

**Before the Defense Nuclear Facility Safety Board**  
**Citizen Action New Mexico Presentation**  
**March 03, 2010**

1. Citizen Action questions and objects to certification for the Sandia National Laboratories' operation of the Annular Core Research Reactor (ACRR) and the Auxiliary Hot Cell Facility (AHCF). The ACRR and AHCF were used for defense programs involving nuclear weapons. These radiological facilities cannot withstand the design basis earthquake, including ground rupture, which can occur at their location at Technical Area V in the southwest portion of Sandia. In September 2004 the DNFSB found inadequately examined dangers existed for these nuclear facilities for fire hazards, an airplane crash and equipment operations. One need only think of the powerful earthquakes in Haiti and Chile, the intentional airplane attack on the World Trade Center and the small airplane attack on the Internal Revenue Service to realize that acts of nature and terrorists are real dangers that cost lives and wreak devastation.

According to documents obtained by Citizen Action through Freedom of Information requests, the Sandia Pulse Reactor (SPR), the ACRR and the AHCF were all cited by the DNFSB Staff Report of September 27, 2004 as not having adequate Documented Safety Analyses (DSA). The Gamma Irradiation Facility and the Monzano Nuclear Facility were cited for other reasons such of improper inventory controls.

The *Independent Evaluation of Field Element Performance* (December 10, 2004), a report of the Independent Evaluation Team, found that the DSAs for the ACRR, the SPR and the AHCF all needed to be redone. The SPR has been decommissioned by Sandia. The independent team report found that (pp. 6-7) the SSO corrective action plan had a limited scope assessment; lacked sufficient detail for disposition of all the issues; had incorrect information about nearby residents; was not based on a root cause determination and a comprehensive problem statement.

A revised DSA for the AHCF is currently under review by the DNFSB. (T. Spatz, August 24, 2009 DNFSB Response to Citizen Action New Mexico Letter of July 3, 2009).

The DNFSB should be wary of the SSO's self analyses for corrective action and the upgrade of the AHCF to Hazard Category 3 nuclear facility. *The Path Ahead to Improve the Nuclear Safety Basis Process at Sandia National Laboratories* (January 24, 2005, p. 7) identifies in its Root Cause Analysis that "Sandia has failed to manage the nuclear safety basis program in a formal, systematic manner based on recognized management system standards." The first of nine contributing causes is that "Nuclear safety basis activities have been a low priority for Sandia senior management."

Surrounding the area as receptors for a nuclear accident are Pueblo of Isleta, Albuquerque International Sunport, Mesa del Sol (35,000 planned residential

community), Wherry Elementary, the Child Development Center- East, the Coronado Club, Sandia Base Elementary, KAFB housing, Shandiin Daycare Center, the National Atomic Museum, housing along Gibson, Wyoming, and Louisiana Blvds., thousands of commuters including the I-25 and I-40 corridors, workers and military personnel.

Citizen Action does not agree that the February 15, 2005 Corrective Action Plan or subsequent documents furnished to Citizen Action by Sandia have resolved the problems for the lack of earthquake safety, airplane crash scenarios and/or ventilation system problems identified for the AHCF and ACRR.

The Sandia Site Office (SSO) was identified by the Corrective Action Plan (p.19) as “The root cause of many SSO problems” for not providing quality safety basis documentation. The SSO may prefer to continue operations at what are probably unnecessary facilities for Sandia’s mission in the face of earthquake dangers and other hazards that still remain inadequately examined for protection of the public and environment.

The interrelationship between the co-location of the ACRR and AHCF building(s) and the safety systems and design basis have not been adequately described or considered. As is identified from the documents cited below, the building(s) that house the ACRR and AHCF are not safe for the size of earthquake that can occur at the TA-V site. The design basis earthquake and a thorough analysis of site geology related to the TA-V facilities is not described by Sandia.

Kirtland AFB and Sandia are in the regional geologic setting of the Rio Grande Rift. This site is riddled with regional fault systems: the Sandia, West Sandia, Manzano, Tijeras, Coyote and Hubbell Springs faults. An earthquake in the Albuquerque area has the potential for human injury and building damage throughout the region. Sandia buildings and structures vary in their capabilities to withstand earthquake forces. Facilities in TA-I could release chemical materials in a plume with exposure of as many as 5,300 persons at 3,800 feet. TA-V would be the predominant source of release of radioactive materials. (1999 Sandia Site-Wide Environmental Impact Statement). Sandia’s Site-Wide Environmental Impact Statement is ten years out of date. Human exposures would now be higher after 10 years of rapid population growth in Albuquerque.

Probable future earthquake potential has been estimated to have large magnitude with surface-rupturing potential. (See e.g. *Paleoearthquakes and Eolian-Dominated Fault Sedimentation along the Hubbell Spring Fault Zone near Albuquerque*, New Mexico, Bulletin of the Seismological Society of America, June 2003; v. 93; no. 3; p. 1355-1369). The earthquake potential from these various fault systems is not adequately described in the documents presented by Sandia to the DNFSB. DOE/NNSA/SSO have failed to provide resolution to the unresolved safety question for earthquakes. DOE Orders and standards are not being met.

The Annular Core Research Reactor (ACRR) in Building Bldg. 6588 and the Auxiliary Hot Cell Facility (AHCF) Bldg. 6580, are in Technical Area V and are in the same building. While the two facilities are in proximity to one another, the actual distance and interrelatedness of safety systems for the two facilities has not been adequately set forth in Sandia documents during DNFSB reviews.

1) The Highbay building (Bldg. 6588) housing the nuclear reactor (ACRR), the Auxiliary Hot Cell Facility and 2) its ventilation system cannot be upgraded for the necessary earthquake safety. The Highbay is a decades old structure which does not meet Safety Class seismic criteria.

The ACRR does not have “the inherent-safe design features similar to the advanced reactors.” (Independent report Assessment Form 1, p. 2). The postulated accidents for the ACRR of an earthquake, aircraft crash or complete loss of reactor pool water would be substantial for release of radiation. The ACRR has no containment and can have a criticality accident. A radioactivity release largely from Plutonium following an accident cannot be isolated for more than 10 minutes according to the Documented Safety Analysis (DSA) reviewed in 2004 by the DNSFB. An accident at the ACRR from a too rapid or uncontrolled regulating rod withdrawal would be severe and neither the water in the reactor pool nor the ventilation system would hold back the release of the radioactive inventory. The reactor explosion possible for the ACRR is described as being of the same type and could be more severe than the Idaho SL-1 reactor that killed three workers with unconfined release of radiation.

What is the scenario examined for cascading type of accident events, such as a powerful earthquake or an airplane crash ((accidental or intentional) simultaneously affecting the nuclear facilities at TA-V given their co-location?

Sandia National Laboratory is the only National Nuclear Security Administration (NNSA) facility operating on a U.S. military installation, i.e., Kirtland Air Force Base. That creates reciprocal dangers not present at other military bases and not present for other national laboratories.

Albuquerque’s population has little if any knowledge of the danger of the operation of the reactor and the hot cell facility. What co-ordinated emergency notification and emergency preparation for the public outside the TA-V site boundary and *outside* the confines of Kirtland AFB has taken place for a major radioactive or chemical accident at Sandia? Unlike the SL-1 accident occurring 40 miles away from Idaho Falls, an ACRR criticality accident would take place in the middle of Kirtland AFB, near a commercial airport and within the heavily populated urban area of Albuquerque.

It is unknown how many fatalities or persons could be injured or made ill along with ensuing panic and destruction of property values. Dense housing tracts are encroaching along the boundaries of Kirtland AFB. Whether reactor operations are

proceeding at present despite failure to resolve the unresolved Highbay building and other safety questions is unknown to Citizen Action.

That a major nuclear accident could occur in proximity to the storage location at Kirtland AFB for nearly 2000 thermonuclear weapons is less than appealing. The scenario may not have been analyzed as to potential consequences, emergency procedures and potential for co-existing terrorist attacks or theft of nuclear materials.

By allowing the reactor and hot cell operations in a building that cannot be made safe for earthquakes, Sandia is not ensuring a process for maintaining hazard controls to provide the necessary level of safety for the workers, public and environment. (10 Code of Federal Regulations Section 830.204).

The DNFSB Staff Report (August 12, 2004) describes the AHCF as processing plutonium and as being part of the existing facility that also houses the ACRR:

“The AHCF was built to facilitate the sorting, categorization and repackaging of legacy material that SNL has categorized as having no ‘defined use.’ These materials include radioactive and transuranic and fissile isotopes, and may also include mixed waste. Physically, the AHCF is a relatively small collection of structures that are completely contained within the highbay of an existing facility.”

According to DNFSB Staff concerns, no safety class systems to protect the public were in place to prevent a radioactive plume from escaping from Sandia’s Auxiliary Hot Cell Facility. It is noted that the NNSA approved a safety analysis for the facility despite 111 pending safety concerns of DNFSB. The August 12, 2004 DNFSB Staff report identifies that (p.4):

“The hot cell structure and ventilation system perform a safety-significant confinement function. However, the hot cell itself is built only to PC-2 requirements, which do not provide for survivable confinement after a seismic event. The ventilation system is not built to PC-2 requirement. Thus, it does not provide confinement of material released during a fire inside the hot cell that is initiated by a seismic event. The DSA [Design Safety Analysis] did not identify or address this deficiency.”

The seismic problems and inadequate documented safety analyses identified with the AHCF linked to the ACRR were first identified by the DNFSB in 2004. A January 24, 2005 Sandia document “*The Path Ahead to Improve the Nuclear Safety Basis Process at SNL*” states (at p. 12):

“The preliminary review concluded that it would be feasible to transition the reactor protection system safety function to Safety Class status. However, the preliminary review concluded it would not be feasible to modify the highbay building structure and highbay ventilation system to act as a Safety Class confinement system, given that the highbay is a decades old structure which does not meet Safety Class seismic criteria. The major difficulty in transitioning the reactor protection system to Safety Class status deals with meeting natural

phenomena and external event design standards. The reactor protection system does comply with several of the applicable design criteria identified in the preliminary review. This includes single failure criterion (redundancy), quality standards, and human factors engineering.” (Emphasis supplied).

Regarding the DNFSB comments on the AHCF Safety Basis it is stated (at p. 13):  
“A new facility seismic mitigation evaluation was completed on 11/23/04. The results were not adequately conclusive. Further evaluations are underway.”

Sandia’s specific comments on the lack of AHCF earthquake safety in Attachment E to the March 3, 2005 letter of Linton Brooks to John T. Conway of DNFSB state:

“5. DNFSB Staff Issue: The hot cell structure and ventilation system perform a safety-significant confinement function; however, they would not provide confinement after seismic event.

- Hot cell facility is built to PC-2 requirements and contains integral HEPA filter
- Feasibility and cost to upgrade seismic capability of ventilation system being evaluated.
- “Accidents and consequences will be adequately addressed in the DSA [Design Safety Analysis].
- Risks will be clearly communicated.”

Citizen Action has requested, but not received and is unaware of, the issuance of a DSA for the hot cell facility that shows an upgrade to seismic capability. The August 24, 2009 Response of the DNFSB to Citizen Action states that “The Auxiliary Hot Cell facility is in the process of upgrading from a less-than hazard category 3 radiological facility to a hazard category 3 (HC-3) nuclear facility.” But what is the relationship between the systems of the ACRR and the AHCF for seismic safety functions? The Highbay contains the AHCF, but it is the Highbay that cannot survive an earthquake. An August 31, 2009 Letter, cited below, from Thomas D’Agostino demonstrates that DOE does not plan to upgrade the ACRR to seismic capability for the ventilation systems.

According to the conclusions of a January 7, 2005 Sandia White Paper Analysis written by the Nuclear Reactor Facilities Department (Attachment D to the March 3, 2005 letter of Linton Brooks to John T. Conway of DNFSB) an upgrade for the Highbay Reactor Room and components has not been accomplished and would require major redesign and reconstruction (p.2):

“Another conclusion of this assessment was that the Active Confinement System safety function (which would be accomplished by [systems and safety components] SSCs associated with the ACRR Highbay (Bldg. 6588, Room 10) and the Highbay Ventilation System could not be transitioned to Safety Class. One major issue is the seismic qualification of the Highbay itself. In order to provide active confinement, it is necessary that the Highbay survive a design basis earthquake (DBE). The DSA currently states that the structure would not likely survive such an event. In addition, the Highbay Ventilation System (HBVS)

ductwork , filters, and fan must also continue operating following a DBE. Thus, transitioning to Safety Class status would involve major redesign and reconstruction of the Highbay and the HBVS.”

Nothing in documents reviewed by Citizen Action indicate that major redesign and reconstruction were/are accomplished for the ACRR.

**Citizen Action recommends that the DNFSB review should not certify the reactor and hot cell facility operations because it cannot be shown that the Highbay structure has been replaced with a redesigned and reconstructed facility.** An August 24, 2009 DNFSB Response to Citizen Action New Mexico letter of July 9, 2009 states that a planned review by DNFSB staff will be made for the Auxiliary Hot Cell Facility. The latest indication from a letter dated August 31, 2009 from DOE Administrator Thomas P. D’Agostino to John E. Mansfield DNFSB Vice Chairman indicates this is not accomplished. The letter states in pertinent part:

“This letter and its enclosures comprise Deliverables 8.6.3 and 8.6.5 for Annular Core Research Reactor (ACRR) at Sandia National Laboratories (SNL), Albuquerque, NM.

“The evaluation concludes that the ACRR ventilation systems were neither designed nor required to prevent exceeding the evaluation guideline (EG) for the analyzed accidents. Though the systems are typically operated in support of ACRR operations, they are not credited in the ACRR accident analysis to function during normal, abnormal, or anticipated accident conditions to prevent or mitigate exposures. While the ventilation systems would have an impact on normal, abnormal or anticipated accident conditions, major facility modification or construction of a new facility would be required to be able to take credit for the function in the Safety Analysis. Therefore, the costs associated with modifying/upgrading the ventilation systems to meet the criteria for creditable active confinement ventilation systems would be difficult to justify.” (Emphasis supplied).

In the Attachment D (1/25/07) Summary and Conclusions is stated (at p.2-3):

“The transition work essentially amounts to a design basis reconstitution (see DOE Standard 1073-2003) of the PPS and its supporting equipment. Issues include the seismic qualification of the PPS, control/safety elements, the reactor core grid structure, and the control room and Highbay building structures, quality assurance pedigree for older components, fire protection studies, human factors studies, and impacts of failures in co-located non-Safety Class equipment. It is anticipated that these studies would result in the need for some modifications to the PPS and/or its supporting equipment. Not only must these studies and potential modifications be completed, but the resulting documentation must be incorporated into an integrated design configuration management and system engineering program to ensure the continued maintenance and reliability of these SSCs. Lastly, this information must be appropriately incorporated into the safety basis (DSA and TSR) of the facility to be approved by DOE.

“It is vital that this transition work occur prior to “declaring” the SSCs as Safety Class. Otherwise, the ACRR facility would become immediately vulnerable to significant audit findings from the DOE Office of Assessment and/or the Defense Nuclear Facility Safety Board, while the transition work is underway.

“Another conclusion of this assessment was that the Active Confinement System safety function (which would be accomplished by SSCs associated with the ACRR Highbay (Bldg. 6588, Room 10) and the Highbay Ventilation System) could not be transitioned to Safety Class. **One major issue is the seismic qualification of the Highbay itself. In order to provide active confinement, it is necessary that the Highbay survive a design basis earthquake (DBE). The DSA currently states that the structure would not likely survive such an event.** In addition, the Highbay Ventilation System (HBVS) ductwork, filters, and fan must also continue operating following a DBE. Thus, transitioning to Safety Class status would involve major redesign and reconstruction of the Highbay and the HBVS. (Emphasis supplied).”

If the Highbay structure does not survive a design basis earthquake or an airplane crash, what are the implications and consequences for the AHCF to not survive and for combined releases of radioactivity from both structures? This disastrous scenario is clearly a possibility. The DNFSB Staff Report (2004) states (p.5):

“Aircraft crashes were not thoroughly analyzed, even though the facility is located within the take-off and landing pattern approximately 5 miles from the jointly operated Kirtland Air Force Base and Albuquerque airport. Given their proximity to each other, multiple TA-V nuclear facilities could be affected by a single aircraft crash. TA-V is also located on a direct vector associated with one of the runways.”

**From the perspective of the lack of any defined mission, the public health and environmental dangers posed by the operation of the ACRR and AHCF in a highly urbanized area are not justifiable.** It is not clear from the out of date 1999 Sandia Site Environment Impact Statement (EIS) just what mission the ACRR and AHCF are supposed to serve and whether the facilities are even any longer necessary (other than contractor enrichment). The EIS states a mission for the facilities for production of medical isotopes. Those activities are not being carried out. Unknown short-term tests at the ACRR in support of certification of weapons components are stated, but the EIS then states the possibility of conducting this at other DOE sites.

**The DNFSB should require that Sandia address the issue of the “Yardholes” at the AHCF, ACRR and SPR locations.**

Citizen Action obtained information from a Freedom of Information Act Request (FOIA) request that the waste from numerous experiments with the reactor fuels had been disposed of in various areas known as “Yardholes” at SNL.

<http://www.radfreenm.org/pages/nr/041504.html> The yardholes were over 30 primitive

holes dug in the ground; some were lined and some were unlined. One of the yardholes was a water filled hole under the Hot Cell Facility monorail at SNL and contained a spent fuel element from the Savannah River Site. SNL has kept secret from the public the types and amounts of the contents of the various yardholes. The yardholes contain nuclear materials and/or hazardous wastes that should be disposed of or regulated under the Resources Conservation and Recovery Act (RCRA), the Atomic Energy Act, Nuclear Regulatory Commission (NRC) regulations, or Department of Energy (DOE) Orders.

A "SNL Site Team Report on Spent Fuel," October 1993 ("Yardholes report"), assessed vulnerabilities of the DOE storage of irradiated reactor fuel and other irradiated nuclear materials (RINM). The 1993 Yardholes report stated: "The vulnerability identified was the lack of approved Safety Analysis Reports." The report identified the existence of the Yardholes at the location of the Sandia Pulse Reactors (19 yardholes) and the Hot Cell Facility (13 yardholes under the HCF Monorail) associated with the Annular Core Research Reactor (ACCR).

The Yardholes report, Appendix 1 C. Sandia Pulsed Reactor Facility states:

p.1 – "**None of the reactor irradiated materials discussed below are classified.**" (Emphasis supplied).

p. 3 – "... [A] status book is kept updated with the most current information including the date the storage activity took place, the name of the experiment, the dose rate along with the survey date and the hole involved.

p. 4 - Contamination: It is assumed that small amounts of contamination are present inside some of the holes due to the process of irradiation with the ACRR central cavity. Every experiment package removed from s storage hole is treated as potentially contaminated upon removal until surveyed and released by the Health Physics Technician."

p. 4 – "One item of concern is the issue of classifying the Yardholes and the NOVA [North Vault] as nuclear facilities."

p. 7 - "The other concern is the ultimate recovery and disposition of these nuclear materials, All of the materials are currently stored on site since there is no approved method of disposal.....There are various concerns associated with the long term storage of any radioactive material, specifically leachability of material, decay rates and potential corrosion of the containment packages due to environmental conditions."

The Yardholes report, Appendix 1 D. Hot Cell Facility, p. 2, identifies "hazardous materials such as cadmium, silver, lead, metallic sodium, etc." These materials may constitute hazardous or mixed hazardous waste under RCRA.

The Yardholes report, Appendix 5 Tiger Team Findings, identified additional concerns:

"1. A/CF-04: Need for an air monitoring program to meet 40 CFR 61, Subpart H. Hot Cell Facility and ACRR are mentioned."

"2. RAD/CF-01: Need for a program to monitor continuous and batch discharges of liquid and radiological effluents. Tech Area V is mentioned."

"3. AX.02-01: Monitoring and disposal of hazardous and radioactive effluents. Hot Cell stack monitor is mentioned. Hot Cell, ACRR and SPR are mentioned."



Other Tiger Team concerns involved: storage of fissile material, safety analyses for fissile material storage, posting of fissile material storage limits, emergency response procedures, criticality alarms, need for a review process responsive to safety needs and need for effective procedures for radiation protection.

SNL has not presented:

- what types of wastes are present in over 30 yardholes;
- the volume of those wastes;
- the containers for the wastes;
- the pathways for disposition of the wastes;
- how much of the wastes remain;
- whether the wastes are being added on an ongoing basis to the yardholes;
- whether new yardholes are being created;
- what releases of yardhole wastes there may have been to the environment.

Sandia's continued secrecy about the yardholes' wastes only serves Sandia to prevent public action for protection of the public health and safety interest and the environment. Sandia is required to furnish the information about the nature of the mixed wastes in the yardholes both to public organizations such as Citizen Action and the New Mexico Environment Department (NMED) for protection of the public health and environment from the dangerous nature of the wastes, the lack of monitoring for releases from the wastes, the potential for catastrophic criticality releases of fission materials, the leakage of the wastes to the groundwater, soil and air. The Tiger Team assessment found no air monitoring program or liquid effluent monitoring for the wastes at the HCF, ACRR and SPR.

DNFSB should not certify any operations for the AHCF or the ACRR until the yardhole wastes have been identified and cleaned up at the SPR, ACRR and the AHCF sites.

**2. Citizen Action New Mexico has new information regarding the Sandia National Laboratories' Mixed Waste Landfill and requests DNFSB take action to protect the public from legacy wastes from nuclear weapons production.**

Implications of a 2006 TechLaw, Inc. document and the need to send the NMED Moats Evaluation to the EPA Kerr Laboratory at Ada, Oklahoma for review. The Moats Evaluation is at the following URL:

[http://www.nmenv.state.nm.us/hwb/SNL/MWL/Eval\\_Rep\\_Reliability\\_GW\\_Mon\\_Well\\_Data\\_MWL\\_\(11-2006\).pdf](http://www.nmenv.state.nm.us/hwb/SNL/MWL/Eval_Rep_Reliability_GW_Mon_Well_Data_MWL_(11-2006).pdf)

The Final Order of the NMED for the Sandia National Laboratories' Mixed Waste Landfill (MWL) required (page 3-4):

“a comprehensive fate and transport model that studies and predicts future movement of contaminants in the landfill and whether they will eventually move further down the vadose zone and/or to groundwater;”

[http://www.nmenv.state.nm.us/HWB/SNL/MWL/Final\\_Decision/Hearing\\_Off\\_Rprt\\_Findings\\_Fact\\_Conclusion\\_Law\\_\(05-20-2005\).pdf](http://www.nmenv.state.nm.us/HWB/SNL/MWL/Final_Decision/Hearing_Off_Rprt_Findings_Fact_Conclusion_Law_(05-20-2005).pdf)

In 2005 Sandia prepared a fate and transport computer model for the MWL.

[http://www.nmenv.state.nm.us/hwb/SNL/MWL/Fate\\_and\\_Transport\\_\(Probabilistic\\_Performance-Assessment\\_Modeling\\_of\\_the\\_MWL;%2011-2005\).pdf](http://www.nmenv.state.nm.us/hwb/SNL/MWL/Fate_and_Transport_(Probabilistic_Performance-Assessment_Modeling_of_the_MWL;%2011-2005).pdf)

A January 2006 TechLaw, Inc. report criticizes the 2005 Sandia National Laboratories computer model as a “Black Box” stating that the model should not be relied on by the NMED. Citizen Action asked for the TechLaw, Inc. report in February 2006, but NMED refused to provide the report and brought a lawsuit against Citizen Action.

The three year NMED lawsuit against Citizen Action asked for a declaratory judgment to keep the 2006 TechLaw, Inc. report secret on the basis of executive privilege. NMED lost the lawsuit because the 1<sup>st</sup> District Court held the TechLaw report is a public record. The NM Attorney General’s office intervened in the lawsuit in support of the TechLaw, Inc. report being a public record. Citizen Action did not obtain the 2006 TechLaw, Inc. report until November 2009.

As a further result of the lawsuit, NMED released some 13,000 pages of TechLaw, Inc. and AQS documents concealed for up to a decade and that cost the taxpayers millions of dollars. The technical documents are relevant to widespread toxic contamination and/or permitting actions throughout New Mexico at Sandia Labs, Los Alamos National Laboratories, Triassic Park, Safety-Kleen Systems, military bases at Kirtland AFB, Fort Wingate, Holloman AFB, Ft. Bliss, White Sands Test Facility and oil company refineries Western Refining SW (Gallup), Bloomfield Refinery (Farmington), Navajo Refining Co. (Artesia).

The 2006 TechLaw, Inc. report and other just released TechLaw reports regarding risk assessment for Sandia’s MWL expose a cover up by the NMED of its flawed decision making to leave 720,000 cubic feet of radioactive and hazardous waste under a dirt cover at the Mixed Waste Landfill. The MWL lies near Mesa del Sol’s 35,000 home planned residential community. The MWL is above Albuquerque’s drinking water aquifer. By withholding the 2006 TechLaw, Inc. report and thousands of pages of other records, NMED has protected Sandia from cleaning up the environment in accordance with federal Resource Conservation and Recovery Act (RCRA) regulations.

In addition to the flawed computer model, the 2006 TechLaw, Inc. report points out that the MWL cover design is not appropriate and does not meet long term maintenance requirements for the necessary 1000 year period. TechLaw criticizes the neutron tube moisture detection as not providing early warning that water has breached the cover and is moving down through the buried waste. The neutron tubes are placed beneath the buried wastes.

The 2006 TechLaw, Inc. report criticized “The use of data trends for trigger evaluations” as not being the appropriate legal mechanism “to determining the statistical significance

of each exceedance” in collected sampling data. TechLaw states, “The transition from [detection monitoring to compliance monitoring] can be based on a single exceedance, according to regulations and federal EPA guidance.” TechLaw recommended measuring moisture directly beneath the soil cover and the use of “geosynthetic drains to carry any moisture within the cover system out and away from the soil cover and the underlying waste zone.”

The deficiencies for the MWL computer model and the dirt cover addressed by TechLaw continue to the present. The TechLaw recommendations were not revealed to the public or followed by NMED for the MWL. The question arises as to why NMED allows the public to pay millions upon millions of dollars for technical expertise that was concealed and then disregarded.

The 2005 Sandia computer model (Fate and Transport Model) used defective data from the monitoring well network at the MWL. The MWL monitoring wells were known for a decade to be in improper locations given the direction of the flow of groundwater. The monitoring well screens were corroded. Bentonite drilling muds were used. These factors meant that the monitoring wells provided unreliable data. A NMED 1998 Notice of Deficiency (NOD) identified these problems, but the problems were not subsequently corrected.

In May 2006, a public meeting was held by NMED for the Sandia Fate and Transport Model that had been required by the Final Order approving the dirt cover remedy for the MWL. NMED did not reveal the 2006 TechLaw document to Citizen Action or the public with the criticisms contained therein about the Sandia computer model. NMED also did not reveal the unresolved MWL monitoring network problems identified by the 1998 NOD.

After the May 2006 meeting, the public submitted comments to the NMED challenging both the MWL Fate and Transport Model and the groundwater monitoring network.

In November 2006 NMED furnished written responses to public concerns. [http://www.nmenv.state.nm.us/hwb/SNL/MWL/Interested\\_Citizen\\_Letter\\_-\\_Response\\_Comments\\_\(11-21-2006\).pdf](http://www.nmenv.state.nm.us/hwb/SNL/MWL/Interested_Citizen_Letter_-_Response_Comments_(11-21-2006).pdf) The Responses ignored the 2006 TechLaw, Inc. report and fallaciously wiped away public concerns for the Fate and Transport Model and the groundwater monitoring program at the MWL.

The NMED Responses relied heavily on a November 2006 report written by William Moats, a NMED geologist. The Moats Evaluation used concocted data to make the false claim that the monitoring wells were providing reliable water quality data. Moats relied on the 2005 Sandia computer model although he knew at the time that the Sandia model was rejected earlier in January 2006 by TechLaw, Inc. By keeping the 2006 TechLaw, Inc. report secret, NMED presented an incomplete and false technical assessment of the fate and transport model to the public. The Moats evaluation also did not consider the problems identified by NMED in its 1998 NOD of improper location, corroded well screens and changed water chemistry from Bentonite drilling muds.

The 2005 Sandia computer model for fate and transport, which Moats relied on both in his report and in NMED's written Responses to Public Comments, is called a "Black Box" by TechLaw that NMED should not rely upon without a full understanding. The Moats Evaluation was used by NMED to reject comments by Citizen Action, Registered Geologist Robert Gilkeson and the public. The NMED Responses to comments were part of the RCRA process for the Mixed Waste Landfill. The Responses provided incorrect information slanted to achieve the outcome that a dirt cover would be protective of the 720,000 cubic feet of the radioactive and hazardous wastes left in unlined pits and trenches of the MWL. RCRA provides for modification, revocation or termination of a permit where there is not full disclosure of all relevant facts, misrepresentation of any relevant facts at any time and when there is new information that was not available. (40 CFR 270.41-43).

The NMED Response to public comments cites the Moats Evaluation many times. The 2005 Sandia Fate and Transport Model is also repeatedly used by NMED to reject public comments. Neither the Moats Evaluation nor the Sandia computer model received peer review. Moats claimed he based his analysis on similar reports, called Well Screen Analysis Reports (WSAR) written for Los Alamos National Laboratory. However, those Well Screen Analysis Reports were rejected by both the EPA Kerr Laboratory (2005, February 10 and 16, 2006, and March 30, 2009) and the National Academy of Sciences (2007). The March 2009 EPA Kerr Laboratory was a rejection of the NMED approved version of the WSAR.

An additional issue regarding the Moats report is that it used concocted data that cannot be relied upon to make the conclusion of a reliable network of monitoring wells. Two statisticians and Gilkeson agree that the Moats Evaluation used imaginary data for cadmium levels to arrive at his conclusions.

Two statistical analyses by Billy Brown, Ph.D. Mathematics and William Payne, Ph.D., along with a geochemical analysis by Registered Geologist Robert Gilkeson conclude that Moats' conclusions are not supported by the imaginary data that his Evaluation used, especially for Cadmium. In fact, the correct analysis of Cadmium data shows that a Cadmium release is contaminating the ground water below the MWL.

Citizen Action seeks the DNFSB assistance to gain scientific review by the EPA Kerr Laboratory in Ada, Oklahoma of the Moats Evaluation. This review was sought previously to the 2009 release of the TechLaw, Inc. report, by Citizen Action, Mr. Gilkeson and the City of Albuquerque Groundwater Protection Advisory Board. Given the factors of the 2006 TechLaw, Inc. report and the information that NMED and Moats ignored the report, along with the false information used in the Moats Evaluation, a competent scientific review of the Moats Evaluation and its conclusions for the MWL dump is long overdue.

David B. McCoy, Executive Director  
Citizen Action New Mexico  
POB 4276  
Albuquerque, NM 87196-4276  
505 262-1862  
[dave@radfreenm.org](mailto:dave@radfreenm.org)