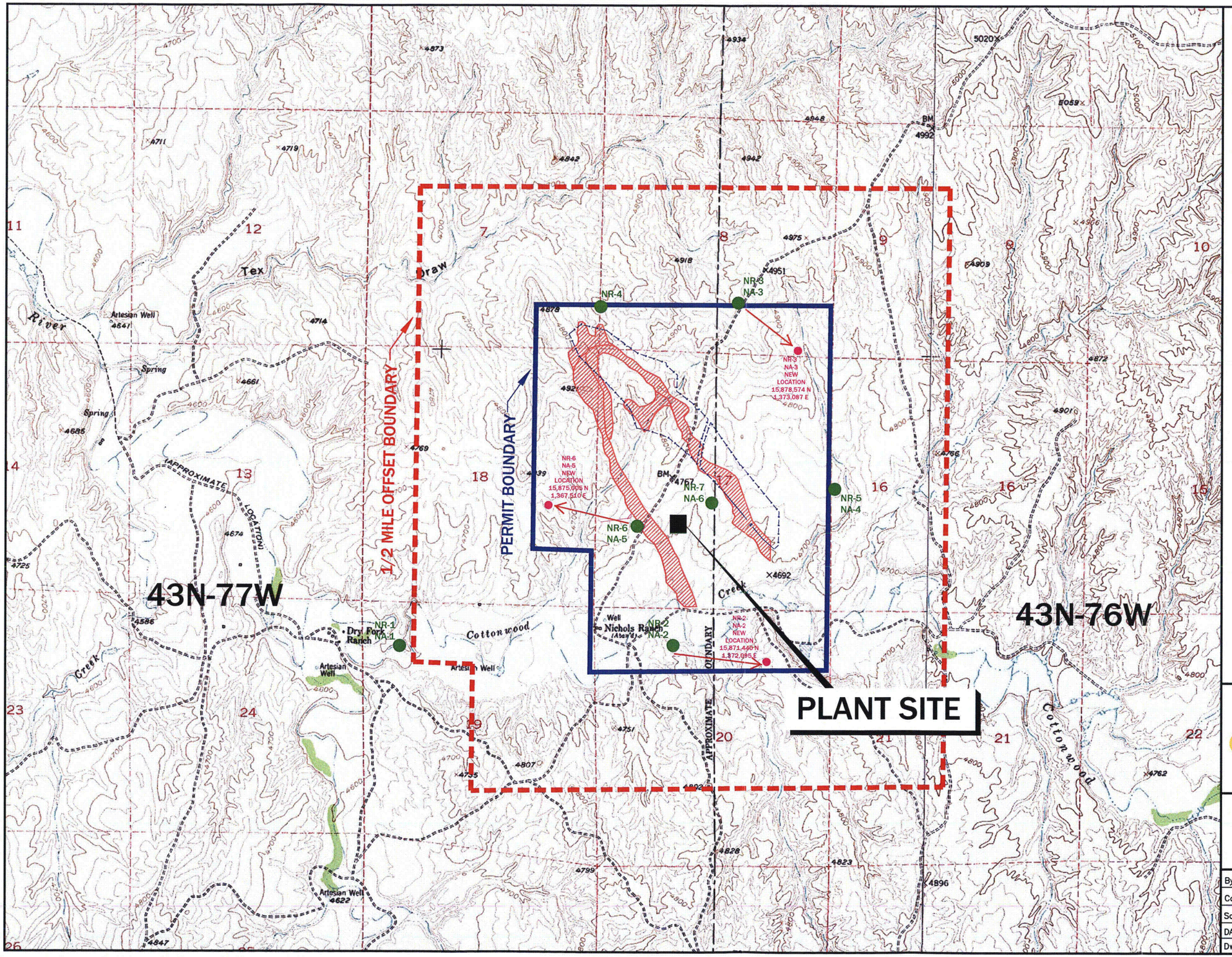
Uranerz ENERGY CORPORATION
1701 EAST "E" STREET P.O. BOX 50850
CASPER, WYOMING, USA 82605-0850
PHONE 307.265.8900 FAX 307.265.8904

NICHOLS RANCH ISR PROJECT

FIGURE 5-1

URANERZ ORGANIZATION

BY: Dalton Timm	DATE: OCTOBER 29, 2007
CONTOUR INTERVAL: N/A	REV. DATE: OCTOBER 22, 2013
SCALE: N/A	REV. #:1
FILE LOCATION: t:\it\drafting\nichols ranch\permitting-licensing\figure 5-1 REV-1.doc	



SCALE: 1"=2000'

0 1000 2000 feet

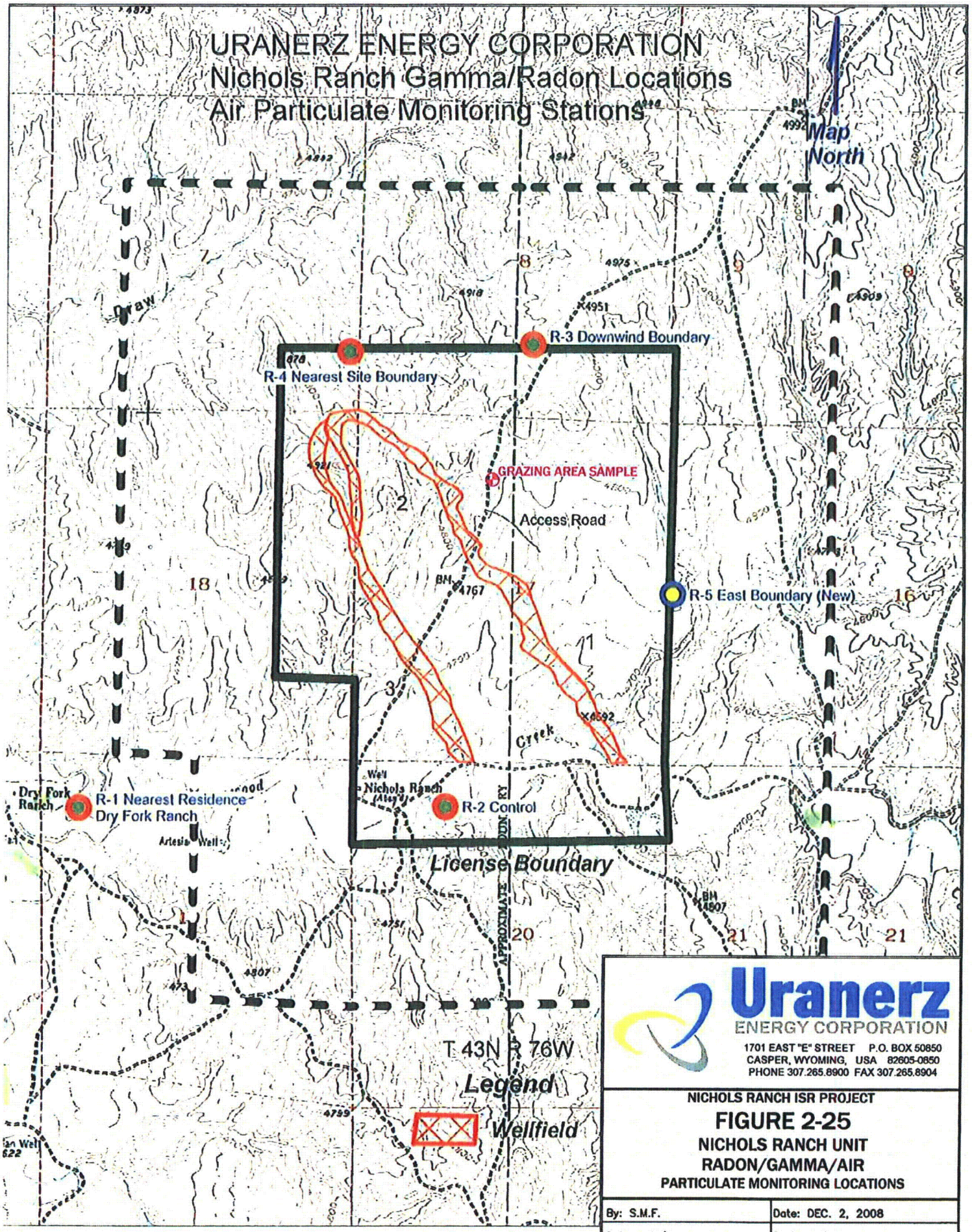
LEGEND

- PROJECTED WELLFIELD
- EXISTING ROADS
- CURRENT AIR SAMPLERS LOCATIONS
- NEW AIR SAMPLERS LOCATIONS

Uranerz
ENERGY CORPORATION
1701 East "E" Street
P.O. Box 50850
Casper, Wyoming
USA 82605-0850

NICHOLS RANCH ISR PROJECT
FIGURE 2-25
NICHOLS RANCH UNIT
RADON/GAMMA/AIR
PARTICULATE MONITORING LOCATIONS

By: DALTON TIMM	Date: 12/02/2008
Contour Interval: 20 FEET	Revision Date: 01/30/2014
Scale: 1"=2000'	Revision #: 02
DATUM: NAD 27 UTM 13	Notes:
Dwg: T:\IT\Drafting\Nichols Ranch\Permitting-Licensing	



Uranerz
ENERGY CORPORATION
1701 EAST "E" STREET P.O. BOX 50850
CASPER, WYOMING, USA 82605-0850
PHONE 307.265.8900 FAX 307.265.8904

NICHOLS RANCH ISR PROJECT

FIGURE 2-25

NICHOLS RANCH UNIT
RADON/GAMMA/AIR
PARTICULATE MONITORING LOCATIONS

By: S.M.F.	Date: DEC. 2, 2008
Datum: N/A	Revision Date:
Scale: 1"=2000'	Contour Interval: N/A