

TECHNICAL MEMORANDUM

To: BMI Compliance Coordinator (NDEP)

From: Ranajit Sahu (BRC)

cc: Greg Lovato (NDEP)
Paul Black (Neptune)
NDEP (c/o McGinley and Associates, Reno, NV)
NDEP (c/o McGinley and Associates, Las Vegas, NV)
Mark Jones (ERM)

Date: August 30, 2010

Subject: Technical Memorandum – Correlation of Radon Activities in Indoor Air and Shallow Zone Groundwater, BMI Common Areas (Eastside) Site, Clark County, Nevada

I. Introduction

As part of the soils closure process for the BMI Common Areas (Eastside) property that has been approved by the Nevada Division of Environmental Protection (NDEP), human health risk assessments are conducted to determine if chemical concentrations in Site soils are: (1) either representative of background conditions; or (2) do not pose an unacceptable risk to human health and the environment under current and anticipated future land use conditions. The human health risk assessments are to follow the basic procedures outlined in U.S. Environmental Protection Agency (USEPA) and NDEP guidance documents. The human health risk assessment also conforms to the methodology included in the *BRC Closure Plan* (BRC, ERM, and DBS&A 2007).

Various transfer pathways for which chemicals can migrate from impacted soil to other media are identified during the risk assessment process. One exposure pathway expected for the Eastside property is the migration of radon upward from impacted groundwater. Risks associated with potential future intrusion of radon into indoor air was initially intended to be evaluated using surface flux measurements collected during site-specific sampling in accordance with an approved Sampling and Analysis Plan (SAP).

However, due to possible issues associated with characterizing the results of radon measurements collected using flux chambers based on BRC standard operating procedure (SOP) 16 (BRC, ERM, and MWH 2009), BRC elected to address the issue of radon risk in the vapor intrusion pathway more directly. In January 2010, pursuant to a work plan approved by NDEP on December 21, 2009, BRC conducted radon sampling of indoor air and proximate groundwater at two representative locations for the Eastside property. The measured indoor air

radon concentrations were below the USEPA Action Level (4 pCi/L), and the residential measurements were also at or below the USEPA Action Level for homeowners to consider mitigation (2 pCi/L). Based on NDEP comments, in July 2010, the radon evaluation was expanded to include radon groundwater sampling at thirteen additional locations across the Eastside property covering the entire Site. Finally, in August 2010 indoor radon air sampling was conducted at one additional structure.

The purpose of this field work was to evaluate whether the presence of radon in groundwater throughout the Eastside property is likely to cause elevated radon levels in indoor air for any structures that may be built on the Eastside property, once developed.¹ For risk assessment, this direct measurement approach for indoor air is considered more reliable as a reflection of actual conditions than using modeled data to predict indoor air radon activities. Because development has not yet occurred at the Eastside property, it is not currently possible to collect indoor air radon data within the property boundaries. However, it was possible to collect measurements at existing buildings constructed on three adjacent/representative properties.

This document is a revised version of a Technical Memorandum submitted by BRC to NDEP in March 2010, which has been expanded to include additional radon data subsequently collected by BRC, and to respond to NDEP comments on that prior memorandum (Attachment A). The scope and findings of the three above-referenced sampling events are summarized below, followed by conclusions regarding application of the findings to the Eastside closure process.

II. Scope of the January 2010 Fieldwork

Initially, BRC identified two structures where indoor radon could readily be measured (that is, access was currently available): a residence at 1041 Via Sanguinella in the Tuscany Hills housing edition, and BRC Offices at 875 W Warm Springs Rd. Two shallow zone groundwater monitoring wells were also located from the pool of existing monitoring wells, one near each of these two structures, such that it would be possible to collect roughly co-located indoor air and shallow zone groundwater samples. The indoor air sample locations and co-located shallow zone groundwater monitoring wells sampled in January 2010 were as follows (see Figure 1):

Indoor Air Sampling Address

Residence at 1041 Via Sanguinella

BRC Office at 875 W Warm Springs Rd

Nearby Monitoring Well

DBMW-13

WS1-14

¹ Radon activities in soils were not measured at indoor air sampling locations areas. For the purpose of this evaluation, it was assumed that radon levels in indoor structures were due to radon in groundwater and that radon activities in soil were representative of background conditions.

Both locations are considered representative for the purposes of this study because (1) they are located in areas where there are not likely to be radon activities in soils beyond what would be expected for background conditions; (2) they are representative of conditions applicable to different areas of the Eastside property; and (3) they provide a range of depths to shallow zone groundwater (the depth to water measured in DBMW-13 in August 2009 was 59.69 feet bgs; no depth to groundwater data were located for WS1-14 [screened from 14 to 34 feet bgs]).

Indoor Air Sampling Procedures and Data

The indoor air sampling was conducted from January 11 to January 14, 2010, by Converse Consultants (Converse) at two locations within each structure, as discussed in a letter report dated January 27, 2010 (enclosed as Attachment B). The indoor air samples were submitted to Environmental Microbiology Laboratory, Inc. (Phoenix, Arizona) for analysis for radon. As summarized in that letter, the indoor air radon testing results are as follows:

Indoor Air Sampling Address	Minimum Measured Activity (pCi/L)	Maximum Measured Activity (pCi/L)
Residence at 1041 Via Sanguinella	0.9	1.3
BRC Office at 875 W Warm Springs Rd	2.0	2.0

According to the report, all four measured activities were below the 4 pCi/L USEPA Action Level and the 2 pCi/L USEPA Action Level for homeowners to consider mitigation. The report also noted that the indoor air measurements at the Tuscany house were also at or below the national average radon activity level in homes (1.3 pCi/L). Based on these findings, Converse noted that no further action was recommended per USEPA guidelines. BRC also believes that these data are consistent with indoor radon levels measured by others in Clark County. For example, measured indoor radon levels in the vicinity of the Eastside property range up to 6.9 pCi/L (NREP 2010).

Groundwater Sampling Procedures and Data

Groundwater sampling of the two wells was conducted by Converse on January 14, 2010. The samples were submitted to GEL Laboratories LLC (Charleston, South Carolina) for radon analysis. The analytical results are provided in the attached laboratory report (Attachment C [electronically on CD]) and are as follows:

Well ID/Location	Result (pCi/L)	Uncertainty
DBMW-13 (near Tuscany Residence)	223	+/- 58.1
WS1-14 (near BRC Office)	435	+/- 66.5

III. Scope of the July 2010 Groundwater Sampling

The results of the January 2010 field investigation were provided to NDEP in a technical memorandum dated March 25, 2010. In response to NDEP comments (see NDEP comments and BRC responses in Attachment A) and upon further review of the data, BRC determined that it would be appropriate to collect additional groundwater radon data in order to support a working hypothesis regarding the potential for vapor intrusion impacts associated with site conditions. BRC received NDEP concurrence to proceed with the additional groundwater sampling.

During this sampling event, BRC collected ground water samples from Shallow Zone wells within or near each sub-area, representing the range of shallow soil types across the Eastside property and a range of depths to water. The wells selected for this purpose are depicted on Figure 1, and are as follows:

Sub-Area	Representative Well	Depth to Water (feet bgs)²	Radon Concentration (pCi/L)
Western Hook	AA-10 (south side)	20.30	1,180
	AA-08 (north side)	15.61	563
Open Space	PC-56	24.65	363
Galleria North	DBMW-3 (west side)	31.64	657
	DBMW-5 (north side)	27.67	320
Sunset North Commercial	No wells within sub-area, but DBMW-3 is immediately downgradient	--	--
Upper Ponds	BEC-10 (east side)	59.08	251
	BEC-9 (central area)	52.86	266
	AA-15 (west side)	Dry	--
Spray Wheel	POD8	70.34	423
First Eight Rows	MCF-16C (north side)	66.94	-1.34 U
	BEC-6 (south side)	67.64	51.3 U
TIMET Ponds	AA-09 (west side)	38.32	897
	AA-13 (east side)	62.54	810
Staging Area	POU3	40.87	135

² Depth to water entries based on measurements collected during August 2009.

Sub-Area	Representative Well	Depth to Water (feet bgs)²	Radon Concentration (pCi/L)
Southern RIBs	No wells within sub-area, but AA-13 and POU3 are immediately downgradient	--	--
Mohawk	DBMW-13 (sampled during prior event	59.69	223

Groundwater sampling of the wells listed above³ was conducted by Converse on July 6 through July 8, 2010. The samples were submitted to GEL Laboratories LLC (Charleston, South Carolina) for radon analysis. As presented on Figure 1 and in the Table above, the detected radon analytical results ranged from 135 pCi/L to 1,180 pCi/L (laboratory reports provided in Attachment D [electronically on CD]). The highest radon measurement was associated with well AA-10 in the Western Hook, which also exhibited one of the shallowest measured depths to groundwater (20.30 ft bgs).

Comparing the maximum value from the initial radon groundwater sampling (where the radon levels in the collocated indoor structures were below the USEPA action levels) to the July 2010 groundwater radon levels indicates that radon levels in the following wells were elevated by comparison: AA-08, AA-09, AA-10, AA-13, and DBMW-3. As noted, the maximum radon level measured in groundwater was 1,180 pCi/L at well AA-10, where the depth to groundwater was also the shallowest.

IV. Scope of the August 2010 Indoor Air Sampling

Upon review of the above groundwater sampling results, BRC elected to conduct one additional round of indoor air sampling at an accessible indoor location close to well AA-10, where the highest radon in groundwater was measured. This structure is the AMPAC office at 900 Weisner Way adjacent to the Western Hook-Development sub-area. This location was specifically selected because the July 2010 sampling indicated that this portion of the Eastside property is underlain by the highest radon activities in groundwater (AA-10), and groundwater is relatively shallow in this area. Furthermore, the unsaturated zone is characterized by silty sands (see boring log for BRC-SB-10-A, which presents stratigraphic information for AA-10, in Attachment E), which are typical of shallow unsaturated sediments at the Eastside property and would not tend to inhibit upward migration of radon through the soil column. For these reasons, BRC believes that the AA-10/AMPAC office Building area represents reasonable

³ All the wells listed above were sampled, except for AA-15, which was dry.

‘worst case’ conditions in terms of potential vapor intrusion concerns due to radon in groundwater at the Eastside property.

The indoor air sampling was conducted from August 6 to August 10, 2010, by Converse Consultants (Converse) at two locations within the structure, as discussed in a letter report dated August 23, 2010 (enclosed as Attachment F). The indoor air samples were submitted to Environmental Microbiology Laboratory, Inc. (Phoenix, Arizona) for analysis for radon. As summarized in that letter, the reported indoor air radon testing measurements were 0.7 pCi/L and 0.6 pCi/L.

According to the report, both measured activities were below the 4 pCi/L USEPA Action Level and the 2 pCi/L USEPA Action Level for homeowners to consider mitigation. The report also noted that the indoor air measurements were at or below the national average radon activity level in homes (1.3 pCi/L). Based on these findings, Converse noted that no further action was recommended per USEPA guidelines. Similar to the prior indoor air sampling results, these data are consistent with indoor radon levels measured by others in Clark County (NREP 2010).

V. Summary and Conclusions

Figure 1 summarizes the data from the three sampling events described above that were conducted by BRC to evaluate the relationship between radon activities in the Eastside property groundwater and indoor air. As seen on Figure 1, radon activities in groundwater ranged from non-detect to 1,180 pCi/L (maximum at location AA-10). Indoor air radon measurements ranged from 0.6 pCi/L to 2.0 pCi/L. Based on these data, it appears that the presence of radon in groundwater in the vicinity of and under the Eastside property is not resulting in radon levels in indoor air that pose a threat to human health. None of the indoor air activities exceeded the 4 pCi/L USEPA Action Level for mitigation or the 2 pCi/L USEPA Action Level for homeowners to consider mitigation.

Based on these findings, BRC concludes that radon is not likely to be a vapor intrusion concern. Note that although the depth to water in the Western Hook-Open Space sub-area is expected to be less than 20 feet bgs in some locations, substantial fill material will be brought into these sub-areas to facilitate future development plans. Also plans in this area do not include structures intended for human occupation. Therefore, it is reasonable to conclude that at no location in the Eastside is it likely that radon is a vapor intrusion concern. No further radon testing or evaluations are necessary.

REFERENCES

Basic Remediation Company (BRC), Environmental Resources Management (ERM), and Daniel B. Stephens & Associates, Inc. 2007. BRC Closure Plan, BMI Common Areas, Clark County, Nevada. May. Chapter 9 updated December 2009.

Basic Remediation Company (BRC), Environmental Resources Management (ERM) and MWH. 2009. BRC Field Sampling and Standard Operating Procedures, BMI Common Areas, Clark County, Nevada. December.

Nevada Radon Education Program (NREP). 2010. Radon Test Results. University of Nevada Cooperative Extension. <http://www.unce.unr.edu/programs/sites/radon/results>.

Attachments: Figure 1 – Radon Shallow Zone Groundwater and Indoor Air Sample Locations
Attachment A – NDEP Comments on March 2010 Radon Correlation Technical Memorandum and BRC Responses
Attachment B – Indoor Air Radon Testing Report – January 2010 Sampling Event
Attachment C – Laboratory Report for Groundwater Samples - January 2010 Sampling Event (on CD)
Attachment D – Laboratory Report for Groundwater Samples - July 2010 Sampling Event (on CD)
Attachment E – Boring Log for BRC-SB-10-A
Attachment F – Indoor Air Radon Testing Report – August 2010 Sampling Event

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

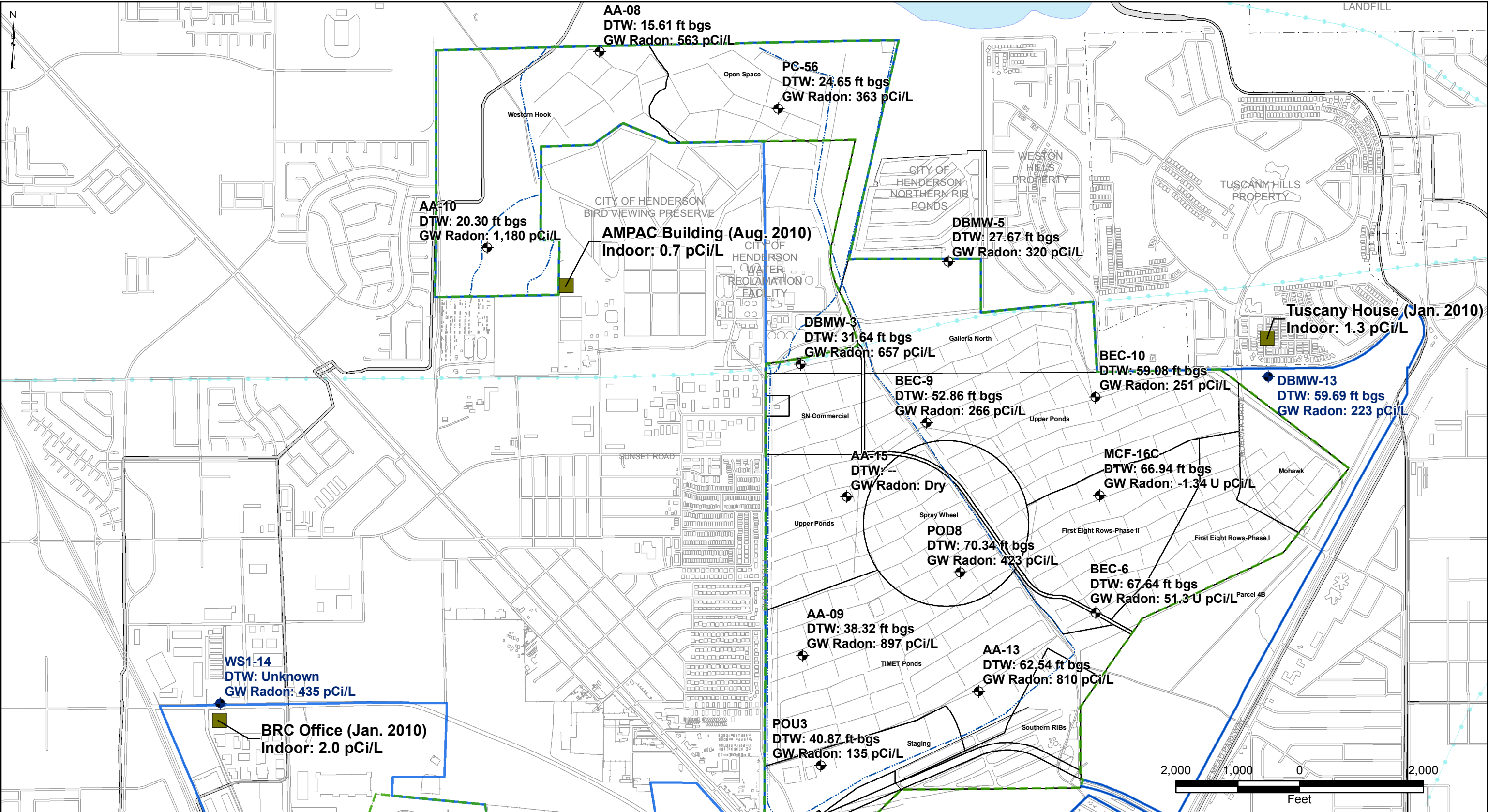
August 30, 2010

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2011)

Date

BRC Project Manager

FIGURES



Note that indoor air results are the maximum of two values collected at each location.

BMI Common Areas (Eastside)
Clark County, Nevada

FIGURE 1

RADON INDOOR AIR AND
SHALLOW ZONE MONITORING
WELL LOCATIONS

Prepared by
MKJ (ERM)

Date
08/30/10

JOB No. 0064276
FILE: GIS/BRC/FIGURE_1.MXD

ATTACHMENT A

NDEP COMMENTS ON MARCH 2010 RADON CORRELATION
TECHNICAL MEMORANDUM AND BRC's RESPONSES

Response to NDEP's Comments dated May 17, 2010 on BRC's Technical Memorandum – Correlation of Radon Activities in Indoor Air and Shallow Zone Groundwater, BMI Common Areas (Eastside), Clark County, Nevada dated March 25, 2010

1. General comment, soil and/or groundwater can be a source for radon gas as a vapor intrusion (VI) issue.
 - a. The vertical separation of groundwater from the foundation and intervening soil characteristics becomes important given the half-life of radon-222 of 3.8 days.
 - b. Given the depth to water and the concentrations of radon-222 in groundwater it appears that the contribution from groundwater to indoor air is negligible.
 - c. It appears that BRC could support a working hypothesis such that, if soil conditions are consistent with background and the depth to the water is at least “x” feet, that radon is not likely to be a VI concern. NDEP suggests BRC revise the Deliverable to address this.

Response: The technical memorandum has been revised to more clearly reflect that both soil and groundwater are potential sources of radon gas. The baseline assumption in the technical memorandum was that soils in the sampling locations were not impacted beyond background levels, and that the primary contribution to radon gas would be from groundwater. This would presumably also be the case for post-soil remediation conditions at Eastside properties being evaluated for closure.

As discussed with NDEP, BRC feels that a working hypothesis would be more credible with a larger dataset of radon measurements in groundwater, representing a range of groundwater depths and applicable to each of the Eastside sub-areas. Therefore, BRC collected radon data from 13 additional shallow zone wells across the Eastside property. The sampling locations are presented on Figure 1.

2. General comment, the references herein to either an USEPA MCL or Alternative MCL pertain to the use of groundwater as a domestic water supply, which implies potential exposure to water via ingestion where incidental vapor inhalation may occur. BRC should revise the text to make the clearly define the derivation and use of these metrics as they are not directly relevant to VI exposure scenario.

Response: BRC has revised the text by removing the references to MCLs.

3. General comment, the indoor air radon-222 samples are useful for comparison to other measurements made within the same geographic region (Clark County, NV) and provide a line of evidence that the working hypothesis discussed above is valid.

Response: Agreed. BRC has added information on recent indoor radon measurements collected by the Nevada Radon Education Program (NREP).

4. General comment, if the reference to indoor air radon-222 samples and groundwater remain within this document; then, there should be a discussion of depth to groundwater and soil physical properties at each location. This geology discussion should also be used in formulating the working hypothesis above.

Response: As noted in the response to Comment #1, the technical memorandum has been expanded to include a working hypothesis along the lines of what is presented in that comment. The memorandum discussion has been expanded to include site-specific information regarding depth to groundwater and soil characteristics in support of the working hypothesis.

ATTACHMENT B

INDOOR AIR RADON TESTING REPORT
JANUARY 2010 SAMPLING EVENT



Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services



BY: _____

January 27, 2010

09-43402-01

Mr. Ranajit Sahu
Basic Remediation Company (BRC)
875 West Warm Springs Road
Henderson, NV 89011

Subject: **Report**
Radon Testing
Residential Location
1042 Via Sanguinella (Tuscany Development)
Commercial Location
875 West Warm Springs Road (BRC Offices)
Henderson, Nevada

Dear Mr. Sahu:

In accordance with our Professional Services Agreement dated April 15, 2004 and your Task Order 11178, Converse Consultants (Converse) conducted the subject radon testing from January 11 to January 14, 2010. The subject services were reportedly requested to obtain data regarding potential radon levels in future homes to be built in the 89011 zip code.

Scope of Services

The subject assessment included the professional services of Mr. Dale Walsh, a Converse employed Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), and Certified Environmental Manager (CEM). Two tests were conducted in each of the two subject locations.



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731 Pilot Road, Suite H, Las Vegas, Nevada 89119-4429

Telephone: (702) 269-8336 ♦ Facsimile: (702) 269-8353 ♦ e-mail: lasvegas@converseconsultants.com

The samples were sent using chain-of-custody methods for analysis to EMLab P&K (EML) in Phoenix, Arizona. EML is certified under the National Environmental Health Association's National Radon Proficiency Program.

The testing was performed using the Rad Elec E-PERM Electret Ion Chamber (refer to enclosed photograph) which was analyzed with the SPER-1 Electret Reader. The tests were collected at the lowest floor levels of the buildings sampled, in middle areas of the rooms, and at a height of approximately five feet above ground. The buildings had been closed as much as possible the two days before testing (e.g., sampling started Monday morning).

Results and Discussion

The radon testing results are described in Table 1. The laboratory report is enclosed.

Table 1
Radon Testing Results measured in picoCuries per Liter of air (pCi/L).

Location / Sample No.	Start Time and Date	End Time and Date	Results pCi/L
Tuscany House Dining Room / SDI601	0915 – 1/11/10	1545 – 1/14/10	1.3
Tuscany House Downstairs Bedroom / SBU916	0915 – 1/11/10	1545 – 1/14/10	0.9
BRC Office Main File Room / SDM355	0845 – 1/11/10	1515 – 1/14/10	2.0
BRC Office Landwell File Room / SBU791	0845 – 1/11/10	1515 – 1/14/10	2.0
<i>EPA Action Level for Mitigation</i>			4.0
<i>EPA Level for Homeowner to Consider Mitigation</i>			2.0
<i>National Average in Homes</i>			1.3

Note 1: Radon mitigation is relatively simple. The soil below the slab is exposed and a vent is sealed and attached to the hole and vented to the outdoors to provide another path for the gas besides going into the home. The EPA is encouraging new homes to be built with a mitigation system in place or with the main constituents present for ease of installing the system by the homeowners.

Note 2: University of Nevada Cooperative Extension data from three tests in the 89011 indicated radon levels below 4 pCi/L (refer to the enclosed map and chart).

Conclusions

Based upon the previously described results, the following conclusions are made:

1. The radon levels detected at the residence were below both the EPA Action Level and homeowner mitigation consideration level. The levels detected were also at or below the national average.
2. The radon levels detected at the BRC office were below the EPA Action Level and at the homeowner mitigation consideration level. The levels detected were above the national average by approximately 50%.

Recommendations

Based upon the previously described results and conclusions, the following recommendations are made:

1. Per EPA guidelines, no further action is recommended. However, consideration should be given to conducting a follow up to the testing during the summer months to confirm the results obtained under different climatic conditions.

Limitations

This report is for the use of Basic Remediation Corporation as it applies to the subject site. Converse is not responsible for any claims or damages associated with interpretation of available information. This assessment should not be regarded as a guarantee that no other hazardous conditions exist at the subject site. In the event that changes in the nature of the property occur, or additional relevant information about the property is brought to our attention, the conclusions and recommendations contained in this assessment may not be valid unless these changes and additional relevant information are reviewed and the conclusions and recommendations of this assessment are modified or verified in writing.

BRC
Project No. 09-43402-01
January 27, 2010
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Thank you for the opportunity to be of service. Should you have any questions or comments regarding this report, please do not hesitate to call.

Respectfully submitted,

CONVERSE CONSULTANTS



Dale W. Walsh, CIH, CSP, CEM
Certified Industrial Hygienist

DWW:ls

Encl: EMLab P&K Analysis Report
University of Nevada Cooperative Extension Clark County Radon
Test Results
Photographs
Sketch of BRC Office Sample Locations

Dist: 2/Addressee



EMLab P&K

Report for:

Mr. Dale Walsh
Converse Consultants, Las Vegas
731 Pilot Road
Suite H
Las Vegas, NV 89119-4429

Regarding: Project: 094340201; BRC Radon
EML ID: 617446

Approved by:

Dates of Analysis:
Radon in Air: 01-18-2010

Lab Director
Christine Meyer

Project SOPs: Radon in Air (20-137 Radon In Air)

For clarity, we report the number of significant digits as calculated; but, due to the nature of this type of biological data, the number of significant digits that is used for interpretation should generally be one or two. All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank corrections of results is not a standard practice. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Document Number: 200091 - Revision Number: 5



The Proven Leader

North Phoenix Arizona Laboratory
1501 West Knudsen Drive, Phoenix, AZ 85027
800.651.4802 • Fax. 623.780.7695 • EMLAP# 102297

Radon Test Report

Converse Consultants
731 Pilot Road, Suite H
Las Vegas, NV 89119
Attn: Mr. Dale Walsh

EMLab ID#: 617446
Project ID: 094340201
Date Received: January 15, 2010
Date Analyzed: January 15, 2010
Certification #: NRPP#102969AL
NRPP#103751RT

Methods: Rad Elec E-PERM Electret Ion Chamber System samples were analyzed via a SPER-1 Electret Reader, Serial Number SIN00702. Short-term radon tests are intended to give you an indication of the radon levels during the measurement period in the areas tested. The results of the radon measurements that you performed are as follows:

Deployment Information

Start Test: 1/11/2010 9:00 AM
Finish Test: 1/14/2010 3:30 PM
Test State: NV-LE
Elevation (ft): 2100

Project Description: BRC Radon

Results

Electret Serial #	Sample Location	Device Type	Analysis Date	Analyst	Radon pCi/L
SDI601	Tuscany House Dining	SST	January 15, 2010	TEG	1.3
SBU916	Tuscany House Bedroom	SST	January 15, 2010	TEG	0.9
SDM355	BRC Office Main File Rm	SST	January 15, 2010	TEG	2.0
SBU791	BRC Office Loadwell File Rm	SST	January 15, 2010	TEG	2.0

Michael J. Magry

01/18/10

Authorized Signature/Date: _____

Quality Assurance Manager-Western Region

ENVIRONMENTAL MICROBIOLOGY LABORATORY, INC.
800.651.4802 • www.emlab.com • info@emlab.com

What Do My Test Results Mean?

The concentration of radon in the home is measured in picocuries per liter of air (pCi/L). If your average radon level is less than 4.0 pCi/L, no action is necessary. However, radon levels less than 4.0 pCi/L can still pose some health risk, and in many cases can be reduced. The national average indoor radon level is about 1.3 pCi/L while the average outdoor radon concentration is about 0.4 pCi/L. The higher a home's radon concentration, the greater the health risks to you and your family.

What Do I Do If My Test Results Are Greater than 4.0 pCi/L?

If the test results are 4.0 pCi/L or greater, the EPA recommends that you mitigate your home. There are simple ways to fix a radon problem that aren't too costly, and even very high concentrations can be reduced to acceptable levels.

What Is the Health Risk Associated with Radon Gas?

Radon is a radioactive gas that comes from the natural breakdown of uranium in the soil. Radon is estimated to cause many thousands of deaths each year from lung cancer, and in fact, it is the second leading cause of lung cancer after smoking. If you smoke, and your home has high radon levels, your risk of lung cancer is especially high.

Where Can I Get Additional Information on Radon?

For more information, please refer to <http://www.epa.gov/radon/index.html>

Data Qualifiers

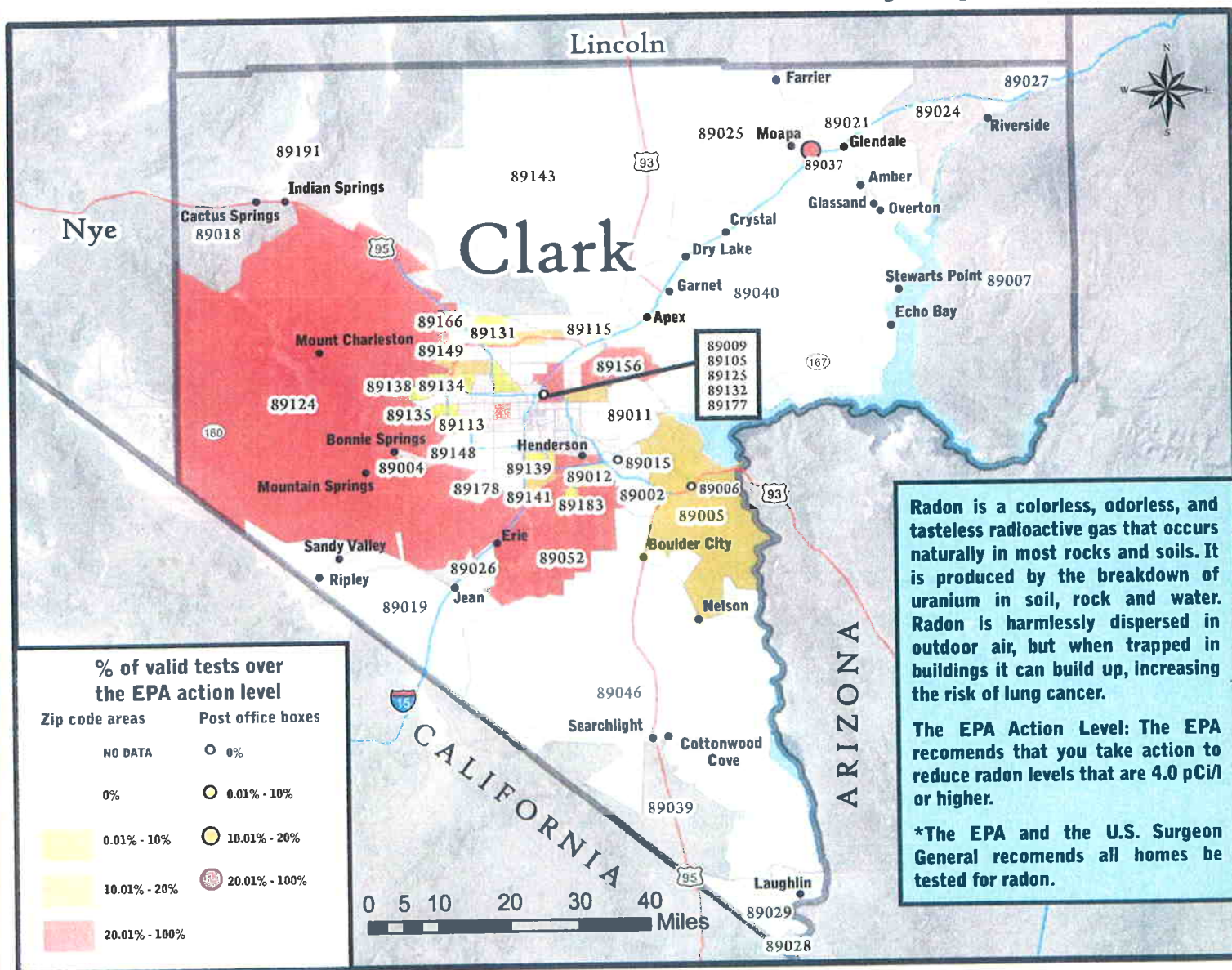
The *Data Qualifiers* identify issues or events that are relevant to your analytical results. A data qualifier includes information about the validity, the source of the data whether calculated, entered or estimated, and the value of an observation. In each case the data qualifiers provide significant information vital to the interpretation of the laboratory data.



University of Nevada
Cooperative Extension

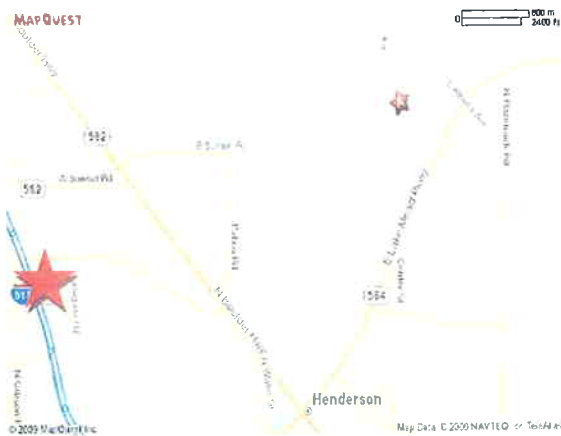
Clark County

Radon Test Results by Zip Code



Clark	Range of radon levels in pCi/l										Total Number of Tests	Radon Levels by pCi/l	
	< 0.4	0.4 - 0.5	0.5 - 0.6	0.6 - 0.7	0.7 - 0.8	0.8 - 0.9	0.9 - 1.0	1.0 - 1.1	1.1 - 1.2	> 1.2		Average	Highest
89007 HENDERSON	7	0	0	0	0	0	0	0	0	0	7	1.8	3.5
89008 BOULDER CITY	22	4	0	0	0	0	0	0	0	0	26	18.8	37.0
89009 P.O. Box	1	0	0	0	0	0	0	0	0	0	1	0.8	0.8
89010 HENDERSON	1	0	0	0	0	0	0	0	0	0	1	0.8	0.8
89011 HENDERSON	3	0	0	0	0	0	0	0	0	0	3	0.5	1.2
89012 HENDERSON	17	1	0	0	0	0	0	0	0	0	18	1.5	4.6
89014 HENDERSON	14	0	0	0	0	0	0	0	0	0	14	1.4	3.8
89015 HENDERSON	8	0	0	0	0	0	0	0	0	0	8	1.5	2.8
89019 JEAN	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5
89021 LOGANDALE	2	0	0	0	0	0	0	0	0	0	2	1.6	1.8
89022 MOAPA	1	0	0	0	0	0	0	0	0	0	1	2.4	2.4
89027 MESQUITE	10	0	0	0	0	0	0	0	0	0	10	1.2	2.9
89029 LAUDON	4	0	0	0	0	0	0	0	0	0	4	1.5	1.7
89030 NORTH LAS VEGAS	1	1	0	0	0	0	0	0	0	0	2	50.0	5.1
89031 NORTH LAS VEGAS	7	0	0	0	0	0	0	0	0	0	7	1.0	2.0
89032 NORTH LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.7
89033 NORTH LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5
89037 P.O. Box	0	1	0	0	0	0	0	0	0	0	1	1.4	2.3
89040 OVERTON	2	0	0	0	0	0	0	0	0	0	2	0.5	0.9
89044 HENDERSON	27	2	0	0	0	0	0	0	0	0	29	8.5	1.1
89046 SEARCHLIGHT	1	0	0	0	0	0	0	0	0	0	1	0.8	1.1
89052 HENDERSON	20	11	2	0	0	0	0	0	0	0	33	4.2	20.4
89074 HENDERSON	13	4	0	0	0	0	0	0	0	0	17	2.4	1.5
89081 NORTH LAS VEGAS	4	0	0	0	0	0	0	0	0	0	4	1.0	1.1
89084 NORTH LAS VEGAS	5	1	0	0	0	0	0	0	0	0	6	1.5	5.1
89087 NORTH LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5
89088 NORTH LAS VEGAS	2	0	0	0	0	0	0	0	0	0	2	2.7	3.7
89101 LAS VEGAS	3	1	0	0	0	0	0	0	0	0	4	1.5	4.1
89102 LAS VEGAS	20	0	0	0	0	0	0	0	0	0	20	0.8	2.1
89103 LAS VEGAS	15	0	0	0	0	0	0	0	0	0	15	0.9	2.1
89104 LAS VEGAS	5	0	0	0	0	0	0	0	0	0	5	1.1	2.1
89105 P.O. Box	2	0	0	0	0	0	0	0	0	0	2	1.1	1.1
89106 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	1.5
89107 LAS VEGAS	14	0	0	0	0	0	0	0	0	0	14	0.7	1.9
89108 LAS VEGAS	20	1	0	0	0	0	0	0	0	0	21	1.1	4.7
89110 LAS VEGAS	8	1	0	0	0	0	0	0	0	0	9	0.8	1.6
89113 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	1.3	1.6
89115 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	1.3	1.6

Clark	Range of radon levels in pCi/l										Total Number of Tests		Radon Levels by pCi/l		Radon Levels by pCi/l	
	< 0.4	0.4 - 0.5	0.5 - 0.6	0.6 - 0.7	0.7 - 0.8	0.8 - 0.9	0.9 - 1.0	1.0 - 1.1	1.1 - 1.2	> 1.2	Tests	Average	Highest	Average	Highest	
89117 LAS VEGAS	12	0	0	0	0	0	0	0	0	0	12	0.8	1.7	0.8	1.7	
89118 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.7	1.5	0.7	1.5	
89119 LAS VEGAS	13	0	0	0	0	0	0	0	0	0	13	0.8	1.5	0.8	1.5	
89120 LAS VEGAS	7	0	0	0	0	0	0	0	0	0	7	0.7	0.8	0.7	0.8	
89121 LAS VEGAS	10	0	0	0	0	0	0	0	0	0	10	0.8	1.2	1.2	1.6	
89122 LAS VEGAS	2	0	0	0	0	0	0	0	0	0	2	0.8	0.9	0.8	1.6	
89123 LAS VEGAS	22	1	0	0	0	0	0	0	0	0	23	1.2	4.4	1.6	5.0	
89124 LAS VEGAS	0	1	0	0	0	0	0	0	0	0	1	0.2	10.0	14.5	21.0	
89125 P.O. Box	1	0	0	0	0	0	0	0	0	0	1	0.8	1.4	0.8	1.4	
89126 LAS VEGAS	11	0	0	0	0	0	0	0	0	0	11	1.1	1.2	1.1	1.2	
89127 LAS VEGAS	7	1	0	0	0	0	0	0	0	0	8	1.1	1.2	1.1	1.2	
89128 LAS VEGAS	14	0	0	0	0	0	0	0	0	0	14	0.8	0.8	0.8	1.5	
89129 LAS VEGAS	11	1	0	0	0	0	0	0	0	0	12	1.1	1.1	1.1	1.5	
89130 P.O. Box	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89131 LAS VEGAS	28	1	0	0	0	0	0	0	0	0	29	1.2	1.2	1.2	1.5	
89132 LAS VEGAS	31	0	0	0	0	0	0	0	0	0	31	1.1	1.1	1.1	1.2	
89133 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89134 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89135 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89136 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89137 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89138 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89139 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89140 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89141 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89142 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89143 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89144 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89145 LAS VEGAS	4	0	0	0	0	0	0	0	0	0	4	0.6	0.6	0.6	0.6	
89146 LAS VEGAS	4	0	0	0	0	0	0	0	0	0	4	0.6	0.6	0.6	0.6	
89147 LAS VEGAS	5	0	0	0	0	0	0	0	0	0	5	0.7	0.7	0.7	0.7	
89148 LAS VEGAS	6	0	0	0	0	0	0	0	0	0	6	0.8	0.8	0.8	0.8	
89149 LAS VEGAS	5	0	0	0	0	0	0	0	0	0	5	0.7	0.7	0.7	0.7	
89150 LAS VEGAS	3	0	1	0	0	0	0	0	0	0	4	0.7	0.7	0.7	0.7	
89151 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89152 LAS VEGAS	3	0	0	0	0	0	0	0	0	0	3	0.5	0.5	0.5	0.5	
89153 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89154 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89155 P.O. Box	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89156 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89157 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89158 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89159 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89160 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89161 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89162 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89163 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89164 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89165 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89166 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89167 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89168 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89169 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89170 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89171 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89172 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89173 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89174 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89175 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89176 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89177 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89178 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89179 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89180 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89181 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89182 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89183 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89184 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89185 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89186 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89187 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89188 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89189 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89190 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89191 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89192 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89193 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89194 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89195 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89196 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89197 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89198 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89199 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89200 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89201 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89202 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89203 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89204 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89205 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89206 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89207 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89208 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89209 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89210 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89211 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89212 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89213 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89214 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89215 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89216 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89217 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89218 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89219 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89220 LAS VEGAS	1	0	0	0	0	0	0	0	0	0	1	0.5	0.5	0.5	0.5	
89221 LAS VEGAS	1	0	0	0	0	0	0	0								



Map of 89011 Zip Code Area



E-Perm electrets ion chamber



BRC Landwell File Room



BRC Main File Room



BRC Office Building



Tuscany Residence Bedroom



Tuscany Residence Dining Room



Tuscany Residence

WEST WARM SPRINGS ROAD EMERGENCY EVACUATION ROUTE

OVERHEAD POWER
MATERIAL CORRIDOR

North Parking Section

OVERHEAD POWER
NORTH CORRIDOR

VIEW 110
110/111



ATTACHMENT C

LABORATORY REPORT FOR GROUNDWATER SAMPLES
JANUARY 2010 SAMPLING EVENT (on CD)

ATTACHMENT D

LABORATORY REPORT FOR GROUNDWATER SAMPLES
JULY 2010 SAMPLING EVENT (on CD)

ATTACHMENT E

BORING LOG FOR BRC-SB-10-A

Log of Boring No. BRC-SB-10-A

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Drilling Method: Mud Rotary
Drilling Equipment: Gefco 15K
Drilling Contractor: Water Development Corporation
Driller: Steve Odom

Borehole Total Depth: 400 ft bgs
Borehole Diameter: 10 in
Boring Location: Location 10 (Well ID: MCF-10A)
Depth to Water (ft. bgs): NA

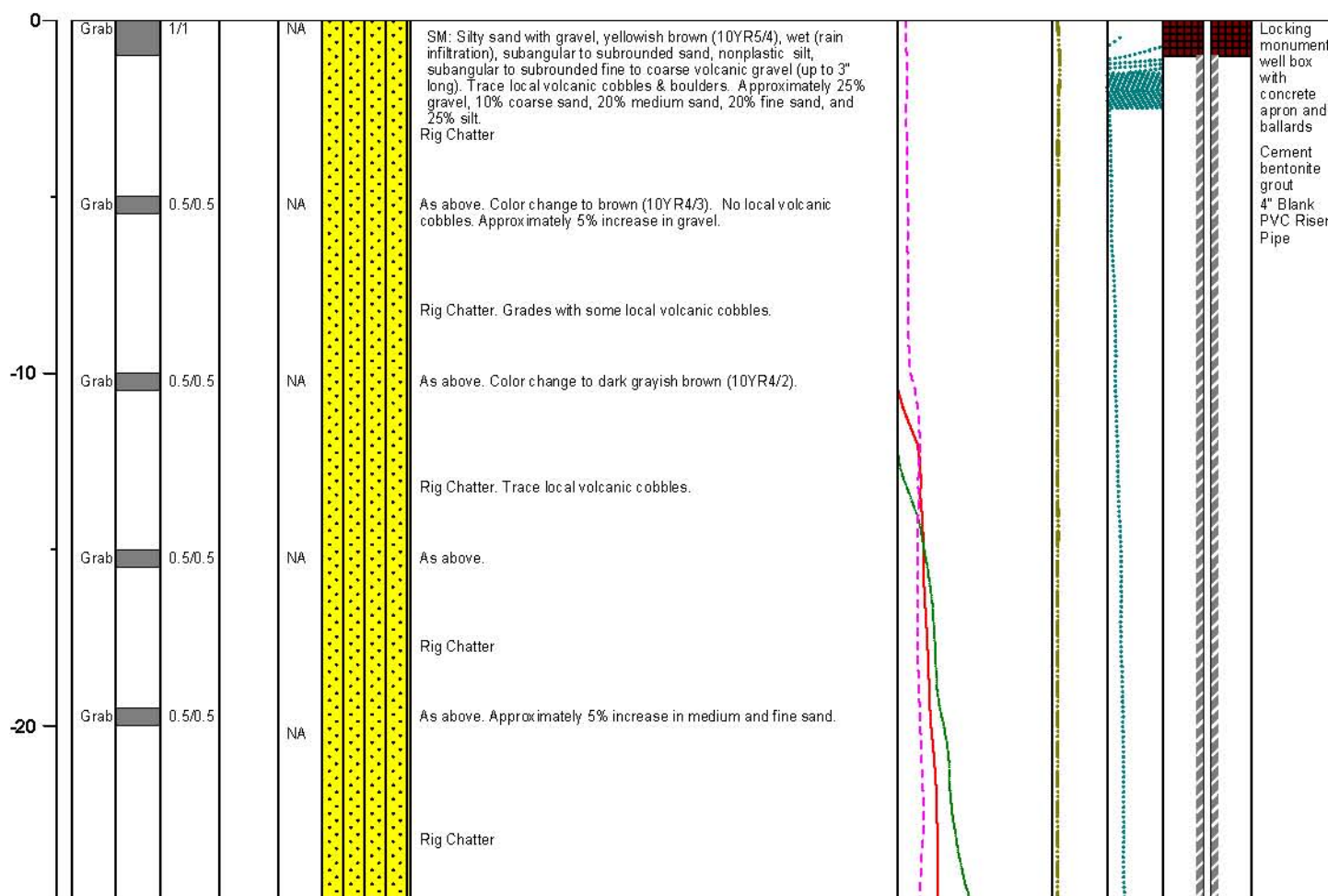
Sample Type: Cuttings grab
Sample Interval: Varied

Logged By: Adam Norris
Date Started: 4/3/04
Date Completed: 4/6/04

Monitoring Well Construction

Type of Surface Seal: Bentonite-Cement
Blank Casing Type/Size: 4" Sch 80 PVC
Screen Type/Size: 4" Sch 80 PVC
Transition Sand Type: #1C
Screen Slot Size: 0.010 in
Top of Screen (ft. bgs): 365 ft bgs
Bottom of Screen (ft. bgs): 384.5 ft bgs
Type of Sand Pack: #10 x 20

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log		Caliper Log (inch)	Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)			
								<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>		



Project No. 3850360

Log of Boring: BRC-SB-10-A



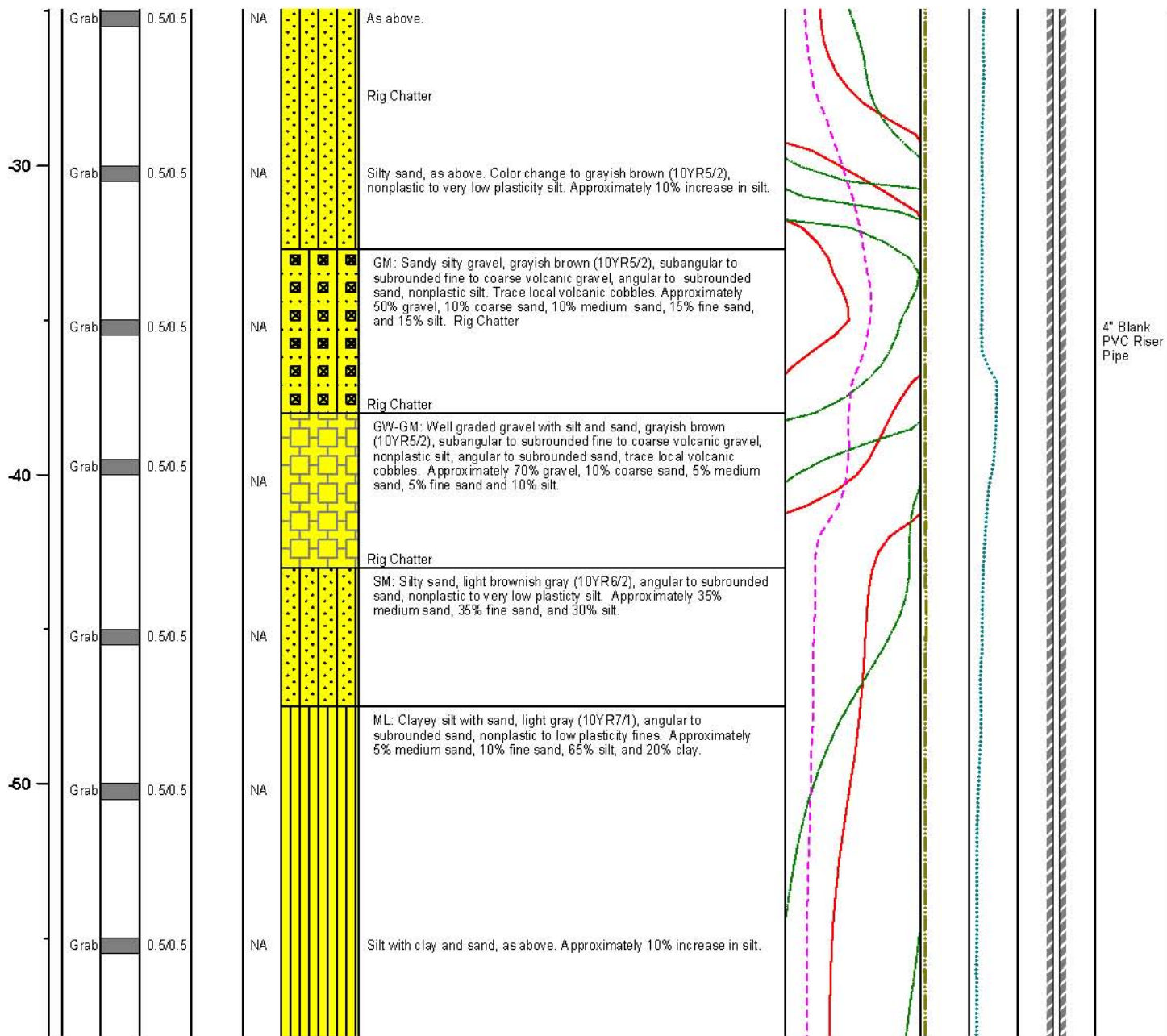
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. P.T. (OHM)			



Project No. 3850360

Log of Boring: BRC-SB-10-A



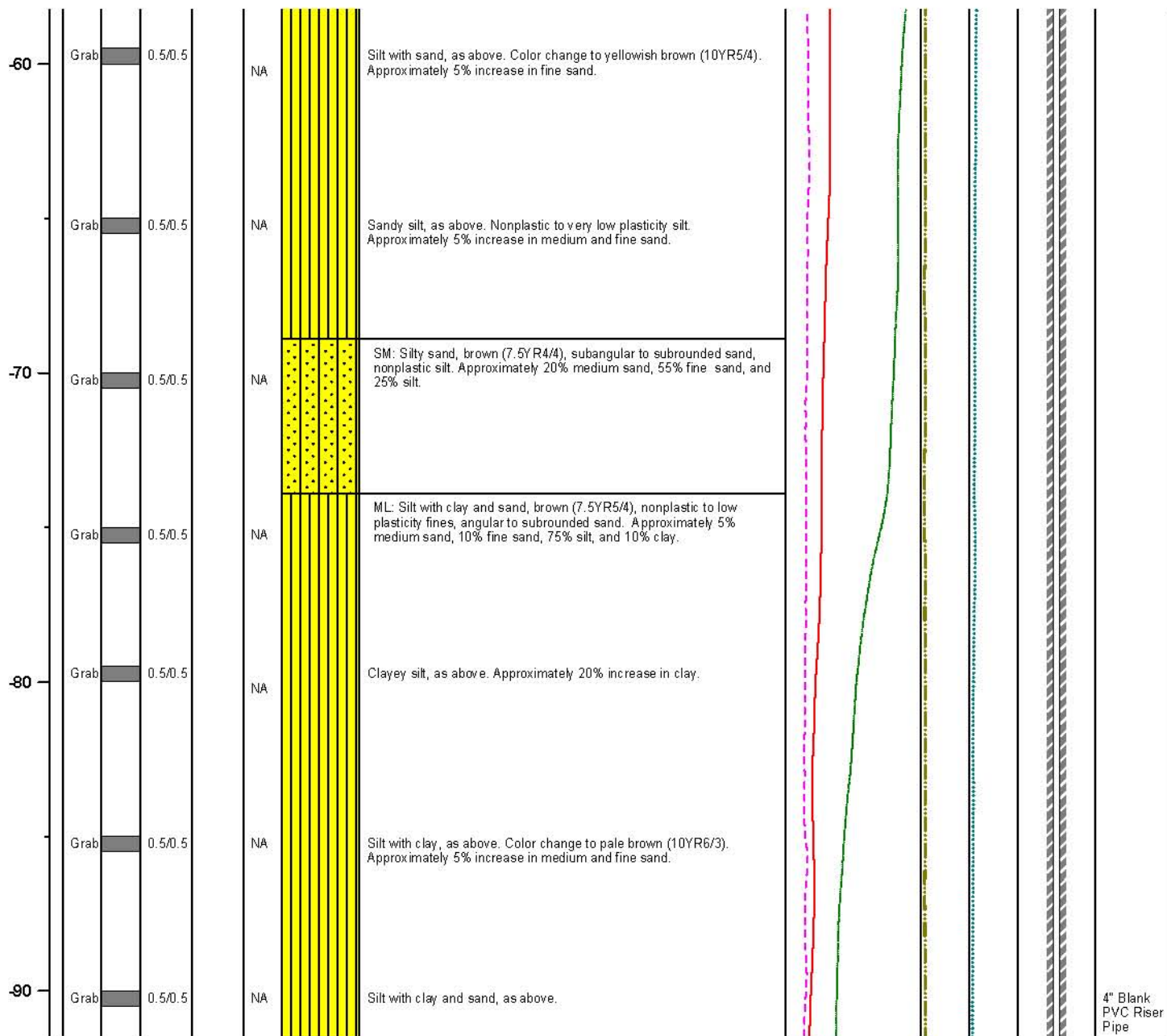
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



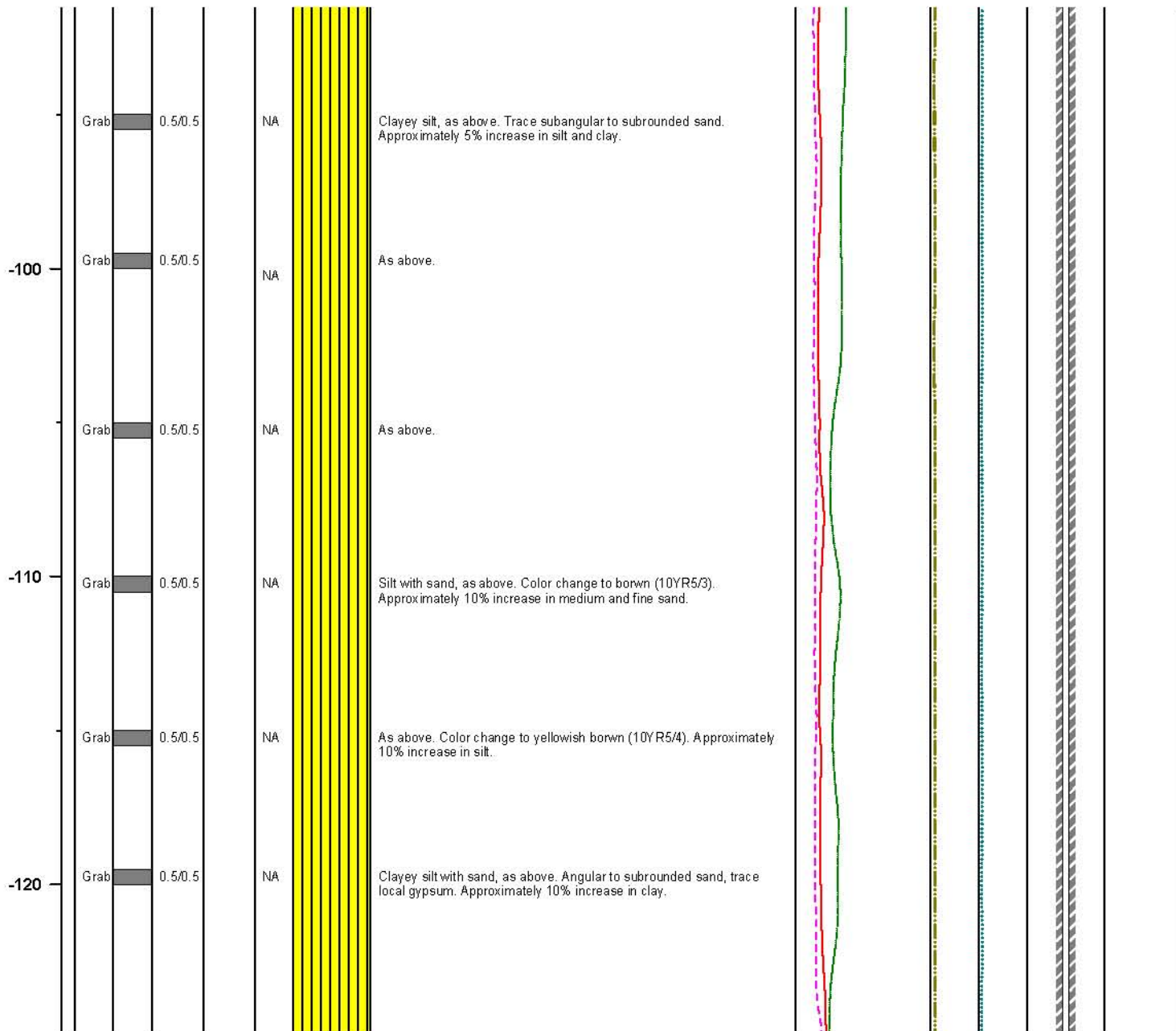
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Soil Description	Lithology	PID	Sample Retained for Analysis	Sample Recovery	Sample Interval	Sample Type	Depth Elevation (BGS)	Geophysical Data				Well Construction
								E-Log			Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)	S. PT. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



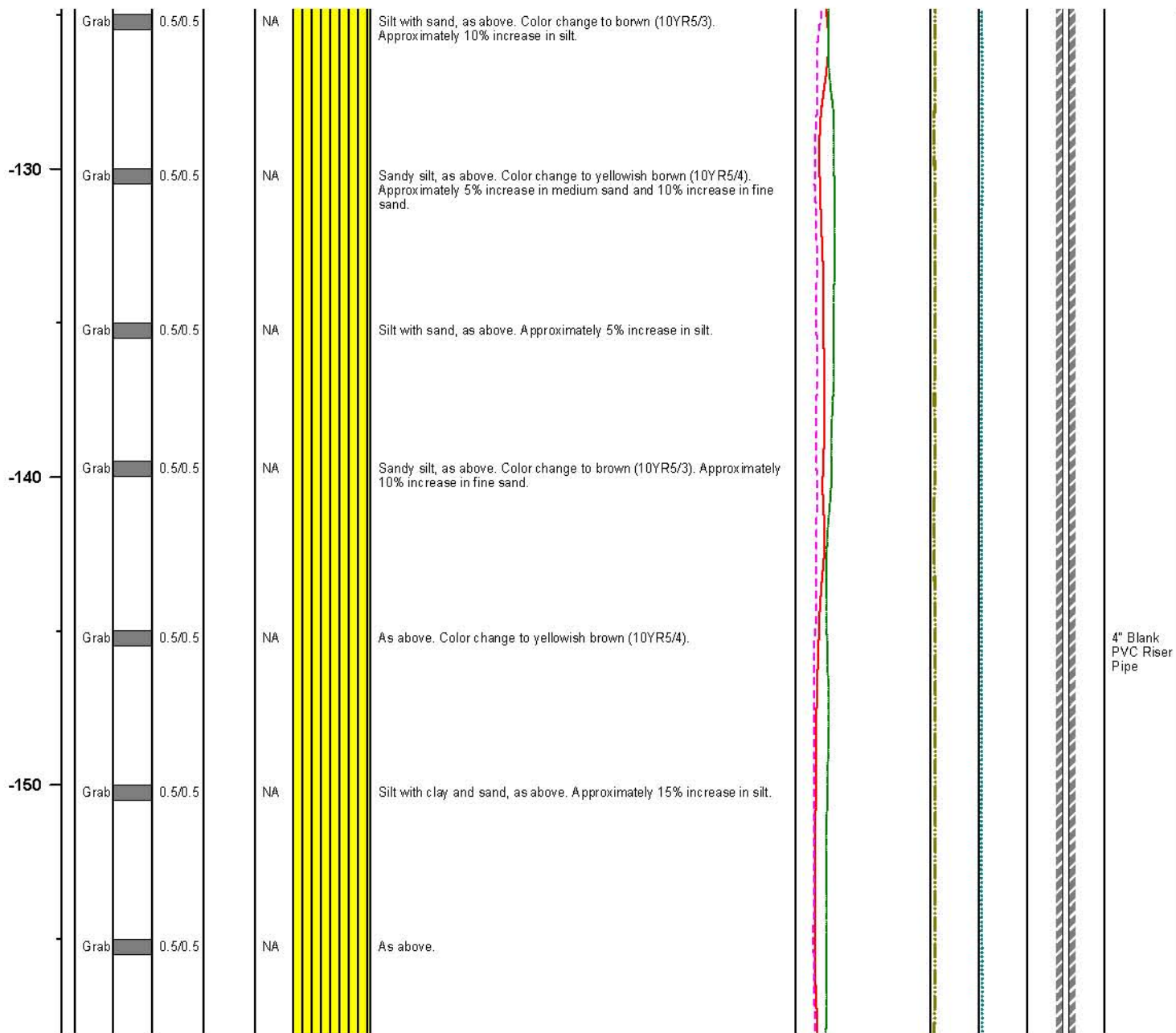
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



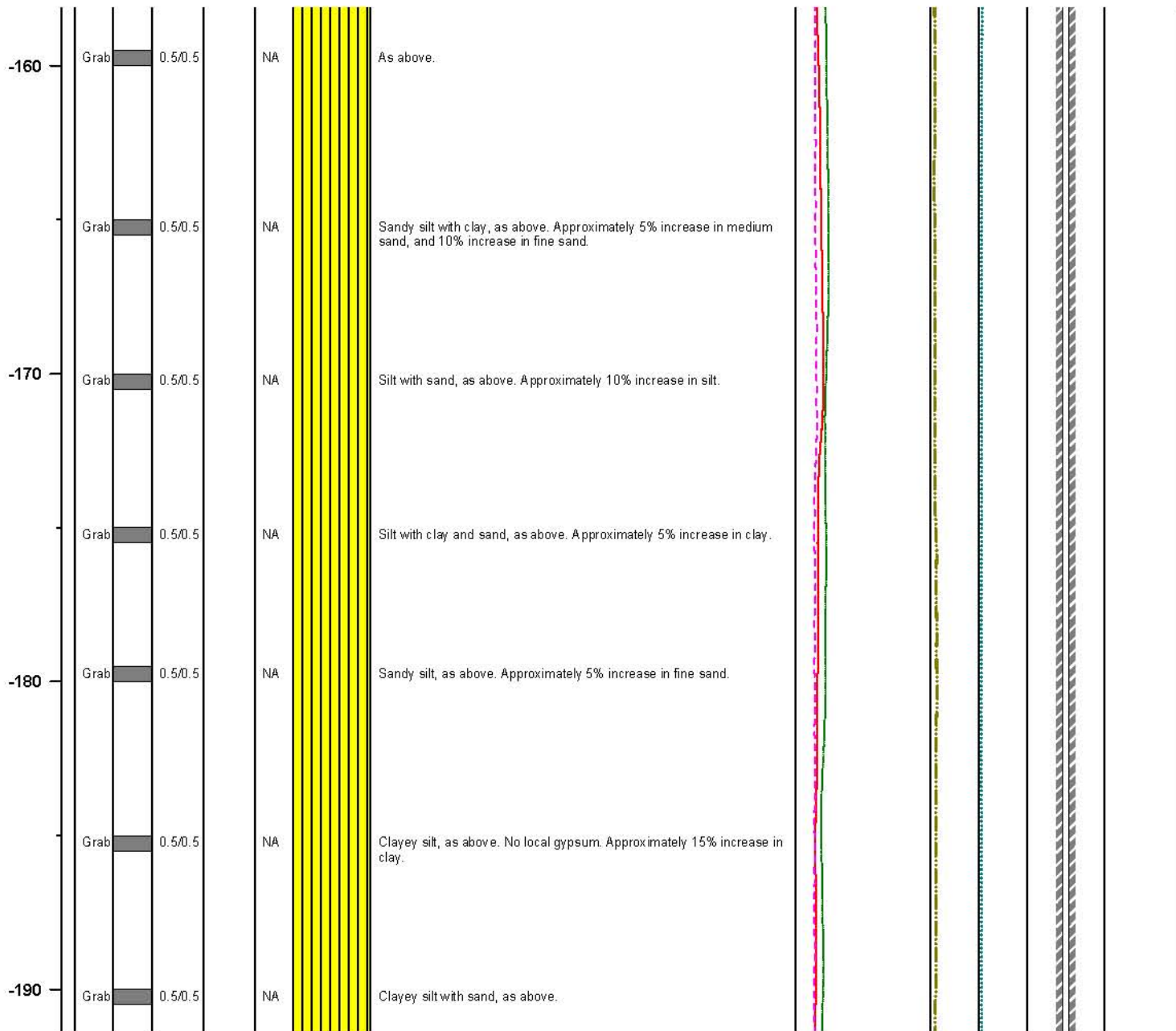
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data					Well Construction	
								E-Log			Caliper Log (inch)	Guard Log (OHM.M)		
								16" (OHM)	64" (OHM)	S. P.T. (OHM)				



Project No. 3850360

Log of Boring: BRC-SB-10-A



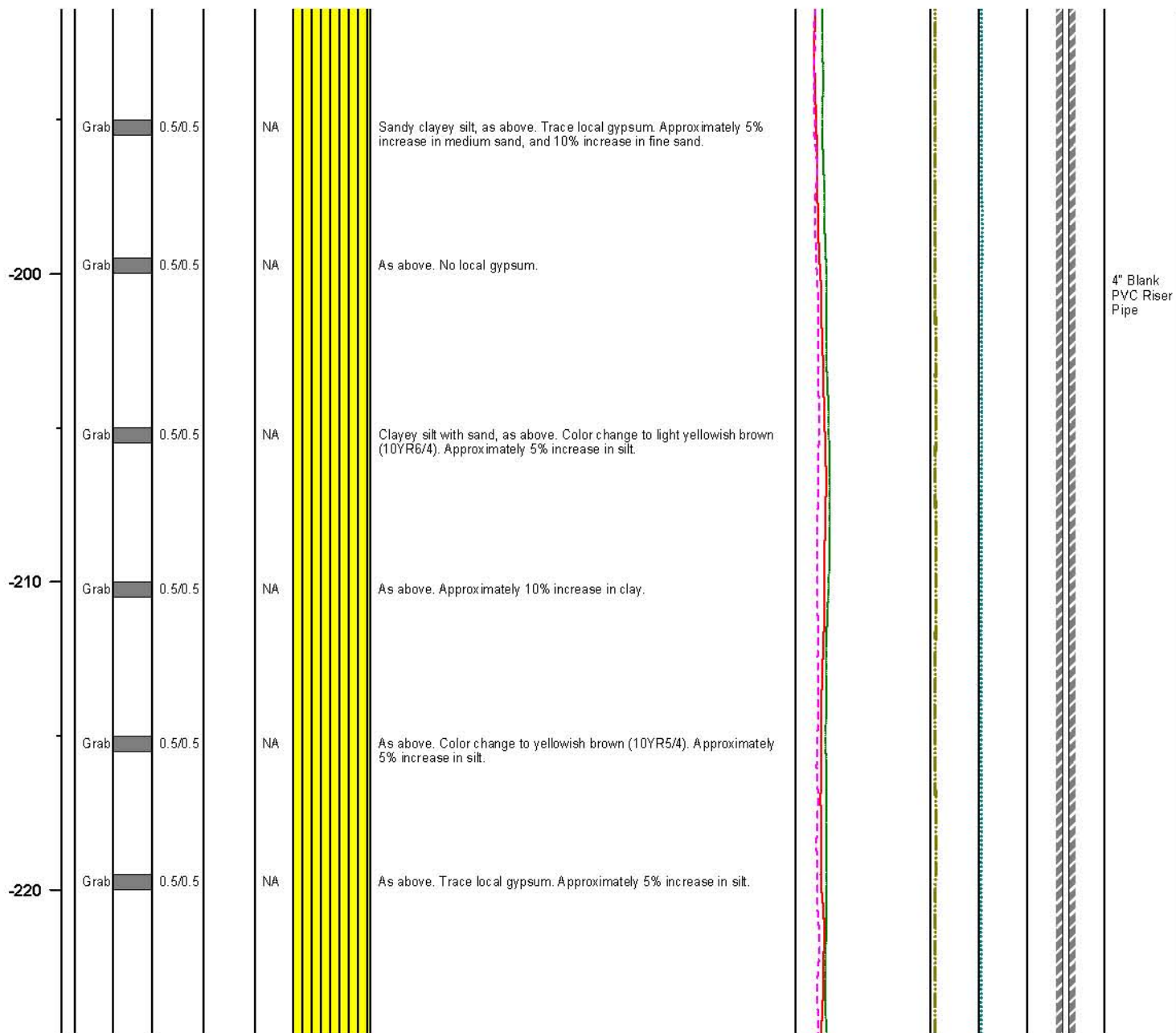
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



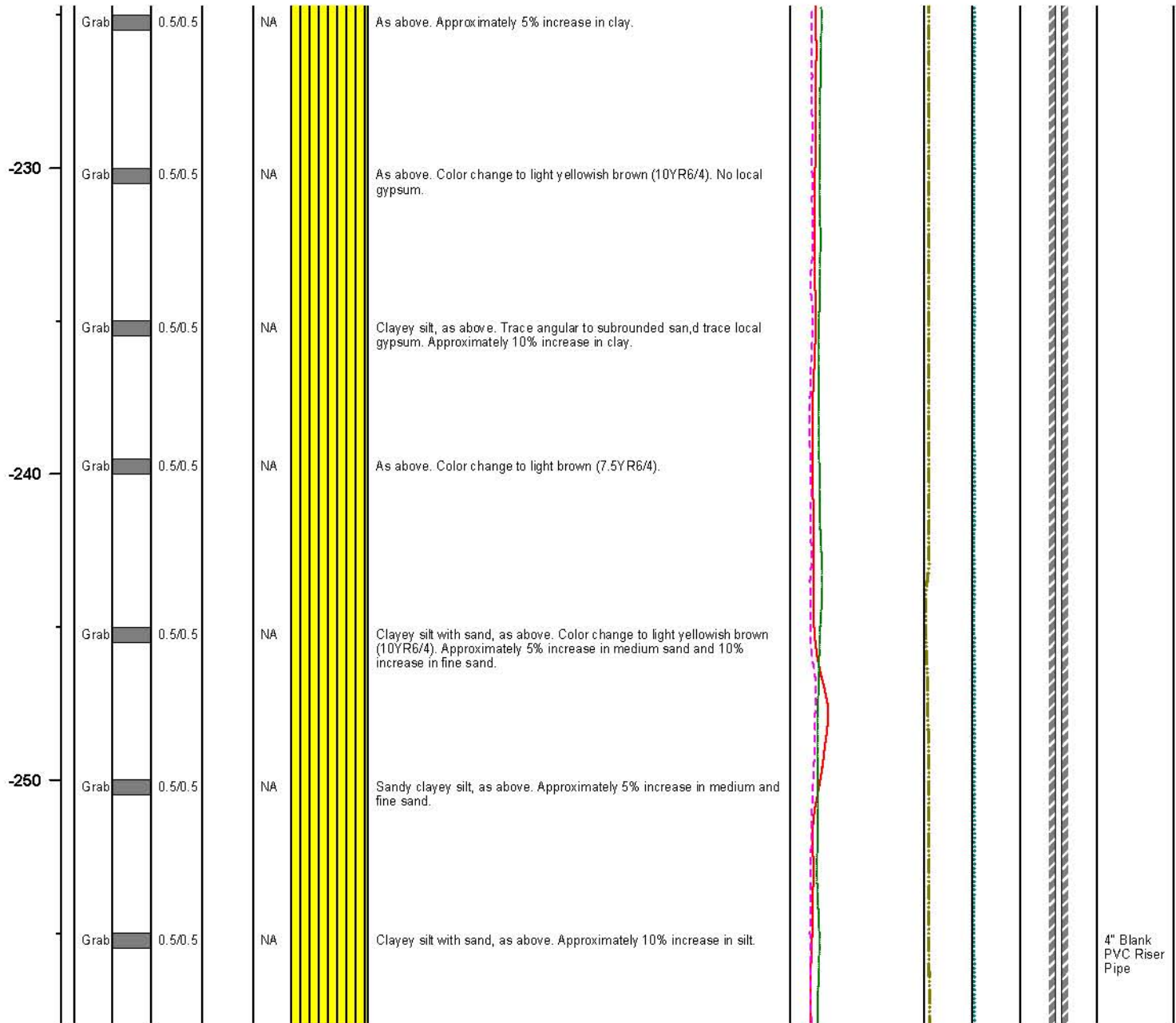
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Soil Description	Lithology	PID	Sample Retained for Analysis	Sample Recovery	Sample Interval	Sample Type	Depth Elevation (BGS)	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. PT. (OHM)		

-260	Grab	0.5/0.5	NA			Clayey silt with sand, light brown (7.5YR6/4) nonplastic to low plasticity fines, angular to subrounded sand. Approximately 5% medium sand, 10% fine sand, 70% silt and 15% clay.						
	Grab	0.5/0.5	NA			SM: Silty sand, light brown (7.5YR6/3), angular to subrounded sand, nonplastic to low plasticity fines. Approximately 20% medium sand, 40% fine sand, 35% silt and 5% clay.						
-270	Grab	0.5/0.5	NA			ML: Clayey silt with sand, light brown (7.5YR6/4), nonplastic to low plasticity fines, angular to subrounded sand. Approximately 5% medium sand, 15% fine sand, 60% silt and 20% clay.						
	Grab	0.5/0.5	NA			As above. Color change to brown (7.5YR5/4).						
-280	Grab	0.5/0.5	NA			As above. Color change to brown (7.5YR6/4). Approximately 5% increase in medium sand.						
	Grab	0.5/0.5	NA			Silt with clay and sand, as above. Approximately 5% increase in silt.						
-290	Grab	0.5/0.5	NA			Silt with sand, as above. Color change to light brown (7.5YR6/3), trace local gypsum. Approximately 10% increase in silt.						

Project No. 3850360

Log of Boring: BRC-SB-10-A



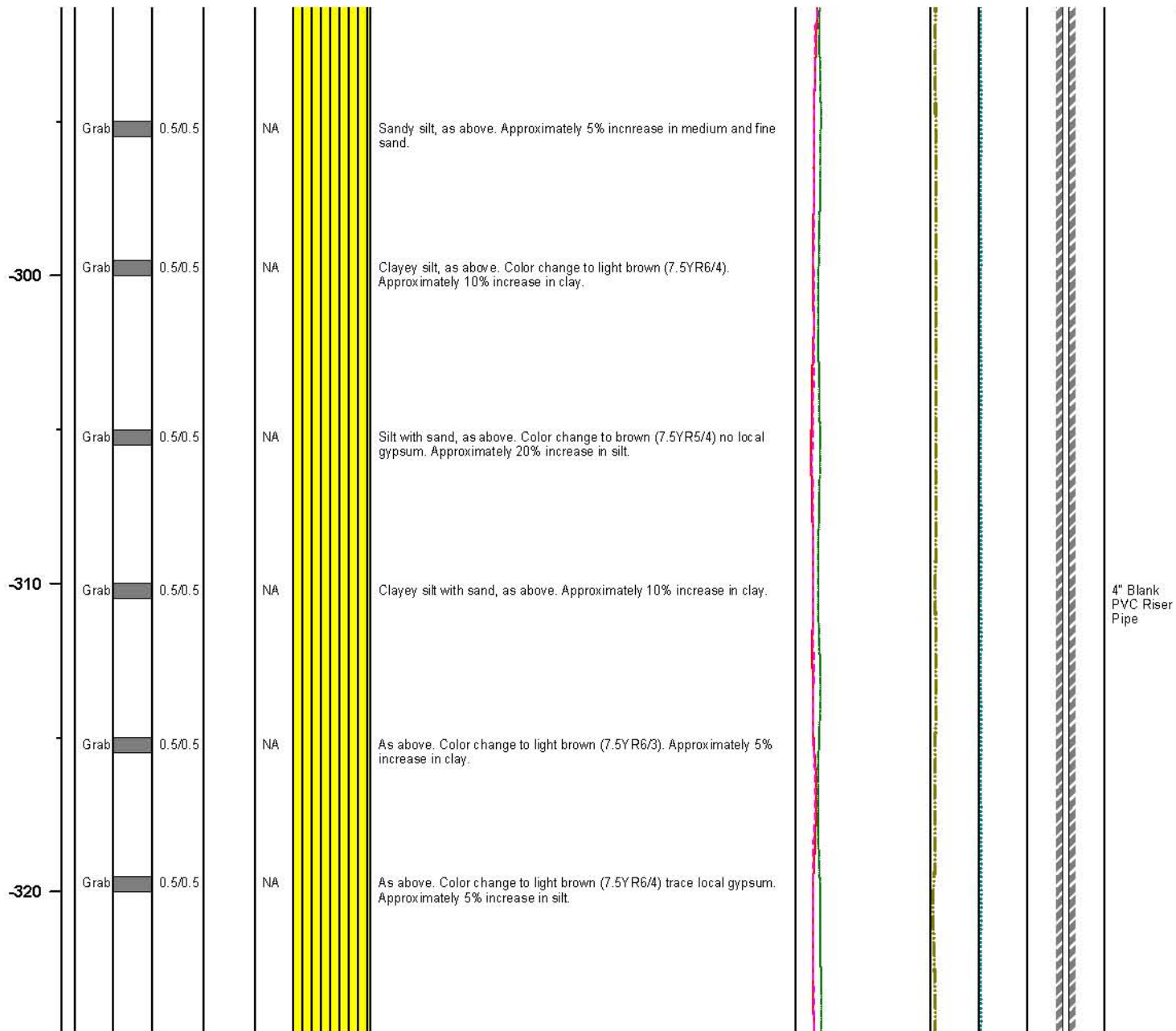
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Soil Description	Lithology	PID	Sample Retained for Analysis	Sample Recovery	Sample Interval	Sample Type	Depth Elevation (BGS)	Geophysical Data				Well Construction
								E-Log			Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



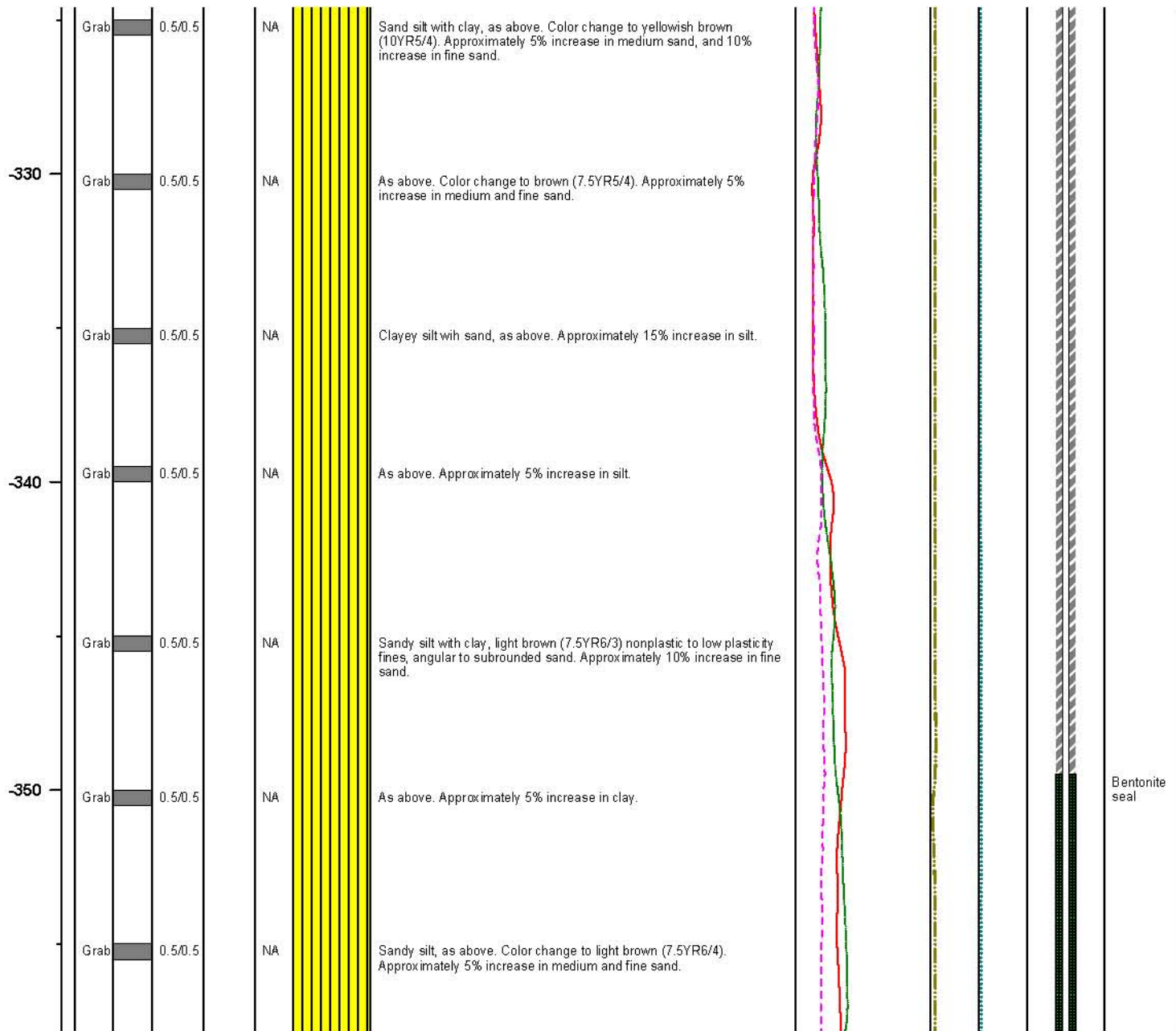
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Soil Description	Lithology	PID	Sample Retained for Analysis	Sample Recovery	Sample Interval	Sample Type	Depth Elevation (BGS)	Geophysical Data				Well Construction
								E-Log			Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



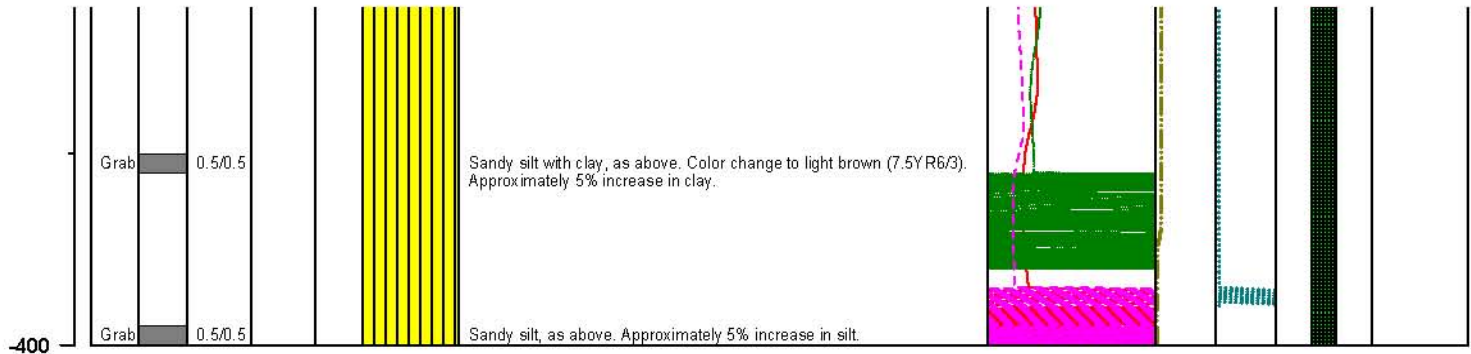
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-10-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. P.T. (OHM)		



Project No. 3850360

Log of Boring: BRC-SB-10-A



ATTACHMENT F

INDOOR AIR RADON TESTING REPORT
AUGUST 2010 SAMPLING EVENT



Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

August 23, 2010

10-43233-01

Mr. Ranajit Sahu
Basic Remediation Company
875 West Warm Springs Road
Henderson, NV 89011

Subject: **Report**
Radon Testing
One Commercial Location in Zip Code 89011
900 Wiesner Way (AMPAC Offices)
Henderson, Nevada

Dear Mr. Sahu:

In accordance with our Professional Services Agreement dated April 15, 2004 and your verbal request, Converse Consultants (Converse) conducted the subject radon testing from August 6, 2010 to August 10, 2010. The subject services were reportedly requested to obtain data regarding potential radon levels in future homes to be built in the 89011 zip code.

Scope of Services

The subject assessment included the professional services of Mr. Dale Walsh, a Converse employed Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), and Certified Environmental Manager (CEM). Two tests were conducted in the subject location.

Methods

The samples were sent using chain-of-custody methods for analysis to EMLab P&K (EML) in Phoenix, Arizona. EML is certified under the National Environmental Health Association's National Radon Proficiency Program.



Printed on
Recycled Paper

731 Pilot Road, Suite H, Las Vegas, Nevada 89119-4429

Telephone: (702) 269-8336 ♦ Facsimile: (702) 269-8353 ♦ e-mail: lasvegas@converseconsultants.com

The testing was performed using the Rad Elec E-PERM Electret Ion Chamber which was analyzed with the SPER-1 Electret Reader. The tests were collected at the lowest floor level of the building sampled, in middle areas of the rooms, and at a height of approximately five feet above ground. The building had been closed as much as possible during testing (e.g., sampling started Friday afternoon and conducted over weekend with minimal activity). The weather was typical for the time of year.

Results and Discussion

The radon testing results are described in Table 1. The laboratory report is enclosed.

Table 1
Radon Testing Results measured in picoCuries per Liter of air (pCi/L).

Location / Sample No.	Start Time and Date	End Time and Date	Results pCi/L
Between Conference Room and Break Room / C-44	1325 8/6/10	1451 8/10/10	0.7
Hallway on Bookshelf across from Ken Kern's Office / C-34	1325 8/6/10	1451 8/10/10	0.6
<i>EPA Action Level for Mitigation</i>			4.0
<i>EPA Level for Homeowner to Consider Mitigation</i>			2.0
<i>National Average in Homes</i>			1.3

Conclusions

Based upon the previously described results, the following conclusions are made:

1. The radon levels detected at the subject AMPAC office were below the EPA Action Level, the homeowner mitigation consideration level, and the national average.

Recommendations

Based upon the previously described results and conclusions, the following recommendations are made:

1. Per EPA guidelines, no further action is recommended. However, consideration should be given to conducting a follow up to the testing during the winter months to confirm the results obtained under different climatic conditions.

Limitations

This report is for the use of Basic Remediation Corporation as it applies to the subject site. Converse is not responsible for any claims or damages associated with interpretation of available information. This assessment should not be regarded as a guarantee that no other hazardous conditions exist at the subject site. In the event that changes in the nature of the property occur, or additional relevant information about the property is brought to our attention, the conclusions and recommendations contained in this assessment may not be valid unless these changes and additional relevant information are reviewed and the conclusions and recommendations of this assessment are modified or verified in writing.

Thank you for the opportunity to be of service. Should you have any questions or comments regarding this report, please do not hesitate to call.

Respectfully submitted,

CONVERSE CONSULTANTS



Dale W. Walsh, CIH, CSP, CEM
Certified Industrial Hygienist

DWW:ls

Encl: EMLab P&K Analysis Report
Photographs
Sketch of AMPAC Office Sample Locations

Dist: 2/Addressee



The Proven Leader

North Phoenix Arizona Laboratory
1501 West Knudsen Drive, Phoenix, AZ 85027
800.651.4802 • Fax. 623.780.7695 • EMLAP# 102297

Radon Test Report

Converse Consultants
731 Pilot Rd., Suite H
Las Vegas, NV 89128
Attn: Mr. Dale Walsh

EMLab ID#: 689581
Project ID: 104323301
Date Received: August 11, 2010
Date Analyzed: August 11, 2010
Certification #: NRPP#102969AL
NRPP#103751RT

Methods: Rad Elec E-PERM Electret Ion Chamber System samples were analyzed via a SPER-1 Electret Reader, Serial Number SIN00702. Short-term radon tests are intended to give you an indication of the radon levels during the measurement period in the areas tested. The results of the radon measurements that you performed are as follows:

Deployment Information

Start Test: 8/6/2010 1:25 PM
Finish Test: 8/10/2010 2:51 PM
Test State: NV
Elevation (ft): 2000

Project Description: BRC/AMPAC Radon Test

Results

Electret Serial #	Sample Location	Device Type	Analysis Date	Analyst	Radon pCi/L	(+/-) pCi/L
SFN944	C-44 Between Conf. Rm & Break Rm	SST	August 11, 2010	LPR	0.7	0.1
SFO085	C-34 Hallway on bookshelf near Ken Keins office	SST	August 11, 2010	LPR	0.6	0.1

Michael J. Madry 08/12/10

Authorized Signature/Date:

Quality Assurance Manager-Western Region

ENVIRONMENTAL MICROBIOLOGY LABORATORY, INC.
800.651.4802 • www.emlab.com • info@emlab.com



The Proven Leader

North Phoenix Arizona Laboratory
1501 West Knudsen Drive, Phoenix, AZ 85027
800.651.4802 • Fax. 623.780.7695 • EMLAP# 102297

What Do My Test Results Mean?

The concentration of radon is measured in picocuries per liter of air (pCi/L). If your average radon level is less than 4.0 pCi/L, no action is necessary. However, radon levels less than 4.0 pCi/L can still pose some health risk, and in many cases can be reduced. The national average indoor radon level is about 1.3 pCi/L while the average outdoor radon concentration is about 0.4 pCi/L. The higher the radon concentration in the test area, the greater the health risks to those in the immediate area.

What Do I Do If My Test Results Are Greater than 4.0 pCi/L?

If the test results are 4.0 pCi/L or greater, the EPA recommends that you mitigate to reduce the radon concentrations to an acceptable level. There are simple ways to fix a radon problem that aren't too costly, and even very high concentrations can be reduced to acceptable levels.

What Is the Health Risk Associated with Radon Gas?

Radon is a radioactive gas that comes from the natural breakdown of uranium in the soil. Radon is estimated to cause many thousands of deaths each year from lung cancer, and in fact, it is the second leading cause of lung cancer after smoking. If you smoke, and the test area has high radon levels, your risk of lung cancer is especially high.

Where Can I Get Additional Information on Radon?

For more information, please refer to <http://www.epa.gov/radon/index.html>

Data Qualifiers

The *Data Qualifiers* identify issues or events that are relevant to your analytical results. A data qualifier includes information about the validity, the source of the data whether calculated, entered or estimated, and the value of an observation. In each case the data qualifiers provide significant information vital to the interpretation of the laboratory data.

Cherry Hill, NJ: 1936 Olney Avenue, Cherry Hill, NJ 08003 * (866) 871-1984
Phoenix, AZ: 1501 W. Knudsen Drive, Phoenix, AZ 85027 * (800) 651-4802
San Bruno, CA: 1150 Bayhill Drive, #100, San Bruno, CA 94066 * (866) 888-6853



000689581

D. Nitzsche

WEATHER		Rain	Snow	Wind	Cloud
RH: 30%	LEVEL	None	X	X	
		Light	X		X
Temp: 10°F		Moderate			
		Heavy			

Account No. _____ Page 1 of 1

Company: Converse Consultants

Address: 731 Pilot Rd., Ste. H

City, State, Zip: Las Vegas, NV 89138

Contact: Dale Walsh Sampling Date/Time: 8/6/10 11:25 AM to 8/10/10 2:50 PM

Phone: 702 283 0583 Project Zip Code: 89011

Fax: 702 269-8353 Project ID: 104323301

E-mail: <u>dora@shenconverse.com</u>	Project: <u>BREIT/HARPAC</u>
	Description: <u>Raden test</u>

Results: ☒ Email ☐ Fax PO Number: 104323301

Special Instructions:

Sample Type Codes

A - Air B - Bulk D - Dust S - Swab T - Tape
W - Water WC - Wall Check Other - 3

Turn Around Time Codes - (TAT)*

STD - Standard (DEFAULT)

ND - Next Business Day

SD - Same Business Day Rush

WH - Weekend/Holiday

* Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Analyses Requested**

RADON

Sample Information

[illegible]

Deployment Information

The following information is required to calculate radon concentrations.

Start Date: 8/6/2010
Start Time: 1:25 PM

End Date: 8/10/2010
End Time: 2:51 PM

Test State: Nevada
Elevation: 2000 ft.
(Estimate acceptable)

Payment Information

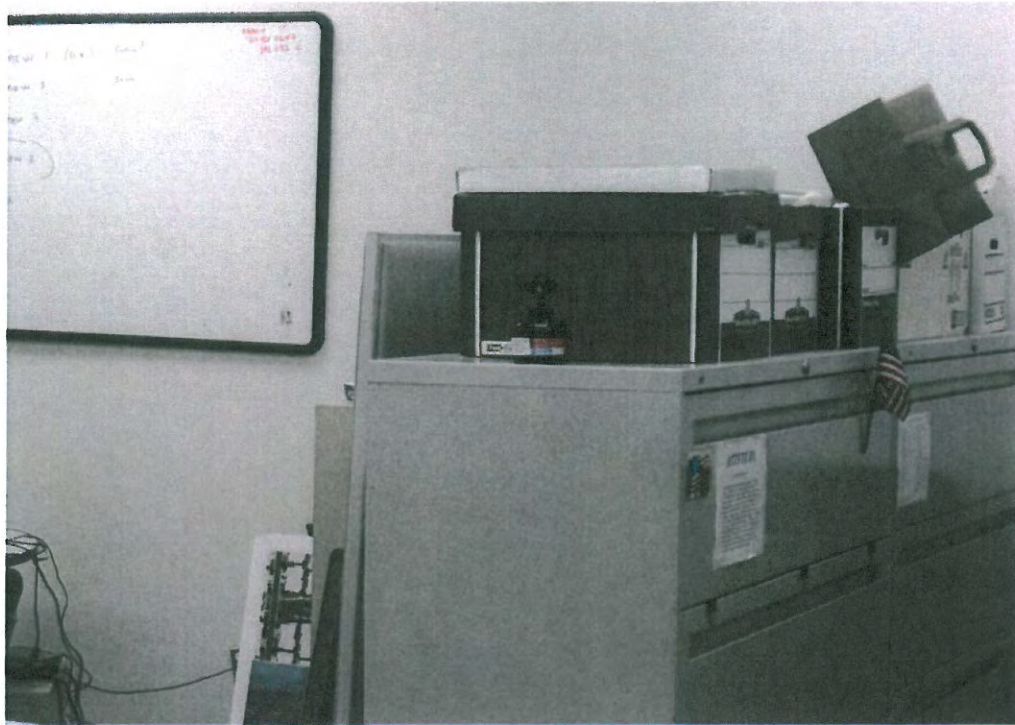
On Account (must have preapproved credit)	
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Check Enclosed - Check Number:	Amount: \$
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Date	Time	Samples Relinquished By	Samples Received By
8/10/10	3:45 PM	Nate Walsh	
8-11-10	9:45 AM	Fred St	James

**** Please see service guide for requested services. Not all locations perform same analysis, please contact your Project Manager if you have questions.**

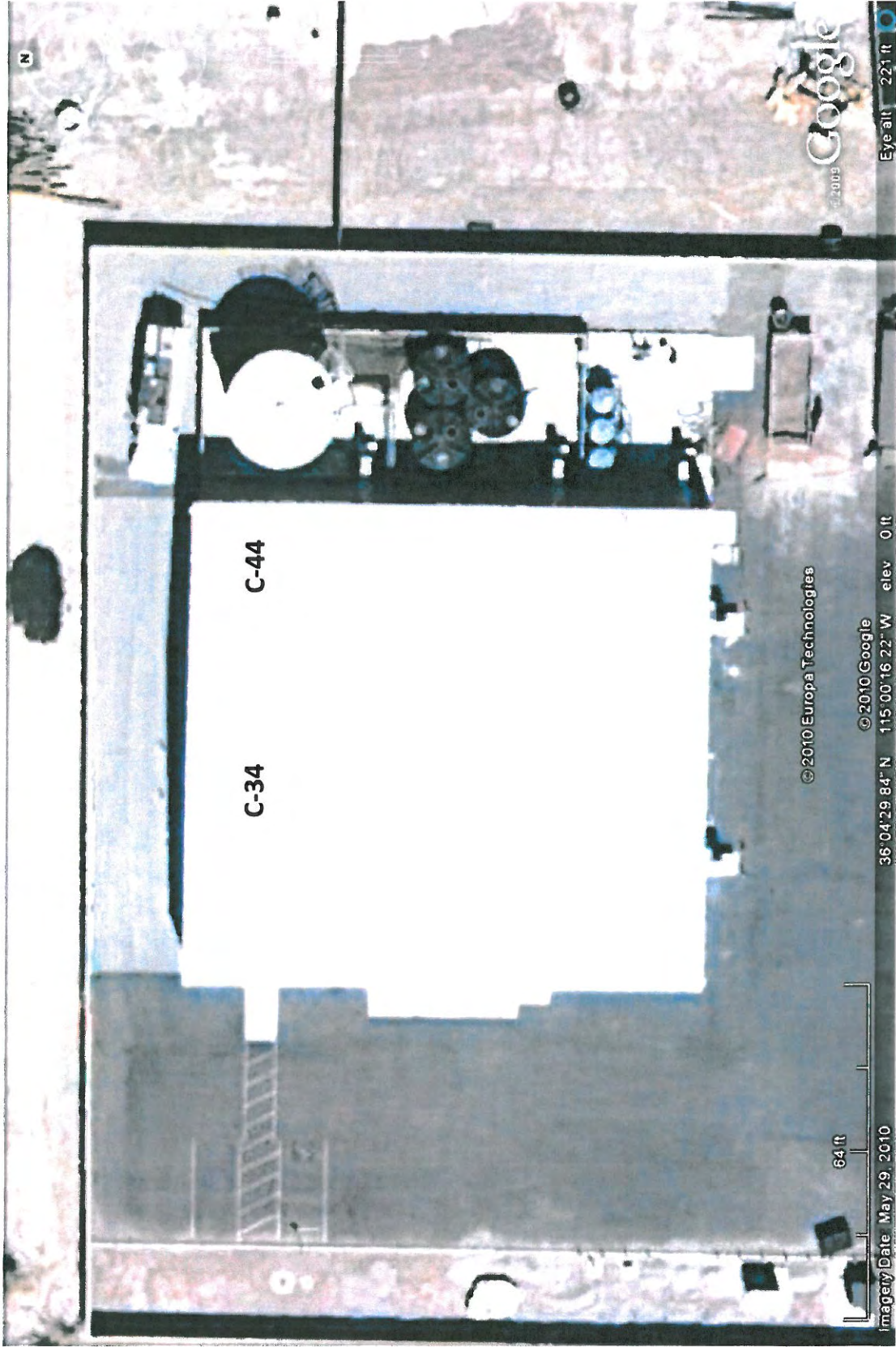
By Submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at www.emlabpk.com/terms.html



Sample C-44 – Between Conference Room and Break Room



Sample C-34 – Hallway on Bookshelf near Ken Kern's Office



AMPAC Building