

## Great Basin Earth Science, Inc.



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October 4, 2010

Dan Galpern  
Western Environmental Law Center  
1216 Lincoln Street  
Eugene, Oregon 97401

RE: Hydrogeology and Permitting Review  
NV Energy – Reid Gardner Station  
Nevada Department of Environmental Protection (NDEP) Discharge Permit NEV91022

Dear Dan:

Western Environmental Law Center (WELC) has requested that I conduct a review and prepare a report expressing my professional opinion of hydrogeologic and permitting issues related of the NDEP Discharge Permit (permit) for the evaporation ponds at NV Energy's (NVE) Reid Gardner Station (RGS).

In the course of conducting my evaluation, it has become apparent that there is a long history of prior permitting activities for the evaporation ponds at RGS. In order to conduct a reasonable and thorough evaluation of the recent permit decision, it is necessary to have a complete understanding of past permit activities such as conditions of previous permits, documentation of noncompliance with previous permits, and regulatory action taken by NDEP for noncompliance. In addition, it is absolutely necessary that I have a complete understanding of current and past ground water conditions, especially with regard to pollutants that have been released from the evaporation ponds. Integral to evaluating the permitting activities and ground water conditions, it is necessary to have a complete history of past construction and operation of the evaporation ponds, particularly the liner systems. Quite simply, I can not evaluate the hydrogeologic and permitting issues, and I can not provide you with my professional opinion without having a complete picture of past regulatory activities, an understanding of past impacts to waters of the state, and an understanding of the evaporation ponds liner performances.

To date, I have reviewed several documents that were supplied to me by WELC and NDEP. However, documents that have been made available are not sufficient for me to conduct my analysis or formulate my professional opinion. As you know, I have provided WELC with lists of documents that are necessary for me to review. But, only a small portion of the documents that contain the necessary information on past permitting activities, ground water contamination, and operations of the evaporation ponds have been made available.



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Presented below is a list of documents that I must have in order to conduct a reasonable and thorough evaluation of site hydrogeologic and permitting issues.

1. **Quarterly Ground Water Monitoring Reports.** These reports contain the results of monitoring conducted by NVE and submitted to NDEP of the approximately 75 monitoring wells at the RGS facility, and are the very basis of analyses of ground-water conditions, and an evaluation of the performance of the liner systems of the existing evaporation ponds. We do not have the following (these were included in your request for documents to Carolyn “Lina” Tanner on September 13, 2010):

2002 1Q-4Q  
2003 1Q-4Q  
2004 1Q-4Q  
2005 1Q-4Q  
2006 1Q-3Q  
2008 1Q-4Q  
2009 1Q-3Q  
2010 2Q

2. **Interstitial Layer Monitoring.** The quarterly ground water reports do not contain data or reporting of water detected and recovered from the interstitial leak detection / leak collection layer between the primary and secondary HDPE liners for the double-lined ponds. Monitoring and reporting of leakage rates, and analysis of any liquids accumulated in the leak detection systems is a condition of the 2005 discharge permit. These data furthermore serve as means of identifying failures in the liner. In order for me to evaluate the performance of the liner system for the existing ponds and evaluate the efficacy of this system for future ponds, it is imperative that these data be made available for review. This information (going back to 2002) was included in your request for documents to Lina Tanner on September 13, 2010.
3. **Proposed Mesa Ponds Documentation.** The information and documents made available to us by NDEP in August, 2010 did not include any hydrogeologic site assessment reports or engineering design reports for the proposed evaporation ponds in the Mesa area. Jeryl Gardner (NDEP-BWPC) stated that NV Energy had not yet submitted these reports to NDEP. It seems quite remarkable that NDEP would have approved the discharge permit on June 24, 2010 without this supporting documentation. Obviously I can not even begin to evaluate the hydrogeology issues that may be related to these ponds without a site assessment report. In addition, I can not evaluate the expected performance of the ponds (particularly the liner system) without having engineering design reports. These reports were included in your request for documents to Lina Tanner on September 13, 2010.



4. **Administrative Order on Consent (AOC) - Implementation Meeting Notes and Status Reports.** NDEP and NVE conduct Quarterly Meetings on the AOC Implementation, and NVE also submits to NDEP Monthly AOC Status Update Reports. Based on my review of other AOC documents, I have reason to believe that specific work items or tasks of the AOC are related to requirements of prior enforcement actions taken by NDEP, or address requirements specified in prior permits issued by NDEP. On September 29, 2010, I spoke with Shannon Harbour, NDEP-BCA and she informed me that she has copies of notes of these quarterly meetings and copies of the monthly status reports, both electronically. I requested copies of these going back to February, 2008, along with an updated AOC schedule. Ms. Harbour stated that she would send them to me via email; however, as of today, I have not received these documents from NDEP.
5. **Permit Supporting Documents.** NVE has submitted numerous documents to NDEP in support of their prior permits. These documents contain information on *inter alia*, site hydrogeologic conditions, data collection and analysis of water quality, engineering design reports, construction “as-built” reports, construction quality assurance and quality control reports, liner design details, and all other information necessary to demonstrate to NDEP that the evaporation ponds are both designed and have functioned in compliance with applicable standards. As I discussed earlier, in order for me to evaluate the decision by NDEP to have issued the 2010 discharge permit, it is necessary for me to be able to review and evaluate these supporting documents submitted by NVE to NDEP. In particular, it is necessary to evaluate the design and performance of the liner systems for the existing ponds, in as much as NDEP is apparently relying on the assumption that these liners are meeting the “zero-discharge” performance standard, and as such will suffice for the proposed new evaporation ponds. (As noted above, in order for NDEP to actually be in a position to verify that there is no discharge from the ponds, it is necessary to evaluate the data on leakage rates from the interstitial leak detection / leak collection layer. To date, NDEP has not provided us with those data).

In your request for documents to Lina Tanner on September 13, 2010, you included a list of permit supporting documents that I had identified as those that would contain the information described above. On September 30, 2010, we received a portion (approximately half) of the requested documents from NDEP BCA. As of today, I have only been able to review in detail a small portion of the documents we received on September 30. However; I have conducted a cursory review of all the documents and find that critical information on the design, construction, and performance of the existing ponds is not contained in the documents we have received. Appendix A lists the documents that you requested on September 13, 2010, but that we have not received, and that are necessary for me to conduct a thorough and meaningful evaluation of the permit.

6. **Miscellaneous Documents.** The Environmental Assessment (EA) prepared by the BLM for the Reid Gardner Facility Pond and Landfill Expansion Project (March, 2008) references a report prepared by a consultant to NVE that may contain information on

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ground water in the vicinity of the proposed Mesa ponds. On September 28, 2010, you requested the following document from Lina Tanner; however, I have not yet received it:

Converse, 2007, Geotechnical Data Report, 320-acre Mesa Fly Ash Storage, Feb 20, 2007 (Document No. 332 of the AOC Encyclopedia)

In closing, my attempt to review the information supporting NDEP's decision to issue a new discharge permit for the evaporation ponds at RGS has been hindered by a lack of critical information. All of this information should have been given to NDEP by NVE in support of their permit applications (both the 2010 and prior permits). Until I receive the documentation discussed in this letter, I can not fully evaluate the hydrogeologic and permitting issues.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,  
**Great Basin Earth Science, Inc.**

A handwritten signature in black ink, appearing to read "Elliott W. Lips". The signature is written in a cursive, flowing style.

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Elliott W. Lips, P.G.  
Principal Engineering Geologist

Attachment: Appendix A

## APPENDIX A

### **List of Permit Supporting Documents Requested from NDEP on September 13, 2010, but not received from BCA on September 30, 2010**

Converse, 2003, Final Grading and Quality Control Quality Assurance Report – Reconstruction of Ponds D & E, 12/23/2003 (Document No. 20).

Kleinfelder, 2001, Addendum 1 – Reid Gardner Station – Hydrogeologic Characterization 2000 to NPC, 4/10/2001 (Document No. 29).

Intellus, Corporation, 1986, Hydrogeologic Study, 9/15/1986 (Document No. 52).

Converse, 1993, Report of Professional Engineering Services, 5/14/1993 (Document No. 60).

NDEP, 1999, Hydrogeologic Assessment; Principal Components and Data Needs, 9/15/1999 (Document No. 87).

NPC/NDEP, 2001-2007, NPC/NDEP Correspondence, 9/2001 – 5/2007 (Document No. 97).

NPC, 2004, Renewal of Authorization to Discharge Permit #NEV01022, NPC 2/19/2004 (Document No. 138).

NPC, 2002, 4C-1 Pond Liner Installation Quality Control/Quality Assurance, 2/27/2002 (Document No. 146).

NDEP, 2002, Unit 3 Evaporation Pond relining Pond E Close D, 8/6/2002 (Document No. 149).

Converse, 1990, Geotechnical Investigation Seepage Condition Evaporation Pond E, 7/16/1990 (Document No.152).

NPC, 2001, Soil and Water Sampling, 5/31/2001 (Document No. 279).

Stanley Consultants, 2005, NPC Reid Gardner Pond F and G Permit Application to NDEP, 10/1/2005 (Document No. 286).

Converse, 2002, Geotechnical Investigation Retrofit Ponds D and E, 5/17/2002 (Document No. 291).

Converse, 2008, Pond D Restoration Evaluation, 9/28/2008 (Document No. 309).

Kennedy Jenks, 2002, Pond D and E Record Drawings, 4/30/2002 (Document No. 311).

Converse Consultants, 2009, Geotechnical Evaluation Pond D, 1/27/2009 (Document No. 318).

Converse Consultants, 2008, Geotechnical Evaluation Pond D, 10/10/2008 (Document No. 319).

Bio-West, Inc, 2008, Final 2007 Muddy River Report, 5/1/2008 (Document No. 325).

Mifflin and Associates, 1995, 1994 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley, Nevada, 4/1/1995 (Document No. 338).

Water Resource Center, Desert Research Institute, Analysis of 1994 Groundwater Level Trends in the Upper Muddy River Valley, Nevada, 6/1/1995 (Document No. 339).

Converse, 2008, Geotechnical Evaluation of Pond 4A, 10/20/2008 (Document No. 358).

NPC, 2004, Table 1 Pond Size Data, 2/18/2004 (Document No. DP-04).

NPC, 2003, Reid Gardner Hydrogeologic Report Summary History, 7/29/2003 (Document No. DP-05).

Converse, 2005, Hydrogeologic Investigation Summary, 4/14/2005 (Document No. DP-12).

Leak Location Services, Inc., 2005, Geomembrane Leak Location Survey for Pond E-1 and C-2, 7/6/2005 (Document No. DP-16).

NPC, 2007, Monitoring Well Data, 10/19/2007 (Document No. DP-38).

In addition, the following documents listed in a transmittal letter from Shannon Harbour to Legal Copy Cats September 21, 2010, but **WERE NOT** made available from Legal Copy Cats on September 30, 2010.

NPC, Revised Hydrogeologic Characterization Report Response to NDEP comments letter dated August 11, 2003, 5/21/2004 (Document No. 116).

NPC, 2004, Corrective Action Plan for Ponds F & G, 9/10/2004 (Document No. 211).

NPC, 2003, Corrective Action Plan for Ponds D & E, Response to NDEP Comments Letter Dated December 16<sup>th</sup>, 2002 and As-Built Drawings, 9/3/2003 (Document No. 217).

NPC, 2005, E2 Evaporation Pond Repair Plan Permit No. NEV91022, 9/9/2005 (Document No. DP-22).

NDEP, 2004, Corrective Action Plan for Ponds F and G, 9/21/2004 (Document No. NDEP-120).