



NWRPO UPDATE

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NYE COUNTY SUFFERS LOSS OF CHIEF SCIENTIST

Nick Stellavato, long-time chief scientist for Nye County's Nuclear Waste Repository Oversight Program, passed away on July 18, 2000. Stellavato was responsible for carrying out the



County's Early Warning Drilling Program (EWDP) and other scientific and technical oversight programs regarding the US Department of Energy's (DOE) Yucca Mountain Site Characterization Project. Under the Nuclear Waste Policy Act Nye County is funded by Congress to carry out independent analysis, assessments

and oversight regarding the suitability of Yucca Mountain as a permanent underground storage facility for the nation's commercial and defense high-level nuclear waste (HLW). Nye County carries out a wide variety of independent research projects regarding the DOE's activities at Yucca Mountain. Stellavato designed the County's EWDP and was instrumental in obtaining funding for the program.

Stellavato was a tireless advocate of Nye County issues regarding Yucca Mountain. Foremost among those issues was his desire to obtain additional geologic and hydrologic data for the regional ground water model used by DOE to predict how radionuclides from the Yucca Mountain disposal site might, at some future

time, migrate away from the disposal facility. Stellavato believed that the more data that was available the better the model would be at predicting the level of risk that future residents in Amargosa Valley might encounter. The County's EWDP was aimed at gathering additional data for the model.

Stellavato assembled an impressive array of experts in the areas of hydrology, geochemistry, structural geology, drilling, and modeling to assist in the EWDP. Under his guidance, the effort



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FY01 APPROPRIATIONS COULD DELAY SITE RECOMMENDATION CONSIDERATION REPORT (SRCR) & LICENSE APPLICATION(LA); LOCAL GOVERNMENT OVERSIGHT FUNDING COULD BE REDUCED

The Clinton Administration requested \$437 million for DOE's Office of Civilian Radioactive Waste Management (OCRWM) in FY01 for development of a repository for the disposal

of high-level waste. However, the House "mark" on funding for OCRWM is \$413 million and the Senate's "mark" is \$351 million.

If OCRWM is funded at \$413 million, Dr. Ivan Itkin,

Director of OCRWM, states that OCRWM can finish and submit a Site Recommendation in FY01. If OCRWM gets funded at the Senate mark, both SR & LA may be delayed, and local govern-



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is fully integrated from the actual drilling effort in the field to assessing and analyzing the results and presenting the findings. Stellavato felt that the Nye County team could stand 'toe-to-toe' with counterpart scientists from the federal agencies.



Stellavato was born and raised in Pennsylvania. He received his Bachelor of Science in Geology from California University of Pennsylvania in 1972 and his first Masters in Geology from Indiana University in 1974. At this point he began his association with Occidental Oil Shale in Colorado, working on the Oil Shale Development Program at Oxy's Logan Washington Facility outside of Dubuque, CO. In January 1975 when Oxy assumed control of the 5,000 acre Colorado B oil shale tract in the Piceance Basin he supervised the pre-shaft geotechnical drilling program to evaluate ground conditions where three large diameter shafts would be sunk. He was field supervisor for all geologic, hydrologic and other geotechnical-related programs associated with shaft development and station mining.



In 1986, when SynFuels federal funding dried up for the oil shale programs, Stellavato went to work for Science Applications International Corporation (SAIC) in Las Vegas on the Yucca Mountain Project (YMP). From 1986 through 1991, he was a manager responsible for development of the YMP Sample Management Facility in Area 25 at the Nevada Test Site. Stellavato supervised development of that facility as well as field staff



supporting DOE's on-site drilling program.

Stellavato left SAIC in 1991 to obtain a second Masters degree from Western Michigan University with emphasis in Hydrogeology. He completed that degree in 1993 and began working for Nye County as its On-Site Representative (OSR) to the YMP. Under the Nuclear Waste Policy Act Nye County, as the *situs* county for the YMP, is entitled to have an OSR to facilitate interactions and data exchange between Nye County and DOE. Stellavato was the County's first OSR and was largely responsible for shaping the contours of the technical and scientific relationship between Nye County and DOE.

The first major independent research project Nye County undertook after appointing Stellavato as OSR was to drill ONC#1 to a depth of 1,478 ft and instrument it with Westbay/MOSDAX instrumentation, and to instrument a second already-existing DOE hole (NRG-4). This project was aimed at obtaining geologic, hydrologic and geochemical data useful for performing independent evaluations of DOE data. Funding for the Independent Science Investigation Program was obtained from the YMP. The drilling was completed in December 1994. Data collection from the down-hole instrumentation at ONC#1 is still on-going. Data from that initial drilling and instrumentation program was, and continues to be, posted on the Nye County website at www.nyecounty.com in a timely manner for all interested scientists to examine. Stellavato was insistent that Nye County data be made avail-

able quickly.

In 1995 Stellavato proposed the EWDP, a multi-year program to drill a series of holes along the south boundary of the Nevada Test Site to obtain additional geologic and hydrologic data for the regional ground water model. Funding was obtained from the YMP and work began in November 1998. To date approximately 17 holes have been completed. Ten of those holes have down-hole instrumentation and will be monitored for years to come.

Other independent research that Stellavato directed included alternative repository designs aimed at extending storage cask life by reducing the amount of water to potentially come in contact with the casks.

Early in 2000 the EWDP was expanded to accommodate a cooperative effort with the YMP to complete a well complex to test tracer migration between holes in the alluvium. The project would generate data on the permeability of the valley-fill sediments just south of the Nevada Test Site. Work on this project, known as the Alluvial Tracer Complex (ATC) Project, is on-going.

EWDP data is collected under a rigorous QA program that will allow the data to be considered by the US Nuclear Regulatory Commission (NRC) as it determines whether to issue a 'license to construct' to the DOE. Stellavato was insistent that Nye County's independent research results be 'qualified', and put together the procedures and team to ensure that they would be. Only by generating 'qualified' data

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can Nye County's concerns be considered by the NRC.

At the time of Stellavato's death, Nye County's drilling contractor was just beginning shake-down of a newly-built enhanced drill rig with special capabilities required by the County to achieve its scientific objectives. Stellavato was insistent that the drilling operation be considered an integral component of the County's overall science program. Under Stellavato's supervision the engineering

issues associated with deep drilling were carefully coordinated with the scientific objectives to be obtained from water and rock samples obtained from the holes, and from instrumentation placed in the completed holes. Careful coordination between the drilling contractor and the County's scientists will continue to be of paramount importance to the overall County objectives of obtaining 'qualified' data. Nye County is committed to continuing the high professional and scientific standards set by Stellavato.

EWDP continues under the program laid out by Stellavato.

In addition to his wife Sandra, Stellavato is survived by three children and three grandchildren.

DOE/OCRWM TRANSPORTATION PLANNING LEAVES MANY QUESTIONS

One of the key issues regarding Yucca Mountain is how high-level nuclear waste (HLW) will be transported through Nye County to the proposed repository at Yucca Mountain. The proposed repository is located adjacent to the Town of Amargosa Valley.

Congress did not provide funding to OCRWM in FY00 for transportation planning. OCRWM has requested \$3.8 million for FY01, but that likely will not be provided in full. OCRWM's transportation planning for FY01 will probably be limited mainly to developing transportation protocols for integrating DOE's radioactive materials shipping campaigns.

Local governments, including Nye County, are anxious to learn routes and modes of transportation of HLW. Right now, based on DOE documents, it appears that waste could begin arriving in Nye County some time after 2010. Early shipments will be by legal-weight trucks along state highways. Nye

County can expect shipments along Hwys 373, 6, 95, 160, & 375, through the towns of Round Mountain, Beatty, Tonopah, Amargosa Valley, and Pahrump. The State of Ne-

evada may make certain decisions related to HLW. Issuance of a final RFP in late 2002 is planned, award of the contracts in 2003 and, after additional planning, award of a second phase contract in 2005. It is DOE's plan to leave many decisions regarding routing and cask acquisition to regional contractors. The RFP suggested the establishment of four service regions with a contract awarded for each. Contractor responsibilities would include transportation planning, acquisition of shipping containers, and coordination with transportation companies (rail, barge, highway). DOE would remain responsible for coordinating with states (and presumably local governments) and tribes.

The initiative is now 'on hold' pending designation of a repository site by Congress, and further funding.

Policy for Implementation of Sec. 180c (Nuclear Waste Policy Act) - Sec. 180c requires DOE to provide assistance to States and tribes for planning for emergency re-

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Local Governments are Anxious to Learn Routes & Modes of Nuclear Waste Transportation



vada may make certain decisions which could narrow the selection of highways to be used.

Much of the following information was taken from OCRWM's web-site:

Private Sector Transportation Services Initiative—In September 1998, DOE issued an RFP for competitive private sector waste management and transportation serv-

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sponse to radiologic incidents related to transportation of HLW. Nye County, along with many other jurisdictions back along the routes to the reactor sites, needs assistance preparing for public safety issues associated with transportation of HLW. DOE issued a revised

proposed policy and procedures for implementation of Sec. 180c in April 1998. The proposed policy and procedures basically indicate that small amounts of financial aid, as well as technical assistance, will be available to states and tribes to help them 'gear up' for HLW shipments. Further development of training and other technical and

financial assistance under Sec. 180c to states and tribes along transportation corridors will await final designation of a repository site.

*Final EIS
to be
Made Public
with Site
Recommendations*

**DOE CONTINUES TO ANALYZE
COMMENTS ON EIS**

OCRWM continues to analyze over 11,000 comments received on its Yucca Mountain Draft Environmental Impact Statement (EIS) issued in August 1999. The 11,000 comments have been assigned to 27 major subject categories. The subject categories receiving the most comments were transportation (27%), National Environmental Policy Act (NEPA) process (17%) and Alternatives (15%).

Comments on Alternatives focused on:

- General support on opposition to proposed action
- General support or opposition to no action alternative
- New or other alternatives that should be examined
- Cost of proposed actions or no action

Comments on Transportation focused on:

- National and Nevada transportation by all modes
- Transportation related accidents
- Transportation related sabotage
- Transportation related emergency response

- Routing, including transportation routes not identified
- Human health and safety related to transportation

Comments on the NEPA Process focused on:

- Adequacy of EIS
- Request for new EIS
- Public involvement
- Agency coordination



- DOE credibility
- Decision process
- EIS presentation (readability, graphics, etc.)

DOE's responses will be in Vol. 3 of the Final EIS, the Comment Response Document (CRD). The CRD will

be divided into Part A, Responses to Comments; Part B, Comment Documents; and Part C, Copies of Full Transcripts.

Anticipated revisions between the Draft and Final EIS will include:

- Drip shields
- Waste package material configuration
- Increased ventilation
- Updated transportation cask accident analysis study
- Total System Performance Assessment model refinements
- Updated population information
- Presentation of enhanced transportation routes maps
- Presentation of state-specific transportation impacts

The Final EIS will be made public when the Site Recommendation is presented to the President, presently scheduled for FY01. The release date for the Record of Decision has not been announced.

STATE AND DOE IN PROCEDURAL DUEL OVER WATER RIGHTS LITIGATION

The DOE appeals from the Nevada State Engineer's denial of its application for water rights to develop the proposed Yucca Mountain repository are in the early stages where both sides are jockeying for the best procedural postures.

On February 2, 2000, Michael Turnipseed, the Nevada State Engineer, denied DOE applications for water to construct and operate Yucca Mountain as a nuclear waste repository, on the grounds that DOE's requested use of the water "threatens to prove detrimental to the public interest" under Nevada law. On behalf of DOE, the U.S. Justice Department then challenged

that ruling in both state and federal courts.

In the federal court case both the State Engineer and the Nevada Nuclear Waste Project Office have filed motions to dismiss. The United States has countered with a motion to stay consideration of the motion to dismiss and to strike the individual participation in the case by the Nevada Nuclear Waste Project Office. The U.S. District Court has given no indication to the parties when it might rule on the motions.

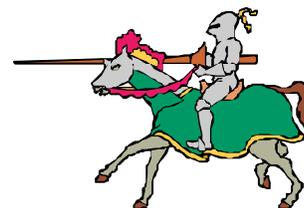
In the case pending in the Nevada state court the U.S. Justice Department has filed a motion to stay the entire proceeding pending a final

ruling by the federal district court in the companion case. Both the State Engineer and the Nevada Nuclear Waste Project Office have filed briefs in opposition to that motion with the court. The U. S. Justice Department also moved in the state court case to remove the state Nuclear Waste Project Office as an individual party, but that motion was denied by the state court.

The parties hope to receive shortly a notice from the state court setting a date for oral argument on the U.S. Justice Department's motion to stay the case pending the outcome of the federal court litigation.



DOE Challenges State Engineer In Federal and State Courts



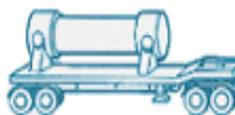
NRC HOLDS ADDITIONAL PUBLIC MEETING IN NYE COUNTY ON WASTE PACKAGE PERFORMANCE

The Nuclear Regulatory Commission (NRC) held a public meeting in Pahrump, NV, on August 16, 2000, to hear comments on its upcoming waste package performance study. The study will be conducted by Sandia National Laboratory. At the public meeting in Pahrump, and at similar public meetings in Las Vegas, NV, and Bethesda, MD, NRC collected views and opinions on the proposed scope of a 'Waste Package Performance Study'. The study is the latest in an ongoing NRC examination of waste

package performance and transportation safety studies dating back to at least 1977. The latest study will:

- 1) Build upon prior studies.
- 2) Examine only spent fuel rail and truck transportation casks.
- 3) Assess severe accident scenarios, cask performance, and fuel responses.
- 4) Consider the need for, goals of, and benefits of physical testing at partial- or full-scale.
- 5) Use enhanced public participation procedures.

Nye County, along with other groups such as the National Conference of State Legislatures¹ and the U.S. Nuclear Waste Technical Review Board, has long advocated extensive full-scale physical testing of transportation casks to ensure public safety and to build public confidence. Such testing would ensure



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Nye County Advocates Full Scale

¹ Reed, J.B., Jan. 2000, *The State Role in Spent Fuel Transportation Safety: Year 2000 Update*, National Conference of State Legislatures, Transportation Series, No. 14, p. 5.

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that transportation through Nye County communities would be as safe as possible. Without full-scale testing scientists and engineers

will have to rely on a combination of methods, such as calculations, computer modeling and partial-scale testing, to ensure that casks can meet NRC performance standards. Information about the

Package Performance Study is available at Sandia National Lab's website: <http://www.sandia.gov>

Protocols Covering Various Aspects Of Radioactive Materials Transportation

NYE COUNTY PARTICIPATES IN TRANSPORTATION EXTERNAL COORDINATION WORKING GROUP (TEC/WG)

Nye County recently participated in the TEC/WG meeting which is developing standards for DOE's national nuclear materials transportation programs. These standards will likely be incorporated into DOE's policies and procedures relating to on-going low-level waste (LLW) transportation to the Nevada Test Site, and the possible transportation of high-level commercial and defense nuclear waste.

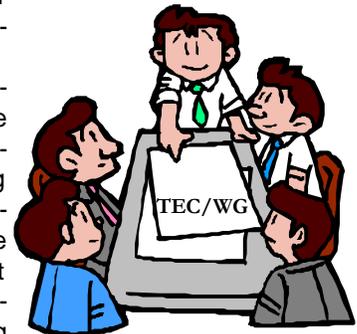
OCRWM has sponsored and works extensively with the TEC/WG, which consists of representatives of national, state and local government organizations interested in nuclear waste transportation. Nye County has regularly participated in these meetings since the mid '90s. The goal of the TEC/WG is to address concerns of interested stakeholders, and evaluate and standardize DOE's radioactive materials transportation practices to the extent possible. However, complete standardization will not be possible as different types of radioactive waste are covered by various U.S. Dept. of Transportation (DOT) and NRC regulations. Some shipments also involve

national security issues. DOE and the Working Group participants hope, as much as is possible, to improve DOE coordination and internal efficiency and improve coordination and understanding between DOE and other affected parties such as other federal agencies, tribes, and state and local governments.

Development of Protocols—The products the Working Group is producing are Protocols covering various aspects of transportation of radioactive materials. Fourteen draft protocols have been developed by the Working Group:

- 1) Shipment Pre-notification
- 2) Projected Shipment Planning Information
- 3) Routing
- 4) Emergency Notification
- 5) Emergency Response
- 6) Transportation Operational Contingencies
- 7) Safe Parking
- 8) Carrier/Driver Requirements
- 9) Tracking
- 10) Inspections
- 11) Recovery & Clean-up
- 12) Emergency Planning
- 13) Transportation Planning
- 14) Security

The goal is to finalize the protocols and begin implementation by the end of calendar year 2000. The protocols will be used as guidance documents for DOE, contractor personnel, and stakeholders (such as Nye County) in planning and executing



radioactive materials shipments.

Currently DOE is shipping LLW to disposal sites on the Nevada Test Site. Through the week of August 13, 2000, DOE has shipped approximately 429¹ truckloads of LLW since October 1, 1999. LLW is slated to continue arriving at the NTS for the foreseeable future. DOE will begin shipping transuranic waste from the NTS to the Waste Isolation Pilot Plant (WIPP) fa-

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¹ This data was obtained from the Bechtel Nevada Weekly Program Summaries.

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cility at Carlsbad, NM, in late 2001. HLW is not slated to begin arriving at Yucca Mountain until 2010 and will con-

tinue to at least to 2040. The protocols developed by the Working Group will be applicable to these shipping campaigns except that special protocols are in place for

shipments to WIPP.

Further information can be found at www.nrc.gov.

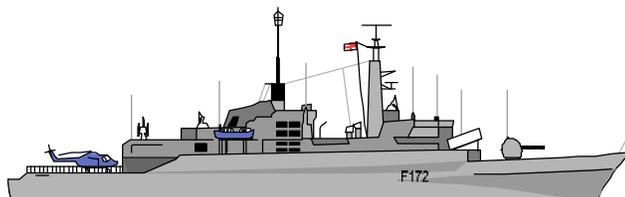
NWTRB PANEL FOCUSES ON TRANSPORTATION OF HIGH-LEVEL WASTE AND MANUFACTURING OF SHIPMENT & STORAGE CASKS

The Nuclear Waste Technical Review Board's (NWTRB) Panel on the Waste Management System (Panel) met in Idaho Falls July 10, 2000, to discuss human factor issues related to the transportation and storage of high-level nuclear waste. The NWTRB is charged by Con-

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*727 Navy
Waste Shipments
Have Been
Safe!*

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other interested parties, points out that shipments of HLW to Yucca Mountain will not be done under the

same conditions as the Navy shipments and will involve many more shipments over a long period of time. Nye County has long advocated shipments by

rail, however, as being preferable to shipments on the public highways.

PRELIMINARY FINDINGS ON DURABILITY OF DISPOSAL CASKS PRESENTED TO NUCLEAR WASTE PANEL

At the NWTRB meeting on August 1, in Carson City, scientists working for the State of Nevada presented preliminary findings indicating that the disposal canisters DOE currently intends to use at the proposed Yucca Mountain repository may not be as durable or robust as DOE expects.

DOE's current design calls for disposal casks made primarily of a nickel-based alloy called C-22. The latest version of the DOE total system performance assessment, also reported at the same meeting, assumes that casks made with C-22 will remain completely intact for at least 11,000 years. Professor Aaron Barkatt of Catholic University and Dr. Jeff Gorman of Dominion Engineering, however, reported results of experiments they and other members of their team conducted on this material. These experiments, while preliminary in nature, showed that C-22 may be much more susceptible to corrosion, cracking, and pitting than was previously assumed when exposed to lead, arsenic, mercury and other "aggressive elements" which may be present in the water at Yucca Mountain.

The current design and total system performance assessment for Yucca

Mountain rely heavily on the disposal cask to isolate spent nuclear fuel and high-level nuclear waste from the environment for thousands of years, and thus their integrity and resistance to corrosion, pitting, and cracking for extremely long periods of time are critical.

The findings discussed by the State's scientists raise questions, but admittedly much more work needs to be done before any final conclusions can be reached. Professor Barkatt admitted that the experiments so far have not been conducted under the conditions in which the casks would be disposed of in Yucca Mountain. Those conditions, which include importantly the temperature that the casks would reach after repository closure, are still undetermined.

The members of the NWTRB expressed a strong interest in such further work, both by the State and by DOE. For example, it is very difficult to accurately measure the amount of lead in water, if any, because of contamina-

tion from human sources, and even from the measuring instruments themselves. Additionally, the chemical processes that produce the potential deterioration in the canisters require that they be in contact with water for a length of time. Thus how much water will come into contact with a canister, and in what timeframe, is also critical information to take into account.

"It is clear that more needs to be done in this area" said Les Bradshaw, Department Manager of the Nye County NWRPO, "and we will continue to closely monitor the progress of this issue".



Yucca Mountain Relies Heavily on the Durability Of Disposal Casks For Isolation Of Nuclear Waste

FY01 APPROPRIATIONS...

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In FY00, Nye County received \$1,819,721 for its oversight program. If OCRWM is funded at \$437 million, Nye County can expect to receive \$1.972 million. If the funding is at \$351 million, Nye County's oversight program could be funded at somewhat less.



It is expected that the bill that provides OCRWM's funding will be finalized sometime after September 2000.

OCRWM is moving forward on production of the SRCR in late 2000. The SRCR will be the basis for the Secretary of Energy's possible recommendation to the President for formal designation of Yucca Mountain, 12 miles north of the Town of Amargosa Valley, as a repository for the nation's commercial spent nuclear waste and defense-related high-level nuclear waste. DOE has been conducting site characterization activities at Yucca Mountain since the early 1980s.

The SRCR will be a synthesis of a great amount of geologic and engineering data developed regarding Yucca Mountain and related transportation and cask systems. The SRCR will be released to inform the public of the basis of the Secretary's decision to recommend (or not recommend) Yucca Mountain to the President. There will be a 90-day public comment period in early 2001.

If the Secretary recommends Yucca Mountain to the President, the Nevada governor and legislature must be so notified and they have the opportunity to issue a notice of disapproval to Congress. If the

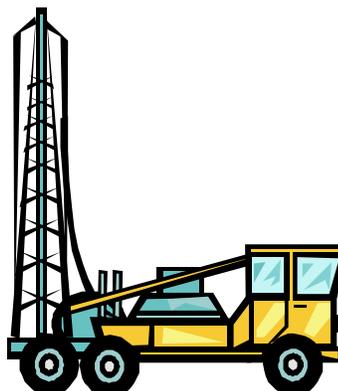
State disapproves, Congress must pass a resolution of site approval for DOE to proceed. If Congress passes the resolution, DOE will then proceed with submitting an application for a "construction authorization" to the NRC.

Nye County is actively reviewing many of the technical basis documents such as Analysis and Modeling Reports (AMR) and Process Model Reports (PMR) which will support the SRCR. Approximately 121 AMRs are available for review which will be integrated by DOE into 11 PMR categories:

1. Engineered Barrier
2. Waste Package Design
3. Biosphere
4. Unsaturated Zone & Flow Transport
5. Disruptive Events
6. Coupled Processes
7. Geochem Colloid Processes
8. Source Term
9. Saturated Flow & Zone Transport
10. Abstracted Model
11. Climate

Because Nye County does not have the resources to comment on all the documents, we are focusing on:

1. Unsaturated-Zone Flow & Transport
2. Saturated-Zone Flow & Transport
3. Repository Design
4. Integrated Site Model
5. Source Term
6. Coupled Processes
7. Biosphere



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Upcoming Meetings

September 19-21—
Nuclear Regulatory
Commission's Advisory
Committee on Nuclear
Waste (ACNW) meeting
at the Crowne Plaza Ho-
tel, 4255 S. Paradise
Road, Las Vegas, NV.
For additional informa-
tion, contact Lillie
Gaskins at (301) 415-
6899

*October 4—*Nevada Sci-
ence & Technology Cor-
ridor meeting at the
Beatty Community Cen-
ter, 100 A Avenue,
Beatty, NV. For addi-
tional information, con-
tact Dan Simmons at
(775) 727-6456.