

ORGANIZATION OF THE DEVILS HOLE WORKSHOP

TASK 38

Final Report

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**Harry Reid Center for Environmental Studies
University of Nevada, Las Vegas**

June 23, 2003

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ORGANIZATION OF THE DEVILS HOLE WORKSHOP

Final Report

Dr. Irene Farnham, Harry Reid Center for Environmental Studies, UNLV

The Harry Reid Center for Environmental Studies (HRC) at the University of Nevada, Las Vegas (UNLV) was tasked to organize the Devils Hole Workshop in Furnace Creek Death Valley, CA on May 21 – 23, 2003. This Conference is designed to report current research results and to bring the scientific community, as well as the general public, up to date on research relevant to the Death Valley Regional Flow System (DVRFS). The Devils Hole Workshop is beneficial to the DOE because it provides the opportunity to DOE technical task leaders and Bechtel SAIC (BSC) representatives to present the research currently in progress to a wide audience. Project scientists and other interested parties are also given the opportunity to learn about ongoing hydrologic work by other Project scientists and also federal, state, local, and privately funded entities operating in the DVRFS area. Coordination of this workshop was also beneficial to the University. The university, as an educational facility, was given an exceptional opportunity to mentor a group of students in the many areas involved in this task. Registration, distribution of information, design / updating of the website, and other miscellaneous tasks were performed by Stephanie Gayvert (an undergraduate student), the field trip was coordinated by Amanda Brandt (a graduate student), the abstracts and programs were assembled by Julie Bertoia (a graduate student), and the evaluation forms were summarized and graphed by Roselynn Gentles (an undergraduate student). In addition, most of these students, along with another graduate student, Jeremy Koonce, had the opportunity to moderate sessions during the workshop. These students performed these tasks admirably and in return gained significant experience in an important area of scientific communication. This task also funded the travel expenses for several UNLV graduate students thus giving them the opportunity to present their research and network with project scientists.

This final report summarizes the tasks performed, the dates completed, and the people that assisted. In addition, a summary of the results of the evaluation forms returned by attendees will be presented. One goal of this report is to assist the organizers for the 2004 Devils Hole workshop with lessons learned by the HRC. This report will also serve to recognize the efforts of several people within the HRC, the National Park Service (NPS), and the US Geological Survey (USGS) that assisted with this task. The success of this workshop was largely due to the efforts of these people.

Outline of Tasks

- 1) The meeting facility was reserved and set up with the assistance of the NPS. This facility was equipped with all audio-visual equipment required by the presenters. The main NPS employees deserving recognition for this task include Mel Essington, Terry Baldino, and Larry Eisenman. Larry Eisenman deserves a special acknowledgment because he managed the crew that fixed the air conditioner the morning the workshop began. Two days in the meeting facility with no air conditioner and an outside temperature of approximately 110 °F would have made this a memorable workshop indeed.

- 2) A block of 50 rooms was made with Phyllis Nefsky at the Furnace Creek Ranch in December, 2002. The rates were significantly discounted. Very professional and thorough support was provided by Phyllis Nefsky. This block was later expanded to include over 90 rooms.
- 3) The registration materials and the request for abstracts were sent out via email on 1/27/03 by Stephanie Gayvert. A distribution list for all persons / institutions thought to be interested in attending the workshop was assembled with the assistance of Bonnie Thompson and Barbara Rhodes (USGS). The USGS was the organizer for the 2002 Devils Hole Workshop held in Pahrump, NV; Bonnie Thompson and Barbara Rhodes provided very helpful advice early on in this task.
- 4) A web-site was established to advertise, distribute registration materials, and provide information as it developed (4/03). Stephanie Gayvert updated this website as new information arrived. An updated list of registrants and corresponding affiliations (Appendix I) was posted on the website.
- 5) The agenda for the oral (Appendix II) and poster (Appendix III) presentations were distributed via email and placed on the website on (4/14/03). The URL for the website was also distributed at this time.
- 6) Registration forms and payments (\$15 registration and \$7.50 for box lunches) were collected and managed by Leisa Rodriguez of the HRC.
- 7) A liability release form (Appendix IV) was prepared by the HRC and signed by all attendees.
- 8) All barbeque food, drinks, and supplies were purchased with the \$15 registration fee.
- 9) Oral presentations began on May 21 at 1:00p.m. Audio visual equipment was operated by Dr. Ashok Singh with the assistance of David Hanson (UNLV undergraduate student) and Ryan Taylor (NPS). Food and drinks were provided during each break. Session break food and drinks were purchased with the DOE funds from this task as well as with a portion of the registration fee. Box lunches, purchased from the Longstreet Hotel & Casino were provided on May 22nd for a fee of \$7.50.
- 10) A barbeque on the evening of May 21st at the NPS Cow Creek Fire Fighting Water Storage Facility was prepared with the assistance of the NPS. The HRC employee, Caixia Guo, was very helpful in coordinating and purchasing food and supplies for this event. Jeanette Daniels and Chris Sheldrick (HRC) were critical for transporting, loading, and coordinating the food and supplies. Mel Essington (NPS) was also very helpful in coordinating the barbeque. Stewart Jones (NPS) deserves an acknowledgement because he manned the grill for the entire time.
- 11) The poster session took place from 7- 9 pm on May 22nd. Hors D'oeuvres were purchased from Xanterra with funds provided by this task. A total of fourteen posters were presented (Appendix III); five of which were presented by UNLV students. The hors d'oeuvres were provided in attempt to maximize attendance of the poster session.
- 12) The field trip was organized with the assistance of Terry Fisk (NPS), Michael King (Hydrodynamics), Daniel Bright (USGS), and Chris Friedrich (USGS). The schedule of field trip events (Appendix V) was placed on the website on 4/15/03. Box lunches were purchased from the Longstreet Hotel and Casino.

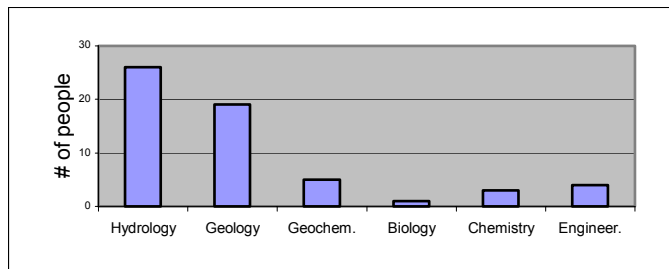
Evaluation of Workshop Success

Success of this workshop is evident from the large list of attendees (Appendix I) and the program filled with high quality presentations (Appendix II and III). The 2003 workshop was attended by a total of 137 people from over 50 different organizations / departments (Appendix I).

An evaluation form (Appendix VI) was distributed via email to all attendees following the completion of this workshop. A total of 38 evaluation forms were returned; one of the evaluation forms was a compilation of the responses from eight attendees. Overall, the responses were quite favorable. A summary of the results, including all written comments, are as follows:

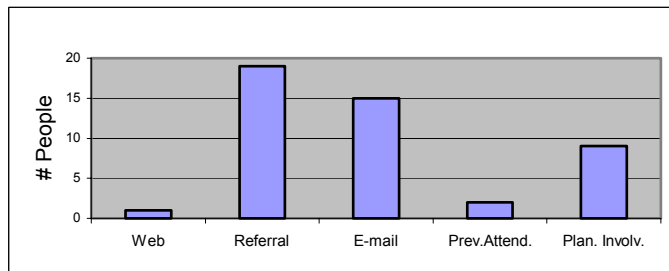
1. Describe your background:

- a. Hydrology: 26
- b. Geology: 19
- c. Geochemistry: 5
- d. Biology: 1
- e. Chemistry: 3
- f. Engineering: 4



2. How did you find out about this conference:

- a. Web: 1
- b. Referral: 19
- c. E-mail: 15
- d. Previous attendance: 2
- e. Planning involvement: 9



3. What did you enjoy most about the Devil's Hole workshop?

- *Although I could only attend on Wednesday, the talks presented that day were outstanding. The barbeque was also very nice.*
- *I liked the informal atmosphere and the ability to talk to many different people with different backgrounds at the breaks and social events. Having a mix of different levels of government agencies, academics, and consultants was also great.*
- *The quality of the technical papers was well balanced, and the logistics appeared perfect. Overall the tone was very relaxed and the breaks were conducive to small group discussions.*
- *The technical presentations – groundwater flow models in particular.*

- *Seeing what everyone else is up to in their individual studies.*
- *Seeing and hearing about the Devil's Hole Pupfish*
- *Technical presentations and discussion during the poster sessions.*
- *Variety of talks and posters*
- *Meeting with fellow scientists who are conducting research in this area and the barbeque. The meeting was well organized, and this year's presentations were better than usual.*
- *Seeing different perspectives and sciences brought together to address the same issues.*
- *The talks were really good, for the most part, and the workshop was well organized. The food was great!*
- *Open discussions with various people.*
- *The social interaction among the attendees and is better at this meeting than just about any other I have attended, and it really provides a good opportunity to discuss the excellent work that is being done on the regional hydrology.*
- *There was a broad diversity of people to exchange ideas with. The conference was well organized and the meals were better than expected.*
- *Technical presentations*
- *The field trip was good...somewhat informal, and that allowed mixing and good conversations. I liked the group in many cars approach...rather than all get on a bus. However, I could see that all on a bus with an educated guide to give informed chatter while en route between stops would be a bonus if visit sites were bus-accessible.*
- *Presentations and Posters*
- *It was all good! The conference had strong technical content and the cookout was fun. The field trip was a treat, especially going into Devil's Hole.*
- *Biological talks*
- *The diversity of topics presented.*
- *Irene Farnham and her colleagues did an outstanding job on this year's meeting! I really appreciate their efforts.*
- *Just about everything - I thought the presenters came through with really good presentations and the planning and hard work of the sponsors showed in the great organization of the conference and other activities.*
- *The total package was very good. Technical exchange and professional contacts are the main reasons for attending the meeting.*
- *The interesting technical talks, the informal atmosphere, and the talk about diving in Devil's Hole*
- *The interaction with other technical folks on scientific issues and studies related to the Death Valley Regional Flow System, including especially the ability to learn what others are doing.*
- *The mix of high quality presentations and informality.*
- *Having so many people interested in the water resources of the region assembled to discuss the issues. The opportunity to hear from others working on these issues and to speak with them. To see that substantive work is continuing on this endeavor.*
- *The presentations in the morning of the second day.*

- *Meeting colleagues doing other studies and getting info on work/presentation.*
- *Networking with other professionals and hearing current research projects.*
- *Well-organized; good presentations (for the most part); and plenty of opportunity to network and meet people (especially during the bbq).*
- *The interaction with others, both technical and social.*
- *The swimming pool.*
- *Interesting presentations and it was good setting for informal technical discussions.*
- *I enjoyed the fact that most of the presentations were focused in a smaller area, rather than having the entire flow system covered.*
- *I enjoyed the opportunity to meet with other people who are familiar with the area, and the exchange of information and ideas.*
- *Less formal nature; open/frank discussions. Neutral forum. UNLV's work was outstanding.*
- *A very important technical exchange among many and diverse interests in the Death Valley regional groundwater and surface water drainage basins. Each group has its own special needs and responsibilities. These meetings allow for an understanding of many viewpoints, needs for future work, local, regional, and national answers, etc. It is not dominated by NTS, or Yucca Mt. concerns or the need for water for new commercial ventures, but rather allows for a clear understanding of this interplay in an open, technically sound and informative manner.*

4. Do you have any suggestions for improving the workshop next year?

- *I don't think it could be improved in any way.*
- *no*
- *My only suggestion would be to have times on the list of speakers so that they don't run over too much. It worked out pretty well, in that overall things stayed on time, but it would be good to know what was coming.*
- *Suggest to authors that we have entered the 21st century and overheads or Ektachrome slides are not the best media for large audience presentations.*
- *2 days of presentations instead of one ½ day and 1 very long day*
- *Keep the beer cold for the second night.*
- *A few of the talks were over my head. I'm not saying scientists should gear their talks to a layman's level, but since people are from so many different fields, a little more explanation could have been helpful on some of the talks. Especially the computer modeling.*
- *I didn't go on the field trip, which I regret, because I wasn't too sure I could handle the heat. Maybe hold the workshop in the winter, or start the field trip really early in the morning to catch the coolest time of day.*
- *Make sure the conference is well publicized. I learned about it through a colleague at USGS.*
- *Have the poster session earlier.*
- *Actually this particular was quite nice, I prefer Death Valley for the conference, as I believe the ambiance is better there, but I know others complained about the heat.*

All in all I think the conference was quite good, presenters good and facilities were good.

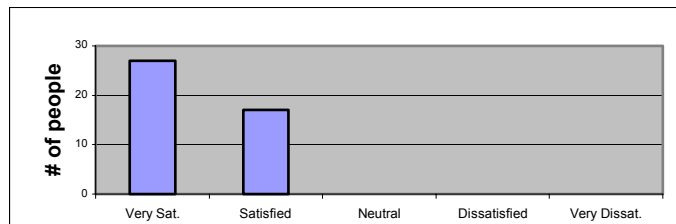
- *I like when it is held at DVNP. I hope it can be held there again next year.*
- *The posters sessions should not be scheduled 2 hrs after the last presentations...too many folks wander away. Put posters starting early in afternoon...say 4:00PM*
- *Have paper or digital copies of presentation materials before the presentations...say at time of check-in on Day 1?*
- *Give a bit more latitude in scheduling of presentations to allow for post-presentation discussion. Moderator did not a bad job this year, but had to cut off a couple of potentially heated discussions ...it would have been informative for these to continue.*
- *Presenters should be encouraged to increase the rigor in the scientific content of their presentations.*
- *If held at Death Valley HQ., provide access "only in the back or rear of room". The side door was very distracting.*
- *I suggest that Devil's Hole Workshop should be held in March or April.*
- *If I would have had the list of talks a month earlier I could have persuaded another Board member to participate. I would also like a list of pre-registered attendees available at registration.*
- *Continue with the interdisciplinary concept.*
- *I would like to see some additional research groups represented among the presenters - DRI has some relevant work going on regarding Yucca Mountain hydrology, Great Basin spring biology, and Quaternary geology and there are a lot of academic geologists doing work in the DV area. I realize that the time/space for presentations is limited, but it would be worthwhile to more broadcast more widely the request for presentations.*
- *Follow UNLV sponsorship example. This year's meeting was excellent. But, next time, check the electronically submitted slides for obvious problems of transmission.*
- *Not specifics right now. In some cases, such as this year with the different opinions about flow through the southern Funeral Mts., I think a panel discussion could be good so that advocates of different positions could have a lively debate, with the audience chiming in as well.*
- *Also, I have wondered about having the field trip on the second day to make sure folks are involved.*
- *Have it in April instead of May.*
- *A few more biology-regarding Devil's Hole.*
- *Have a road guide for the field trip.*
- *Try to get presenters to give both a verbal presentation and a poster. Then have presenters stand by their posters, in order to answer questions and engage in discussions with others.*
- *In this way, the presenter can introduce and briefly present her work verbally to the largest audience, then give interested conference participants the opportunity to engage in more in-depth discussions about the work with the presenter around the poster.*

- *Perhaps an overall theme for the topics being presented.*
- *Next year the workshop should have a focus area. The workshop needs an update on the NTS/YMP sites.*
- *There seemed to be too broad a scope; perhaps having a narrower list of topics each year would be helpful. Also, there was not enough time for questions addressing the finer points of some of the presentations; a question and answer session might be in order, so everyone can attend and listen to the discussions.*
- *Field trips always adds to an overview of this important region. Annually, bits and small aspects of the total area become clearer. This can't be done in a single field trip. It was special to get up close in Devils Hole, as well as to visit other site-specific areas of importance. Coordination amongst trip and stop leaders would be helpful as occurred during previous year.*

5. Please indicate your overall satisfaction level with each of the following items:

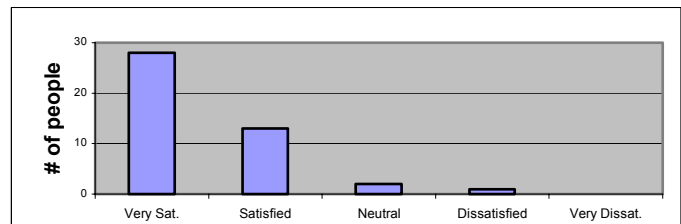
a. Conference Content

1. Very Satisfied: 27
2. Somewhat Satisfied: 17



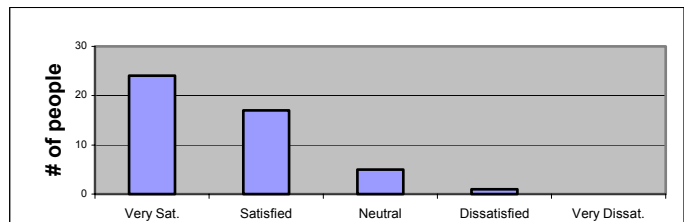
b. Technical Level

1. Very Satisfied: 28
2. Somewhat Satisfied: 13
3. Neutral: 2
4. Somewhat Dissatisfied: 1



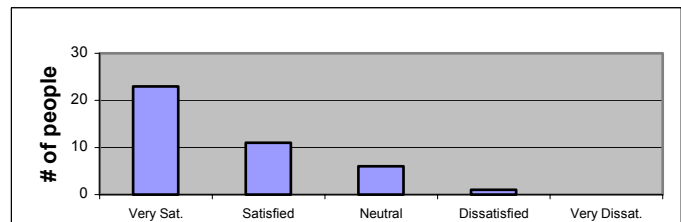
c. Oral Presentations

1. Very Satisfied: 24
2. Somewhat Satisfied: 17
3. Neutral: 5
4. Somewhat Dissatisfied: 1



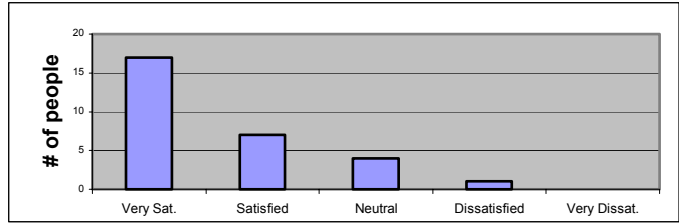
d. Poster Presentations

1. Very Satisfied: 23
2. Somewhat Satisfied: 11
3. Neutral: 6
4. Somewhat Dissatisfied: 1



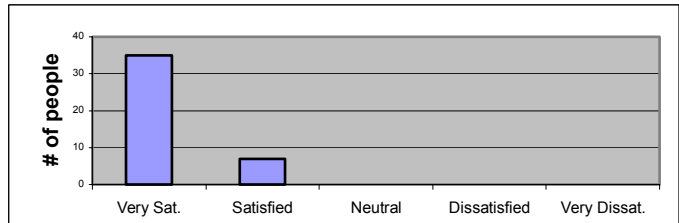
e. Field Trip

1. Very Satisfied: 17
2. Somewhat Satisfied: 7
3. Neutral: 4
4. Somewhat Dissatisfied: 1



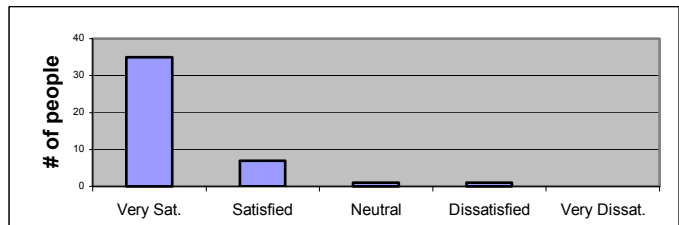
f. Registration Process

1. Very Satisfied: 35
2. Somewhat Satisfied: 7



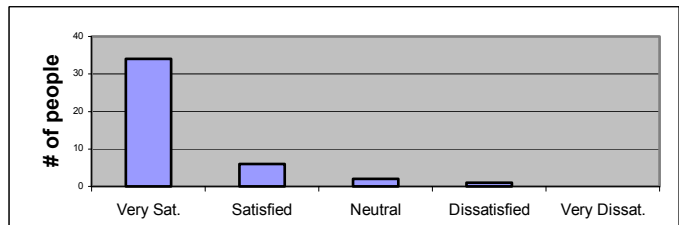
g. Location

1. Very Satisfied: 35
2. Somewhat Satisfied: 7
3. Neutral: 1
4. Somewhat Dissatisfied: 1



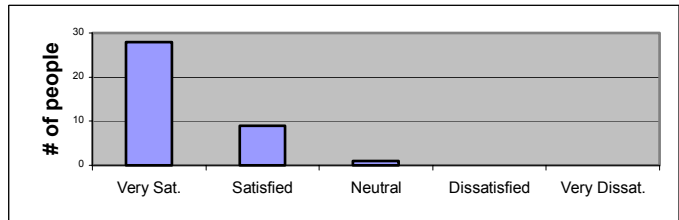
h. Food and Beverage

1. Very Satisfied: 34
2. Somewhat Satisfied: 6
3. Neutral: 2
4. Somewhat Dissatisfied: 1
(due to location)



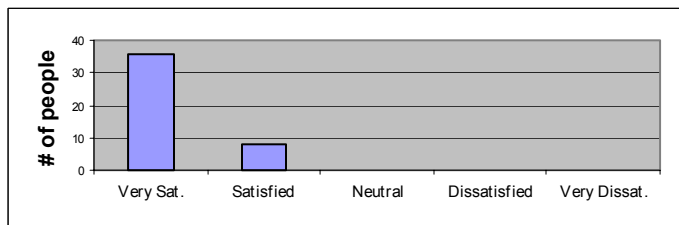
i. UNLV Devils Hole Website

1. Very Satisfied: 28
2. Somewhat Satisfied: 9
3. Neutral: 1



j. Overall Experience

1. Very Satisfied: 36
2. Somewhat Satisfied: 8



Suggestions for Future Devils Hole Workshops

The 2003 Devils Hole Workshop was held on May 21 – 23 because this was the week following final examinations at UNLV. Although this is not the optimal time in Death Valley, it was important to include the participation of UNLV students and researchers and therefore this was the earliest time available for holding the workshop. The heat made it uncomfortable for many attendees and also many of the organizers. It is possible though to hold the workshop during the 2004 spring break (4/6/04 – 4/10/04), thus providing for a more comfortable temperature.

It would also have been preferred if this workshop were scheduled and advertised further in advance than UNLV was able to begin its organization. Several organizations were contacted that are actively involved in relevant research (for instance, Desert Research Institute, Shaw Group, Lawrence Livermore, HSI Geotrans) but were unable to participate because of previous commitments. Earlier advertisements would have possibly allowed more participation from these organizations.

Another suggestion that would benefit future organizers of this workshop is to use Xanterra (or other catering organization) for providing some of the session break snacks. Although the associated costs would be greater, this would take some pressure off of the organizers and allow them to focus more on the presentations and less on making sure that there are enough cold drinks and coffee available for the attendees. The attendees, with the exception of the organizers, seemed to enjoy these session breaks so the breaks should continue in a similar manner. It would be best though if those interested in the presentations are not involved in this task.

Organization of this workshop required a considerable amount of time and thought. It is highly recommended that a committee is established early on in the process so that the work load is distributed. The NPS and the USGS were quite willing to assist and it was with their assistance that made the 2003 Devils Hole such a success. Although, most organizations are not willing to take on the entire task of organizing the workshop, many are willing to take on small roles that will be very beneficial. They just need to be asked.

Several other useful suggestions were made on the evaluation forms. These should be carefully considered and implemented if possible. One suggestion was to increase the workshop to three full days (two days of presentations and one day for the field trip). This would be an excellent goal for next year. It would be desirable to include more presentations which would require that the workshop be expanded over three days.

APPENDIX I

List of Registrants

First Name	Last Name	Organization
Steve	Acheampong	SNWA
Hans	Arlt	US NRC
Jennifer	Back	NPS
Janet	Bair	The Nature Conservancy
Cristi	Baldino	USFWS, Ash Meadows Nat. Wildlife Refuge
Terry	Baldino	NPS
Doug	Bedinger	USGS
Wayne	Belcher	USGS
Julie	Bertoia	Harry Reid Center - UNLV
Don	Betowski	US EPA
Ruth	Betowski	UNLV
Joan	Blainey	
Larry	Bradfish	US DOI, Office of the Solicitor
Amanda	Brandt	Harry Reid Center - UNLV
John	Bredehoeft	Inyo County
Dan	Bright	USGS
Lauren	Browning	Southwest Research Institute
Thomas	Bugo	Nye County
Michelle	Bushman	BYU
John	Campanella	Questa Engineering Corp.
Michael	Chornack	USGS
James	Cizdziel	Harry Reid Center - UNLV
Drew	Coleman	DOE
Dave	Cox	Questa Engineering Corp.
Bob	Craig	USGS
John	Criscione	UNLV
Paula	Cutillo	NPS - Water Resource Division
Frank	D'Agnese	USGS
Jeanette	Daniels	HRC
George	Danko	UNR
Jon	Darnell	USGS
James	Devine	USGS
David	Diodato	USNWTRB
David	Donovan	SNWA
Reina	Downing	Nye County Nat. Resources & Federal Facilities
Bill	Dudley	USGS
Doug	Duncan	USGS
Al	Edderbarh	LANL
Mel	Essington	NPS
Peter	Fahmy	DOI
Irene	Farnham	Harry Reid Center - UNLV
Greg	Fasano	BSC
Claudia	Faunt	USGS - WRD
Joseph	Fenelon	USGS
Terry	Fisk	NPS
Delane	Fitzpatrick-Maul	BSC
Chris	Fridrich	USGS - Geo. Div. (Denver)
Devin	Galloway	USGS
Heather	Gang	Bechtel Nevada
Stephanie	Gayvert	Harry Reid Center - UNLV

First Name	Last Name	Organization
Mary Ellen	Giampaoli	Environmental Compliance Specialist
Kathy	Gilmore	Nye Cnty. Nat. Resources & Federal Facilities
Clemens	Goewert	NV Div. Of Env. Protection
Joyce	Golos	USGS
Shawn	Goodchild	USFWS-SNFO
Robert	Graves	USGS
Yuri	Graves	UNLV - Dept. of Env Studies
Linda	Greene	
Charles	Groat	USGS
Caixia	Guo	Harry Reid Center - UNLV
Keith	Halford	USGS
John	Hamill	Desert Managers Group - DOI
Dale	Hammermeister	Nye Cnty. Nat. Resources & Federal Facilities
David	Hanson	UNLV
Jim	Harrill	Consultant for NPS
Bob	Harrington	Inyo Co. Water Dept.
John	Hartley	BSC
Darla	Heil	Owens Valley Indian Water Comm.
Roger	Henning	Bechtel SAIC Co.
David	Herbst	University Of California, Sierra NV Aquatic Research Laboratory
Mary	Hill	USGS
Robyn	Howley	Geosciences Mgt. Inst. Inc
Debra	Hughson	Mojave National Preserve
Scott	James	Sandia Nat. Laboratories
John	Jansen	
Bruce	Johnson	Westbay Instruments
Jeff	Johnson	SNWA
Michael	King	The Hydrodynamics Group, LLC
Larry	Koch	Dyncorp/USAF
Jeremy	Koonce	Harry Reid Center - UNLV
Levi	Kryder	Nye Cnty. Nat. Resources & Federal Facilities
Richard	La Camera	USGS, WRD
Randy	Laczniak	USGS
Jim	Larson	Nevada State Health Division
David	Larssen	Westbay Instruments
Gary	LeCain	USGS
Linda	Lehman	State of Nevada
Kaz	Lindley	Harry Reid Center - UNLV
Glenn	Locke	USGS
Linda	Manning	Death Valley National Park
Zane	Marshall	SNWA
Alan	Mayo	BYU
John	McBride	BYU
Dan	McGlothlin	NPS - Water Resource Division
Chris	Menges	
Janet	Monaco	SNWA
Chelsea	Monko	Yucca Mountain / Parallax
Parvis	Montazer	Multimedia Env. Tech, Inc
Michael	Moreo	USGS-WRD-NV
Bimal	Mukhopadhyay	MTS

First Name	Last Name	Organization
Genne	Nelson	Local Geologist
Steve	Nelson	BYU
Grady	O'Brien	USGS
Thomas	Oliver	USGS
Scott	Page	Harry Reid Center - UNLV
Richard	Parizek	USNWTRB
John	Pawlak	BSC
Lance	Prothro	Bechtel Nevada
Andrea	Randall	BSC
Andrew	Remus	Inyo Cnty.: Yucca Mtn. Office
Jim	Roche	NPS
Michael	Rosen	USGS
Gary	Russell	USGS
Frank	Schwartz	The Ohio State University
Russell	Scofield	Desert Managers Group - BLM
William	Scott	USGS
Don	Shettel	Geosciences Mgt. Inst. Inc
AK	Singh	Harry Reid Center - UNLV
Jon	Sjoberg	NDOW
Dwight	Smith	InterFlow Hydrology, Inc.
Michelle	Stamates	State of Nevada
Tom	Stanek	UNLV
Klaus	Stetzenbach	Harry Reid Center - UNLV
David	Swanson	Nye County Dept. N.R. and Fed. Fac.
Ryan	Taylor	NPS
Bertha M.	Terrell	US DOE, Office of Repository Development
Bonnie	Thompson	USGS
Patrick	Tucci	USGS
MJ	Umari	USGS
William P.	Van Liew	NPS - Water Resource Division
E.G.	von Tiesenhausen	Clark County
Rick	Waddell	HIS Geotrans
Jamieson	Walker	
John	Walton	U. of Texas, El Paso - Consultant for Nye County
Ingrid	Wengatz	Harry Reid Center - UNLV
William	Werrell	
Bob	Wilcox	
James	Winterle	CNWRA
Zhongbo	Yu	Dept. of Geoscience - UNLV

APPENDIX II

Agenda for Oral Presentations

**DEVIL'S HOLE WORKSHOP
and
DEATH VALLEY REGIONAL FLOW MODEL TECHNICAL INTERACTION
MEETING**

DEATH VALLEY NATIONAL PARK VISITORS CENTER

FURNACE CREEK RANCH, DEATH VALLEY, CALIFORNIA

**Sponsored by: Harry Reid Center for Environmental Studies (HRC)
University of Nevada Las Vegas**

PRESENTATION AGENDA

Wednesday May 21 (1:00 pm – 5:30 pm)

1. *Opening Remarks* ~ **Irene Farnham**, UNLV-Harry Reid Center for Environmental Studies
2. *Overview of Hydrologic Investigations by the National Park Service at Devils Hole* ~ **William P. Van Liew**, NPS-Water Resources Division
3. *The Aquatic Invertebrate Community of Devil's Hole: Abundance and Distribution* ~ **David B. Herbst**, Sierra Nevada Aquatic Research Laboratory
4. *A Model to Understand Population Decline of the Devil's Hole Pupfish (*Cyprinodon diabolis*) and Support Habitat Management Decisions* ~ **Krystyna Stave, Yuri Graves, Jim Deacon**, UNLV- Environmental Studies Department
5. *Diving in Devil's Hole* ~ **Zane Marshall, Tom Jaskulski** - NPS-Volunteer Dive Team

BREAK

6. *Overview of the Modeling Efforts of the Death Valley Region* ~ **Frank D'Agnese**, USGS
7. *Hydrogeologic Framework Model* ~ **Claudia Flaunt**, USGS
8. *Regional Potential for Interbasin Flow of Ground Water* ~ **M.S. Bedinger, J.R. Harrill**, Hydrogeological Consultants for the National Park Service
9. *Estimated Ground-Water Withdrawals from Death Valley Regional Flow System, 1913-1998, Nevada and California* ~ **Michael T. Moreo**, USGS
10. *The Need for an Amargosa Basin Groundwater Protection Strategy* ~ **Russell Scofield**, Bureau of Land Management- Desert Managers Group, **John Hamill**, Department of Interior- Desert Managers Group

7:00 pm – BBQ at the NPS Cow Creek Fire Fighting Water Storage Facility

Thursday May 22 (9:00 am – 5:00 pm)

1. *Welcoming* - **Irene Farnham**, UNLV – Harry Reid Center for Environmental Studies
2. *Introduction to Inyo Co.'s Yucca Mt. Research Program* ~ **Andrew Remus**, Inyo Co. Planning
3. *Overview of Inyo Co.'s Technical Program/Travertine Well Data* ~ **Michael King**, Consultant to Inyo Co.
4. *Geologic Frame Work of Southern Funeral Mt. Range* ~ **Chris Fredrich**, USGS
5. *Results of Geophysical Surveys in the Southern Funeral Mt. Range* ~ **John Jansen**, Consultant to Inyo Co.
6. *Conceptual Hydraulic Model of Southern Funeral Mt. Range* ~ **John Bredehoeft**, Consultant to Inyo Co.

BREAK

7. *Results of Observation Well Installation and Testing, Sarcobatus Flat and Death Valley Junction, Upgradient from Death Valley National Park* ~ **Terry Fisk**, NPS
8. *Results of non-isothermal Flow Models of Yucca Mountain* ~ **Linda Lehman and Parviz Montazer**, Consultant to the State of Nevada
9. *An Evaluation of the Contribution of Local Recharge vs. Interbasin Flow to High-Discharge Springs, Death Valley, CA* ~ **Stephen Nelson, Alan Mayo, Katherine Anderson, and Dave Tingey**, Brigham Young University- Department of Geology
10. *Spatial and Temporal Variations in Ground Water Levels in Southern Nye County and Adjacent Areas*, **Thomas Buqo**, Nye County

LUNCH

11. *Trends in Water Levels and Spring Discharge in the Yucca Mountain Regional Ground-Water Network 1960-2000* ~ **Joseph M. Fenelon, Michael T. Moreo**, USGS
12. *Using the DVRFS Products- What's Needed?* ~ **Grady O'Brien**, USGS
13. *Update of the YMP SZ Site Scale Model* ~ **Al Eddebbarh**, LANL

BREAK

14. *Hydrogeochemistry of Groundwater in the Northern Amargosa Valley and Fortymile Wash, Nye County, Nevada* ~ **Don Shettel, R. Howley**, Geosciences Management Institute, Inc.
15. *An Assessment of Radionuclide Retardation by Diffusion During Vadose Zone Fluid Transport in Topopah Spring tuff, Yucca Mountain, Nevada* ~ **M. Morgenstein, Don Shettel**, Geosciences Management Institute, Inc.
16. *Anisotropy of the Saturated Zone Near the C-Wells Complex* ~ **M.J. Umari, Scott C. James**, Sandia National Laboratories

7:00 pm – POSTER SESSION / RECEPTION

APPENDIX III

Agenda for Poster Presentations

**DEVIL'S HOLE WORKSHOP
and
DEATH VALLEY REGIONAL FLOW MODEL TECHNICAL INTERACTION MEETING**

**DEATH VALLEY NATIONAL PARK VISITORS CENTER
FURNACE CREEK RANCH, DEATH VALLEY, CALIFORNIA**

**Sponsored by: Harry Reid Center for Environmental Studies (HRC)
University of Nevada Las Vegas**

POSTER PRESENTATIONS

1. **Hans D. Arlt and James Winterle** ~ U.S. Nuclear Regulatory Commission ~ *Alternative Conceptual Models for the Groundwater Flow System in the Yucca Mountain Area*
2. **Julie Bertoia and Vernon Hodge** ~ UNLV- Harry Reid Center for Environmental Studies / Chemistry Department ~ *Arsenic and Chromium Oxidation State Measurements in Southern Nevada Groundwater Using Ion Chromatography-Inductively Coupled Plasma Mass Spectrometry*
3. **Don Betowski, Mark Enlow, Lee Riddick, Tim Collette, and Joe D'Angelo** ~ U.S. EPA, Environmental Sciences Division ~ *Modeling the Fate and Transport of Environmental Pollutants by Computational Chemistry*
4. **Amanda Brandt and Klaus Stetzenbach**~ UNLV- Harry Reid Center for Environmental Studies ~ *Determining Spatial Distribution of Yucca Mountain Precipitation Data using Geographic Information Systems.*
5. **Lauren Browning, William M. Murphy, Chandrika Manepally, and Randall Fedors** ~ Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute ~ *Effects of Alternative Flow Pathways on Water Chemistries in Reactive Transport Simulations for the Ambient Unsaturated Zone at Yucca Mountain, Nevada*
6. **Dave O. Cox and John Campanella** ~ Questa Engineering Corporation ~ *Nye County Well Tests and Upcoming Tracer Tests*
7. **Reina Downing** ~ Nye County Department of Natural Resources and Federal Facilities ~ *Nye County Department of Natural Resources and Federal Facilities*
8. **Dale Hammermeister** ~ Nye County ~ *Saturated Alluvium Coring: Better Flow Pathway Characterization in Fortymile Wash and Northern Amargosa Valley*

9. **David Hanson, Laxmi Gewali, Irene Farnham, and Ashok Singh** ~ UNLV- Department of Computer Science / Harry Reid Center for Environmental Studies / Department of Mathematical Sciences ~ *Evaluating Similarity in Major Ion Chemistry of Groundwaters of the Nye County Wells via a Shape Similarity Index of Stiff Diagrams*
10. **Jeremy Koonce, Zhongbo Yu, Irene Farnham, and Ashok Singh** ~ UNLV-Harry Reid Center for Environmental Studies / Water Resources Management Program ~ *Groundwater Flow Interpretation in the Southern Great Basin Using Hydrogeochemical Data and Multivariate Statistics*
11. **Scott Page, Amanda Brandt, and Klaus Stetzenbach** ~ UNLV- Harry Reid Center for Environmental Studies ~ *Detecting Seismically-Induced Water Level Fluctuations In Wells Near Yucca Mountain*
12. **Tom Stanek, Irene Farnham, and Ashok Singh** ~ UNLV- Department of Mathematical Sciences / Harry Reid Center for Environmental Studies ~ *Multivariate Population Partitioning of Trace Element Geochemistry Data for the Southern Nevada Region*
13. **Jamieson Walker** ~ Jamieson Geological Inc ~ *Preliminary Lithostratigraphic Results from EWDP Phase IV Drilling and Well Construction*
14. **John Walton and Drew Hall** ~ Dept. of Civil Engineering, University of Texas at El Paso ~ *Patterns and Trends in the Water Chemistry of Nye County Wells*

APPENDIX IV

Waiver of Responsibility Form

DEVIL'S HOLE WORKSHOP

and

DEATH VALLEY REGIONAL FLOW MODEL TECHNICAL INTERACTION MEETING

Sponsored by
The Harry Reid Center for Environmental Studies (HRC)
University of Nevada, Las Vegas (UNLV)

May 21 - 23, 2003

At the Death Valley National Park Visitors Center
Furnace Creek Ranch, Death Valley, California

Waiver of Responsibility

The University of Nevada, Las Vegas, the Harry Reid Center for Environmental Studies, the National Park Service, the U.S. Department of Energy, Furnace Creek Ranch and all other organizations associated with the Devil's Hole Workshop and Death Valley Regional Flow Model Technical Interaction Meeting give notice that they assume no responsibility for injury, loss or damage to person or property in connection with any service resulting directly or indirectly from acts of God, thefts, failure of any means of conveyance to arrive or depart as scheduled, civil disturbances, or alcohol consumption.

Signature

Print name

Date

APPENDIX V

Field Trip Agenda

**DEVIL'S HOLE WORKSHOP
and
DEATH VALLEY REGIONAL FLOW MODEL TECHNICAL INTERACTION MEETING**

Death Valley/Devil's Hole Field Trip Agenda

May 23, 2003

8:00 am – 2:00 pm

- 1. Travertine Well**
Hydraulic Pump Test ~ Mike King, Inyo County
- 2. Echo Canyon Carbonate Outcrop**
Geology and Groundwater Flow in the Funeral Mountains ~ Chris Fridrich, USGS
- 3. Long Street Casino**
Funeral Mountain Range (and rest stop!) ~ Chris Fridrich, USGS
- 4. Lunch served at Crystal Spring, Ash Meadows National Wildlife Refuge**
US Fish & Wildlife Service
- 5. Devil's Hole**
Terry Fisk, Mel Essington, National Park Service; Steve Nelson, Brigham Young University

Transportation will be provided from Furnace Creek Ranch if needed.

We will meet at the Furnace Creek Parking lot near the Ranch Registration building at 8:00 am and convoy out to sites. Stops #1 and #2 require high clearance 4-wheel drive capability. If you choose to drive your own vehicle, it may be necessary to leave it at a stopping point and carpool for these portions of the trip.

Box lunches will be served at Crystal Spring.

APPENDIX VI

Evaluation Form

2003 Devil's Hole Workshop Evaluation Form

1. Describe your background.

Hydrology Geology Geochemistry Biology Other _____

2. How did you find out about this conference?

Conference Web Site Referral E-mail Other _____

3. What did you enjoy most about the Devil's Hole workshop?

4. Do you have any suggestions for improving the workshop next year?

5. Please indicate your overall satisfaction level with each of the following items.

	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
Conference Content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral Presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poster Presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Field Trip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Registration Process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food & Beverage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UNLV Devils Hole Website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for taking the time to participate in this evaluation. Your comments will enable us to better plan and execute future conferences and tailor them to meet your needs.