BASELINE DATA REPORT

Section 13.0

Radiological Survey

JANUARY 2011

Revision 1

Submitted To:

New Mexico Mining and Minerals Division
&
U.S. Forest Service (Cibola National Forest)
&
New Mexico Environment Department

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13.0 Radiological Survey

NMAC 19.10.6.602 D.(13)

Guidance Document for Part 6 New Mining Operation Permitting Under the New Mexico Mining Act, August 2010:
The proposed scope of work for the radiological survey should provide a baseline for radiochemical content and include a gamma survey of the primary permit areas such as roads and facility locations as well as potential downstream affected areas. Bulk soil samples should be proposed for collection to verify field readings for analysis of uranium (total-238), radium 226, radium 228, thorium (total-232) and gross alpha/beta.

13.1 Introduction

Roca Honda Resources, LLC is pursuing a mining permit at the Roca Honda Permit area. Pursuant to that goal, a baseline radiological survey was completed. The objective of the survey was to perform a radiological baseline (i.e., background) assessment of the gamma radiation and existing concentration of naturally occurring radionuclides in soils associated with the Roca Honda permit area. This baseline identifies the pre-mining radiological conditions in and around the permit area.

The radiological survey was conducted by RHR's contractor, DeNuke Contracting Services, Inc. over several months during the summer of 2010 in conformance with the approved SAP. The survey included gamma walk over surveys conducted over the permit area, access roads, and a portion of the public state highway. Particular attention was given to characterizing the historic exploratory drill holes disturbance. The survey consisted of;

- Global Positioning System (GPS)-enabled gross gamma radiation surveys of each section on parallel scan paths every 50 meters (m),
- Scans of roads leading out to Highway 605,
- Scans along Highway 605 to the intersection of Highway 509,
- Scan of 10% of historic exploratory drilling (100% scan of 10% of the drill holes in each drill hole field),
- Soil samples at biased and typical locations, and
- Dose rate surveys at soil sample points.

This Section of the BDR provides a summary analysis of the results of the survey. However, because of the extensive data set produced and the resulting volume of detailed analyses, Appendix 13-A attached herewith is provided in the form of a compact disc (CD) containing the field data, resumes, and procedures in their entirety.

13.2 Data Collection

Figure 13-1 is a map of the area surveyed, including the permit area, access roads, and public highway. Gamma radiation surveys were conducted in accordance with established practices for radiological surveys (see Appendix 13-A, Exhibit C1). Baseline radiation levels at the Roca Honda permit area were determined by performing a walkover survey to establish current background radiation levels. Soil sampling was performed to determine the pre-mining radionuclide concentrations in soils.

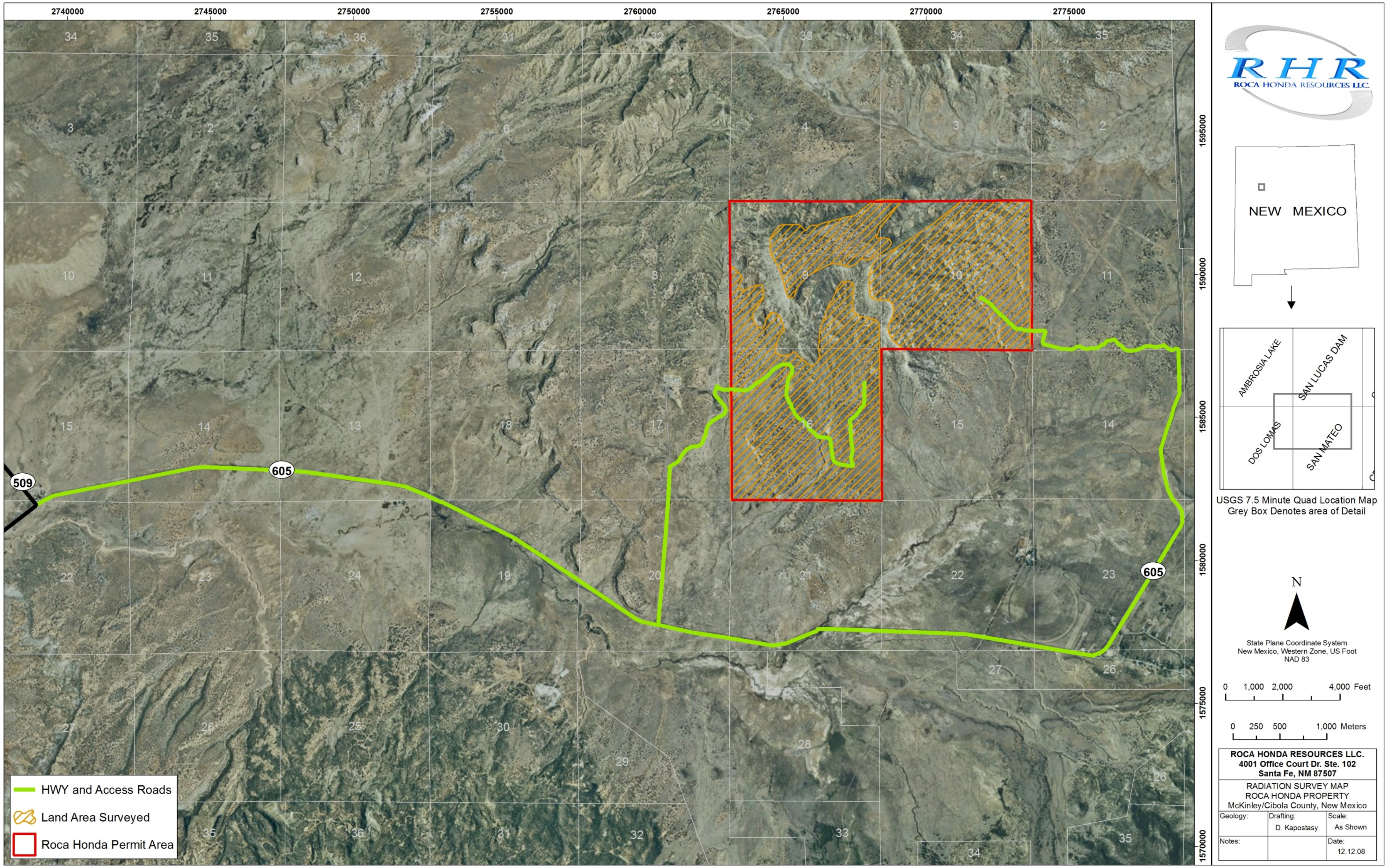

Figure 13-1. Map of Area Surveyed

The background characterization surveys were designed to provide the data sensitivity objectives listed in column 1 of Table 13-1; actual sensitivity results achieved are provided in column 2 Scan speed, coverage, and sensitivity are provided in Table 13–2. The Roca Honda permit area was surveyed by walking transect lines 50 m apart (as terrain and vegetation permitted). This coverage provided approximately 81 data points per acre and 52,000 data points per land section (640 acres). Scan results for each of the three sections of the permit area are provided in Appendix 13-A, Exhibits AS9, AS10, and AS16. The immediate edge of the road and the borrow ditch along Highway 605 and proposed haul roads leading to and from the sections were scanned as well (see Appendix 13-A, Exhibits AR1).

Table 13-1. Sensitivity Objectives and Results Assessment

Plan Objective	Survey Result
Dose rate sensitivity: 5 µrem/h	Achieved. Dose rates were taken with a Bicron µrem meter which is capable of measuring dose at levels down to 0.0 to 20 µrem/h in the 0.1x scale (Appendix 13-A, Exhibit C, DENUKE-RP-105.302, Operation of the Bicron Micro Rem Meter).
Scan coverage: 2% of accessible land areas	Achieved. Scans were completed at 50-m parallel paths, at approximately 1-m width per path, (Appendix 13-A, Exhibits AS9, AS10, and AS16).
Scan sensitivity at < 4 pCi/g for Ra-226	Achieved. Scans were completed using Ludlum 2x2 inch NaI detectors. These detectors are capable of detecting Ra-226 at < 3.0 pCi/g. MARSSIM Rev. 1, Table 6.7, (NUREG-1575), which lists the scan Minimum Detectable Concentration (MDC) at 104 Bq/kg (2.8 pCi/g).
Direct contact sensitivity at < 3 pCi/g for Ra-226	Achieved. The scan sensitivity listed above is based on a 1-second resident period. A direct count uses a 6-second resident period, as time of residency increases, sensitivity increases, thus a direct contract MDC of < 2.8 pCi/g is assured.
Laboratory Analysis Minimum Detectable Activity (MDA) of less than or equal to 1.0 pCi/g	Achieved for all except Pb-210. MDAs listed from the radioanalytical vendor report (Appendix 13-A, Exhibit B1) for sample RH-S-001 are as follows: Uranium U-234: 0.135 pCi/g U-235: 0.097 pCi/g U-238: 0.134 pCi/g Ra-226: 0.022 pCi/g Th-230: 0.105 pCi/g Th-232: 0.080 pCi/g Pb-210: 1.37 pCi/g While the lead result is > 1.0 pCi/g, this has little impact on the overall assessment of the data as Pb-210 is a progeny of Ra-226, which has very good detection characteristics.

Table 13-2. Survey Parameters

Area	*Scan Spacing	Speed	**Coverage (%)	***Estimated Sensitivity
Roads	2 paths	0.5 m/s	100	2–3 pCi/g
Open Land Areas	50 m	0.5 m/s	2	2–3 pCi/g

* Scan path spacing on the road is dependent upon the width of the road – the survey objective is to cover no less than 50% of the road (biased towards tracks or other collection points); 2 paths would cover approximately 4 m. If the road is consistently wider than this, add one or more paths.
** Coverage is generally calculated as follows (a "path" is the width between walking paths chosen during the walkover gamma scanning):
1-meter scan path = 100% coverage
2-meter scan path = 50% coverage
3-meter scan path = 30% coverage
5-meter scan path = 20 % coverage
10-meter scan path = 10% coverage
50-meter scan path = 2% coverage
*** Sensitivity is based upon guidance provided by NUREG-1507 and assumes a 2x2-inch NaI detector with a background of 10,000 cpm, an observation interval of 1 second, and a level of performance, d', of 1.38. Given on-site conditions, sensitivity may be estimated more accurately when the walkover gamma scan results are compared to samples taken at the Roca Honda permit area.

13.2.1 Gamma Survey

The walkover gamma surveys were performed using GPS-enabled sodium iodide (NaI) instrumentation (see Figure 13-2). The GPS unit used was a Trimble receiver and data logger. Data from the radiation detection instrument was fed, on a real-time basis, to the Trimble data logger as a 1-second integrated count, normalized to counts per minute (cpm). The cpm data was directly correlated to the X, Y, Z, and time data parameters provided by the Trimble unit. These parameters were then stored and later downloaded for processing into visual interpretations using Visual Sample Plan software.

The Trimble unit was connected to a Ludlum 2221 rate-meter/scaler attached to a Ludlum 44-10 detector. This detector has a Minimum Detectable Activity of less than 3 picocuries per gram (pCi/g) for Ra-226 over a source term of 0.5-meter square or larger when the user is monitoring the audible response (see NUREG 1507, Table 6.4). Each count represents about 1-meter square of information. The Ludlum 2221 is compatible with multiple detectors with user adjustments for voltage and threshold settings. It can also be used in a window in/out mode. The Ludlum 2221 provides a "gross count" in the window out mode, providing a "count" for all radiation detected above the threshold in the specified count time. The Ludlum 44-10 detector is a 2x2-inch NaI detector with incorporated photomultiplier tube.

The Ludlum 44-10 was calibrated to a Cs-137 source by an approved vendor (see Appendix 13-A, Exhibit D1). Cs-137 is a mid-range gamma source (0.661 megaelectron volt [MeV]) that is commonly selected to be reasonably representative of the mid-range and higher range gamma energies expected to be encountered at the Roca Honda permit area. Daily performance checks (Appendix 13-A, Exhibit E1) were performed using a Cs-137, 1-microcurie button source.

Scott Kaplan and Justin Ebright, conducting walkover gamma scanning in Section 16 of the Roca Honda Site using 2x2 inch NaI detectors with Trimble GPS units, July 2010.

Figure 13-2. Roca Honda Survey Crew Using NaI Detectors.

13.2.2 Walkover Survey Design and Execution

The survey plan used to conduct the baseline assessment was based upon the guidance provided in NUREG-1575 and NUREG/CR-5849 (NRC 1997b and NRC 1992, respectively) and DeNuke procedures, with modifications for the anticipated site conditions and in deference to the overall survey objectives. Standard operating procedures, plans, and manuals developed for RHR were used to complete the survey. These survey procedures (see Appendix 13-A, Exhibit C1) included:

- HS-100.100, Health and Safety Plan for Radiological Survey Activities.
- QA-100.100, Quality Assurance for Radiological Survey Activities.
- RP-105.500, Radiological Survey Activities, Procedure 2.2, Surface Scanning.
- RP-105, Instrumentation and Measurement: General.
- RP-105.100, Instrumentation: Calibration.
- RP-105.323, Field Operation of the Trimble TSC1 Data Collector.
- RP-105.219, QC Check of the Trimble Pro XRS Sub-meter GPS.
- GPS Data Processing Handbook.
- RP-105.200, Instrumentation: Setup and Performance Checks.
- RP-105.308, Operation of the Ludlum Model 44-10 Gamma Scintillation Detector.

The survey team consisted of the following people:

- Neil Kiely, Project Certified Health Physicist
- Jubal Collins, Radiological Engineer
- Bryan Carr, Field Survey Specialist
- Scott Kaplan, Survey Technician
- Justin Ebright, Survey Technician

The team mobilized to the site and began training on June 15, 2010. Surveying began on Saturday, June 19, 2010. Neil Kiely, author of the survey plan, provided training on radiological fundamentals, radiological properties of uranium and uranium ore, measurement fundamentals, the survey plan, survey data collection, and safety while in the field. Jubal Collins, with 25 years of radiological experience, remained with the survey crew for several days to support start up and training, and to support a smooth transition to full operations.

Bryan Carr acted as the field team lead. Bryan spent the previous year conducting walkover surveys using GPS enabled instrumentation and was skilled and experienced in its use and application. Scott Kaplan and Justin Ebright were locally hired personnel familiar with the area. The resumes of each of the survey team members and training topics covered on site, are provided on a CD in Appendix 13-A.

Figure 13-1 on page 13-2 indicates the areas surveyed for the baseline assessment. The crew began the survey by walking and scanning the on-site roads, allowing the survey technicians to develop skills and techniques under the direct supervision of the radiological engineer and the survey lead. Once the on-site roads were scanned, the crew walked the site as a whole. The site was traversed from one end to the other at 50-m intervals, stopping only when blocked by impassible objects such as a ravine or steep cliff. The crew then scanned from the opposite side of the impassable object until as much surface was covered as safely possible. Overall, no radiological anomalies were encountered within the three land sections. The results of this process are provided in Appendix 13-A, Exhibits AS9, AS10, and AS16.

The crew then walked the highway routes by scanning just off the pavement at approximately 1 meter off to the right and 3 meters from the edge of the pavement. Along the paved Highway 605, the crew occasionally came across discrete elevated activity points (rock size) believed to be uranium ore that had been mined in the area. This material may be ore because U-238 and its progeny are in equilibrium. Also, the U-238 result for this sample was 7800 pCi/g or about 2.0% by weight. Results of the road surveys are provide in Appendix 13-A, Exhibit AR1.

While no mining has previously occurred on the property, more than 400 exploratory holes were drilled in the late 1970s and early 1980s. Because it is possible that drill cuttings brought to the surface during drilling of these exploratory drill holes may contain residual quantities of uranium ore, these areas were singled out for biased, 100% scanning, of 10% of the drill hole locations in each field.

Figure 13-3 shows the location of the historic drill holes. The crew then surveyed 10% of the historic exploratory drill holes noted previously. Drill hole location coordinates were obtained from historical documents. The crew entered these coordinates into their GPS units as “way points.” The crew then went to the field and navigated to the way point and looked for evidence of the former drill hole. In almost all cases, evidence remained in the form of a stake or casing at the site of the drill hole. An example of such evidence is shown in Figure 13-4. The crew conducted a 100% walkover gamma survey centered on the location and out to 5 to 10 meters in all directions. No anomalies were encountered in this process. The results of the drill hole surveys are provided in Appendix 13-A, Exhibit AW1.

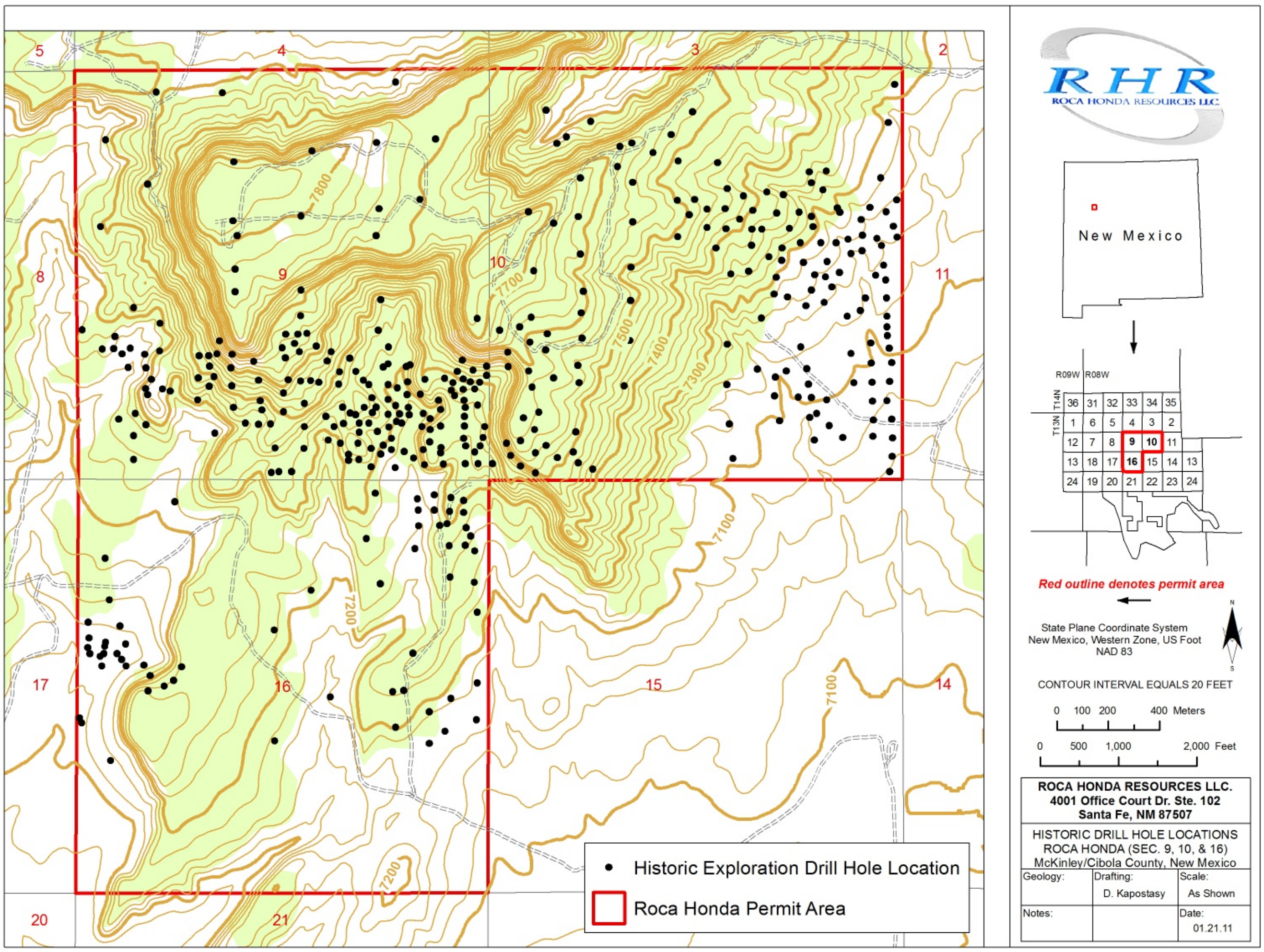

Figure 13-3. Topographic Base Map showing Historic Drill Holes

Typical of the former exploratory drill hole locations found at the site, a survey stake remained. Several of these had metal tags still attached (picture right). This is a site in Section 9, at borehole number 074.

Figure 13-4. Exploratory Drill Hole Location 9-074.

13.2.3 Soil Sampling Design and Execution

Based on the walkover scan, soil samples were collected from the areas with the highest reading encountered in each section. Additionally, "typical" soil types were collected from surfaces encountered. The survey crew monitored the audible response at all times while scanning; notable increases in count rate were investigated. The survey crew noted general area count rates and ranges. Samples were collected from average count rate soils and from those exhibiting the highest count rate for each section. The only elevated activity came from a sample collected from the side of Highway 605 of what may be uranium ore. Dose rates and NaI readings were taken at each sample location.

Soil samples were collected following the guidance contained in RP-105.500, Radiological Survey Activities, Procedure 3.2, "Soil Sampling" found in Appendix 13-A, Exhibit C. The soil samples were collected from the top 15 centimeters of soil. The soil sampling procedure was followed specifically, except that the samples were double bagged and secured with duct tape.

At each location, a NaI, 2x2 inch detector was used to collect a 0.1 integrated count at "on-contact" and a "1-meter" reading above each sample location prior to sampling. A surface reading was taken post sample collection as well. A general description of the soil type and the rationale for sample location inclusion in the survey was noted in the survey log. A tissue equivalent dose rate instrument was also used to collect dose rates at these same locations.

Each sample was identified by writing the sample ID and all pertinent sample information directly on the sample bag. The survey crew started a COC form for the sample. The Field Team Leader completed the COC and delivered the samples to the DeNuke Corporate Office in Oak Ridge, TN. The COCs were completed by the Project Certified Health Physicist who hand-delivered the samples to the analytical laboratory.

Samples were analyzed for isotopic uranium, isotopic thorium, radium-226, radium-228, and Lead-210. The results of the uranium and thorium decay chain specific radionuclide analyses provide adequate characterization of the soil background levels in relation to projected uranium mining activities. Table 13-3 provides analytical methods and container size for each analyte to be assessed in background.

Table 13-3. Methods to be Used to Determine Soil Background Radiation Levels

Analyte	Analysis Method	Sample Amount and Container
Isotopic Uranium	EPA 907.0 Modified	1000 g, double bagged, Ziploc container.
Isotopic Thorium	EPA 907.0 Modified	
Radium 226	EPA 907.0 Modified	
Radium 228	EPA 904.0 Modified	
Lead-210	EML Pb-01 Modified	

Subsurface investigations were to be conducted if surface soils indicated the presence of elevated material. No such surfaces were encountered on site, thus no subsurface investigations were performed.

13.3 Parameters Analyzed

The individual gamma measurement (count rate at each logged location) was assigned a corresponding colorimetric code; green being low count rates, yellow being mid-range, and red being high. These colorimetric points were then plotted on drawings of the site. Each point represents approximately 1 square meter of data. Each Section (approximately 640 acres) of the permit area was divided into four quarter sections which were then further divided into nine subsections to optimize data point resolution, as shown in Figure 13-5. Figure 13-5 is a thumbnail sketch of section 16-7.and is provided for each sectional analysis such that the reviewer can see where the data is coming from in comparison with the overall site. The data for each subsection can be reviewed in Appendix 13-A, Exhibits AS9, AS10, and AS16.

The gamma radiation measurement data set was also statistically analyzed to determine population characteristics (e.g., minimum, maximum, mean, and number of data points). An example of the data, summarized into a histogram of the data set is shown in Figure 13-6. The histogram displays the number of data points (frequency) that fall into count-rate ranges (cpm). Thus, if most of the data falls into the average count range for a section, there should be a peak in this range in the histogram. Figure 13-6 is the histogram from Section 16, subsection 7. On the X-axis is the cpm scale; the number of data points falling into each cpm range (the frequency) is displayed on the Y-axis. This particular histogram displays a bimodal background data set encountered when the survey is conducted over two distinct soil types (hard rock versus soil) or when surveying flat open ground and area up against steep slopes which causes geometry effects on radiation rates, or when using two differing instruments with slightly different background response. The histogram for each subsection can be reviewed in Appendix 13-A, Exhibits AS9, AS10, and AS16.

A typical section plot of data-section 16-7 is provided in Figure 13-7. Figure 13-7 shows Section 16-7 gamma readings plotted at the location at which they were taken. Each point represents approximately 1-m^2 of surface area. The scale at the right ranges from 5,000 to 50,000 cpm, with 25,000 being the yellow part of the range. The data in this section is all in the green count range. This drawing also shows the mesa edge running down the center of this section. The analysis of all the subsections is provided in Appendix 13-A, Exhibits AS9, AS10, and AS16.

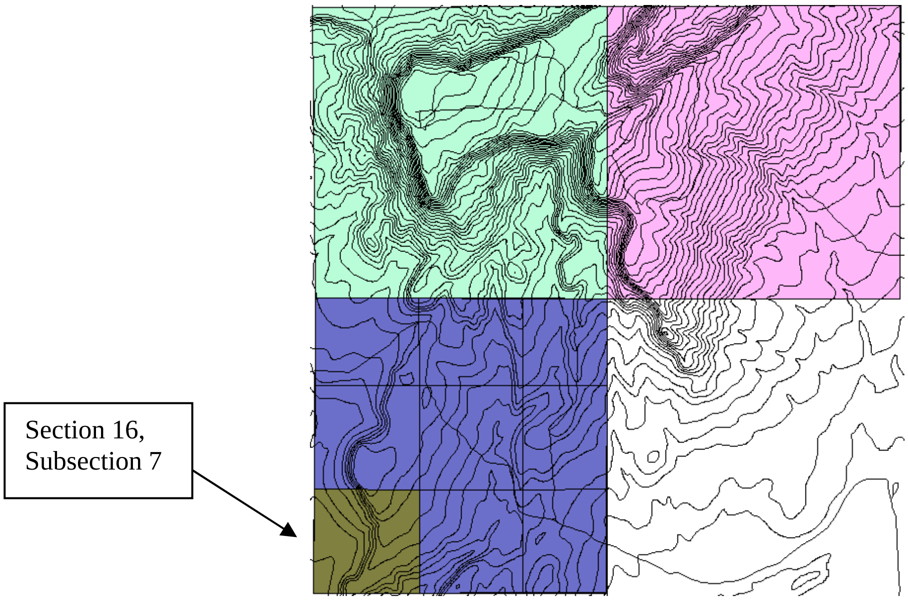

Figure 13-5. Typical Subsection Location Thumbnail

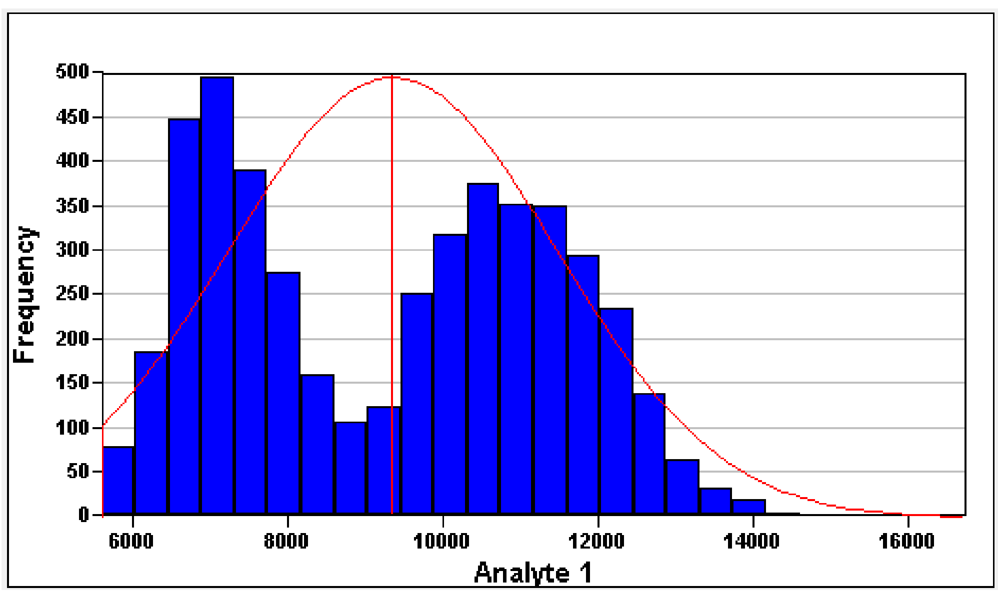

Figure 13-6. Typical Histogram of Gamma Data

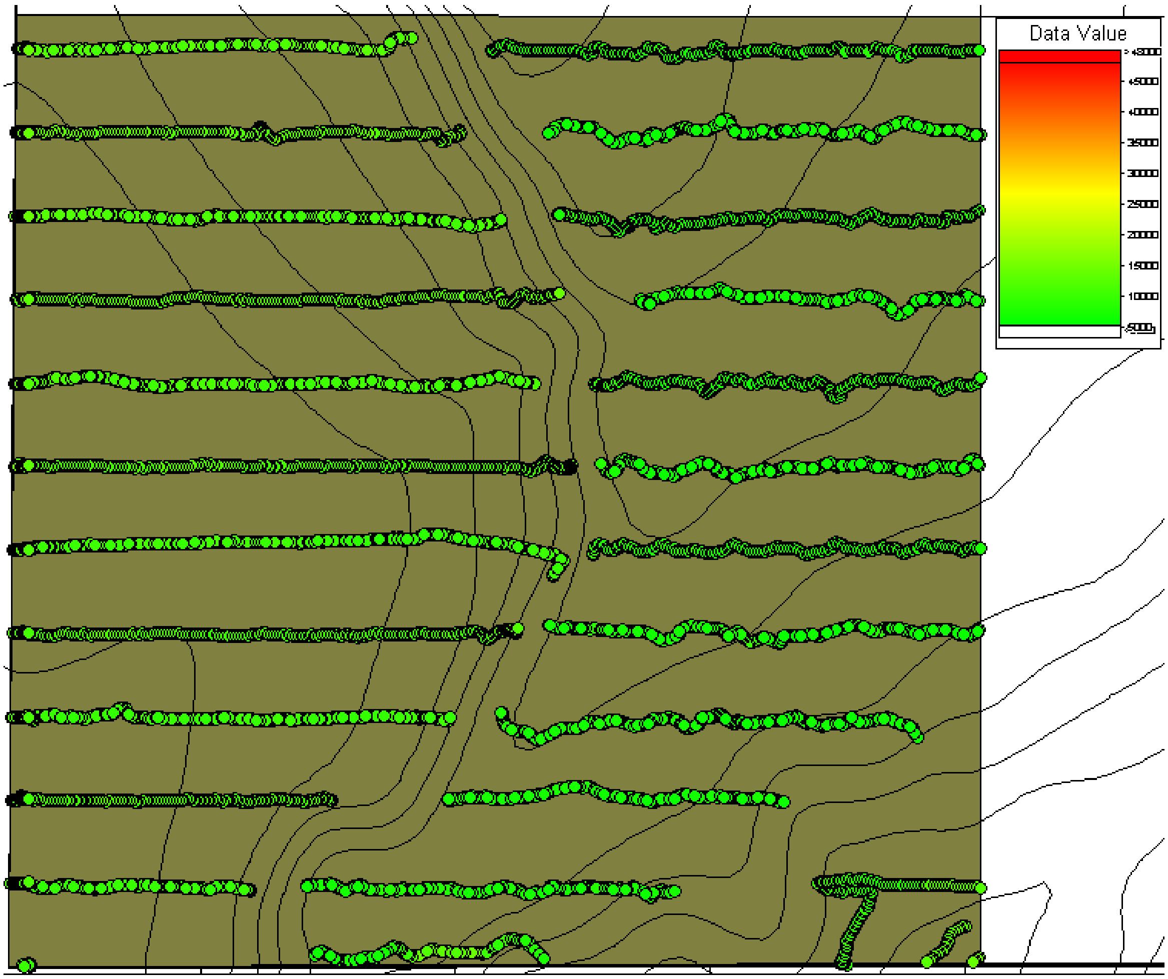

Figure 13-7. Typical Gamma Plot of Data, Section 16-7.

13.4 Soil Sample Results

As described previously in Section 13.2.3, soil samples were collected based upon a review of the data as it was collected and observed in the field. In each of the three sections of the permit area surveyed, the location with the highest gamma reading logged was selected for soil sampling. Additionally, samples were collected in areas based upon differing soil types, or if the area was proposed to be impacted by future operations. Soil samples were collected from 11 locations. Eight of these samples were collected from Sections 9, 10, and 16. Three samples were collected from the side of Highway 605. Soil sample locations are presented in Table 13-4 and soil sample radioanalytical results are summarized in Table 13-5. Sample locations, by section, are as follows:

Section 16

- Proposed settling pond area. (Sample ID RH-S-001)
- Proposed operations area. (Sample ID RH-S-002)
- The location of the highest outdoor gamma (HOG) count rate encountered in the section. (Sample ID RH-S-003)

Section 09

- Typical soil type. (Sample ID RH-S-004)
- Section 9 HOG. (Sample ID RH-S-005)
- Typical soil type found in washes. (Sample ID RH-S-006)

Section 10

- Proposed mining operations area. (Sample ID RH-S-007)
- Section 10 HOG. (Sample ID RH-S-011)

Roadways

- Sample of typical road base. (Sample ID RH-S-009)
- Typical soil along Highway 605. (Sample ID RH-S-010)
- Highway 605 HOG, possible uranium ore. (Sample ID RH-S-012)

Table 13-4. Soil Sample Locations and Radiation Counts

Sample ID	Location		NaI 2x2 cpm		Soil Description	Reason for Sampling
	Northing	Easting	Contact	1-meter		
RH-S-001	1585139	2764799	11097	9548	dirt/ minimal moisture	Sec. 16 Settling Pond
RH-S-002	1585608	2767462	11755	10877	dirt/ minimal moisture	Sec. 16 Operations Area
RH-S-003	1586112	2767690	16824	14841	dirt/ moderate moisture	Sec. 16 Highest Outdoor Gamma (HOG)
RH-S-004	1587266	2768296	14938	14187	volcanic ash w/ shale/ dry	Alternate Soil Type
RH-S-005	1588104	2767806	30318	18574	dirt/ moist	Sec. 9 HOG
RH-S-006	1587324	2772750	7855	7562	dirt/ very moist	Base of Wash
RH-S-007	1588334	2773205	8532	8254	dirt/ very moist	Sec. 10 Operations Area
RH-S-008	Not Used					
RH-S-009	1583154	2747326	14602	12817	dark dirt/ moderate moisture	Road Base
RH-S-010	1583124	2747338	13210	12201	clay-dirt/ minimal moisture	Typical Soil Along Highway
RH-S-011	1590259	2768786	16871	13086	dirt/ minimal moisture	Sec. 10 HOG
RH-S-012	1590247	2768781	45,668	12920	Sandy dirt/minimal moisture	hot spot
Average counts w/o # 012:			14,600	12194	Overall average for the 3 sections, less the hot sample from the Highway borrow ditch.	
Average counts (low bkg areas):			9216	8397	Typical of flat, deep soiled areas, found in Section 16.	
Average counts (high bkg areas):			18459	14620	Typical of area in section 9, up on the mesa.	

Table 13-5. Soil Sample Radioanalytical Results

Sample ID	Dose Rates		Soil Radionuclide Content in pCi/g							
	Contact	1 meter	U-238 Decay Chain					**	Th-232 Decay Chain	
	urem/h	urem/h	U-238	U-234	Th-230	Ra-226	Pb-210	U-235	Th-232	Th-228
*RH-S-001	17	7.5	0.965	0.91	0.904	1.45	0.922	0.219	0.857	0.91
RH-S-002	15	12	0.943	1.41	1.26	1.2	0.367	0.0694	0.95	0.893
RH-S-003	20	11	2.95	2.44	0.692	1.15	0.457	0.374	0.845	0.856
RH-S-004	18	18	2.24	3.01	1.51	1.58	0.477	0.246	1.36	1.63
RH-S-005	25	16	2.56	3.13	1.45	1.67	1.33	0.806	3.52	2.89
*RH-S-006	13	8	0.583	0.816	0.419	0.83	0.831	0.15	0.396	0.336
*RH-S-007	19	8	1.22	0.718	0.7	0.64	1.1	0.098	0.804	0.617
RH-S-008	Not used									
*RH-S-009	18	7	2.92	3.15	2.22	0.205	0.591	0.545	1.04	1.18
*RH-S-010	18	7	1.85	1.51	1.44	0.204	0.758	0.231	0.932	0.707
*RH-S-011	23	8	2.13	2.64	1.82	1.88	2.23	0.113	1.6	1.44
RH-S-012	Not used		7820	6620	9440	6110	4030	1310	59.8	12.1
Ave. all w/o 12	18.60	10.25	1.84	1.97	1.24	1.08	0.91	0.29	1.23	1.15
*Ave. low	14.2	6.3	1.3	1.2	0.9	0.6	0.7	0.2	0.7	0.6
Ave. high	19.5	14.3	2.2	2.5	1.2	1.4	0.7	0.4	1.7	1.6
** U-235 is the lead of the U-235 decay chain. In nature, U-235 is found at 4.7% of U-238 on an activity basis.										

Radionuclide activity results are provided in Table 13-5 for the U-238 decay chain, the Th-232 decay chain, and for U-238 (which is the lead of its own decay chain). Soil sample results are typical of background for the area, ranging, in the case of U-238, from 0.9 to 2.9 pCi/g. Sample number 12 was a small chunk of what may be ore found along the side of the road along Highway 605; this sample contained U-238 at nearly 8,000 pCi/g (nearly 2% by weight).

13.5 Laboratory and Field Quality Assurance Plan

The calibration certificates for the instrumentation were maintained on site while the survey was conducted. A copy of these calibration certificates are provided in Appendix 13-A, Exhibit D1.

All instrumentation was set up and operated per standard operating procedures (Appendix 13-A,Exhibit C1). The daily performance checks are provided in Appendix 13-A, Exhibit E1.

Soil samples were collected in accordance with standard operating procedures. These samples were sent to Eberline labs in Oak Ridge, TN for analysis. The analysis was performed and a Level IV data pack was prepared. The radioanalytical data package was reviewed using standard verification forms. The complete package, plus the review, is on file at the Strathmore Office in Santa Fe, NM.

13.6 Summary

Overall, it was determined that the site natural background gamma radiation levels were at background levels with typical average values ranging from 8 to 14 thousand cpm using a Ludlum 44-10, 2x2 inch NaI detector. Dose rates ranged from 8 to 25 mrem as measured using a tissue equivalent Bicron µrem meter. Soil samples results for all samples, except number 12 which was thought to be ore, ranged from 0.9 to 2.9 pCi/g U-238.

Within the permit area, there does not appear to be any pre-mining man-made or natural anomalies that would interfere with a future assessment of potential impacts from mining operations.

There are a few hot spots located along Highway 605 and the public access roads to the permit area that may need further definition of their size and magnitude such that they can be accounted for prior to any mining operations by RHR. However, it should be understood that attempting to characterize discrete, widely spread, anomalous material, such as ore, can be very difficult, depending on the quantity of the material in one spot. The detector must be brought in reasonably close contact to the material, and a small discrete piece can be effectively shielded from detection by a few inches of soil. Erosion and other soil disturbance mechanisms can bring these materials to the surface over time. As such, their presence (or absence) pre-mining can go undetected by a survey such as the one performed for this BDR.

13.7 References

NRC (Nuclear Regulatory Commission) 1992. NUREG/CR-5849. *Manual for Conducting Radiological Surveys in Support of License Termination* (Draft), U.S. Nuclear Regulatory Commission, Washington, D.C., May.

NRC 1997a. NUREG-1507. *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminates and Field Conditions*, U.S. Nuclear Regulatory Commission, Washington, D.C.

NRC 1997b. NUREG-1575. *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, Rev. 1, U.S. Nuclear Regulatory Commission, U.S. Department of Energy, U.S. Department of Defense, and U.S. Environmental Protection Agency, Washington, D.C., December.

Appendix 13-A

Radiological Survey Data, Procedures, Calibration Certificates

Compact Disc