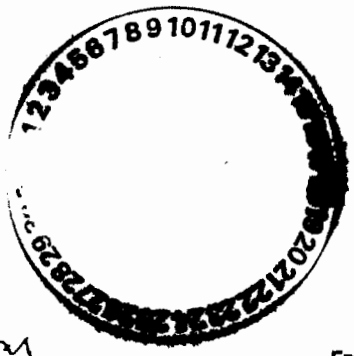
TA-54

505 424 9100 (o)
505 424 9593 (fax)
877 424-9100 (toll)



La Cienega Valley
Citizens for Environmental Safeguards
CES

Sander Alarcon 2

Fax

To: Ron Curry From: Elaine Cimino

Fax: 827-2836 Pages: 8 pg including Cover

Tel: Date: 4/5/04

Re: MDA-H LANL TA54 WASTESITE

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

DEAR MR. RON CURRY,

ATTACHED ARE COPIES OF ZANE SPIEGEL'S REPORTS ON the MDA-H TA 54 WASTESITE AT LANL. PLEASE FORWARD these ON to the proper PERSON AT NMED.

I thought, t important to share our COMMENTS ON this important ISSUE W YOU.

Sincerely,

Elaine Cimino

11829

[MDA-Hdiss0401]

MEMORANDUM OF CONTINUING DISSENT ON GROUND-WATER RECHARGE AT LANL WASTE SITES ON ESPANOLA BASIN AND PAJARITO PLATEAU MESAS

TO: Bruce Poster, SW Planning & Marketing, 903 W. Alameda, #206; Tel 505-989-8500.
FROM: Zane Spiegel, P.O. Box 8527, Santa Fe NM 87504-8527; Tel/Fax 505-984-2530.
SUBJECT: Continuing dissent on long-term recharge to Pajarito Plateau/Espanola Basin.
DATE: 040111.

INTRODUCTION TO CONTINUING DISSENT ON RECHARGE IN ESPANOLA BASIN

The bases for dissents from LANL assumptions of "zero" or negligible LONG-TERM ground-water recharge on areas similar to Pajarito Plateau mesas and surrounding lowlands began long before the first public LANL presentation on MDA-H waste-deposit studies (a "workshop" at LANL in June 2001). We reviewed early data, beginning in 1929 by C.V. Theis (1937), and continued USGS monitoring of monthly precipitation and ground-water levels on portions of the NM High Plains with similar precipitation to that of Pajarito Plateau. Theis (1937-38) also studied the Rio Grande rift (most of which had much lower precipitation than the High Plains) and its natural discharge of ground water to the Rio Grande inner valley.

We supplemented the above data and reports by information gained in field studies of the Socorro County portion of the Rio Grande rift (July 1949-September 1950, later published as NMBMMR GW Report 4) and of the Los Alamos area from September to mid-November, 1949. The latter study was done incidental to participation with a USGS team of geologists and hydrologists exploring for additional ground-water supplies for Los Alamos.

Long-term data on water contributions to soils and underlying aquifers from natural and artificial sources in NM, in relation to underlying water levels in wells, were graphed and explained in reports by Spiegel (1958, 1963). These reports were based on studies initiated in 1929 by C. V. Theis (1937) on High Plains areas of New Mexico and by C. E. Jacob (var.). Parts of a collection sent to the writer by the custodian of Jacob's personal library after Jacob's decease were reviewed in 1971 in connection with our continuation of Jacob's consulting work (Spiegel, 1970-72-- various environmental reports submitted to Town of Southampton, Suffolk County NY). These reports guided the Town's Master Plan and Zoning Ordinance.

In the 1950's-1970's we reviewed reports on Hanford and other National Laboratories, including lysimeter and ground-water data at Brookhaven National Laboratory (BNL, Suffolk County NY), where plumes of tritium contamination reached a stream miles to the east of the Laboratory within decades. Insofar as security limitations permitted, we discussed these data with Theis, who during that time was the principal USGS hydrologist assigned to advise all work done under US-AEC oversight. Time-lapse color slides of 2D vertical-section physical simulations) of flow in anisotropic granular media by H. Skibitzke, especially with reference to Hanford and BNL, were viewed and discussed. The basic principles apply also to flow in 3D fracture systems that are important in Pajarito Plateau (see fracture study, Rogers (1995)). Therefore the recent LANL one-dimensional computer model and related assumptions used in their MDA-H analysis were inappropriate and should be discarded.

We conclude that the data and principles we have presented are irrefutable. Q-1: Is that the reason that LANL attempted no refutation?
Q-2: If so, who are responsible for that decision, and WHY?

Current Dissent from LANL's Implied Conclusion that LONG-TERM Mesa Recharge is Negligible, Based Only on LANL's SHORT-TERM Studies, Neglecting Long-term Data

As noted in the third paragraph of the preceding section, "Long-term data on water contributions to soils and underlying aquifers from natural and artificial sources in NM, in relation to underlying water levels in wells, were graphed and explained in reports by Spiegel (1958, 1963). These reports were based on studies initiated in 1929 by C. V. Theis (1937) on High Plains areas of New Mexico and by C. E. Jacob (var.)."

The data showed that several years of average and below-average in succession usually resulted in little recharge. On the other hand, LANL studies of ground-water response to precipitation did not include any wet periods such as those graphed in copies of the NM High Plains LONG-TERM data series initiated by Theis in 1929.

An even more convincing argument for falsity of the LANL assumptions and conclusions is that LANL/DOE OFFICERS RESPONSIBLE FOR REPLYING TO FORMAL FOIA REQUESTS (five identical requests since August 2003, all in strict compliance with FOIA instructions) HAVE ILLEGALLY FAILED TO RESPOND TO EVEN ONE OF OUR FIVE FOIA REQUESTS FOR COPIES OF DOCUMENTS FOR (A) TRACKING THE INTERNAL/EXTERNAL DISTRIBUTION OF OUR WRITTEN EVIDENCE FOR SIGNIFICANT LONG-TERM MESA RECHARGE, (B) LANL STAFF/CONSULTANT COMMENTS ON , OR (C) ADMINISTRATIVE INSTRUCTIONS TO STAFF REGARDING RESPONSE OR NON-RESPONSE TO OUR EVIDENCE. All of our evidence is readily accessible to the public, much of it by visiting CES website <environmentalsafeguards.com>.

Dissent on LANL Conclusions that (1) Fracture Flow is unlikely;
(2) Lateral Flow of Recharge in Wet Years Into, Through, and Out During Periods of High Precipitation Will not Enter the Waste Columns, Dissolve Hazardous Solutes, and Exit Laterally and/or Downward to Cliffs or Into Underlying Aquifers; and
(3) "engineered covers" are Adequate to Prevent MDA-H Wastes from Contributing Solutes to Adjacent and/or Underlying Fracture Systems Which Can Transport Solutes to Cliff Faces or Underlying and/or Canyon-floor Aquifers.

As noted at the bottom half of the last paragraph of the previous INTRODUCTION, "Laboratory studies...by H. Skibitzke, especially with reference to Hanford and BNL, were discussed. Although this work was at the time applied only to 2D "matrix" flow, the basic principles apply also to flow in 3D fracture systems that are important in Pajarito Plateau (see fracture study in Rogers (1995))". "Engineered covers" will not prevent lateral-flow entry.

Therefore the recent LANL one-dimensional computer model and related assumptions used in their MDA-H analysis were inappropriate and should be discarded. It should be concluded that sporadic flux of recharge down through the surficial layers of the host rock may enter the waste columns through the 3D fracture system UNLESS LATERAL FACES OF THE WASTE COLUMNS ARE SEALED OFF BY A SYSTEM OF GROUT-FILLED DRILL HOLES, SUCH AS IS INDICATED BY THE "STABILIZATION ALTERNATIVE."

We conclude that the data and principles we have presented are irrefutable. Q-1: Is that the reason that LANL attempted no refutation?

Q-2: If so, who are responsible for that decision, and WHY?

{L-MDA-HfxMtg0312}Rev031205

COMMENTS BY ZANE SPIEGEL, 031128
ON (A) LANL's FAILURE TO RESPOND CONSTRUCTIVELY DURING THE PAST THREE YEARS TO RECENT AND PAST ALLEGATIONS THAT LANL HAS IGNORED ABUNDANT LONG-TERM EVIDENCE OF FALSITY OF THEIR INITIAL AND CONTINUING ASSUMPTION OF LACK OF DEEP INFILTRATION OF PRECIPITATION AT WASTE SITE MDA-H

with special reference to LANL's untitled and unpaginated (B) "FRACTURE-FLOW SUMMARY" DENYING MDA-H DEEP INFILTRATION provided to MDA-H Focus Group members and others in November, 2003.

INTRODUCTION TO (A) IN TITLE ABOVE

I was not able to attend the subject Fracture-Flow Model meeting at Los Alamos (November, 2003), due to prior commitments. However, the major issue has remained the same for three years-- LANL's persistent refusal to respond constructively in any way (in both their regional modeling and local studies at MDA-H site) to my written and oral allegations that LANL's work has been grossly deficient because it has neither taken into account nor specifically countered abundant lines of pertinent evidence by several researchers foremost in their respective fields, in readily-available New Mexico, Federal, and Geological Society of America (GSA) reports, most of which were supplied to LANL's Bruce Gallaher or John Hopkins at no cost. These documents are available from the files of the Santa Fe Water Quality Task Force (SFWQTF) and LANL Focus Group on MDA-H Site, and the Santa Fe office of Forest Guardians (copy of all of Spiegel, 1963, "Water Resources of New Mexico", a document prepared for the NM State Engineer Office under a Federal water-planning grant).

SPECIFIC COMMENTS ON (B) IN TITLE ABOVE

To facilitate reference to (B) items, I have made it easier for those "scientists" (who apparently have a limited ability or motivation to facilitate responses by their readers to their first page (of eleven) of the subject document). I will refer to my own numbering of those eleven pages beginning with "1" for the first page, and ending with "11" for the back page, ignoring the blank page following p. "9"). This blank page, and other pages as needed, could have been used constructively to show monthly values of precipitation at TA-54 from 1992-2001, or some of the strong evidence presented by Spiegel (1958, 1963). Copies of pertinent hydrographs of the latter were distributed to LANL staff on at least two occasions in the previous three years. They show that most recharge in semi-arid regions of New Mexico occurs in a few wet seasons and years in the historical record of long-term response of deep ground-water levels to monthly precipitation values, beginning in 1929. These hydrographs used data compiled by the late C.V. Theis of the USGS (and principal scientist assigned to AEC oversight in the 1950's and later).

In addition to pagination of document "(B)", the first page has items identified as follows: Rows below the title blocks, numbered in Arabic numerals 1-4; Columns identified by Roman numerals I-IV; Items in Col. II and III identified by Capital Letters beginning anew in each block (e.g., item 1/II/A), item 1/III/A, item 1/IV/A, etc.

RESPONSE BY ZANE SPIEGEL 031109,
BASED ON HYDROLOGY RESEARCH PERTINENT TO LANL WASTE PATHWAYS
FROM 1949 TO PRESENT,
TO UNDATED LANL FALSE ASSUMPTIONS 3 AND 4, RE MESA RECHARGE

(1) SWPM has not adequately (if at all) distributed to the MDA-H F.G. my clarification of their characterization of my "decline" (to meet with Hopkins and Davis), which was not a refusal. It was a deferral until they had adequately responded in writing to my numerous written documentations of the reasons why some earlier LANL assumptions (summarized in their items 3 and 4 in their recent 2-page "Addressing Concerns_" sent to FG participants) were undeniably false.

To date, I have not received any communication from LANL staff regarding my request for their written evidence and reasoning on these issues, which take into account the written evidence and references which I have supplied to LANL staff during the past three years.

(2) On the basis of the aforementioned assumptions LANL #3 and #4, at this time I can only believe that they must be deliberately adopting these false assumptions to justify pre-determined remediation procedures, as there are vast quantities of data worldwide, and also in NM, which certainly prove that recharge occurs at very low thresholds--or there would not be any perennial springs discharging that recharge--and that wet periods provide most of that recharge, especially in semi-arid and arid zones.

Zane Spiegel

Zane Spiegel, Hydrologist
POB 8527, Santa Fe NM 87504
Tel/ Fax 505-984-2530

[L-MDA-HfxMtg] continued, p. 2.

Comments on Table on p. 1

ROW/COL/ITEM QUESTIONING (COL III); CONSISTENT ALTERNATIVES (COL IV (THE "WHOLE TRUTH")

1/II/A III/A (a) Long-term hydrological data in NM, tree-ring records (from Spiegel, 1963; GSA, 2002, copied by Spiegel, 2002, in records of SFWQTF), showing unequivocal response of well water levels to wet periods and years; (b) LANL data on p. 9 (Fig 2.1-2 (P vs. PET) "conveniently are "average" values , which (perhaps deliberately?) obscure the "WHOLE TRUTH" shown in the data in the references cited at the beginning of this block comment. IV. Occasional deep recharge to ground water, with local flow by a combination of fracture and matrix flow into, through, and out of uncased underground waste cylinders of MDA-H and similar storage sites. The recharge during such wet periods is obviously, from Theis's historical NM data, most of the long-term recharge, so it is not surprising that it was "convenient" for the authors to limit the scope of their study to local evidence, which, as is well-known, was in a drought period that had only a few, isolated, heavy rains or snowmelt. QUESTIONS for AUTHORS: Would the long-term strong visual evidence, and any statistics which could be prepared from those data, convince any non-blind thinking person that there is something "rotten in Los Alamos" about three years of LANL's consistent failure to reproduce older data in their reports? Does your failure to attempt to refute the evidence with facts (not bald, un-documented "assumptions" disguising deliberate lies) suggest that the LANL assumptions, and failure to respond (in writing or otherwise) to my challenge in the MDA-H Focus Group meeting in September 2003, represent the result of deliberate adoption (or response to an administrative mandate?) of a pre-conceived conclusion of "no problem" ?

1/II/E,F 1/III/E, F Most vertical and lateral fractures that do not cross tuff unit boundaries are probably due to cooling stresses within each tuff-unit depositional event, but some vertical fractures are of tectonic origin, and these, connected to cooling joints by lateral fractures, do cross the tuff unit boundaries. The cooling fractures are so numerous, and the vertical ones are connected by so many lateral fractures, that there should be sufficient opportunity for water in one unit to descend into underlying units. In any case, the impeding layers are not impermeble, but leaky. Such transmission and transient storage of water is apparent even within the sequence of the layers of Qbt shown in Figure 2.1-5 (p. 7). Water saturation in unit Qbt1g, at depths of about 150-250 feet, below the leaky impeding layer Qbt1vg, is maintained at values (6-11 percent) significantly higher than in higher strata (about 50-110 feet depth), even during the severe drought period including the year 2001. See comments below re Fig. 2.1-5 (p.7) for amplification of this example of selective data taken out of historical context by LANL "ghosts".

2/II/A 2/III/A "Very dry conditions" is an observation that, to any knowledgeable and/or ethical scientist, would be qualified by the historical context that the short period studied locally was not representative of what the site had experienced in previous decades or is likely to occur in future millenia (see comments below re probable future storm patterns resulting from global warming).

[L-MDA-HIxMtg] continued, p. 3

2/II/B,C 2/III/B, C Both model match and chloride data procedures involve many assumptions and subjective judgments of "a good match"--see my review in <www.environmentalsafeguards.com> of some of the ridiculous "good matches" made by Vesselinov and Keating (2002). In any case, the lack of data for very wet periods casts dark shadows on any conclusions that might be made during the mainly dry study period.

2/IV/B, C Asssume that the fracture pattern in the vicinity of MDA-H waste cylinders is sufficiently transmissive laterally to transport the infiltrate that is likely to have occurred in 1941-42 (when the annual precipitation in most of new Mexico was twice the recent average--more than in many dry years in southern "wet" Minnesota)

3/II/C 3/III/C Wet periods farther east, previously disregarded by LANL, are likely to have ponded conditions, based on long-term personal observations, plus historic data. 3/IV/C Assume ponding or arroyo flow exist in wet periods, subsurface soils under ponded or flow areas are saturated and permit combined matrix and fracture flow.

4/II/A 4/III/A Exposed and drilled Puye suggest Puye is much more uniform in hydaulic conductivity (nearly isotropic) and has much higher T and K. 4/IV/A Assume very rapid vertical transport through Puye.

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Comments on pages 2-4

All the conclusions on model considerations, assumptions, rock properties, and supporting evidence should be reviewed (and revised as necessary to take into account the foregoing evidence for greater matrix and fracture flow than has been calculated based on a narrow reach of time. This short period and continuing deliberate avoidance by LANL (FOR WHAT REASONS???) fail to represent the long term climate variations that have already been experienced at MDA-H site, and will be repeated--or even exceeded--in the future, as predicted by the community of scientists who have studied the causes and consequences of global warming).

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[L-MDA-H&xMtg], continued, p. 4.

Comments on Figures

Fig. 2.1-5 (p. 7)"Volumetric water content (%) at MDA-H"

See Comment above, re 1/II/E, F; III/E, F. Most of the data were collected on July 31, 2001, the rest on an unspecified date in or prior to 1996, and are not qualified by use of the historical context of the long drought (i.e., showing a graph of daily, or at least monthly, precipitation at one or more nearby stations during the entire period 1996-2001, and preferably extending back to periods that include one or more very wet months, such as 1978-9, 1941-2).

Fig. 2.1-2. (p. 9) "Actual precipitation vs. PET at station TA-54 (1992-2001)".

See Comment above, re 1/II/A; III(b). Add below caption "It is well known in science and politics, that using average values of data, rather than detailed tabulation or graphing, is a useful way of hiding or distorting the truth. We have adopted this "scam" because

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Well-documented hydrologic history should not be ignored to suit preconceived or directed assumptions and conclusions. It is the responsibility of ethical scientists and engineers to report any attempted coercion or mandate fom administrators.

The formerly blank page following p. 9 of the reviewed document (B), and/or additional pages could have shown the long-term monthly precipitation and deep groundwater levels since 1929 (from Spiegel, 1963) to simulate what is likely to occur in the future with the present scenario of future precipitation variation caused in large part by rising and warming oceans. All assumptions and conclusions made heretofore are modified to take into account the implications of history and the probable future under conditions of global warming. "

CONCLUSION

The procedures and assumptions in characterizing the hydrologic conditions and probable past, present, and future waste pathways at MDA-H site must represent the truth, so far as it can be determined from all pertinent data, both local and elsewhere, for whatever periods of time are pertinent to the LANL area, not only to guide selection of the best method of waste confinement or alternative management, but also to guide all current and future studies of other waste sites at Los Alamos, and to guide much-needed drastic revision of the LANL geohydrologic model of the Espanola Basin, as described in detail in our review of that model study (see <www.environmentalsafeguards.com>).