

ARGUMENT

I

THE 1987 AMENDMENTS TO THE NUCLEAR WASTE POLICY ACT ARE CONSTITUTIONAL AND PREEMPT NEVADA'S ATTEMPT TO NULLIFY THE DESIGNATION OF YUCCA MOUNTAIN AS A POTENTIAL SITE FOR A NUCLEAR WASTE REPOSITORY

A. Standard of review. -- The constitutionality of the 1987 Amendments is reviewed by this Court de novo.

B. Introduction. -- Nevada seeks a declaration by this Court that the State has successfully nullified an Act of Congress. The 1987 Amendments to the Nuclear Waste Policy Act represent the judgment of Federal government that the national problem of dealing with high-level nuclear waste is best approached at this juncture with an in-depth investigation of the suitability of Yucca Mountain as a repository site. We show first that this legislation is a valid exercise of three of Congress' powers: the authority to legislate with respect to the public lands, to regulate impacts on interstate commerce, and to maintain the national defense. Any one of these powers is sufficient by itself to sustain the legislation. Second, we show that Nevada does not enjoy any right under any of the constitutional provisions or doctrines upon which it relies to stand as an obstacle to the fulfillment of the purposes of the national legislature. Consequently, the State's legislative enactments are preempted by the Supremacy Clause, and the Department of Energy is entitled to proceed with the task Congress directed it to perform.

C. Congress' direction to the Department of Energy to characterize the Yucca Mountain site was a valid exercise of Congress' power, granted by Article IV, Section 3, Clause 2 of the constitution, over the public lands. -- Nevada confesses some confusion as to the possible constitutional basis for the 1987 Amendments (Br. 12-14), but there are three clear grounds for this exercise of the legislative power. The first is the federal government's power over the public lands. The 1987 Amendments direct the Department of Energy to characterize the "Yucca Mountain site," identified as "the candidate site in the State of Nevada recommended by the Secretary to the President under section 10132(b)(1)(B) of this title on May 27, 1986." 42 U.S.C. 10101(30), 10133(a). This site is entirely on public lands that belong to the United States and that have been in continuous possession of the Federal government even before Nevada became a state. Thus, when Congress chose, in enacting the 1987 Amendments, to carry out the major project of site characterization for a potential repository site, it chose to utilize federal property for this undertaking. This fact alone provides a sufficient constitutional basis for the legislative choice to designate Yucca Mountain as a potential site.

Article IV, Section 3, Clause 2 of the Constitution provides that:

The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so construed as to Prejudice any Claims of the United States, or of any particular State.

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The Supreme Court has characterized this clause as giving Congress, "in broad terms * * * the power to determine what are 'needful' rules 'respecting' the public lands." Kleppe v. New Mexico, 426 U.S. 548, 539 (1976). The Court also recognized that decisions concerning the use of the public lands are "entrusted primarily to the judgment of Congress," and that this power over the public lands "is without limitations." Id. at 536, 539, quoting United States v. San Francisco, 310 U.S. 16, 29 (1940). See Ventura City v. Gulf Oil Corp., 601 F.2d 1080 (9th Cir. 1979), aff'd, 445 U.S. 947 (1980). Thus, as the Court recently concluded, "the Property Clause gives Congress plenary power to legislate the use of the federal land * * *." California Coastal Commission v. Granite Rock Co., ????? U.S. ????? (1987).

This authority necessarily includes not only the power to dispose of and permit the use of federal lands by private parties, but also the authority to permit agencies of the federal government to utilize federal property, including the public lands, in the execution of their statutory missions. This follows from the recognition that "Congress exercises the powers both of a proprietor and of a legislature over the public domain." Kleppe v. New Mexico, 426 U.S. at 540. Congress' decision to characterize a site on the public lands as a potential repository site was an exercise of its paramount right "to control [the] occupancy and use" of the property it owns. See Utah Power & Light Co. v. United States, 243 U.S. 389, 405 (1917). No further examination of such matters of the

relationship between the legislation and interstate commerce, or the need for a national defense, is necessary to conclude that the 1987 Amendments designating Yucca Mountain as a potential site was within the enumerated powers of Congress.

D. The 1987 Amendments are a proper exercise of Congress' power to regulate interstate commerce, granted by Article I, Section 8, Clause 3. -- Alternatively, Congress' effort to address the national problem of disposal of nuclear waste is well within its plenary power over interstate commerce. This power "extends not only to 'the use of channels of interstate or foreign commerce' and to 'protection of the instrumentalities of interstate commerce * * * or persons or things in commerce,' but also to 'activities affecting commerce.'" Hodel v. Virginia Surface Mining & Reclamation Association, 452 U.S. 264, 276-277 (1981) quoting Perez v. United States, 402 U.S. 146, 150 (1971). Such legislation is presumed to be constitutional, Hodel v. Indiana, 452 U.S. 314, 323 (1981), and a reviewing court must defer to a congressional finding that a regulated activity affects interstate commerce so long as there is a rational basis for the finding. Hodel v. Virginia Surface Mining & Reclamation Association, 452 U.S. at 276; State of Nevada v. Skinner, 884 F.2d 445, 450 (9th Cir. 1989) (rejecting Nevada's challenge to the national speed limit).

The generation of high-level nuclear waste is the unavoidable by-product of the use of nuclear material in several important commercial enterprises, most prominently the generation

of electrical power. For this reason, the findings made by Congress in the Atomic Energy Act, when Congress first decided to allow the private development of nuclear power, are as pertinent to this Court's inquiry as are the later findings in the Nuclear Waste Policy Act. In enacting the Atomic Energy Act of 1954, Congress found, inter alia, that:

(c) The processing and utilization of source, byproduct, and special nuclear material affect interstate and foreign commerce and must be regulated in the national interest.

(d) The processing and utilization of source, byproduct, and special nuclear material must be regulated in the national interest and in order to provide for the common defense and security and to protect the health and safety of the public.

(e) Source and special nuclear material, production facilities, and utilization facilities are affected with the public interest, and regulation by the United States of the production and utilization of atomic energy and of the facilities used in connection therewith is necessary in the national interest to assure the common defense and security and to protect the health and safety of the public.

(f) The necessity for protection against possible interstate damage occurring from the operation of facilities for the production or utilization of source or special nuclear material places the operation of those facilities in interstate commerce for the purposes of this chapter.

42 U.S.C. 2012(c), (d), (e) & (f).

After nearly 30 years of private nuclear power development, Congress revisited one specific aspect of the commercial activity that it concluded needed special legislation, the disposal of the by-product of nuclear power generation, high-level nuclear waste. In the Nuclear Waste Policy Act of 1982,

Congress made further specific findings regarding radioactive waste, concluding, inter alia, that:

(1) radioactive waste creates potential risks and requires safe and environmentally acceptable methods of disposal;

(2) a national problem has been created by the accumulation of (A) spent nuclear fuel from nuclear reactors; and (B) radioactive waste from (i) reprocessing of spent nuclear fuel; (ii) activities related to medical research, diagnosis, and treatment; and (iii) other sources;

(3) Federal efforts during the past 30 years to devise a permanent solution to the problems of civilian radioactive waste disposal have not been adequate;

(4) while the Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and such spent nuclear fuel as may be disposed of in order to protect the public health and safety and the environment, the cost of such disposal should be the responsibility of the generators and owners of such waste and spent fuel;

* * *

(7) high-level radioactive waste and spent nuclear fuel have become major subjects of public concern, and appropriate precautions must be taken to ensure that such waste and spent fuel do not adversely affect the public health and safety and the environment for this or future generations.

42 U.S.C. 10131(1), (2), (3), (4) & (7).

Taken together, these legislative findings establish that Congress determined that the generation of electricity through nuclear power affected interstate commerce, if it was not a species of such commercial activity itself, and that the proper handling of by-products of this activity was a national problem that affected not only the commercial activity itself, the generation of electricity, but also other important aspects of

interstate commerce, the public health and safety and the environment. There should be little dispute about whether Congress had a rational basis for such findings. As the Supreme Court has recently observed, "it is difficult to conceive of a more basic element of interstate commerce than electric energy, a product used in virtually every home and every commercial or manufacturing facility," FERC v. Mississippi, 456 U.S. 742, 757 (1982), and the important and significant role of nuclear power in generating electricity in this country is beyond question. See generally Pacific Gas & Electric Co. v. State Energy Resources Conservation and Development Commission, 461 U.S. 190 (1983).

In enacting the Nuclear Waste Policy Act, Congress observed that the lack of a permanent waste disposal system had hindered the development of nuclear power. H.R. Rep. No. 97-491, Part I, 97th Cong., 2d Sess., 26-28 (1982). The House Report chronicles the history of efforts to solve the waste disposal problem and concludes that "[f]ailures in the Federal repository development program, the collapse of the domestic spent fuel reprocessing industry and quickly deteriorating public confidence in our ability to deal safely with nuclear waste, together with other critical safety and economic issues, were seriously undermining the strength of the domestic nuclear industry." Id. at 28. See S. Rep. 97-282, 97th Cong., 1st Sess., 3-6 (1981).

Secondly, Congress rationally concluded that the environmental effects of waste management were of an interstate

character. In addressing this problem in 1987, Congress noted that "spent fuel is currently being generated at 68 nuclear reactor sites in 31 States." S. Rep. No. 100-152, 100th Cong., 1st Sess., 7 (1987). While that Senate Report concluded that such storage was safe on a temporary basis, the long-term storage problem required a more responsible program and federal intervention. Id. at 7-8. Consequently, there is a clear rational basis for Congress' determination that disposal of nuclear waste is "a national problem" that involves "potential risks and requires safe and environmentally acceptable methods of disposal." 42 U.S.C. 10131(1) & (2). This legislation is well within Congress' authority under the commerce clause to regulate "environmental hazards that may have effects in more than one State." Hodel v. Virginia Surface Mining & Reclamation Association, 452 U.S. at 282.^{6/}

E. Because Congress provided for the potential storage in the repository of wastes generated by defense activities, the legislation is a proper exercise of Congress' Article I power to provide for the national defense. -- The problem of disposing

^{6/} As the Court recently observed, "the Commerce Clause, as interpreted in Philadelphia v. New Jersey, ensures that we often must look to the Federal Government for environmental solutions." Pennsylvania v. Union Gas Co., 109 S.Ct. 2273, 2284-85 (1989), citing Philadelphia v. New Jersey, 437 U.S. 617 (1978) (regulation of solid waste disposal is within Commerce Clause power). Consequently, Nevada's repeated suggestion that this legislation is purely for the private benefit of the nuclear power plant operators is not well taken. This statute obviously aims to solve matters of broad public concern. Likewise, the State's reliance on the "market participant" case (Br. 13-14) is misplaced. Those cases concern a state's liability for actions it takes, not the exercise of powers by the national government.

nuclear wastes began not as civilian commercial problem, but as a result of the military use of nuclear energy beginning in World War II. S. Rep. No. 97-282, 97th Cong., 1st Sess., 6 (1981). The accumulation of nuclear waste from national defense activities was also an important element of the problem addressed by the Nuclear Waste Policy Act. In considering the requirements of the generators of defense waste, Congress was careful not to prescribe a requirement that they utilize the repository. See H.R. Rep. No. 97-425, Part I, 97th Cong., 2d Sess. 44-45, 71-72 (1982); H.R. Rep. No. 97-425, Part II, 97th Cong., 2d Sess. (1982). But the final legislation provided that the repository used for civilian waste could also be utilized for defense wastes unless the President concluded there was a special need for a separate facility for defense waste. 42 U.S.C. 10107. The President in fact concluded there was no such need, and the repository, if built, will include such material. See ___ Fed. Reg. ___.

Thus, the legislation authorizes a repository in part for the maintenance of the national defense. Various provision of Article I place with national government the authority to provide for the national defense. Art. 1, Section 8, Cl. 1, 12, 13, 14, 15. This unquestioned authority under Article I includes the power to provide for the disposal of national defense wastes and stands as an independent basis for sustaining this enactment.

F. No other provision of the Constitution inhibits the exercise of Congress' power to designate Yucca Mountain as a

potential repository site or affords Nevada the right to block the effectuation of the purpose of the national legislature. -- Nevada's principal claim of the unconstitutionality of the 1987 Amendments is not that the legislation is not within any of Congress' enumerated powers but that other provisions of the Constitution, such as the Federal Enclave Clause, the Tenth Amendment, the Privileges and Immunities Clause, the Port Preference Clause, and the Equal Footing Doctrine apply in this case as a complete check on the exercise of congressional power. We show below that each of these claims is completely meritless. But first we must correct one of the State's premises permeating its constitutional claims, that the Nuclear Waste Policy Act and its implementing regulations, or the Constitution itself, requires the Department of Energy to establish a federal enclave at Yucca Mountain before it can characterize the site.

1. Neither the Nuclear Regulatory Commission regulations implementing the Nuclear Waste Policy Act nor Article 1, Section 8, Clause 17 of the Constitution require the establishment of a federal enclave before site characterization or development of a repository. -- Article 1, Section 8, Clause 17 of the Constitution provides that Congress may exercise exclusive jurisdiction over areas within a state so long as the state consents. Such areas are known as federal enclaves, and the general effect of such a cession is that the state's laws and regulations no longer apply in that area. See Kleppe v. New Mexico, 426 U.S. at 541-542; Paul v. United States, 371 U.S. 245,

264-265 (1963); Pacific Coast Dairy v. Department of Agriculture of Cal., 318 U.S. 285 (1943). Nevada's claim (Br. 21-22) that the Department of Energy must obtain the State's consent to the establishment of a federal enclave at Yucca Mountain rests principally on its interpretation of a regulation promulgated by the Nuclear Regulatory Commission, which was required under Section 121(b) of the Nuclear Waste Policy Act to establish licensing criteria for the construction and operation of a waste repository. See 42 U.S.C. 10141(b). The regulation requires that:

[t]he geologic repository operations area shall be located in or on lands that are either acquired lands under the jurisdiction and control of [the Department of Energy] or lands permanently withdrawn and reserved for its use.

10 C.F.R. 60.121.

There is nothing in this regulation, however, that suggests a need to displace the police power of the state in which the repository would be located, which, as we have seen, is the only effect of creating a federal enclave. What the regulation requires is that the Department of Energy have sufficient legal control over the site to assure adequate security for the repository. The language of the regulation recognizes that the Department of Energy might achieve that level of control by purchasing property that does not already belong to the United States ("acquired lands") or by utilizing public domain lands that are withdrawn and reserved for the Department pursuant to the provisions of the Federal Land Policy and

Management Act, 43 U.S.C. 1714. Neither scenario would normally include the additional step of establishing a federal enclave, and Nevada's belief that such a step is necessary rests on an apparent misunderstanding of Congress' power over federal property.

As the Supreme Court has explained in a unanimous decision not mentioned anywhere in Nevada's brief, the fact that the state's consent is required for the creation of a federal enclave "is completely beside the point." Kleppe v. New Mexico, 426 U.S. at 543. Under the Property Clause, Congress has complete power over the federal lands and can provide whatever control is necessary without the need to gain the consent of the state. Id. at 542-545. The federal government "doubtless has a power over its own property analogous to the police power of the several states, and the extent to which it may go in the exercise of such power is measured by the exigencies of the particular case." Camfield v. United States, 167 U.S. 518, 525 (1897). See Utah Power & Light, 243 U.S. at 405. To the extent such measures conflict with an exercise by the state of its sovereign authority, the Supremacy Clause sweeps away state regulation or interference. Ibid.

In this case, the Department of Energy has recognized that if a decision is made to construct a repository at Yucca Mountain, it will be necessary to secure legislation from Congress permanently withdrawing the site from the public domain and dedicating it for the exclusive use as a repository (SER).

Under Kleppe v. New Mexico, Congress undoubtedly has the power to do so and to permit the Department of Energy to exert whatever control is necessary to secure the site, all without having to obtain the consent of the State. What the Department is trying to do at the present time, however, is to conduct the studies necessary to make that decision, and the agency has reasonably concluded there is no need for such permanent land use authority for this phase of the project. As explained in the brief submitted in the companion case of Nevada v. Jamison, No. 89-15272 (pages), the Department of Energy has obtained a Right of Way Reservation for a period of 13 years from the Bureau of Land Management, which authorizes the agency to conduct scientific investigations within an area of some 51,000 acres surrounding the core Yucca Mountain site, and has applied for a temporary withdrawal of the site itself for the same term so as to preclude mining activity that is potentially prejudicial to the suitability of the site. ____ Fed. Reg. _____. The Nuclear Regulatory Commission regulation relied upon by Nevada requires nothing more in order to proceed.

Nevada also appears to contend that the Federal Enclave Clause itself, even without the Nuclear Regulatory Commission regulation, makes establishment of a federal enclave a precondition for site characterization or development of the site for a repository. This is an obvious misreading of the constitutional provision. The clause merely provides that Congress may, if it wishes to, exercise exclusive jurisdiction in

a particular area but only with the consent of the state. It nowhere states that in certain instances Congress must exercise such authority, and no such limitation may be fairly implied. That proposition was essentially rejected in Kleppe v. New Mexico, 426 U.S. at 541-545. For these reasons, the premise for many of the State's arguments, that a federal enclave is required, must be rejected.

2. The designation of Yucca Mountain as a potential repository site is not a violation of the Equal Footing Doctrine. -- The Equal Footing Doctrine provides no protection for Nevada's attempt to veto the designation of Yucca Mountain as a potential repository site. The doctrine protects essential aspects of a state's sovereignty and assures that each new state is treated no differently from other states in such matters. The principal application of the doctrine guarantees that newly admitted states take title to the bed of all navigable waters in the state, as did the original thirteen states that formed the union. See Pollard's Lessee v. Hagan, 44 U.S. (3 How.) 212, 228-229 (1845). This rule rests on the Supreme Court's judgment that the control of navigable waters that such title gives was intimately bound up with the sovereignty of the state. United States v. State of Oregon, 295 U.S. 1, 14 (). In the only other application of the Equal Footing Doctrine, the Court concluded that Congress could not restrict a newly admitted state's choice of where to locate its capital. Covle v. Smith, 221 U.S. 559 (1911).

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Neither situation is presented here. Instead, the State asserts that it has lost the ability to ward off perceived threats to its economy and environment that, it believes, the other states have retained with respect to nuclear waste disposal. But even if the State's claims of significant adverse economic and environmental impacts had any substance, which we do not concede, the State's efforts to protect these aspects of the general welfare, while within the legitimate exercise of the State's police power, are not the type of interests that are protected by the Equal Footing Doctrine.

The "equal footing" clause has long been held to refer to political rights and to sovereignty. Stearns v. State of Minnesota, 179 U.S. 223, 245. It does not, of course, include economic stature or standing. There has never been equality among the States in that sense. * * * Area, location, geology, and latitude have created great diversity in the economic aspects of the several States. The requirement of equal footing was designed not to wipe out those diversities but to create parity as respects political standing and sovereignty.

United States v. Texas, 339 U.S. 707, 716 (1949) (emphasis supplied). See Nevada ex rel. Nevada State Board of Agriculture v. United States, 512 F. Supp. 166, 171-172 (D. Nev. 1981) (rejecting Nevada's claim that enactment of the Federal Land Policy Management Act violates the Equal Footing Doctrine). This circumscription of the applicability of the Equal Footing Doctrine reflects the fact that in matters of national concern it is the role of the national government to evaluate the interests of the entire country, and if necessary, to subordinate those of a particular state to the greater good of whole nation. See

Hodel v. Virginia Surface Mining & Reclamation Association, 452 U.S. at 292 n.33 (possible detrimental impact on the economy of a state does not give rise to a violation of the Tenth Amendment's guarantee of state sovereignty); Oklahoma v. Atkinson Co., 313 U.S. 508, 534-535 (1941) (same). Therefore, this doctrine provides no basis to strike down Congress' designation of Yucca Mountain as a potential site or to sustain the State's attempt to nullify that choice through state legislation.

3. Neither the Port Preference Clause nor the Privileges and Immunities Clause allows the State to veto the effect of the 1987 Amendments. -- The Port Preference Clause, Article 1, Section 9, Clause 6 of the Constitution, provides that "No Preference shall be given by any Regulation of Commerce or Revenue to the Ports of one State over those of another." Although the 1987 Amendments do not purport to regulate any commerce to or from any port in Nevada, the State argues (Br. 45-47), on the assumption that the Las Vegas International Airport is within the protection of the Clause, that the effect of the 1987 Amendments impermissibly discriminates against Las Vegas as a tourist destination. The established interpretation of this limitation on the Commerce Power, however, does not reach such far-fetched circumstances. The Supreme Court has held that even if there is some adverse effect on a particular port, there is no violation of the Port Preference Clause if the impact is an incident of otherwise proper legislation or if the impact is more a consequence of geography than an intention to discriminate.

against a particular port. Alabama Great Southern Railroad Co. v. United States, 340 U.S. 216, 229 (1951); South Carolina v. Georgia, 93 U.S. 4, 13 (1876); Pennsylvania v. Wheeling and Belmont Bridge Co., 59 U.S. (18 How.) 421, 433-435 (1856); City of Houston v. FAA, 679 F.2d 1184, 1196-1197 (5th Cir. 1982).

In this case, there is no evidence that Congress intended to discriminate against Las Vegas International Airport when it chose to characterize a site on public lands in the State as a possible site for a repository. The alleged impact is merely an incident of Congress' attempt to solve a pressing national problem. Moreover, the choice of Yucca Mountain is simply an accident of geography and geology, and not related in any manner to the flow of commerce through Las Vegas International Airport; the particular geologic conditions in this area of Nevada meant that the State contained a prime candidate for this type of facility. Congress' decision to rely on that fact is not violative of the Port Preference Clause.

Equally unavailing is the State's reliance on the Privileges and Immunities Clause of Article IV, which provides that "The Citizens of each State shall be entitled to all Privileges and Immunities of Citizens in the several States." Contrary to the apparent belief of the State, this provision operates only to prevent "a state from discriminating against citizens of other states in favor of its own." Hague v. C.I.O., 307 U.S. 496 (1939). As such, it limits the power of the states and not those of the national government. Hawes v. Club Equestre

El Commandante, 535 F.2d 140, 145 (1st Cir. 1976); Maynard v. United States District Court for the Central District of California, 701 F. Supp. 738, 740 (C.D. Cal. 1988). Moreover, by the plain terms of the provision, the benefits accrue to the citizens of a state, not to the state itself in its relationship with the Federal government. As Nevada candidly acknowledges (Br. 33), it is only by a substantial rewriting of this provision that it could be of any service to the State in this case. Such an amendment, however, is not within this Court's prerogatives.

4. The 1987 Amendments do not violate the Tenth Amendment. -- Finally, the State argues that Congress' designation of Yucca Mountain cannot stand because it unconstitutionally infringes on the State's sovereignty in violation of the Tenth Amendment. This provision has a very limited role to play in assessing the constitutionality of Congress' exercise of its enumerated powers. Indeed, the Supreme Court held long ago that the Tenth Amendment imposed no limitation whatsoever on Congress' Article IV power over federal property. Ashwander v. Tennessee Valley Authority, 297 U.S. 288, 333 (1936) (upholding the development and sale of electricity by the Tennessee Valley Authority). We have shown that the 1987 Amendments are a valid exercise of Congress' authority over the public lands, and the Tenth Amendment presents no obstacle to this legislation. On this ground alone, then, the State's reliance on that provision must be rejected.

With respect to the Commerce Power, the Court has recently concluded that "the principal and basic limit on the federal commerce power is that inherent in all congressional action - the built-in restraints that our system provides [through] * * * the political process, [which] ensures that laws that unduly burden the States will not be promulgated." Garcia v. San Antonio Metropolitan Transit Authority, 426 U.S. 528, 556 (1985), overruling National League of Cities v. Usery, 426 U.S. 833 (1976). Consequently, the Tenth Amendment places no substantive limitation at all on the Commerce Power. See South Carolina v. Baker, 108 S.Ct. 1355, 1361 (1989); State of Nevada v. Skinner, 884 F.2d 445, 452 (9th Cir. 1989)✓

In Baker, the Court suggested that a statute may be invalidated under the Tenth Amendment if it were the product of an "extraordinary defect" in the national political process. Id. at 1360-1361. Nevada's attempts to bring its situation within this undefined limitation must be rejected. Given Garcia's reliance on the political process set in motion by the Constitution, a reviewing court need only be satisfied that the constitutional requirements for effective legislation are met. In this case, the 1987 Amendments were approved by the Senate and

✓ Therefore, all of Nevada's exaggerated claims of economic and environmental damage due to the consideration of Yucca Mountain as a repository site are irrelevant to the analysis of whether Congress transgressed the Tenth Amendment. In any event, the Supreme Court, even prior to the decisions in Garcia and Baker, had held that even if such effects should occur, there is not violation of the Tenth Amendment. Hodel v. Virginia Surface Mining & Reclamation Association, 452 U.S. at 292 n.33; Oklahoma v. Atkinson Co., 313 U.S. at 534-535.

the House of Representatives and signed by the President. See pages 11-12, supra. Nevada's representatives had their opportunity to vote against this legislation and to attempt to persuade their colleagues to do so. See 133 Cong. Rec. S18377, H11685 (daily ed., Dec. 18, 1987); S18543 (daily ed., Dec. 19, 1987); 133 Cong. Rec. S18591-18592, H11980-11981 (daily ed. Dec. 21, 1987). Thus the structural requirements for effective legislation were not violated in this case.^{8/}

Moreover, the Tenth Amendment does not protect a state from being outvoted in Congress. To the extent that Nevada's relative lack of political strength stems from its relatively small population, that is but a reflection of the constitutional compromise between the interests of the large states and the small states, which resulted in the guarantee of equal representation in the Senate and proportionate representation in the House. It is not this Court's prerogative to upset the operation of that compromise in the name of the Tenth Amendment.

The State places great reliance on the fact that Nevada had no representatives on the Conference Committee that amended the legislation to restrict site characterization to Yucca Mountain. The committee system by which Congress has organized itself, however, will always carry with it the possibility that

^{8/} Nevada suggests in passing (Br. 42) that the legislation is defective because of a lack of bicameralism, but the State does not explain how this could be so when the bill was presented to and approved by both Houses. Similarly, Nevada presents no explanation how the fact that the legislation is part of the appropriations process could violate the Constitution. See United States v. Will, 449 U.S. 200, 222 (1980).

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an affected state will be unrepresented during committee consideration of legislation; consequently, this fact alone could hardly form a basis for a valid Tenth Amendment objection to national legislation. Each state retains its right to vote, through its representatives, against the legislation and to attempt to persuade other states to do as well, as Nevada did in this instance. Exclusion from the committee consideration of the legislation is simply not an "extraordinary defect in the national political process." As the district court held in the companion case in rejecting this very claim, "[t]here is no indication, however, that Nevada lawmakers were inappropriately denied the opportunity to contribute input or otherwise participate." Nevada v. Burford, 708 F. Supp. 300 (D. Nev. 1989), appeal pending, No. 89-15272 (emphasis in original).

Any further inquiry or detailed examination of the legislative process to evaluate the degree of inclusion of a state's representatives in the process, if there were a fair way of doing so, is inconsistent with the Court's reliance on the structure of the political process created by the constitution to protect the interests of the states. Consequently, the State's reliance (Br. 40-44) on second hand reports of the motives and deliberations of various members of Congress, as well as transcripts allegedly recording the proceedings of the conference committee, are inappropriate. The formal record of the passage of the legislation, showing that it met the usual prerequisites for becoming law, is all that is necessary.

Finally, the fact that Congress has provided the State with another opportunity to influence this decision should, in the particular circumstances presented by this controversy, weigh heavily against any conclusion that the Tenth Amendment was violated. Section 116(b) of the Nuclear Waste Policy Act allows the State, after the completion of site characterization and a recommendation by the President to Congress to develop the site, to disapprove this recommendation, thus forcing consideration in the Congress of the need or wisdom of using the site for a repository. 42 U.S.C. 10136(b). Thus, the additional opportunity afforded by this statutory provision to bring this issue before the national legislature once more mitigates strongly against a conclusion that Congress has run roughshod over the that part of Nevada's sovereignty that is preserved by the Tenth Amendment.

G. The Supremacy Clause bars Nevada's attempts to nullify the Congressional designation of Yucca Mountain as a potential repository site. -- We have shown that the 1987 Amendments to the Nuclear Waste Policy Act are constitutional, and therefore the State has presented no constitutional basis for this Court to require the Secretary of Energy to terminate the site characterization process. The State has gone further, however, than simply challenging the Secretary's authority. By enacting the two joint resolutions and the statute barring storage of high-level nuclear waste in Nevada, the State has asserted that it has exercised a constitutional right to veto the

continuation of the project and to bar the storage of nuclear waste in the repository. Furthermore, on the basis of these enactments, the State has refused to process the Department of Energy's applications for necessary permits from the State to begin the major site characterization work.

A state statute or regulation is preempted by federal rule "to the extent it conflicts with a federal statute," Maryland v. Louisiana, 451 U.S. 725, 747 (1981), or where it "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress," Perez v. Campbell, 402 U.S. 637, 649 (1971) (quoting Hines v. Davidowitz, 312 U.S. 52, 67 (1941)). See also Michigan Cannery & Freezers Ass'n. Inc. v. Agricultural Marketing and Bargaining Bd., 467 U.S. 461, 469 (1984); California ex rel. State Water Resources Bd. v. FERC, 877 F.2d 743, 746 (9th Cir. 1989).^{2/} Moreover, a

^{2/} State law also may be preempted where Congress so states in express terms or where the federal government so occupies the field. See Silkwood v. Kerr-McGee Corp., 464 U.S. 238, 248 (1984); Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Commission, 461 U.S. 190, 203-04 (1983); Chevron U.S.A., Inc. v. Hammond, 726 F.2d 483, 486 (9th Cir. 1984), cert. denied, 471 U.S. 1140 (1985). We do not argue at this time that the NWA creates an express preemption. However, because the Act establishes a federal policy and program with respect to the disposal of spent nuclear fuel and other waste generated by civilian nuclear reactors, see General Electric Uranium Management Corp. v. DOE, 764 F.2d 896, 898 (D.C. Cir. 1985), it is clear that the federal government occupies the field of nuclear waste disposal. "When the Federal Government completely occupies a given field or an identifiable portion of it . . . the test of pre-emption is whether 'the matter on which the State asserts the right to act is in any way regulated by the Federal Act.'" Pacific Gas & Electric Co., 461 U.S. at 212-13 (quoting Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 236 (1947)).

state cannot enforce its own law to the extent it conflicts with the federal law or prevents compliance with the federal law.

Florida Line & Avocado Growers, Inc. v. Paul, 373 U.S. 132, 142 43 (1963).

As a result, the state legislative actions are preempted to the extent necessary to protect the achievement of the goals of the federal statute and to remove state-imposed obstacles to the Department of Energy's ability to fulfill its statutory mission. See Merrill Lynch, Pierce, Fenner & Smith, Inc. v. Ware, 414 U.S. 117, 127 (1973). Indeed, courts have repeatedly recognized that state laws cannot stand that either frustrate the purpose of national legislation or impair the efficiency of those agencies of the federal government to discharge their statutory duties. See Nash v. Florida Industrial Commission, 389 U.S. 235 (1967); New York State Commission on Cable Television v. FCC, 669 F.2d 58, 62 (2d Cir. 1982); Iowa Public Service Co. v. Iowa State Commerce Commission, 407 F.2d 916, 919 (8th Cir.), cert. denied, 396 U.S. 826 (1969). The State simply does not possess the power to interfere with operation of federal policies mandated by Congress.^{10/} Thus,

^{10/} As set forth above, the Act does authorize an affected state to submit a notice of disapproval of a proposed siting at the appropriate time and in accordance with the appropriate procedures. Thus, AJR 4 and 6, if submitted to Congress after a recommendation by the President in accordance with section 114)(a)(2)(A), could serve as a valid notice of disapproval under section 116(b). However, even if the state were to submit an effective notice of disapproval, Congress may override such disapproval in accordance with the procedures set forth in section 115(c). Thus, the Act establishes "(ultimate Federal
(continued...)

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AJR 4 and 6 and AB 222 are preempted by the Nuclear Waste Pol. Act to the extent they serve as the rationale and justification for the state's refusal to act on the Department of Energy's environmental permit applications. In such a direct conflict the state law must give way to the paramount authority of the federal government. Consequently, this Court should declare invalid.

II

THE STATE HAS NOT EFFECTIVELY EXERCISED ITS STATUTORY RIGHT DISAPPROVE THE USE OF YUCCA MOUNTAIN AS A REPOSITORY SITE, & THEREFORE CONGRESS HAD NO NEED TO RESPOND TO THE STATE'S VETO MAKE ITS DIRECTION TO CHARACTERIZE THE SITE EFFECTIVE

A. Standard of review. -- The validity of the State's statutory notice of disapproval depends on a statutory interpretation and therefore is reviewed de novo by this Court with due deference to the reasonable construction of the Department of Energy.

B. The State's notice of disapproval is premature. Aside from its asserted constitutional right to veto the project, the State argues it has submitted to Congress a valid and effective notice of disapproval under section 116(b)(2) of the Act, 42 U.S.C. 10136(b)(2)(1982), which Congress has failed to override pursuant to the procedures set forth in section 115(c) 42 U.S.C. 10135(c) (1982). Accordingly, the State contends that

10/ (...continued)

responsibility for high level nuclear waste disposal, including the ultimate right to override a state or tribal site veto by joint resolution of Congress and the president." See H.R. Rep. No. 491, 97th Cong., 2d Sess. (1982).

Congress has disapproved Yucca Mountain as a site for a high-level nuclear waste repository and that the permit applications are moot.

Section 116(b) sets forth a specific sequence of events which must occur before the State is authorized to submit an effective notice of disapproval. 42 U.S.C. 10136. Section 116(b)(2) provides that, "[u]pon the submission by the President to the Congress of a recommendation of a site for a [high-level nuclear waste] repository" pursuant to section 114, the Governor or legislature of the affected state, within 60 days, may submit to the Congress a notice of disapproval of the designation.^{11/} Thus, the statute specifically ties the timing of a state disapproval to the President's recommendation to Congress, which is governed by the procedures set forth in section 114 of the Act.

Section 114(a)(2)(A) provides that "[i]f, after recommendation by the Secretary, the President considers Yucca Mountain qualified for an application for a construction authorization for a repository, the President shall submit a recommendation of the site to Congress." 42 U.S.C. 10134(a)(2)(A) (emphasis added). However, the statute expressly states that the President "may not recommend the approval of the Yucca Mountain site unless the Secretary has recommended to the President under paragraph (1) approval of such site and has

^{11/} The text of sections 116(a) and (b) were not revised by the 1987 Amendments.

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submitted to the President a statement for such site as required under such paragraph." 42 U.S.C. 10134(a)(3)(A) (emphasis added).

Section 114(a)(1), in turn, requires the Secretary to hold hearings in the vicinity of Yucca Mountain to receive public comments. "If, upon completion of such hearings and completion of site characterization activities at the Yucca Mountain site, under [section 113], the Secretary decides to recommend approval of such site to the President," the Secretary is required to notify the Governor and legislature of Nevada. 42 U.S.C. 10134(a)(1) (emphasis added). No sooner than 30 days following such notice, the Secretary is to submit to the President a recommendation that he approve such site for actual development of a repository. Id. The Secretary's recommendation is required to be based on, among other things, the record of information developed as a result of the in-depth site characterization activities required by section 113. Section 114 imposes additional requirements, including the preparation of an environmental impact statement pursuant to the National Environmental Policy Act, 42 U.S.C. 2321. 42 U.S.C. 10134(a)(1)(A)-(H). Accordingly, the Act specifically conditions the Secretary's recommendation to the President on the results and analysis of a wide range of activities and information, including the site characterization activities, and prohibits the President from making a recommendation without that information.

Thus, while section 116(b) clearly authorizes a state to submit to Congress a notice of disapproval with respect to a proposed repository siting, it also specifically links the timing and sequence of such notice to the procedure mandated by section 114. A notice of disapproval is authorized within 60 days after the President -- based upon a recommendation by the Secretary -- recommends a site to Congress for development as a repository.

Under this analysis, based upon the plain language of sections 116(b) and 114(a),^{12/} Nevada's notice of disapproval is premature. The President not only has not submitted a recommendation to Congress that Yucca Mountain be designated as the site for development of a high-level nuclear waste repository, the Secretary has not submitted to the President a recommendation upon which he could take action under the Act. Indeed, the State of Nevada has prevented the Secretary from even initiating the site characterization activities which the Act mandates serve as the underlying basis for any recommendation to the President.

The State contends (Br. 54), however, that Congress' decision to limit site characterization to Yucca Mountain placed Nevada in such jeopardy as to impliedly repeal the timing

^{12/} Under well established rules of statutory construction, interpretation of a statute must begin with the words of the statute and its plain language is regarded as conclusive absent a clearly expressed legislative intent to the contrary. Columbia Pictures Industries, Inc. v. Professional Real Estate Investors, Inc., 866 F.2d 278, 280 n.4 (9th Cir. 1989); Central Montana Electric Power Cooperative, Inc. v. Bonneville Power Administration, 840 F.2d 1473, 1477 (9th Cir. 1988).

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restrictions on the notice of disapproval. The State's premise, that the 1987 Amendments chose Yucca Mountain as the site for the repository, is simply untrue. That decision is many years away, and will be made by the Secretary, the President, and perhaps the Congress, after evaluation of the results of site characterization. The State's veto is as premature as it would have been had the statute not been amended. The State's fear of being chosen is not a basis for inferring a repeal of statutory provisions completely untouched by Congress in enacting the 1987 Amendments.^{13/}

Based on the above statutory analysis and the fact that the President has not recommended Yucca Mountains as a repository site, the State's submission of AJR 4 and 6 as a notice of disapproval was premature and thus did not constitute an effective or valid disapproval under the Act.^{14/}

C. Congress has not allowed the State's notice of disapproval to become effective. -- Because Nevada's attempted

^{13/} The State also relies on the introductory phrase of Section 116(b), "[u]nless otherwise provided by State law," to argue that the State may completely control the timing of the notice of disapproval (Br. 51). This phrase, however, clearly refers only to a state assigning the responsibility to submit the notice to someone other than the Governor or the state legislature.

^{14/} In a convoluted argument resting on the fact that the Nevada legislature meets only biennially, the State contends (Br. 50-53) that the restrictions on the timing of the notice of disapproval must be disregarded to avoid an unconstitutional construction of the statute. This is a case, however, where the clarity of the statutory language permits no avoidance of Nevada's constitutional claims. Moreover, it is entirely speculative that the dilemma Nevada perceives, that the state legislature will not be in session when the President makes his recommendation, will actually occur. Consequently, the entire contention is unripe.

notice of disapproval of the Yucca Mountain site was premature and, accordingly, invalid under the procedures set forth in Section 116(b), Congress was not compelled to act within 90 days of the State's transmission to the House of AJR 4 and 6 under the procedures set forth in section 115(c), 42 U.S.C. 10135(c) (1982).

Section 115(c) requires congressional action to override a state disapproval only after certain procedures are followed and a certain sequence of events occurs:

If any notice of disapproval of a repository site designation has been submitted to the Congress under [section 116 or section 118] after a recommendation for approval of such site is made by the President under [section 114], such site shall be disapproved unless, during the first period of 90 calendar days of continuous session of the Congress after the date of the receipt by the Congress of such notice of disapproval, the Congress passes a resolution of repository siting approval, in accordance with this subsection approving such site, and such resolution thereafter becomes law.

42 U.S.C. 10135(c) (1982).

Since Nevada has refused to allow site characterization activities to continue at Yucca Mountain, there is no basis upon which the Secretary could make a recommendation to the President in accordance with the section 114 procedures and the President, in turn, to Congress. Thus, Nevada's construction of the Nuclear Waste Policy Act is completely meritless.^{15/}

^{15/} The State's argument (Br. 58) that Congress's legislative silence in the face of the State's notices has permitted the veto to become effective is frivolous. The statutory provisions governing the timing of the veto can only be amended, rescinded, or supersede by another law, not by inaction. See Pierce v. Underwood, 108 S. Ct. 2541, (1988).

III

THE SECRETARY HAS NO MANDATORY, ENFORCEABLE DUTY TO ESTABLISH A FORMAL PROCESS, APART FROM THE SITE CHARACTERIZATION PROGRAM, FOR EVALUATING WHETHER THE SITE IS UNSUITABLE

A. Standard of review. -- Whether the statute imposes a mandatory, enforceable duty to establish certain procedures is a matter of statutory interpretation reviewable de novo by this Court, but with deference to the agency's reasonable construction of the law. Agency action that is committed wholly to the agency's discretion by law is not reviewable by this Court. 5 U.S.C. 701(a)(2). See

B. Congress granted to the Department of Energy the complete discretion to decide how and when to evaluate whether Yucca Mountain is unsuitable as a repository site. -- In the 1987 Amendments, Congress directed the Department of Energy to carry out a complex and detailed program of site characterization of the Yucca Mountain site. 42 U.S.C. 10133(a). The statute also imposes certain specific requirements for this program: (1) the preparation of a "general plan for site characterization activities," of a description of the possible form or packaging for the waste, and of a conceptual repository design, (2) the submission of these documents to the State and the public for review and comment, and (3) the preparation of a report every 6 months on the progress of site characterization. 42 U.S.C. 10133(b). Congress further provided that "if the Secretary at any time determines the Yucca Mountain site to be unsuitable for development as a repository," he should terminate the program,

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notify Congress and the State, remove any waste (if waste was used in any part of the process), take reasonable steps to reclaim the site, suspend any benefit payments to the State, and submit recommendations to Congress on the need for further action. 42 U.S.C. 10133(c)(3) (emphasis supplied).

From these provisions, Nevada argues (Br. 59-74) that the Secretary has the duty, while conducting site characterization, to evaluate the available information to determine whether Yucca Mountain is unsuitable and to establish a formal process for making such an evaluation. The State's claim for relief from this Court, however, rests on a misunderstanding of the statute and a serious distortion of the Department's program. First, the statute imposes no express duty to make such an evaluation; it only speaks to what the Secretary must do if he reaches the conclusion the site is unsuitable. That Congress expected the Secretary to make such an evaluation can, at best, be only inferred from the express direction governing the conduct of the Secretary after he has concluded the site is unsuitable. Thus it is doubtful Congress has spoken in the mandatory terms required before this Court can enforce such an obligation on the Secretary. But whether the Secretary should examine the information and data as it is developed for evidence of unsuitability is really not at issue here. As the Secretary explained to the Governor of Nevada, "[s]cientific study is necessary to determine whether these concerns [about the suitability of the site] are valid and justified, or can be

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satisfactorily explained and resolved. I assure you that if scientific investigations indicate that the Yucca Mountain site is unsuitable for further investigation, then I will not hesitate to stop all work at the site and so inform Congress * * * * (ER 77). The controversy is how the agency should go about this task.

On this issue, the statute says nothing. How such an evaluation should be integrated with the complex task of site characterization is simply not addressed. In sharp contrast, Congress imposed certain other specific requirements for the conduct of site characterization, and specific obligations if the Secretary concluded the site was unsuitable. The statute's silence with respect to how the Secretary might structure an evaluation of suitability while site characterization was proceeding establishes clearly that Congress committed that matter to the informed discretion of the Secretary. Consequently, the State has no basis for asking this Court to order the Secretary to make such an evaluation in a particular way or at any particular time.^{16/}

^{16/} In support of its position, the State maintains that the Department of Energy's own Guidelines call for any early evaluation of unsuitability because the Guidelines call for the disqualification of a site even if it is only "likely" that such a condition exists (Br.63-66). This is a misreading of the Guidelines. Indeed, the quotation from the Guidelines in the State's brief (page 66) is a complete refutation of the State's contention. The agency said that "[a] site shall be disqualified any time during the siting process if the evidence supports a finding by the DOE that the disqualifying condition exists or the qualifying condition * * * cannot be met." 10 C.F.R. 960.3-1-5 (emphasis supplied). There is no language here stating that a
(continued...)

Second, in an elaborate chain of deductive reasoning based on bits and pieces of Department of Energy documents, the State maintains (Br. 68-72) that the Department will not, contrary to representations made by the Secretary to Congress and the Governor of Nevada, make any assessment whether the site is unsuitable prior to the completion of site characterization. This allegation fails for a number of reasons. First, as the Secretary reported to Congress, the agency has restructured the program to include a program of "surface-based testing aimed specifically at evaluating whether the site has any features that would indicate that it is not suitable as a potential repository site," a program that cannot proceed because the State refuses to process the necessary permits (ER 194).^{17/} While the State is correct in saying (Br. 71-72) that this program may overlap the planning and execution of the program for underground testing, it

^{16/} (...continued)

site will be disqualified even if is only "likely" that such a condition exists. Disqualifying conditions refer to specific occurrences at a specific site and they either exist or they do not. Conversely, the qualifying conditions generally describe the overall ability of a site to meet a certain specification, such as waste containment and isolation. See 10 C.F.R. 960.4-2-1(a), 960.4-2-2(a). It is with respect to qualifying conditions, and not disqualifying conditions, that the Guidelines call for scientifically conservative assumptions, contrary to Nevada's contention (Br. 63, 65).

^{17/} The State attempts to escape the clear meaning of this representation by arguing (Br. 68-71) the Secretary's use of the phrase "key suitability issues" is an unstated reference to a supposed ranking of issues made by the Department in two other documents: the Site Characterization Plan and the Issues Hierarchy. This legerdemain cannot obscure the plain fact that the agency is in fact developing a program to make suitability evaluations at appropriate points.

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was the Secretary's judgment "that conducting both surface-based and underground tests, combined with continuing evaluation of the data as they are obtained, will allow a cost-effective and timely assessment of the site" (ER 195). The State simply has no credible basis for accusing the Secretary of misrepresentation.

Indeed, other portions of the very documents upon which the State relies belie its accusation. The whole premise of the guidance memorandum of Lake Barrett cited by Nevada (Br. 71-72) is that a system for assigning priority to elements of the surface-based testing program is necessary to provide an early assessment of site suitability (Pet. App. 203-211). The memorandum recognizes that "[a] process or method that could be used to evaluate site suitability on a continuing basis during site characterization should be defined as part of this effort * * * (Pet. App. 207). Similarly, the State quotes the statement of the new Director of the Office of Civilian Radioactive Waste Management to the effect that such a decision methodology does not exist (Br. 72), but the State omits his declaration that he "would make development of such methodology a priority action" (Pet. App. 216). In short, the agency is responding to the desire of the State for early evaluation of site suitability. How and when to do so, however, is committed to the agency's discretion, and the State simply has no ground for having this Court intervene in the exercise of that discretion.

C. The Secretary did not abuse his discretion in refusing to find that the site is unsuitable on the basis of available information. -- The State also argues, by reference to a submission of the Governor to the Secretary (Br. 73), that the Secretary abused his discretion by declining to find today that Yucca Mountain is unsuitable for development as a repository. As we have shown, how and when to evaluate suitability in the context of the site characterization program Congress has ordered was committed entirely to the discretion of the Secretary. Accordingly, Nevada's attempt to gain judicial review of its claim that the site is unsuitable must be rejected as barred by the Administrative Procedure Act, which denies review of administrative decisions "committed to agency discretion by law." 5 U.S.C. 701(a)(2).

Even if the Secretary's failure to make a finding of unsuitability is subject to this Court's review, Nevada has failed to establish the requisite abuse of discretion necessary to gain any relief. Because the State is blocking further study, very little information about the site has been developed since the Department issued its Environmental Assessment on Yucca Mountain, which determined the site was preliminarily suitable, and Congress directed the agency to characterize the site. The Secretary advised the Governor that this work was precisely what was required to evaluate the Governor's concerns about the geotechnical suitability of the site (ER 77). Under the circumstances, and in the face of the Congressional redirection

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of the program, the Secretary's refusal to make any finding on the suitability of the site was well within the expansive discretion Congress entrusted to him on this matter.^{18/}

Finally, Nevada suggests that any evaluation by the Secretary of the suitability of the site should include consideration of the perception of risk from the operation of a repository that the public might hold and that the Secretary erroneously refused to include this factor in the Guidelines (Br. 60-61). The agency's rejection of this factor for its decisionmaking process was not arbitrary or capricious. 5 U.S.C. 706. The Secretary's Guidelines include a variety of socioeconomic factors to be considered in evaluating the suitability of the repository, including population changes, demands on community services, and impacts on the local economy. 10 C.F.R. 960.5-2-6. With respect to the anxiety and stress possibly created by the perception of risk, however, the agency recognized the public will sometimes react in this manner but concluded that:

past experience with other new technologies suggests that the anxieties of the public may be alleviated as the technology is seen to be effective and its benefits become more apparent. The overriding emphasis of the guidelines on public health and safety, as well as DOE's commitment to open communication and public involvement throughout the siting process, is intended to help alleviate public concerns about the risks of a repository. Perceived risk, however, is not an appropriate topic for general repository-siting

^{18/} Even if the Court were to find the Secretary's response inadequate in some way, the most the Court could do is require reconsideration of the matter by the agency. Florida Power & Light v. Lorion, 470 U.S. 729, 744-745 (1985).

guidelines; it is a subjective condition that cannot be fairly compared among sites.

49 Fed. Reg. 47747, col. 2 (Dec. 6, 1984).

This expert judgment of the agency is entitled to substantial deference on review, and a mere showing of disagreement on such a technical matter does not warrant setting aside the agency's resolution of the matter. Baltimore Gas and Electric v. NRDC, ????? .^{19/} Here, Nevada points to no evidence in the record of the Guidelines proceeding that even casts doubt on this judgment of the Department.^{20/} Consequently, there is no basis to set aside the refusal of the Secretary to find the site disqualified simply because the State and perhaps the public oppose the project. Cf. Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 774 (1983) (anxiety created by risk of nuclear power plant accident not required to be assessed in an environmental impact statement)

CONCLUSION

For the foregoing reasons, this Court should deny the petitions for review and should declare that the State of

^{19/} Contrary to Nevada's contention (Br. 60), the agency has not ignored the issue. The State quotes the current draft of the Yucca Mountain Project Socioeconomic Plan to the effect that the plan currently does not include study of this issue, but omits the remainder of the paragraph in which the agency indicates it will study and analyze the risk perception studies the State plans to conduct (Pet. App. 120).

^{20/} All of the materials submitted by the State that purport to discuss the impact of the attitude of the public to the presence of a repository at Yucca Mountain (Br. ????? ; Pet App. ?????) postdate the promulgation of the Guidelines and therefore can not be used to impeach agency's determinations. ?????

Nevada's attempt to veto the designation of Yucca Mountain as a potential site for a nuclear waste repository is both preempted and not effective under the terms of the Nuclear Waste Policy Act of 1982, as amended.

Respectfully submitted,

RICHARD B. STEWART
Assistant Attorney General

OF COUNSEL:

STEPHEN A. WAKEFIELD
General Counsel

MARC JOHNSTON
RUSSELL YOUNG
Attorneys,
Department of Energy
Washington, D.C. 20585

PETER R. STEENLAND, JR.
JOHN A. BRYSON
Attorneys, Department of Justice
Washington, D.C. 20530
(202) 514-2740

JUNE 1990
90-1-4-3059
90-1-4-3537

STATEMENT OF RELATED CASES

Pending in this Court are the following related cases:

1. State of Nevada v. Jamison, No. 89-15272, to be submitted with these consolidated cases.
2. State of Nevada v. Watkins, No. 85-7308, a challenge to the Department of Energy's Guidelines for the Recommendation of Sites for the Nuclear Waste Repositories; briefing is currently scheduled to be complete by November 16, 1990.
3. State of Nevada v. Watkins, No. 86-7309, a challenge to the Department of Energy's Environmental Assessment for the Yucca Mountain Site; briefing is currently scheduled to be complete by November 16, 1990.

Technical Approach

Captures reduction of uncertainty in a straightforward way

Considers unanticipated hydrologic processes/conditions

Treatment of total system performance "anchored" to published studies

Degradation approach provides comparative analysis without commitment to specific sealing measures

Present tradeoff between reduction of uncertainty, and cardinal ranking on waste isolation effects

Present direct cost information incidental to tradeoff study

(Option to provide DOE mgmt. with a "common numererre" to combine direct cost with reduction of uncertainty)

6/1/90
Calico Hills Study/TPO briefing

Schedule

- 6/5 Coordination meeting**
- 6/7-8 Technical panel meeting to
 complete performance estimates**
- 6/12 Meeting with sealing specialists to
 finalize degradation model**
- 6/14-15 Meeting to complete valuations with
 DOE managers**
- 6/18 Cost/schedule information revised**
- 6/18-20 Technical panel meeting to complete
 test accuracy assessments and
 degradation assessments**
- 6/21-27 Analysis**
- 6/28? Briefing w/ technical panel & DOE mgmt.**

**Technical panel signoffs
QA documentation package**

5/9 Integration Position

Test accuracy analysis shows that information from both vitric and zeolitic facies is important.

CHn vitric can be studied either inside or outside the block.

Transition can be studied inside or outside the block.

CHn zeolitic can best be studied inside the block.

Hence, the most important "ESF flexibility" issue wrt the Calico Hills study, is to maintain the capability to access the zeolitic facies inside the block.

If the ESF does not provide N or NE access, needed information can still be obtained from the CHn.

6/1/90
Calico Hills Study/TPO briefing

Causes of delay in study:

Consensus of technical panel on technical approach

Development of decision methodology (analysts, technical panel, DOE managers)

Better degradation model

Access to personnel committed to similar studies

Late start

STATUS

- 5/18 Meeting to finalize methodology
(w/ Call, Merkhofer, Dobson)
- 5/23-24 Methodology presentation to DOE
technical management
- 5/23-24 Technical panel meeting
- Revised strategy list based on
input from 5/9 briefing
Presented revised list to LANL TMO
- 5/25 Met with sealing specialists
- 6/1 Presented strategy revisions
to ESF ACS Task group 4

State of Completion:

Strategies	98%
Decision methodology	95%
Test accuracy	90%
Performance estimates	70%
Mgmt. assessments	50%
Degradation estimates	40%
Final documentation	30%

II

**SURFACE BASED PRIORITIZATION
TASK FORCE STATUS REPORT**

JUNE 1, 1990

The SBT core team is reviewing priorities for surface-based testing & recommending methods to evaluate site *unsuitability*

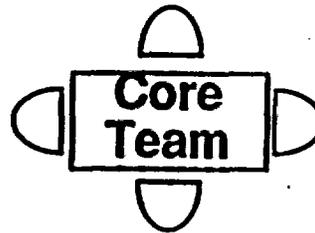
The task force will recommend to management:

- **Tests that should be conducted early**
(because they could have significant influence on judgments about site adequacy)
- **Methods to reassess the potential for site unsuitability and to reprioritize testing at any point during site characterization**

The core team is responsible for methods, models, data, analysis, and recommendations

**Steve Mattson, SAIC
team lead**

**Scott Sinnock, SNL
performance assessment**



**Bill Wilson, USGS
site characterization**

**Bruce Judd, Decision Analysis Co.,
consultant**

**We are consulting experts and using their input as
a basis for making/improving core team judgments**

*Scott Van Camp
Reese Dyer*

We are following a five-step approach to reviewing surface-based testing priorities

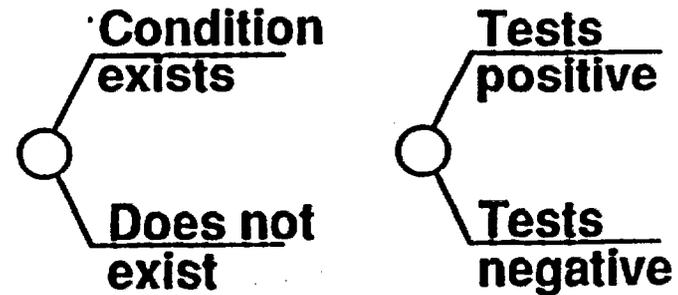
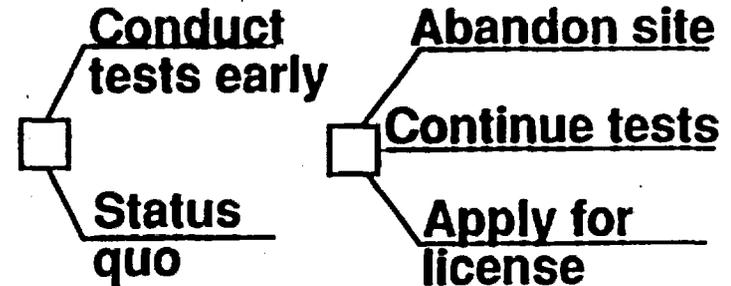
Five-step Approach

- 1) Methodology development**
(20% of total effort)
- 2) Model development** *(25%)*
- 3) Numerical assessment** *(25%)*
- 4) Analysis and review** *(15%)*
- 5) Reporting and documentation** *(15%)*

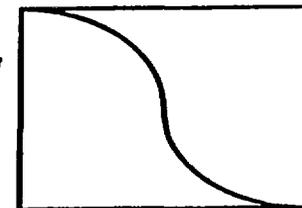
We have developed a systematic, analytic method to assess the priority of surface-based tests

Features of the Method:

- Gives priority to tests that can *improve* DOE decisions (□) about the site
- Gives priority to tests that can *reduce* uncertainty (○) in key parameters
- Evaluates test results based on potential effects on repository performance



Complementary cumulative probability



Performance objective

The analytic method incorporates essential judgments about the site and the testing program

- **Level of uncertainty in key parameters at Yucca Mountain**
- **Sensitivity of overall system performance to parameter uncertainties**
- **Accuracy of planned tests in resolving uncertainties**
- **Ability to accelerate testing to provide valuable information early in site characterization**

**This approach yield insights into management questions:
*“What do I need to know and when should I know it
to make prudent decisions about the site?”***

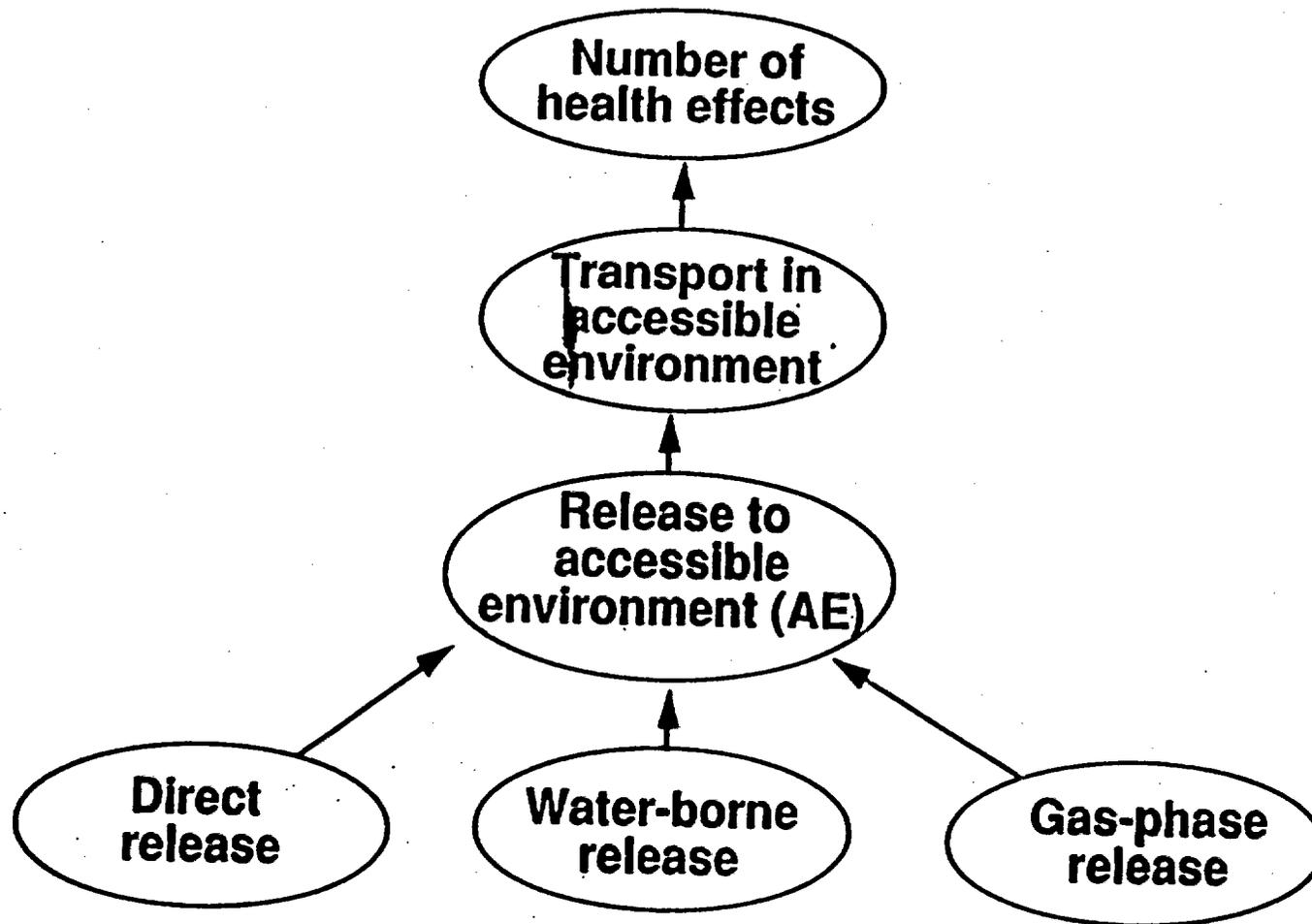
The test prioritization methodology is essentially complete

<u>Subtask</u>	<u>% complete</u>
Test prioritization method	80
Site suitability assessment method	50
Methodology write-up	10

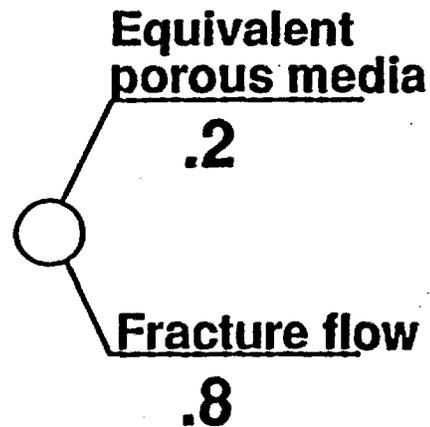
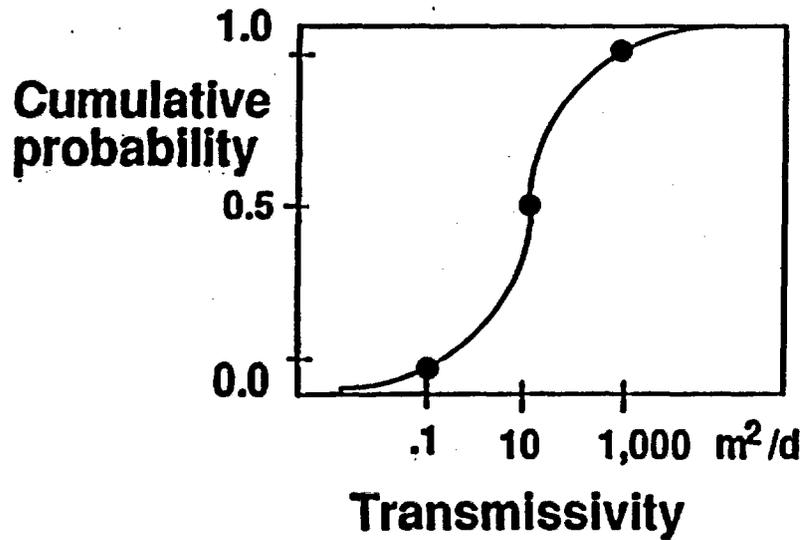
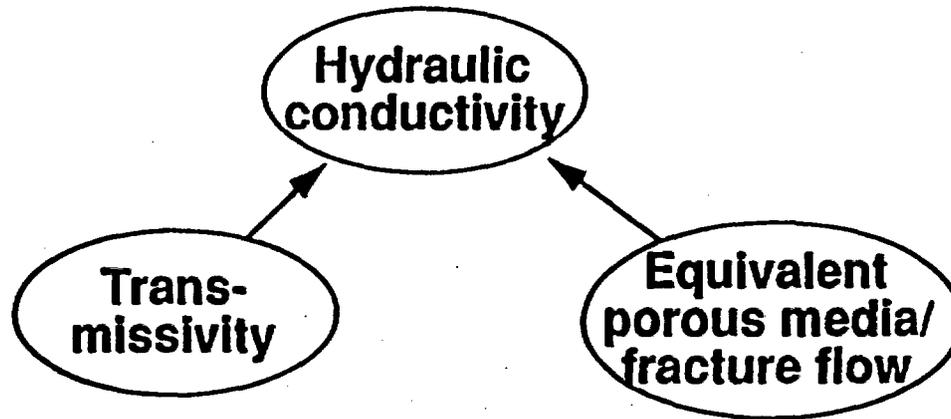
Three types of models are needed in this task

<u>Model type</u>	<u>Purpose</u>	<u>% complete</u>
Influence diagrams	Identifies key uncertainties	70
Simulation model	Determines the sensitivity of system performance to key uncertainties	25
Decision model	Evaluates testing priorities	10

Influence diagrams have been constructed for use in the Calico Hills, Exploratory Shaft Facility, and Surface-based Testing task forces



Most numerical assessments for the analysis are probability distributions on key uncertainties



This task comprises three types of assessments

<u>Assessment type</u>	<u>% complete</u>
“Base model” inputs (e.g., direct, water, & gas releases)	40
Disruptive cases and potentially adverse conditions	10
Surface-based testing categories and test accuracy	20

The analysis produces insights and suggests early-test priorities

Analysis tasks

Base case priorities

Sensitivity of results to alternative judgments

Refinement and evaluation of critical data

We will produce reports, recommendations, and products consistent with our implementation plan

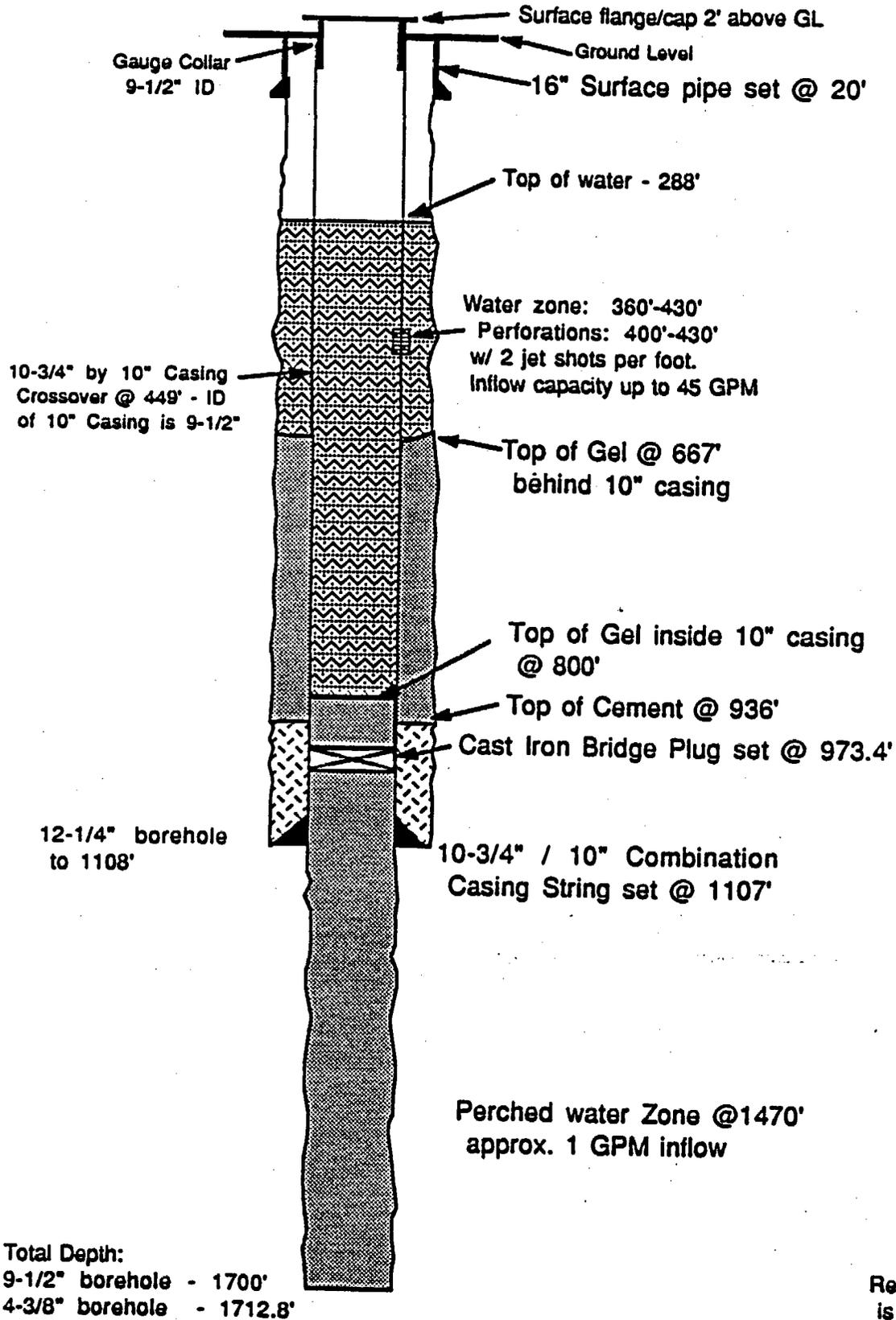
<u>Report</u>	<u>Date(s)</u>
Intermediate status briefings	May 10, Aug 3, Oct 19
Letter reports	May 14, Jun 9
Final recommendations and report	Sep 28
Approval by RW-1	Nov 9

TPO PRESENTATION
APACHE LEAP PROTOTYPE DRILLING

PRESENTED BY
UEL S. CLANTON

JUNE 29, 1990

USW UZP-4 BOREHOLE Completion



APACHE LEAP, ARIZONA PROTOTYPE DRILLING

MARCH 15 THROUGH JUNE 23, 1990

● USW UZP-4

- COMBINATION 12 1/4" AND 9 1/2" DIAMETER BOREHOLE, TD OF 1712.8'
- 12 1/4" DIAMETER TO 1108'
CORED 21' TO 603' AND 1083' TO 1108' (PQ)
HAMMERED TO 603' TO 1083'
- 9 1/2" DIAMETER FROM 1108' TO 1700'
CORED 1108' TO 1418' AND 1663' TO 1713' (HQ)
HAMMERED 1108' TO 1123' AND 1418' TO 1663'
- HORIZONTAL DISPLACEMENT AT 1700' IS 16.23' TO THE SOUTHEAST
- TWO PERCHED WATER ZONES
360' TO 450' - 28 TO 45 gpm
1470' TP 1475' - APPROXIMATELY 1 gpm
- COMPLETED AS A WATER WELL FOR THE FOREST SERVICE
- OWNERSHIP OF BOREHOLE TRANSFERRED TO THE FOREST SERVICE

APACHE LEAP, ARIZONA PROTOTYPE DRILLING

(CONTINUED)

● USW UZP-5

- 8' DIAMETER BOREHOLE, TD OF 223'
- CORED 22.4 TO 223'
- COMPLETED FOR AL YANG (USGS) FOR PACKER TESTING
- AFTER 1-3 MONTHS OF TESTING, BOREHOLE WILL BE PLUGGED AND ABANDONED

EQUIPMENT PROCUREMENT REQUIRED PRIOR TO THE START OF SITE CHARACTERIZATION

- **DUAL WALL PIPE AND CORE ROD**
- **SPARE PARTS FOR THE LM-300**
- **DRILL/CORE BITS**
- **PIPE HANDLING SYSTEM**
- **CUTTINGS/SAMPLING EQUIPMENT**
- **SCRUBBER SYSTEM**

AREAS FOR FURTHER DEVELOPMENT PRIOR TO THE START OF SITE CHARACTERIZATION

- **DEVELOPMENT OF AN INTEGRATED CUTTINGS/SAMPLE HANDLING SYSTEM MOUNTED ON A SINGLE SKID**
- **INTEGRATE THE VACUUM DUST SEPARATOR INTO THE CUTTINGS/SAMPLE HANDLING SYSTEM**
- **TEST VARIOUS VENTURI BIT DESIGNS TO DETERMINE WHICH CONCEPT PRODUCES THE MINIMUM BACK PRESSURE INTO THE FORMATION**

AREAS FOR FURTHER DEVELOPMENT PRIOR TO THE START OF SITE CHARACTERIZATION

(CONTINUED)

- DESIGN AND FABRICATION OF A PIPE HANDLING SYSTEM FOR THE LM-300
- PURCHASE OF A SCRUBBER SYSTEM TO LIMIT INJECTION OF WATER DOWN HOLE
water produced through the air compressor
- SHAKE DOWN TEST OF THE LM-300 DRILLING (SALT LAKE CITY, UTAH) *2A"*
- PROTOTYPE A 2000' BOREHOLE AT APACHE LEAP WITH THE LM-300 (12 1/2 INCH DIAMETER REAMING BIT SET UP FOR HQ CORE)

TPO PRESENTATION

STATUS OF

ESF ALTERNATIVES STUDY

PRESENTED BY

TED PETRIE

JUNE 29, 1990

STATUS OF ESF ALTERNATIVES STUDY

- **17 OPTIONS HAVE BEEN IDENTIFIED FOR EVALUATION**
 - **THE GENERAL ARRANGEMENT DRAWINGS FOR EACH OPTION ARE COMPLETE**
 - **SUPPORTING DATA SHEETS FOR EACH OPTION HAVE BEEN DEVELOPED**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

- **ALL INFLUENCE DIAGRAMS, SHOWING FACTORS THAT INFLUENCE THE OBJECTIVES TO BE MET BY THE ESF/REPOSITORY SYSTEM, HAVE BEEN DEVELOPED BY EXPERT PANELS FOR USE IN EVALUATION OF OPTIONS**
- **SUPPORTING REFERENCE INFORMATION FOR USE WITH EACH INFLUENCE DIAGRAM IS BEING ASSEMBLED**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

- **ALL REQUIREMENTS HAVE BEEN DEVELOPED FOR USE IN EVALUATION OF OPTIONS**
 - **10CFR60 REQUIREMENTS HAVE BEEN CROSSWALKED WITH MOST INFLUENCE DIAGRAMS**
 - **CROSSWALK WITH REMAINING INFLUENCE DIAGRAMS IS CONTINUING**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

- **FINAL SCORING OF OPTIONS HAS COMMENCED**

- **SCORING IS COMPLETED ON:**
 - **ENVIRONMENTAL FACTORS**
 - **PRE-CLOSURE RADIOLOGICAL HEALTH AND SAFETY**
 - **PRE-CLOSURE NON-RADIOLOGICAL HEALTH AND SAFETY**

- **SCORING OF KEY FACTORS
(e.g. WASTE ISOLATION) IS DELAYED PENDING
INPUT FROM THE CALICO HILLS STUDY**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

CURRENT ACTIVITIES ARE:

- **PREPARATION OF DRAFT CHAPTERS OF THE REPORT**
- **COMPILATION OF REFERENCE INFORMATION TO SUPPORT INFLUENCE DIAGRAMS**
- **DEVELOPMENT OF RELATIONSHIP BETWEEN STUDY OBJECTIVES AND REGULATORY REQUIREMENTS**
- **REVISIONS TO RDR AND ESF RD**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

- **INPUT FROM CALICO HILLS STUDY WAS
ORIGINALLY EXPECTED MAY 15, 1990**
- **REVISED CALICO HILLS SCHEDULE SHOWS
RECOMMENDATION TO BE AVAILABLE BY
JUNE 29, 1990 (PER MOU SNL/T&MSS)**
- **THE ESF ALTERNATIVES STUDY WILL
INCORPORATE THE INFORMATION FROM THE
CALICO HILLS STUDY INTO THEIR DATA SHEETS
AND RESUME SCORING DURING THE WEEK OF
JULY 16, 1990**

STATUS OF ESF ALTERNATIVES STUDY

(CONTINUED)

- **ESF ALTERNATIVES SCHEDULE CAN ACCOMMODATE ABOVE DELAYS WITH SOME CHANGES TO STUDY MILESTONES - CURRENT ESTIMATES ARE AS FOLLOWS:**

<u>MILESTONE</u>	<u>ACTIVITY DESCRIPTION</u>	<u>PLANNED</u>	<u>EXPECTED</u>
	COMMENCE SCORING KEY FACTORS		16 JUL 90
YKO402	SCORE OPTIONS 50% COMPLETE	11 JUN 90	03 AUG 90
YKO501	SNL COMPLETES SENSITIVITY ANALYSIS	26 JUL 90	12 SEP 90
YKO 502	SNL COMPLETES DRAFT REPORT ON ESF ALTERNATIVES	14 SEP 90	07 NOV 90
YKO503	SNL SUBMITS RECOMMENDATION TO YMPO	12 OCT 90	14 NOV 90
YKO5M	RECOMMEND TO RW-1 ON SELECTION OF ESF CONFIGUARATION	16 NOV 90	14 DEC 90
YKO6M	COMPLETE PRELIMINARY ALTERNATIVES REPORT	14 DEC 90	31 JAN 91
R6101	RESUME ESF TITLE II	29 MAR 91	29 MAR 91

TPO PRESENTATION

PRESENTED BY

CARL GERTZ
PROJECT MANAGER

JUNE 29, 1990

AGENDA

- **OCRWM INITIATIVES**
- **ORGANIZATIONAL STATUS**
- **FY91 BUDGET**
- **STATUS OF LAWSUIT**
- **OVERSIGHT INTERACTIONS**
- **RECENT OUTREACH ACTIVITIES**
- **UPCOMING INTERACTIONS**

OCRWM INITIATIVES

- **DEVELOP MANAGEMENT SYSTEMS IMPROVEMENT PLAN**
 - **REQUIREMENTS DOCUMENTS DEVELOPMENT**
- **NEGOTIATE WITH TRW**

ORGANIZATIONAL STATUS

- **BOOZ, ALLEN REVIEW**
- **NEW ORGANIZATION
ANNOUNCED MID-JULY**

DOE NEWS

News Media Contact

Darwin J. Morgan, 702-794-7582
Ginger King, 202-586-2835
Mary Kayne Heinze, 202-586-5806

For Immediate Release

June 15, 1990

**DOE SELECTS TRW FOR NEGOTIATIONS LEADING TO AWARD
OF OCRWM MANAGEMENT AND OPERATING CONTRACT**

The U.S. Department of Energy (DOE) announced that it will begin negotiations with TRW Environmental Safety Systems, Inc. (TRW), leading to a possible contract for systems engineering, development, and management of the Nuclear Waste Management System for the Office of Civilian Radioactive Waste Management (OCRWM).

DOE plans to commence negotiations with TRW to determine if a mutually satisfactory contractual agreement can be achieved. In the event that a management and operating (M&O) contract with TRW is executed, an important milestone will be reached in DOE's efforts to implement the Nuclear Waste Policy Act, including the present scientific investigation of Yucca Mountain and development of a Monitored Retrievable Storage Facility.

The selection of TRW is consistent with the August 1989 order of the U.S. Claims Court which enjoined DOE from awarding this M&O contract, under the solicitation issued by DOE in February 1988, to anyone other than TRW. Bechtel Systems Management, Inc. (BSMI) was originally selected in December 1988 to perform work related to the nuclear waste management system. However, before the contract could be awarded to BSMI, TRW (one of the other bidders) challenged the procurement action in a lawsuit which resulted in the injunction.

DOE believes that the BSMI proposal was an excellent one and that the company was enjoined from receiving the M&O contract through no fault of its own. DOE had previously filed a Notice of Appeal from the Claims court decision with the U.S. Court of Appeals. However, the delays and uncertainties inherent in pursuing an appeal have led DOE to conclude that it should seek to advance the OCRWM program, if possible, by undertaking negotiations consistent with the directive of the Claims Court. If these negotiations are successful, the judicial procedure will be dismissed. Although BSMI was its first choice, the DOE Source Evaluation Board also found that TRW was a qualified contractor capable of successfully performing the work.

Over the last few months, Secretary of Energy James D. Watkins and Dr. John W. Bartlett, Director of OCRWM have been reviewing the entire program and activities required by the Nuclear Waste Policy Act of 1982, as amended. The Department is implementing a comprehensive and integrated plan for moving the civilian radioactive waste program forward. Secretary Watkins has made it clear that a current primary focus will be to carry out as required by law an effective and scientifically sound investigation to determine whether or not Yucca Mountain, Nevada is suitable for development as a repository.

FY 1991 BUDGET UPDATE

IN MID-JUNE, THE HOUSE COMMITTEE ON APPROPRIATIONS RECOMMENDED BUDGET OF \$292.8M FOR OCRWM

- **UNDER CONSIDERATION BY THE SENATE**
- **BILL LANGUAGE INCLUDED**
 - **\$5M TO STATE**
 - **\$5M TO LOCAL GOVERNMENTS**
 - **NO FUNDS USED FOR LOBBYING**

ONE HUNDRED FIRST CONGRESS

MORRIS K. UDALL, ARIZONA, CHAIRMAN

GEORGE MILLER, CALIFORNIA
PHILIP R. SHARP, INDIANA
EDWARD J. MARKEY, MASSACHUSETTS
AUSTIN J. MURPHY, PENNSYLVANIA
MICK JOE RUMALL, W. WEST VIRGINIA
BRUCE P. VENTO, MINNESOTA
PAT WILLIAMS, MONTANA
BEVERLY S. BYRON, MARYLAND
RON DE LUIGO, VIRGIN ISLANDS
SAM GEJDEKSON, CONNECTICUT
PETER H. KOSTMAYER, PENNSYLVANIA
RICHARD H. LEHMAN, CALIFORNIA
BILL RICHARDSON, NEW MEXICO
GEORGE (BUDDY) DARDEN, GEORGIA
PETER J. VISCLOSKEY, INDIANA
JAMIE E. FUSTER, PUERTO RICO
MEL LEVINE, CALIFORNIA
JAMES MCCLURE CLARKE, NORTH CAROLINA
WAYNE OWENS, UTAH
JOHN LEWIS, GEORGIA
BEN NIGHTHORSE CAMPBELL, COLORADO
PETER A. SIFAZO, OREGON
BEN P. H. FALEOMAVAEGA, AMERICAN SAMOA
JAMES A. MCDERMOTT, WASHINGTON
TIM JOHNSON, SOUTH DAKOTA

DON YOUNG, ALASKA
ROBERT J. LAGOMARSINO, CALIFORNIA
RON MARLENEE, MONTANA
LARRY CRAIG, IDAHO
DENNY SMITH, OREGON
JAMES V. HANSEN, UTAH
BARBARA F. VUCANOVICH, NEVADA
BEN ELAZ, GUAM
JOHN J. RHODES, ARIZONA
ELTON GALLEGLY, CALIFORNIA
STAN PARRIS, VIRGINIA
ROBERT P. SMITH, OREGON
JIM LIGHTFOOT, IOWA
CRAIG THOMAS, WYOMING
JOHN J. BUNCAN, JR., TENNESSEE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

STANLEY SCOVILLE
STAFF DIRECTOR
AND COUNSEL

ROY JONES
ASSOCIATE STAFF DIRECTOR
AND COUNSEL

LEE MCELVAJN
GENERAL COUNSEL

RICHARD AGNEW
CHIEF MINORITY COUNSEL

June 4, 1990

Dr. John W. Bartlett
Director
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
Washington, D.C. 20585

Dear John:

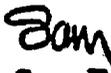
I had the good fortune to go on the congressional staff tour of your operations at Apache Leap and Yucca Mountain last week. It was extremely informative. After hearing so much about what you are not doing it was refreshing to see what you are.

What impressed me most was the high degree of professionalism of your staff and contractor employees at both Apache Leap and Yucca Mountain. Their enthusiasm and dedication to their tasks and their open-minded sense of inquiry were encouraging. Whatever other problems may beset the waste program, employee morale does not seem to be one of them.

I am most grateful to you and your staff for making this trip possible. Many people set aside their other duties and gave freely of their time to assist us. I especially want to single out Dick Nelson, who organized the trip on this end, and Carl Gertz and A.C. Robison, who accompanied us at both sites and made the tour as informative as it was. In addition, one of your contractor-employees, Beatrice Reilly of SAIC, deserves special credit. She seemed to be primarily responsible for all of the logistical details and the smooth running of the tours. She did an outstanding job.

Through the efforts of these fine people, I now have a much better picture of the high-level waste program.

Sincerely,


Sam E. Fowler
Counsel

NEVADA vs. U.S. DOE, U.S. COURT OF APPEALS FOR THE NINTH CIRCUIT

- **NEVADA OPENING BRIEF 5-17-90**
- **DOE ANSWER 6-14-90**
- **NEVADA REPLY DUE 6-28-90**
- **ORAL ARGUMENT ON MERITS
SET FOR WEEK OF 8-14-90**

OVERSIGHT INTERACTIONS

- **IG REVIEW**
- **GAO REVIEW**

RECENT OUTREACH ACTIVITIES

- **1990 AMERICAN NUCLEAR SOCIETY ANNUAL MEETING**
- **INTERNATIONAL SYMPOSIUM ON UNIQUE UNDERGROUND STRUCTURES**
- **BOYS STATE - THE AMERICAN LEGION**
- **AUSTRALIAN GOVERNMENT OFFICIALS**
- **BUNKERVILLE TOWN MEETING**
- **MESQUITE TOWN MEETING**

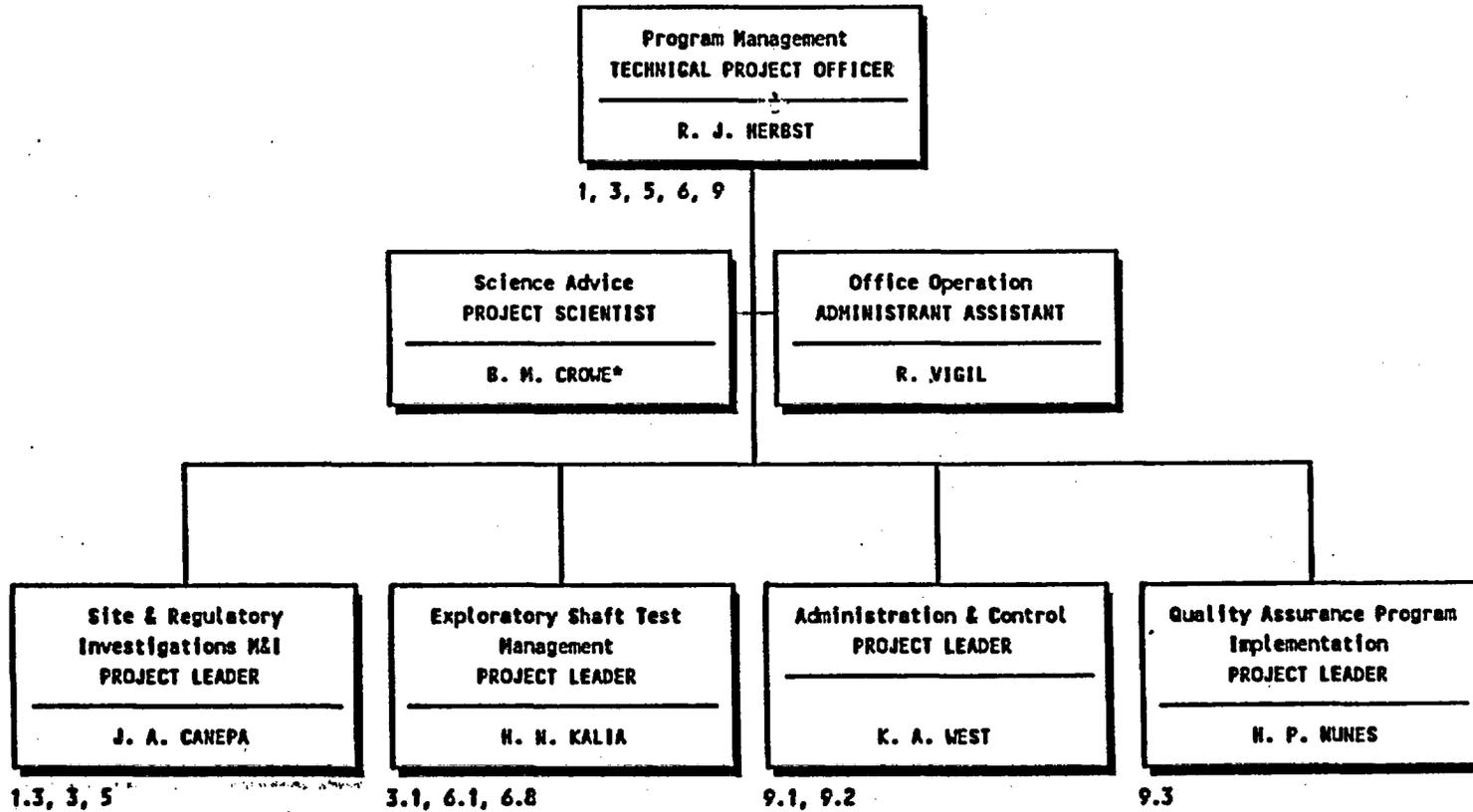
UPCOMING INTERACTIONS

- **3RD INTERNATIONAL WORKSHOP ON
RESPIRATORY TRACK DOSIMETRY** **JULY 1**
- **DIABETES ASSOCIATION** **JULY 26**
- **SOCIETY OF AMERICAN MILITARY
ENGINEERS** **AUGUST 15**
- **COLUMBIA UNIVERSITY** **AUGUST 27-29**
- **SPECTRUM '90 NUCLEAR AND
HAZARDOUS WASTE MANAGEMENT
INTERNATIONAL TOPICAL MEETING** **OCTOBER 3-5**

LOS ALAMOS NATIONAL LABORATORY
YUCCA MOUNTAIN PROJECT
ORGANIZATION

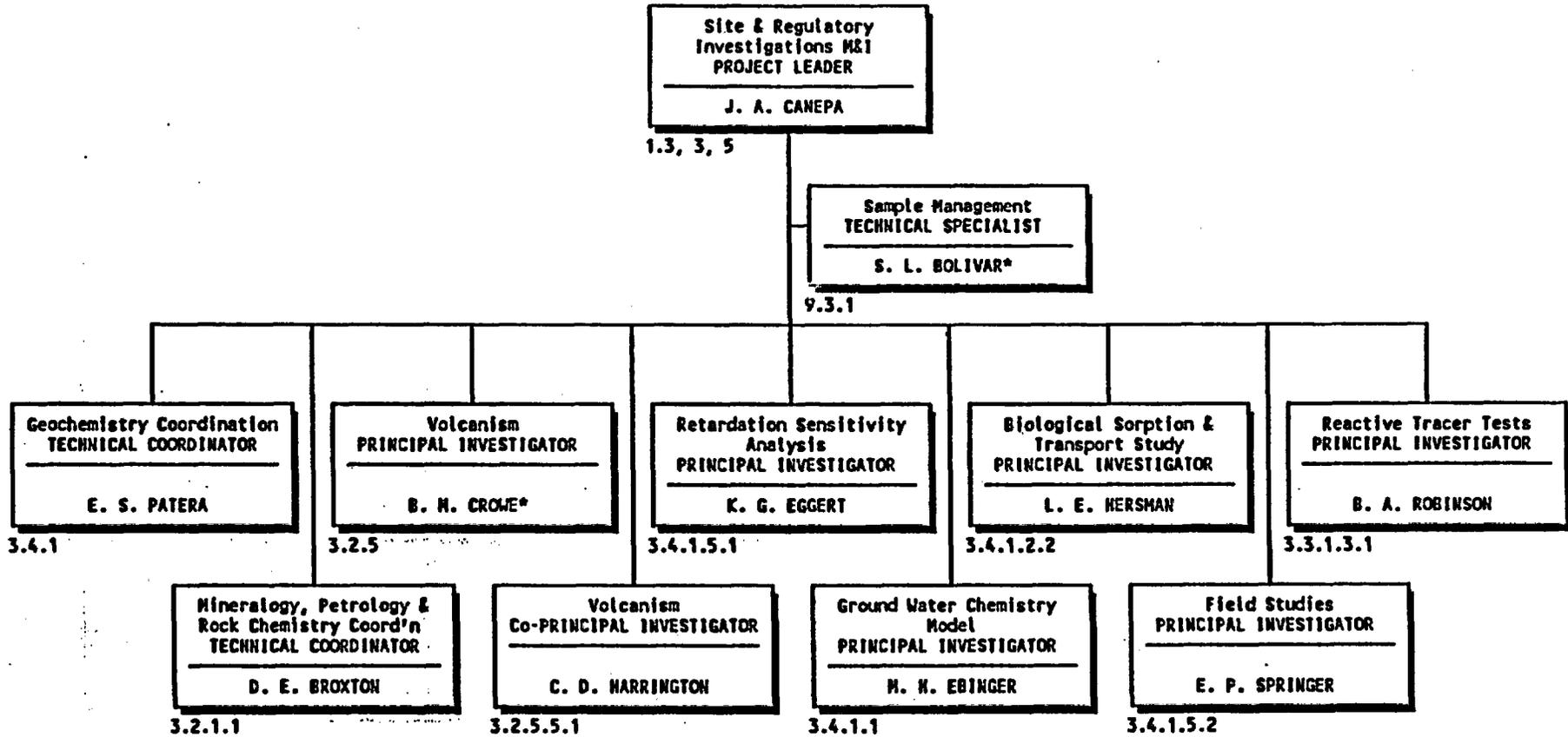
NOTE: AN ASTERISK BEHIND A NAME INDICATES MORE THAN ONE OCCURRENCE IN THE CHARTS. NUMBERS IN LOWER LEFT-HAND CORNER REFER TO YUCCA MOUNTAIN PROJECT WBS ELEMENT RESPONSIBILITIES. PERSONNEL NAMED IN THE CHARTS ARE NOT NECESSARILY FULL-TIME-EQUIVALENTS.

Los Alamos National Laboratory
Yucca Mountain Project
ORGANIZATION



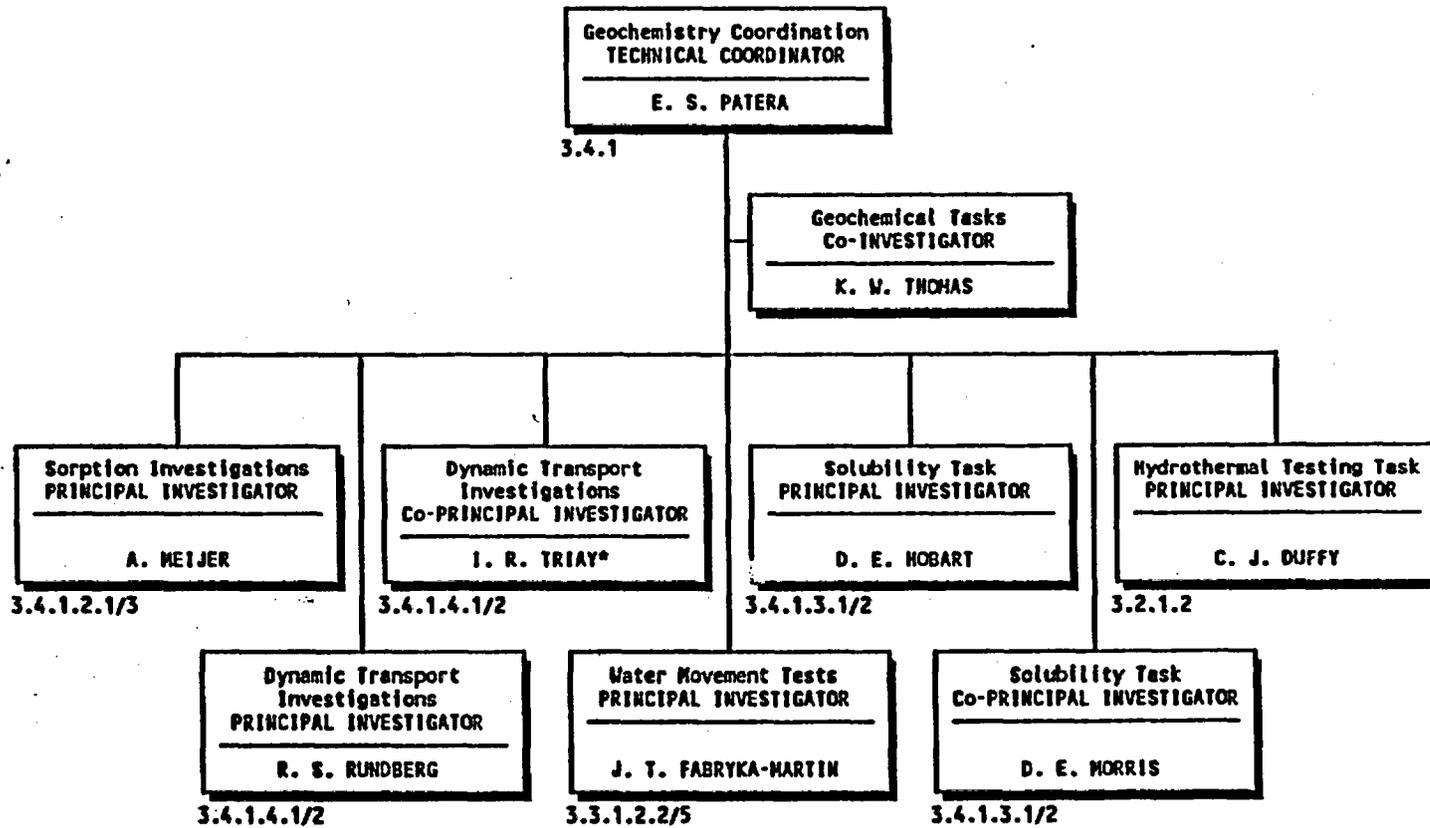
4 May 1990

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ORGANIZATION



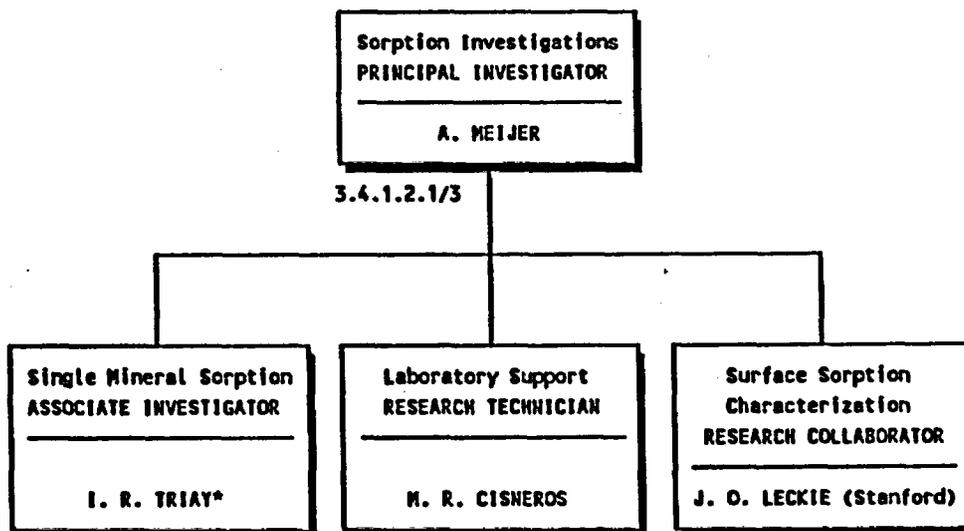
4 May 1990

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ORGANIZATION



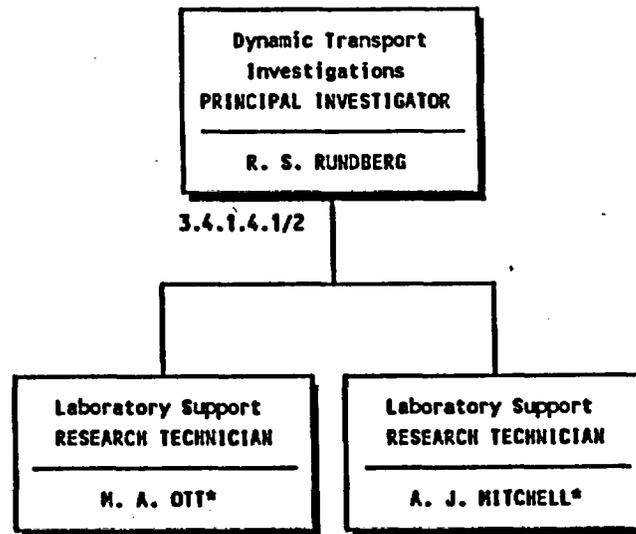
4 May 1990

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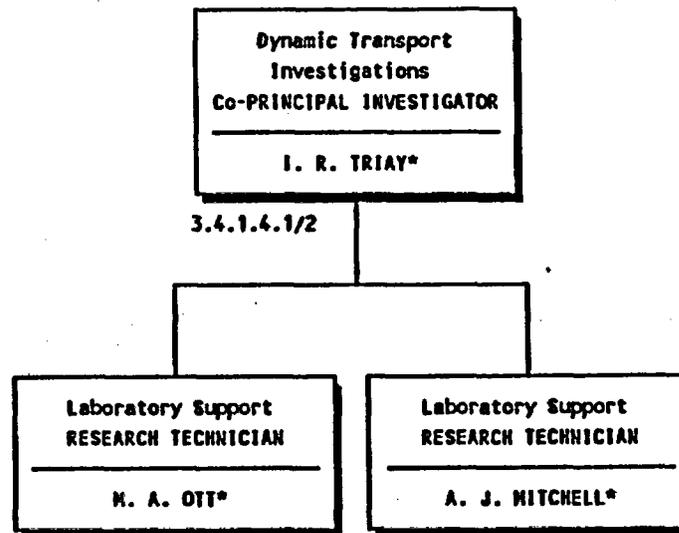
4 May 1990

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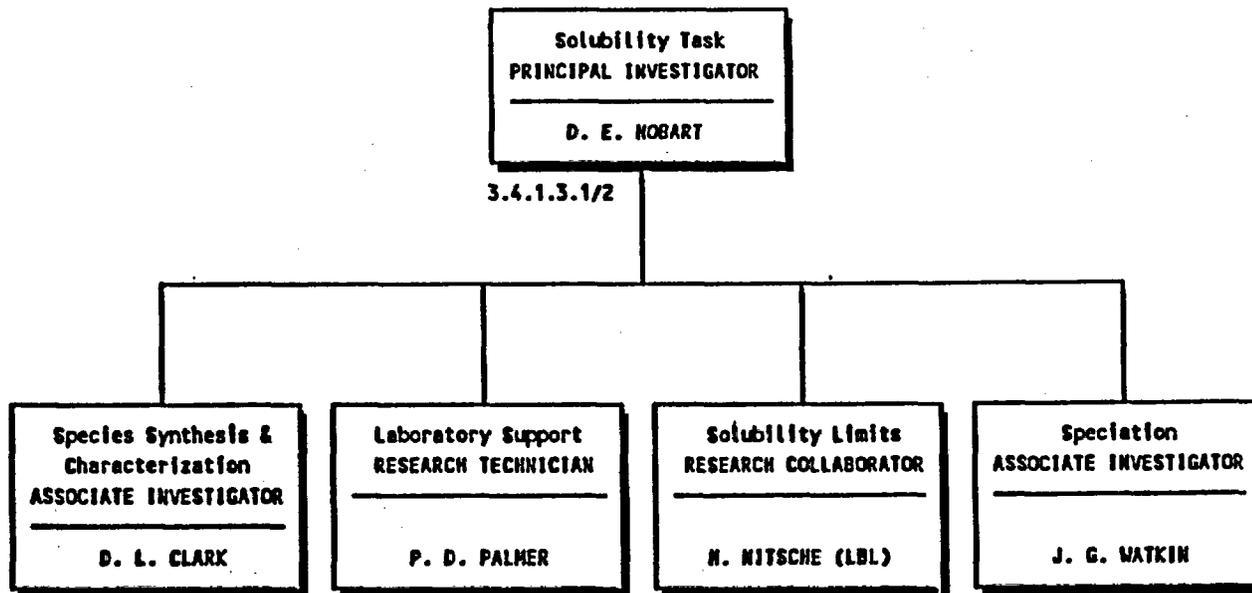
4 May 1990

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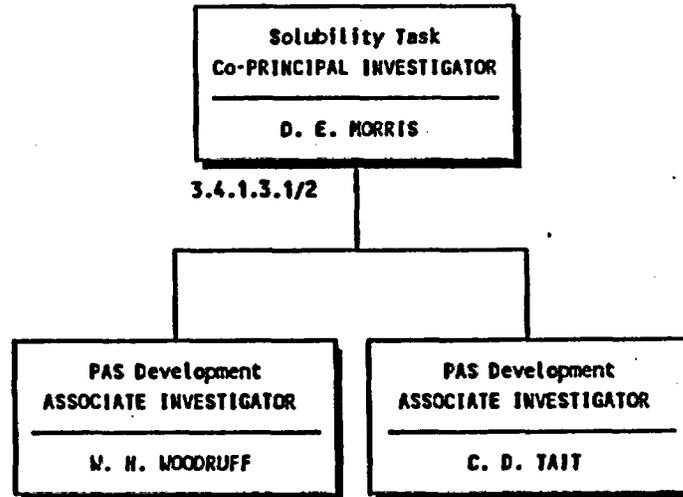
4 May 1990

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ORGANIZATION



7 May 1990

Los Alamos National Laboratory
Yucca Mountain Project
ORGANIZATION



4 May 1990

Los Alamos National Laboratory
Yucca Mountain Project
ORGANIZATION

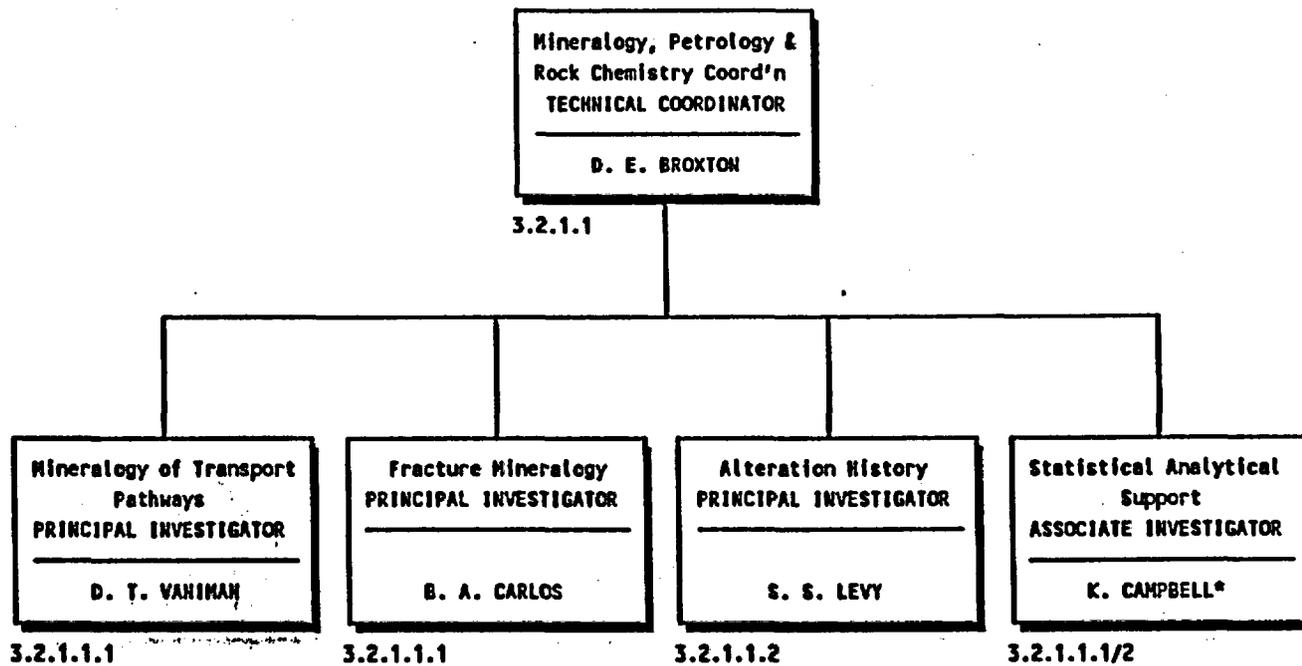
Hydrothermal Testing Task
PRINCIPAL INVESTIGATOR
C. J. DUFFY

3.2.1.2

Hydrothermal Experiments
ASSOCIATE INVESTIGATOR
D. R. JANECKY

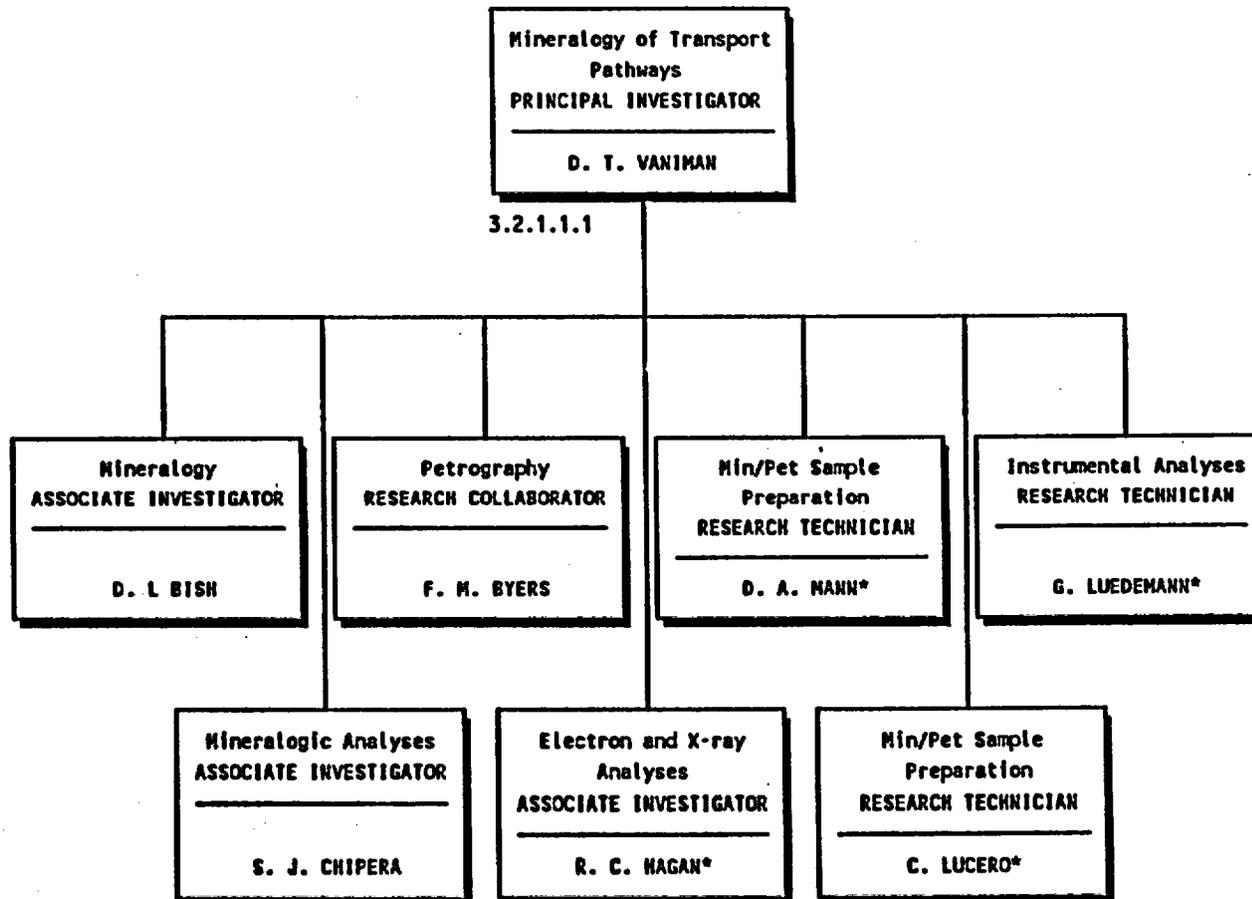
4 May 1990

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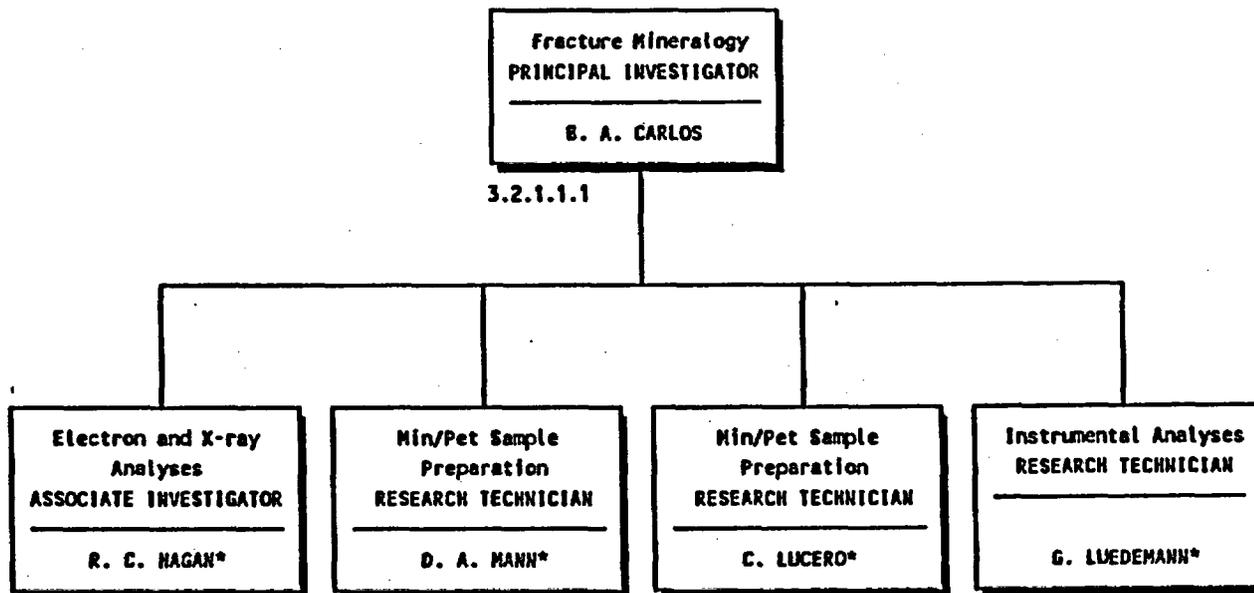
4 May 1990

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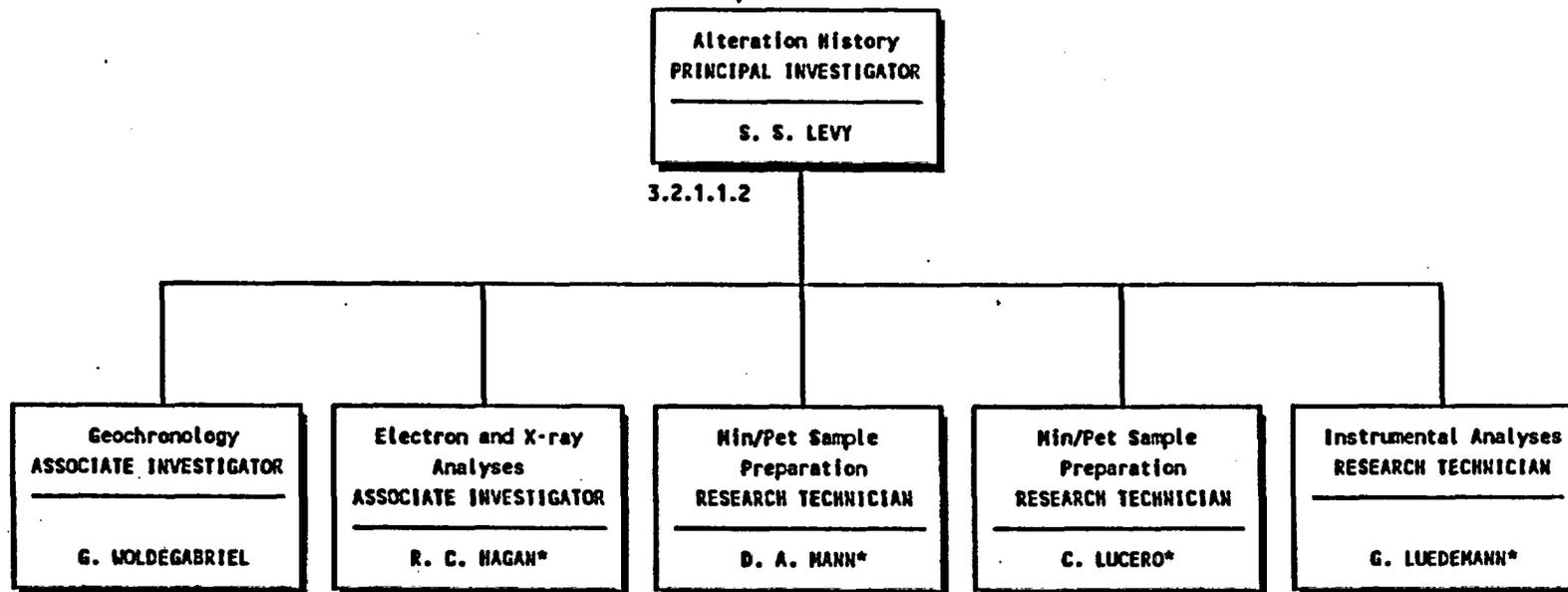
4 May 1990

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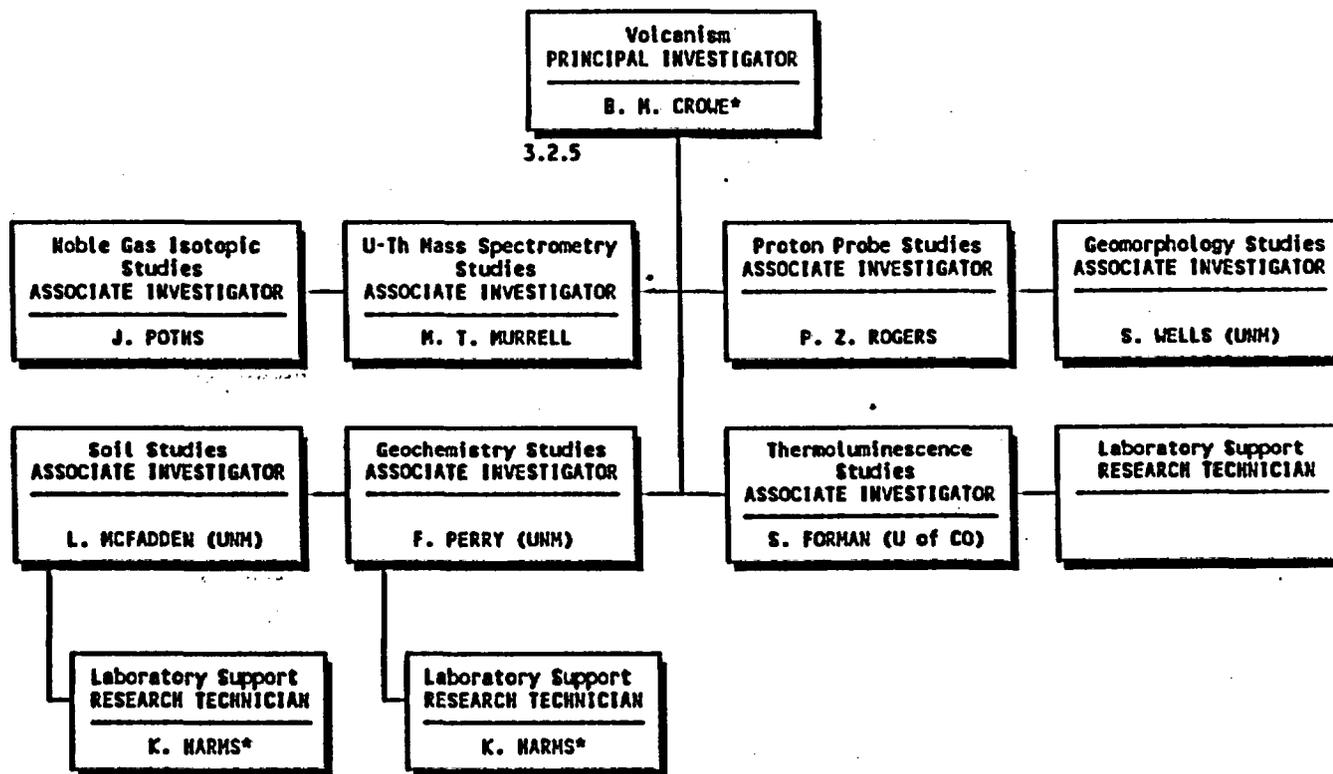
4 May 1990

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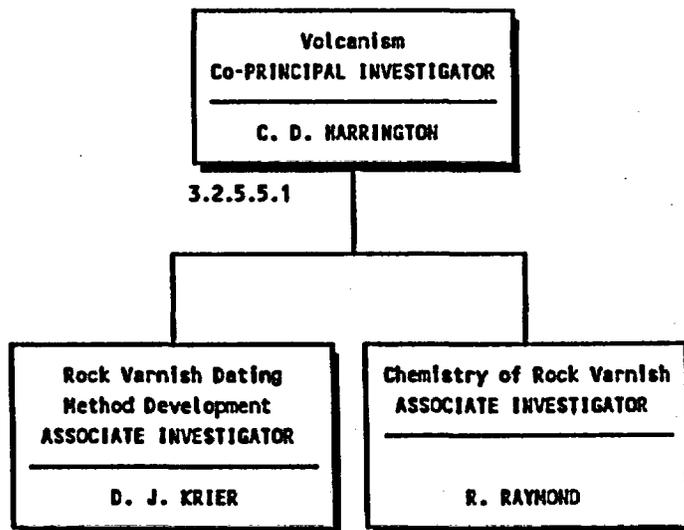
4 May 1990

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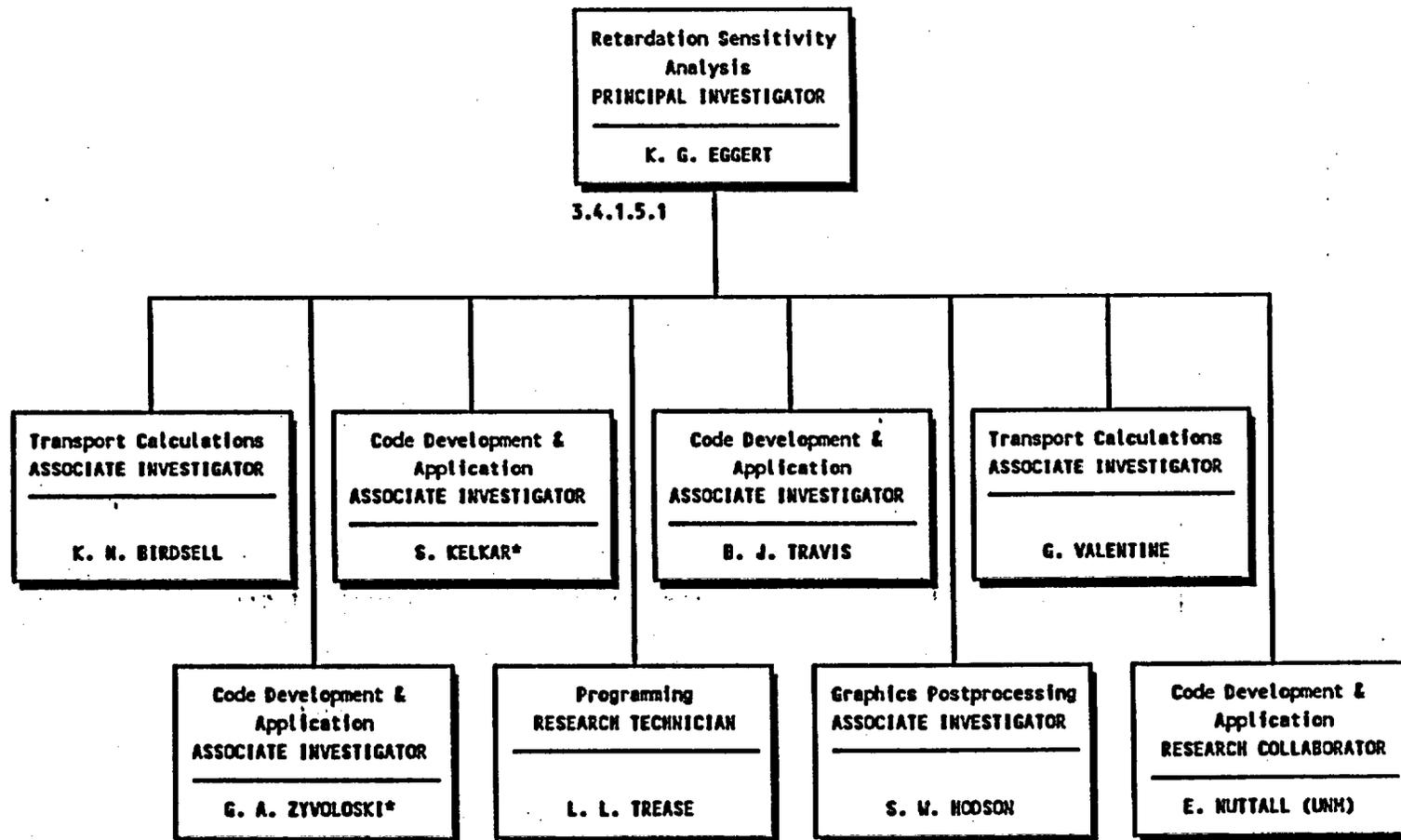
4 May 1990

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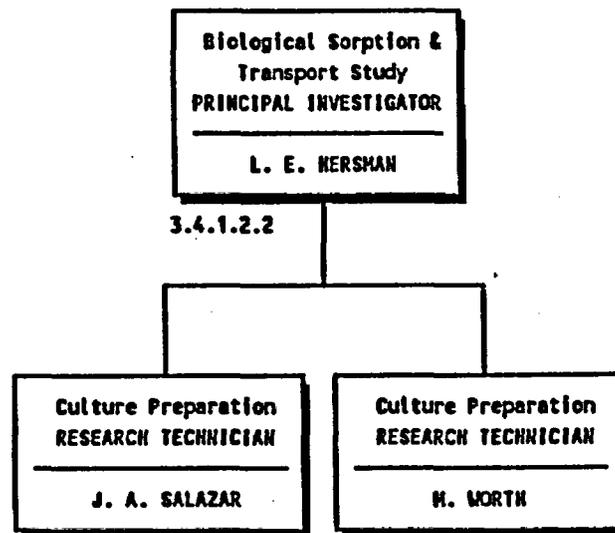
20 April 1990

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4 May 1990

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Yucca Mountain Project
ORGANIZATION



7 May 1990

Los Alamos National Laboratory
Yucca Mountain Project
ORGANIZATION

Field Studies
PRINCIPAL INVESTIGATOR

E. P. SPRINGER

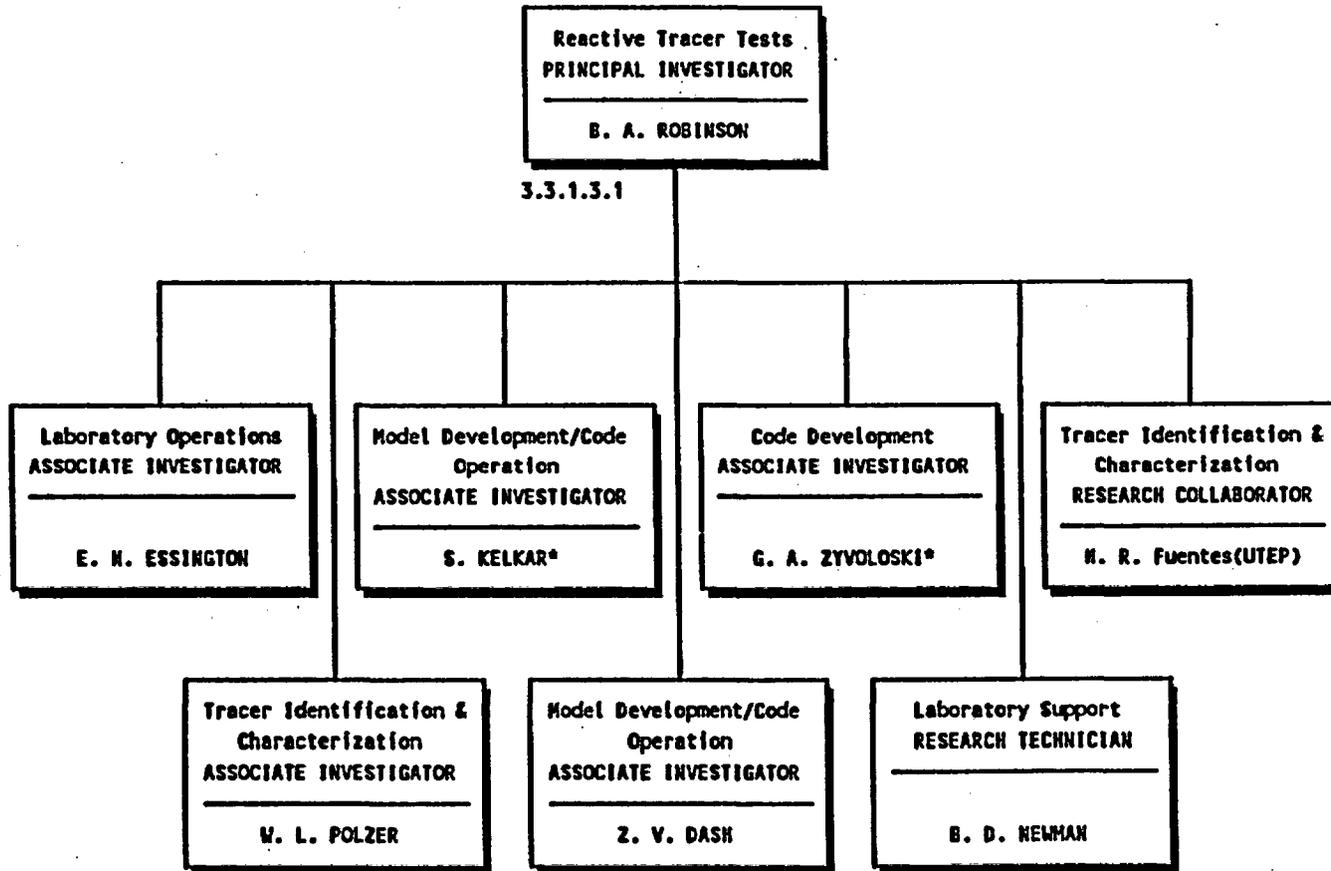
3.4.1.5.2

Field Test Design
ASSOCIATE INVESTIGATOR

C. KELLER (SEA)

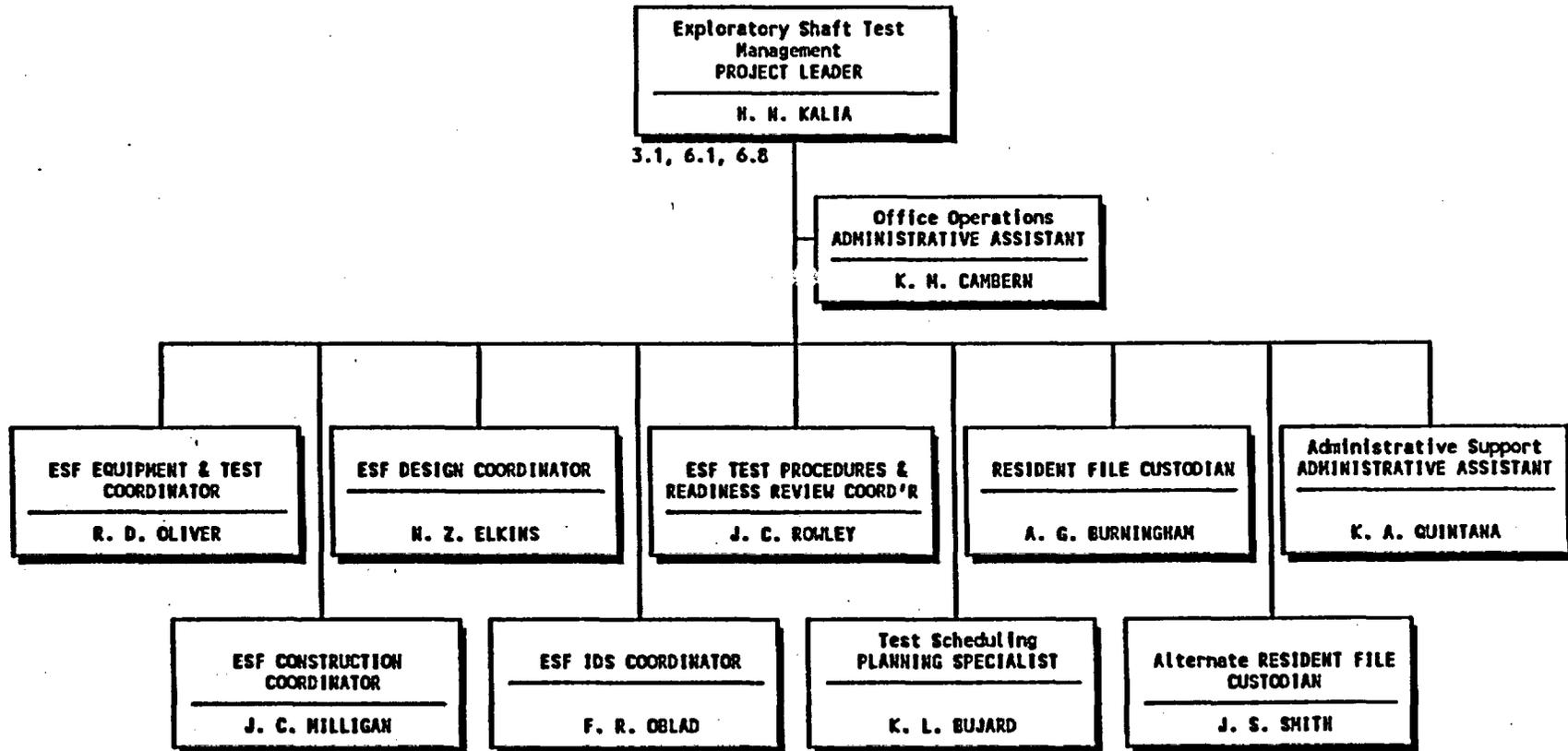
7 May 1990

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7 May 1990

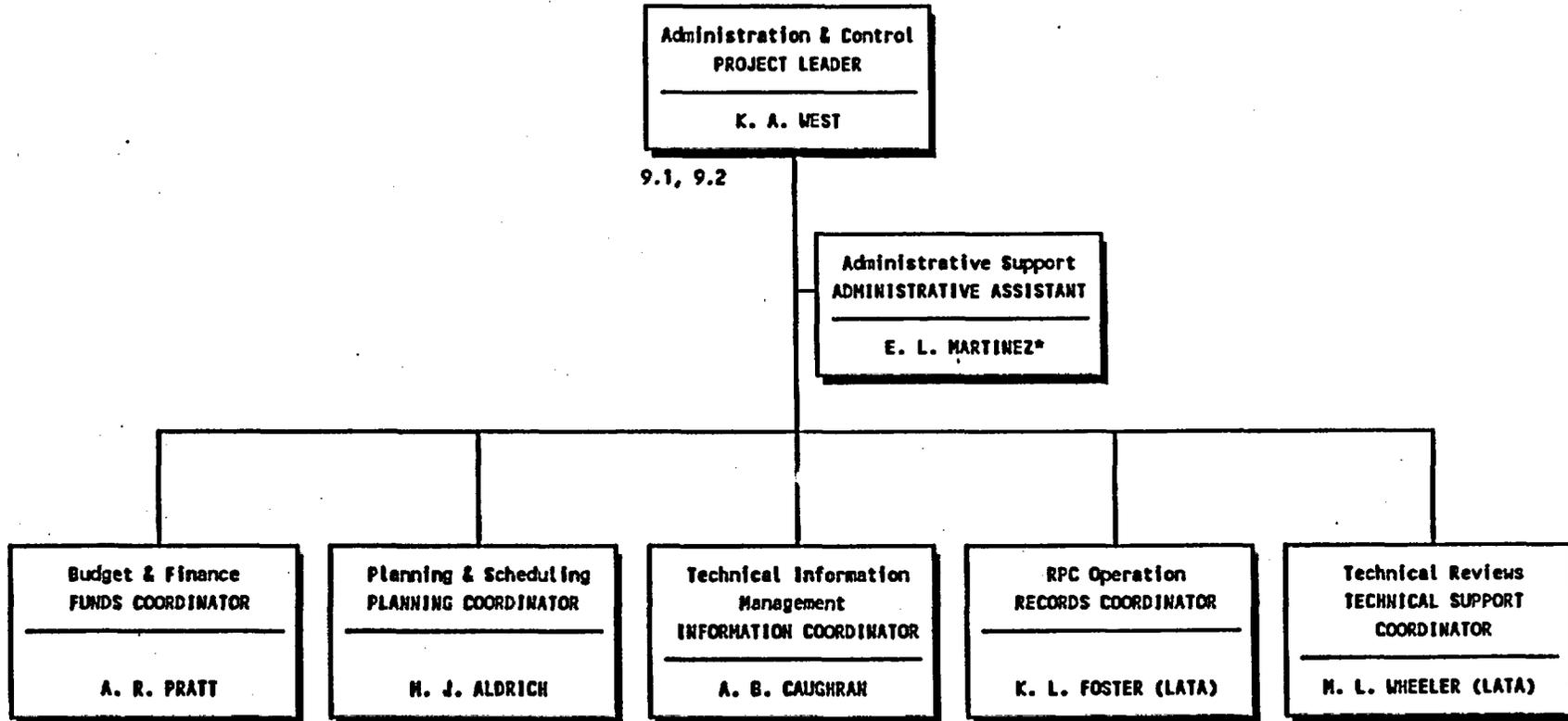
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3.1, 6.1, 6.8

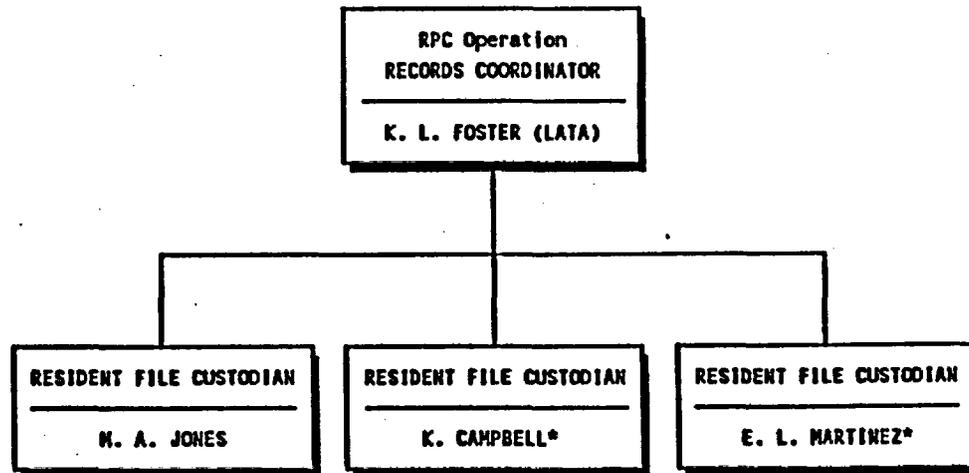
7 May 1990

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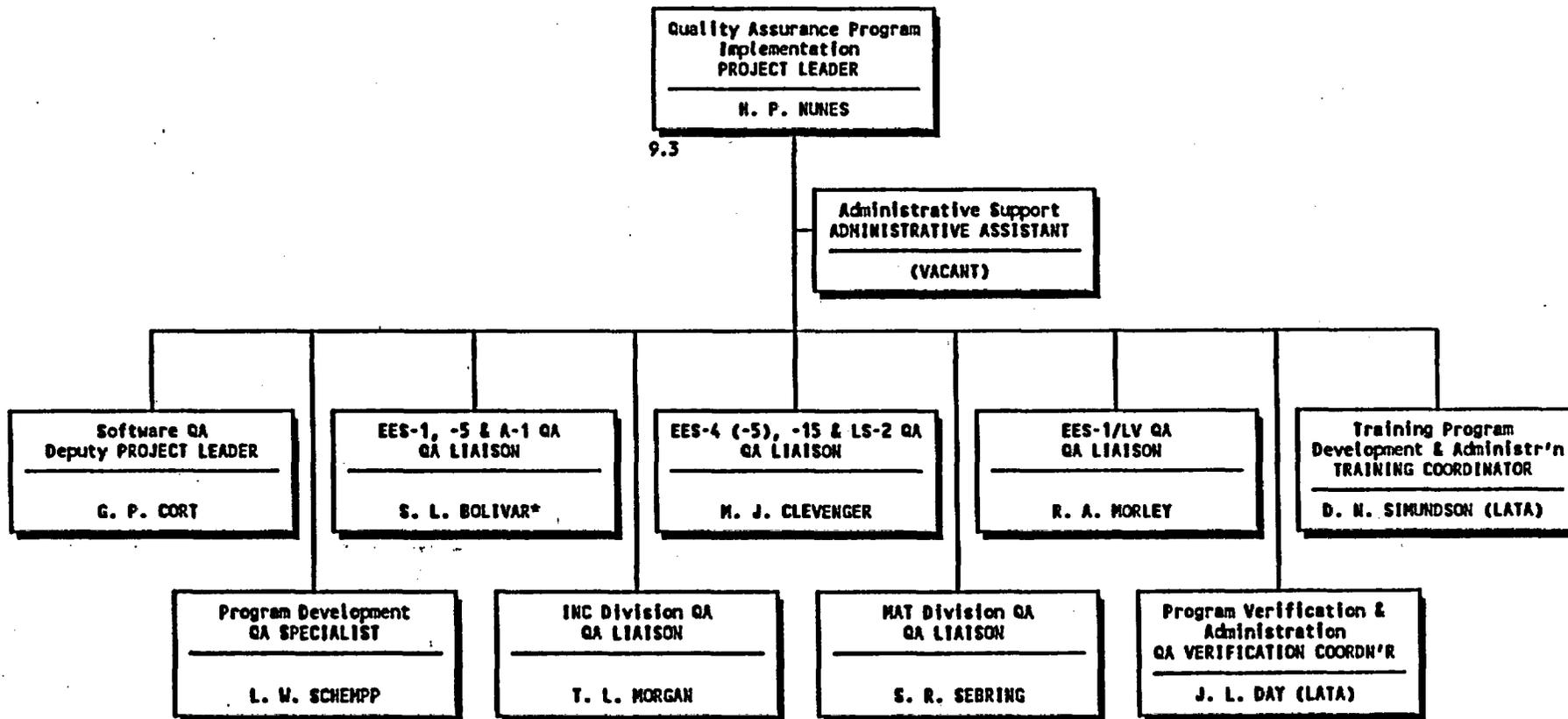
7 May 1990

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7 May 1990

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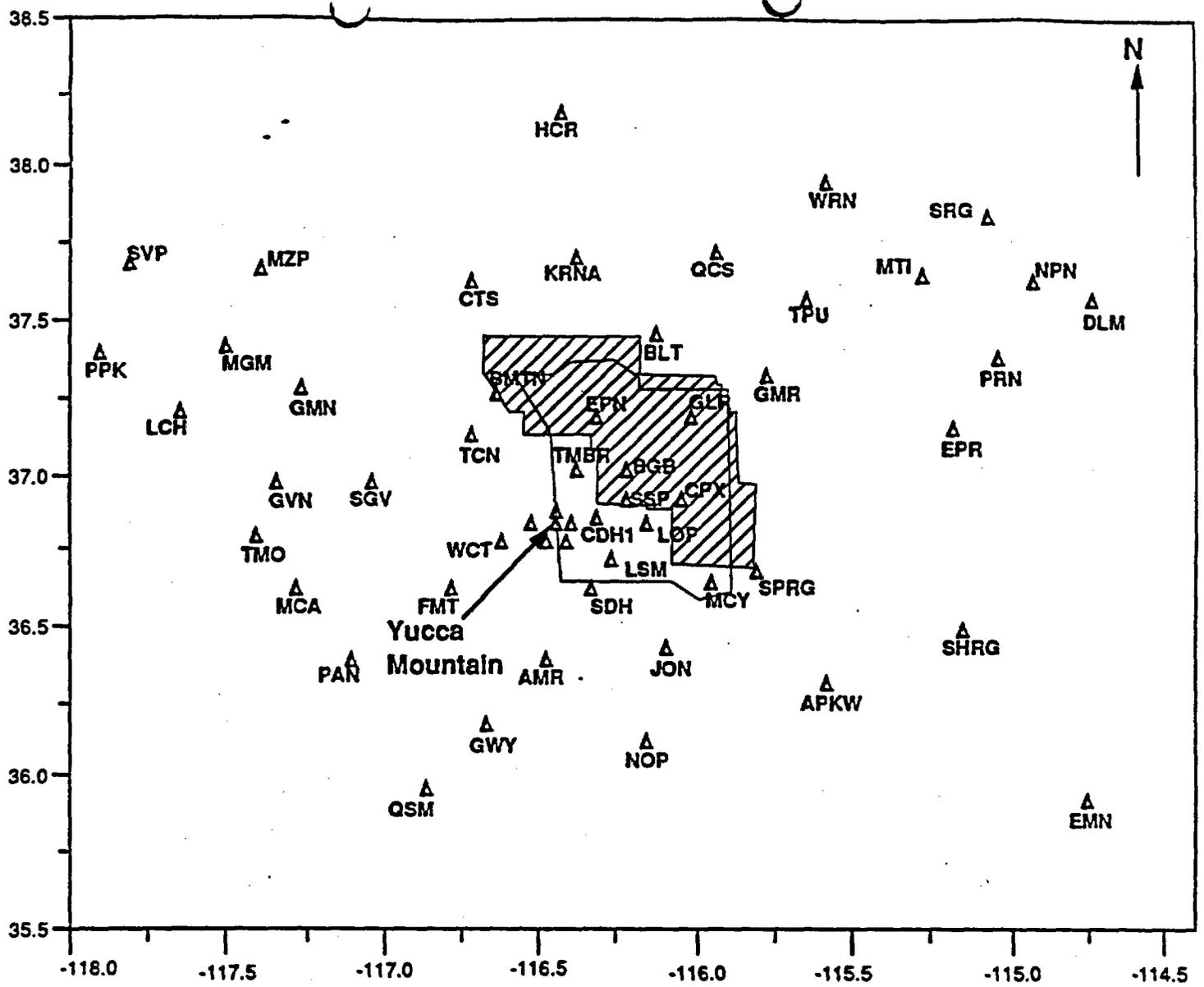
7 May 1990

TPO PRESENTATION

**STATUS OF SEISMIC MONITORING
AT YUCCA MOUNTAIN**

PRESENTED BY
K. SHEDLOCK / J. GOMBERG

JUNE 29, 1990

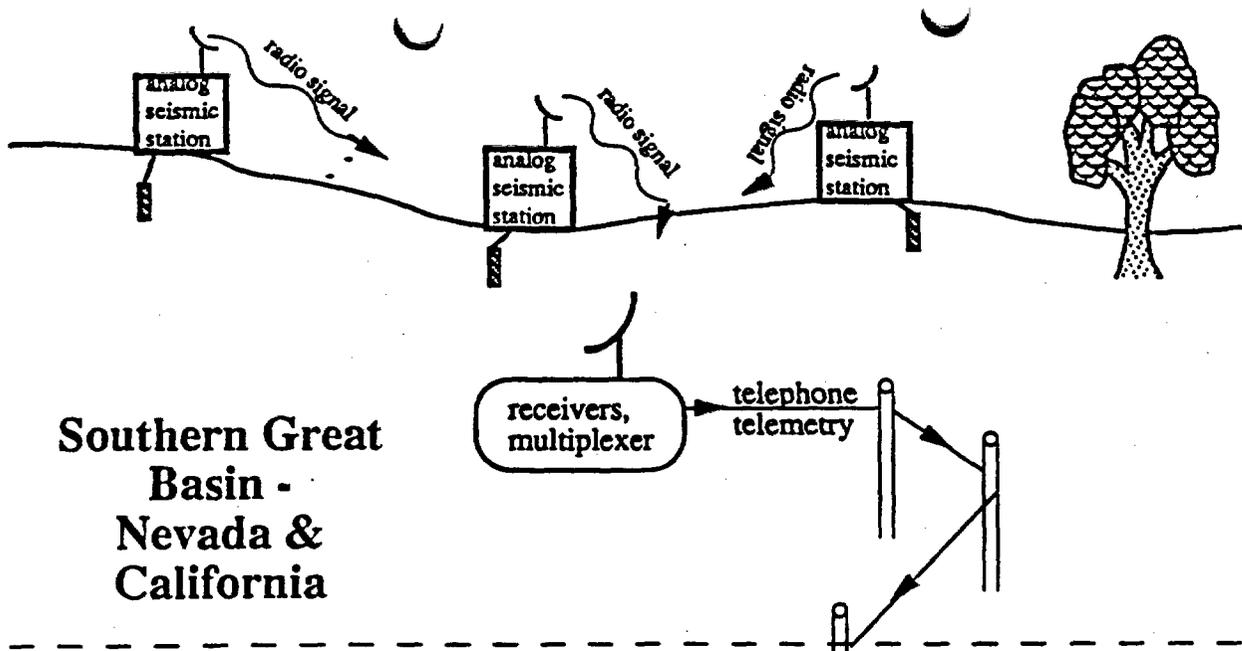


△ existing FM station

□ approximate boundaries of the Nevada Test Site

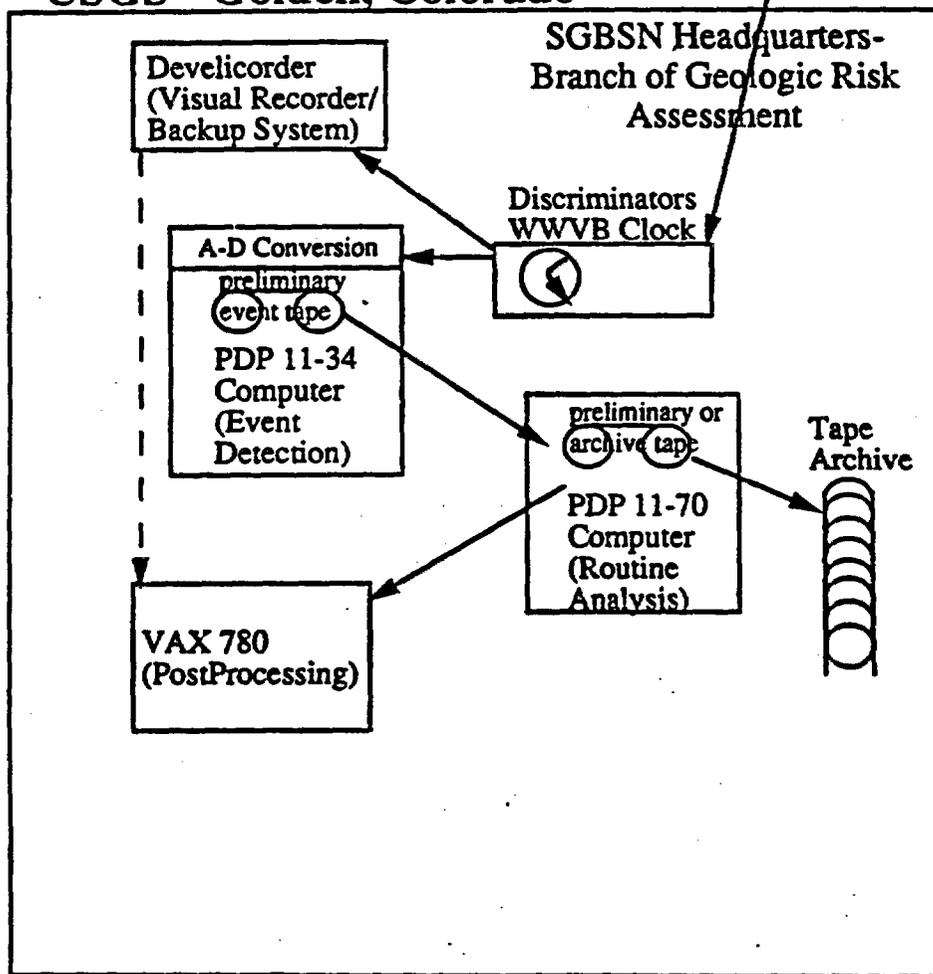
▨ zone of potential induced seismicity

Southern Great Basin Seismic Network seismograph stations



Southern Great Basin - Nevada & California

USGS - Golden, Colorado



Data Flow - Existing SGBSN

Status of the Present & Future Existing SGBSN

Future -

Stations will be kept running until hardware fails. Analog signals from existing stations will be digitized at the new collection points (telemetry nodes) & integrated with the data stream from the new digital stations.

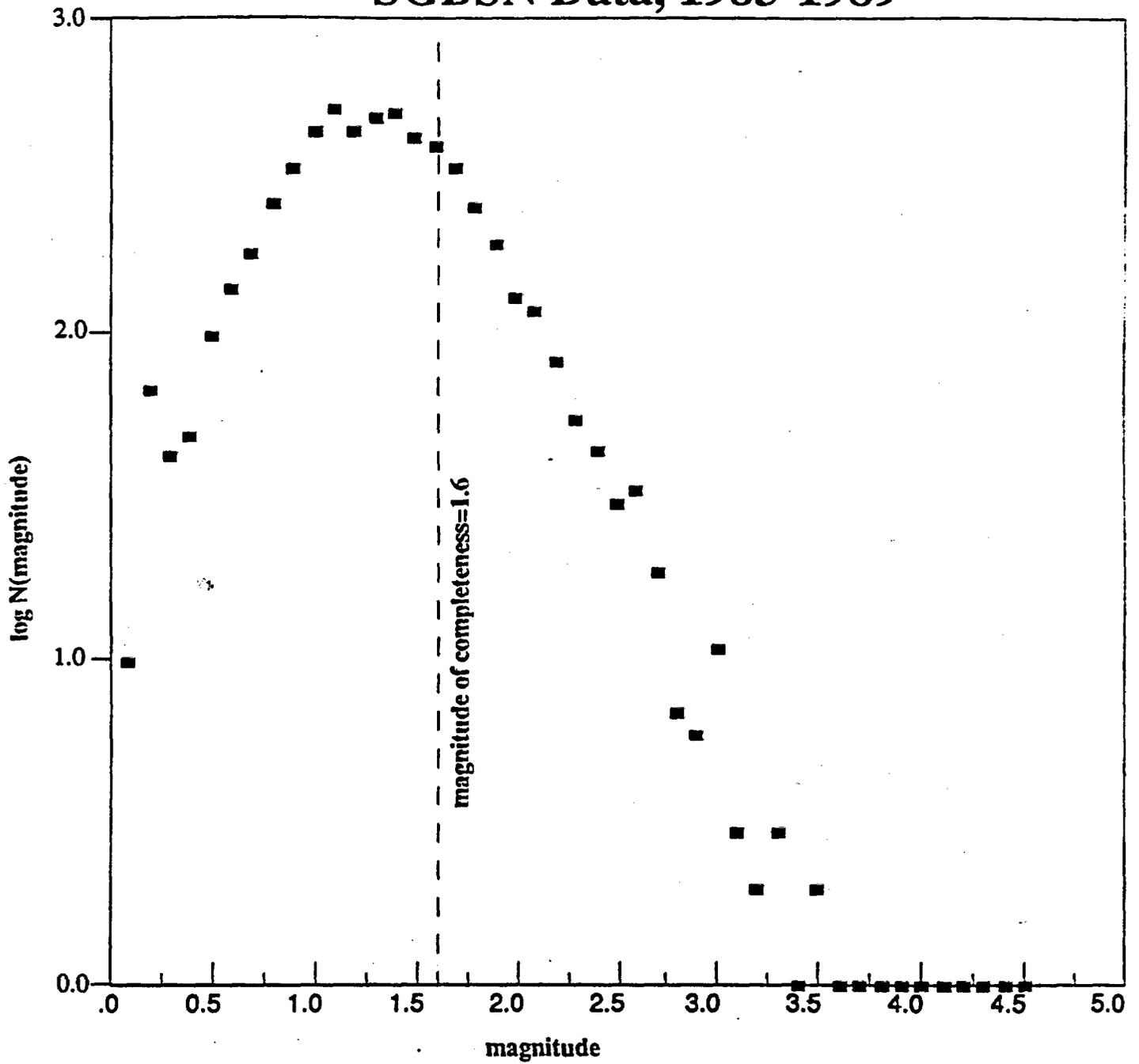
Present -

Approximately 3 local earthquakes are recorded and cataloged daily. The network configuration and operations are essentially identical to those in 1983.

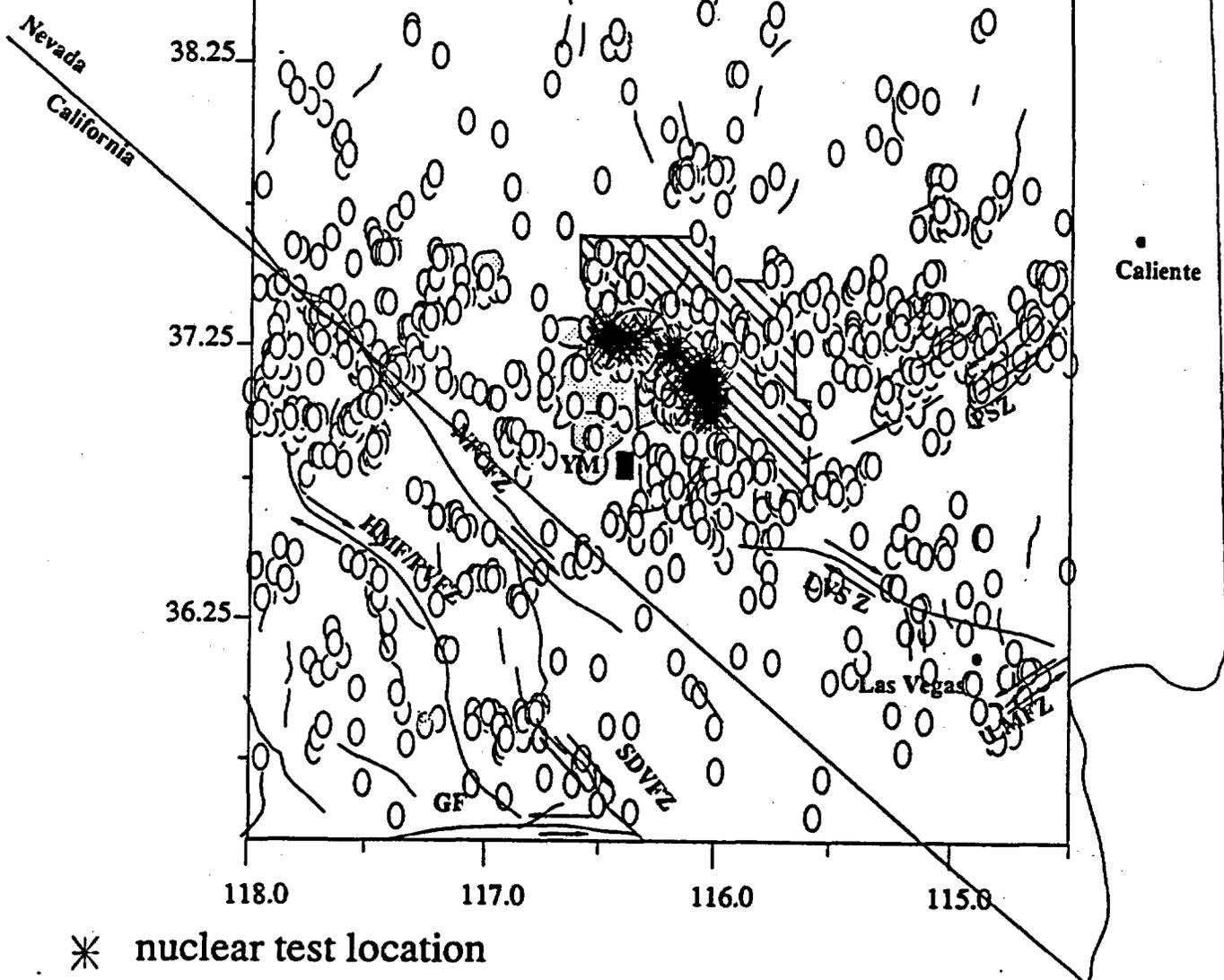
Access to 22 stations is now impossible due to lack of road permits; repairs and calibrations cannot be performed.

The data acquisition computer system in Golden, CO fails with greater frequency. It cannot be replaced until the upgraded field systems are installed and operational.

Magnitude-Frequency Relationship - SGBSN Data, 1983-1989



1.6 ≤ magnitude ≤ 4.5, 1757 events



* nuclear test location

▨ possible zone of induced seismicity

— fault scarp

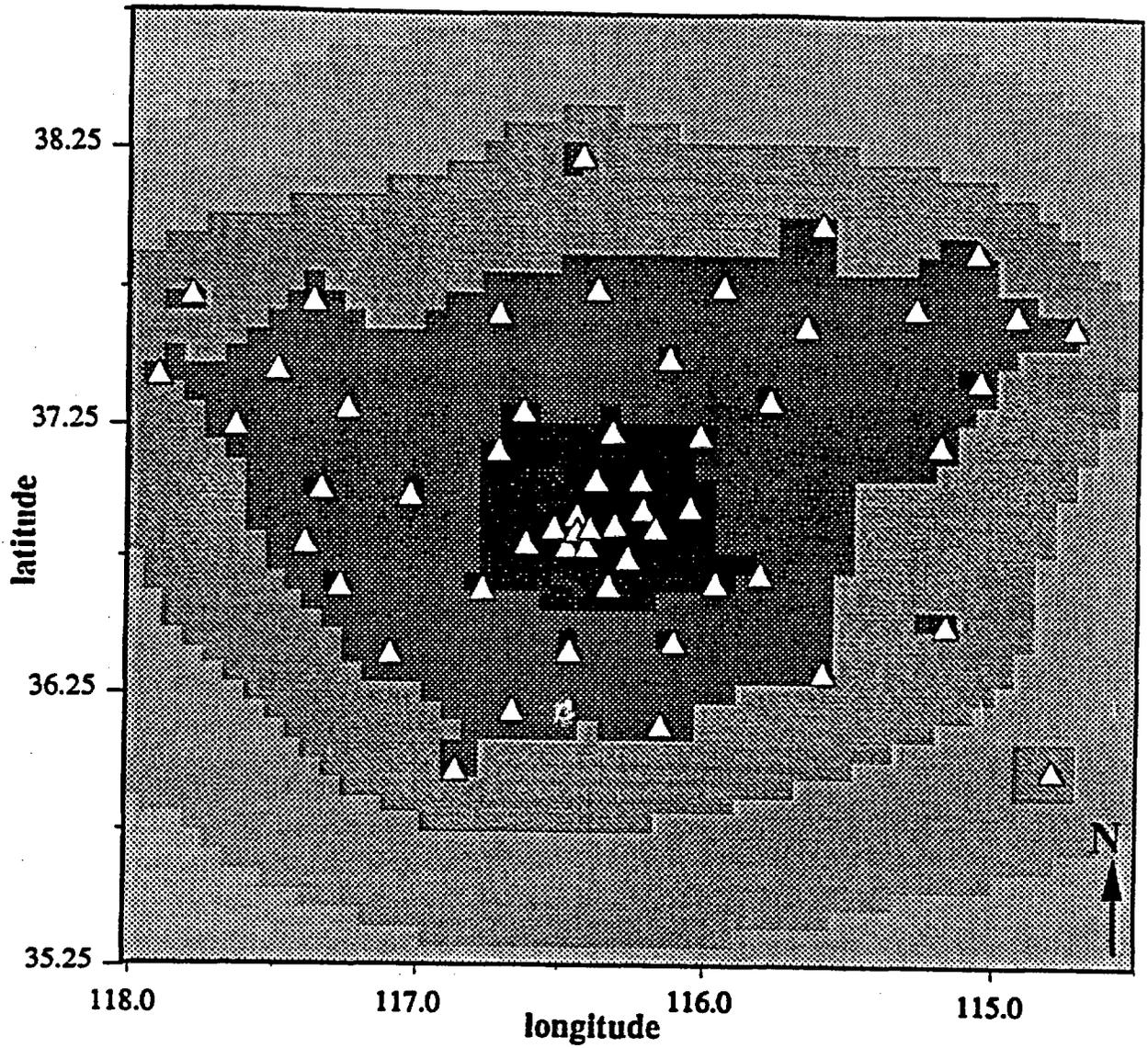
YM ■ Yucca Mountain

○ crater

○ earthquake

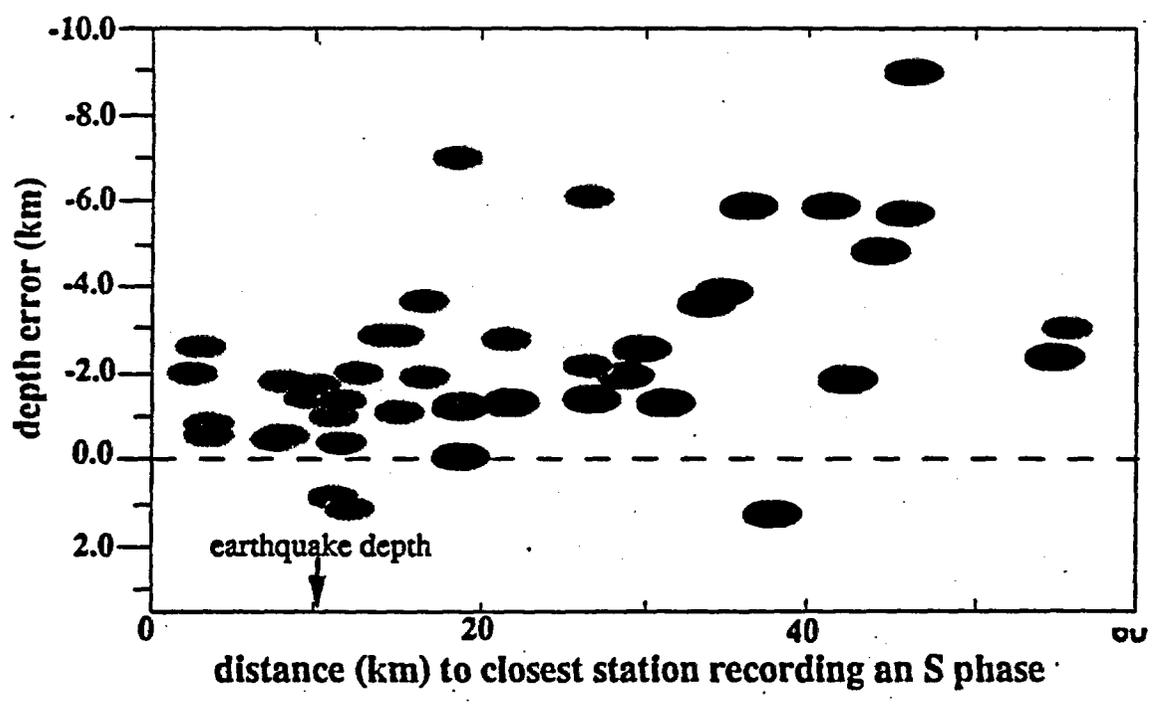
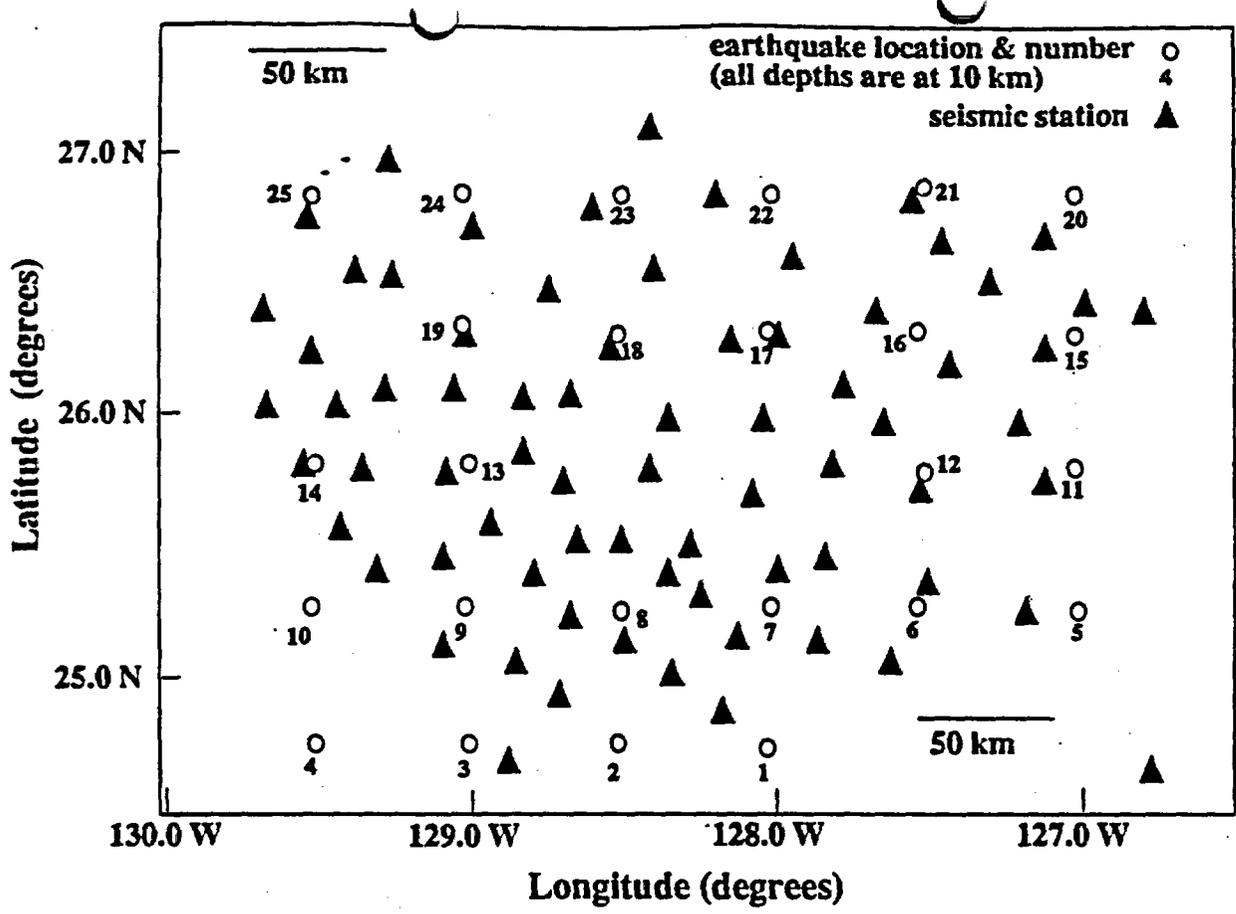
SGBSN Seismicity, 1983 - 1989

Detection Threshold - SGBSN

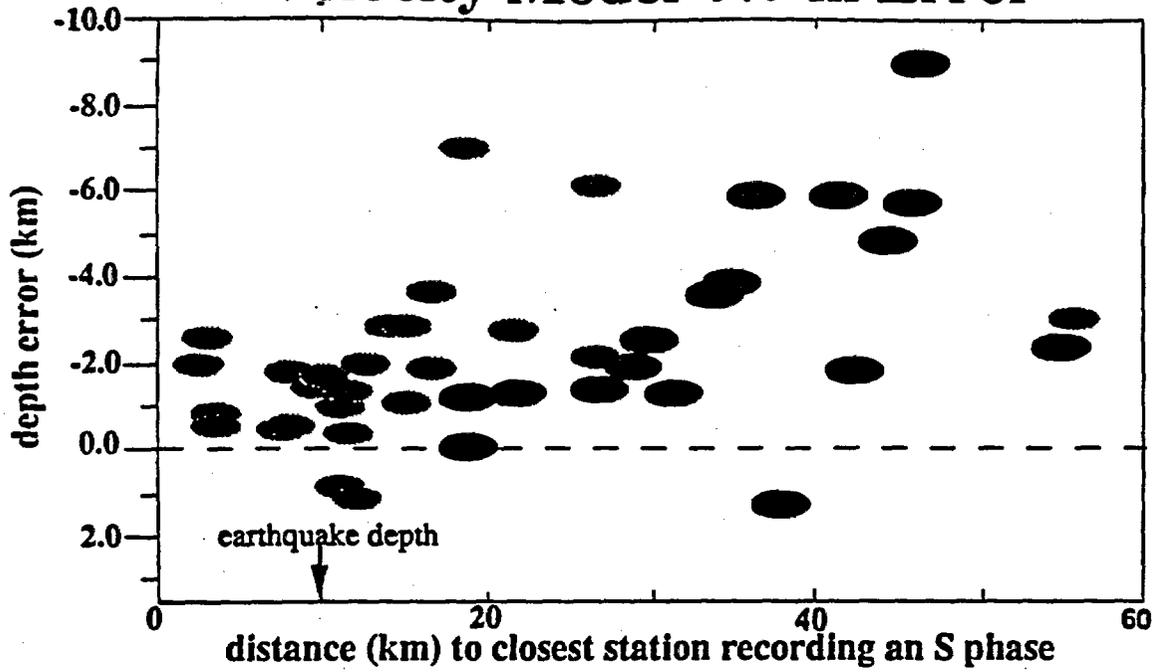


-  $M_L < 1.8$
-  $M_L < 1.5$
-  $M_L < 1.2$
-  $M_L < 0.9$
-  $M_L < 0.6$
-  $M_L < 0.3$

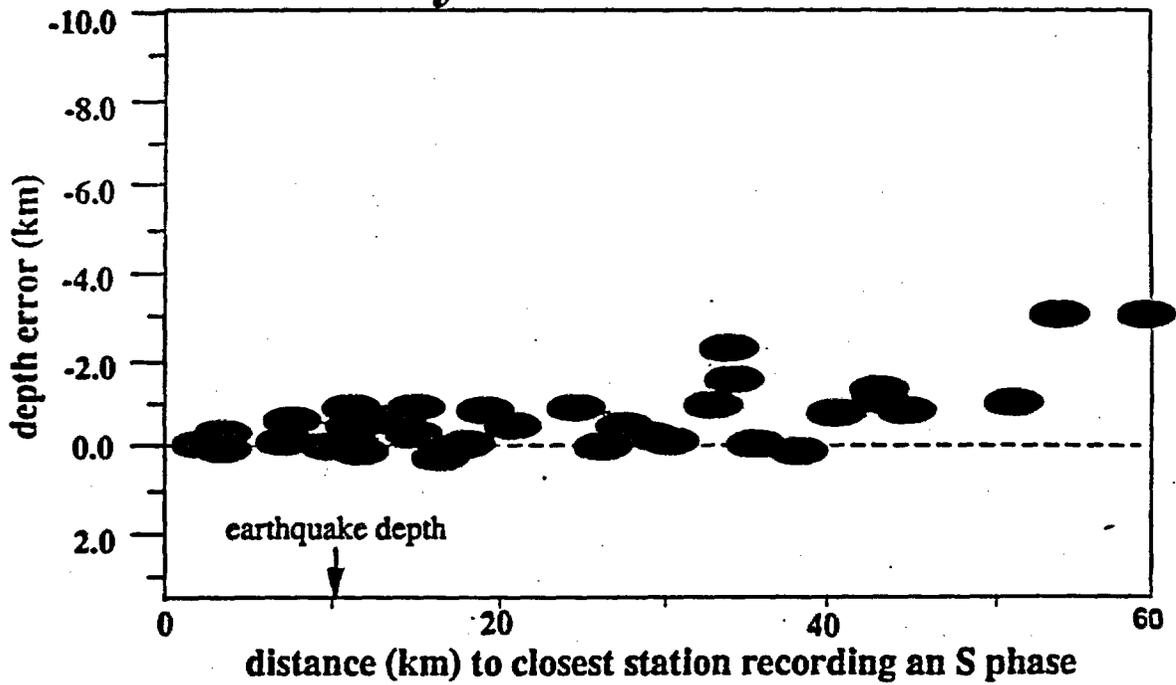
 seismic station



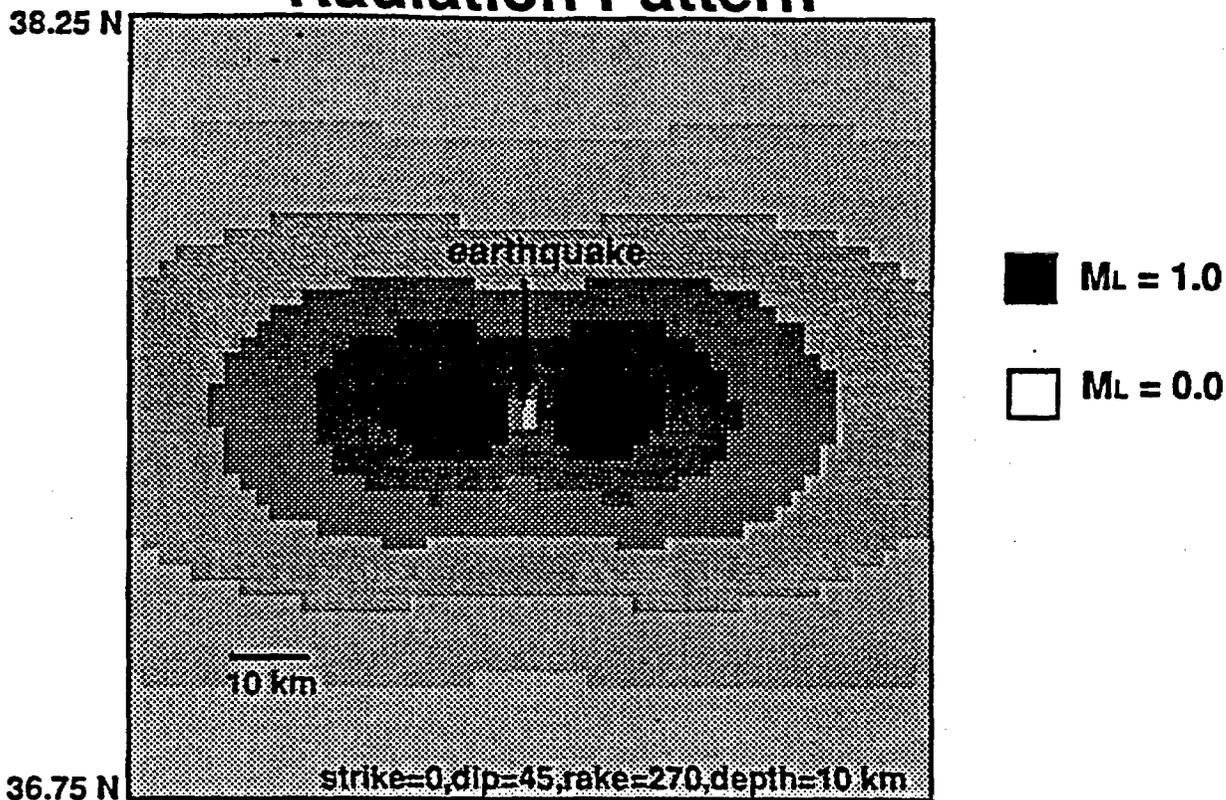
Velocity Model 4% in Error



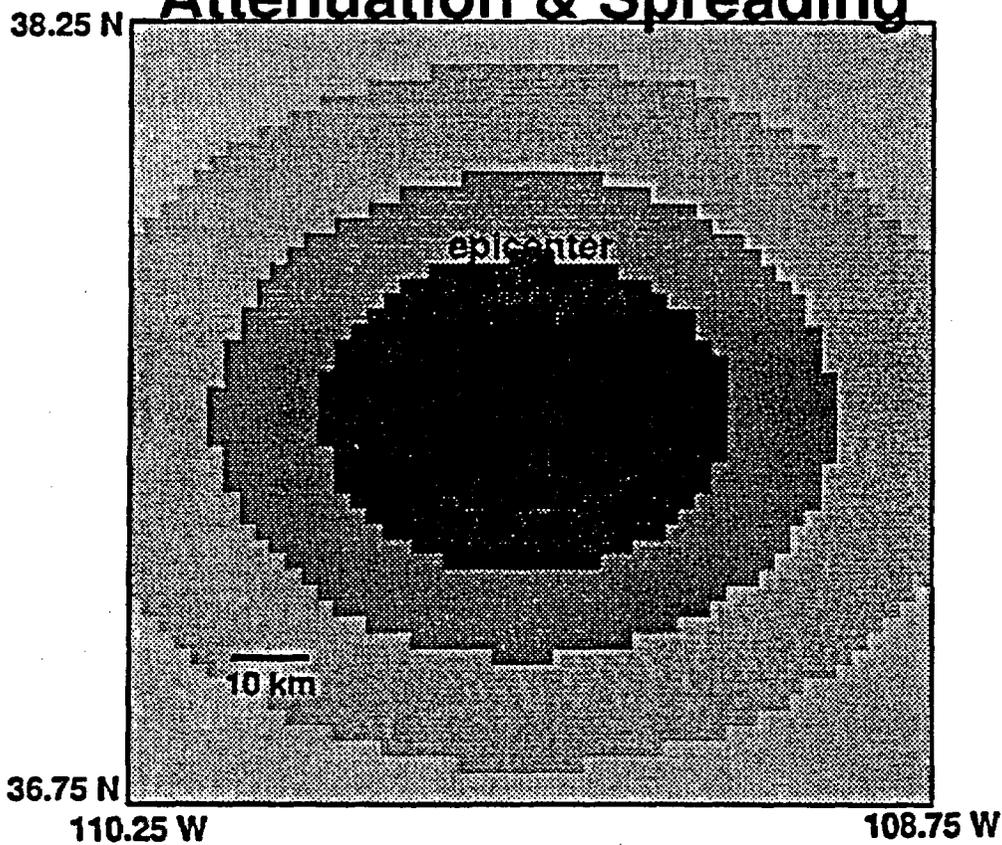
Velocity Model 1.5% in Error

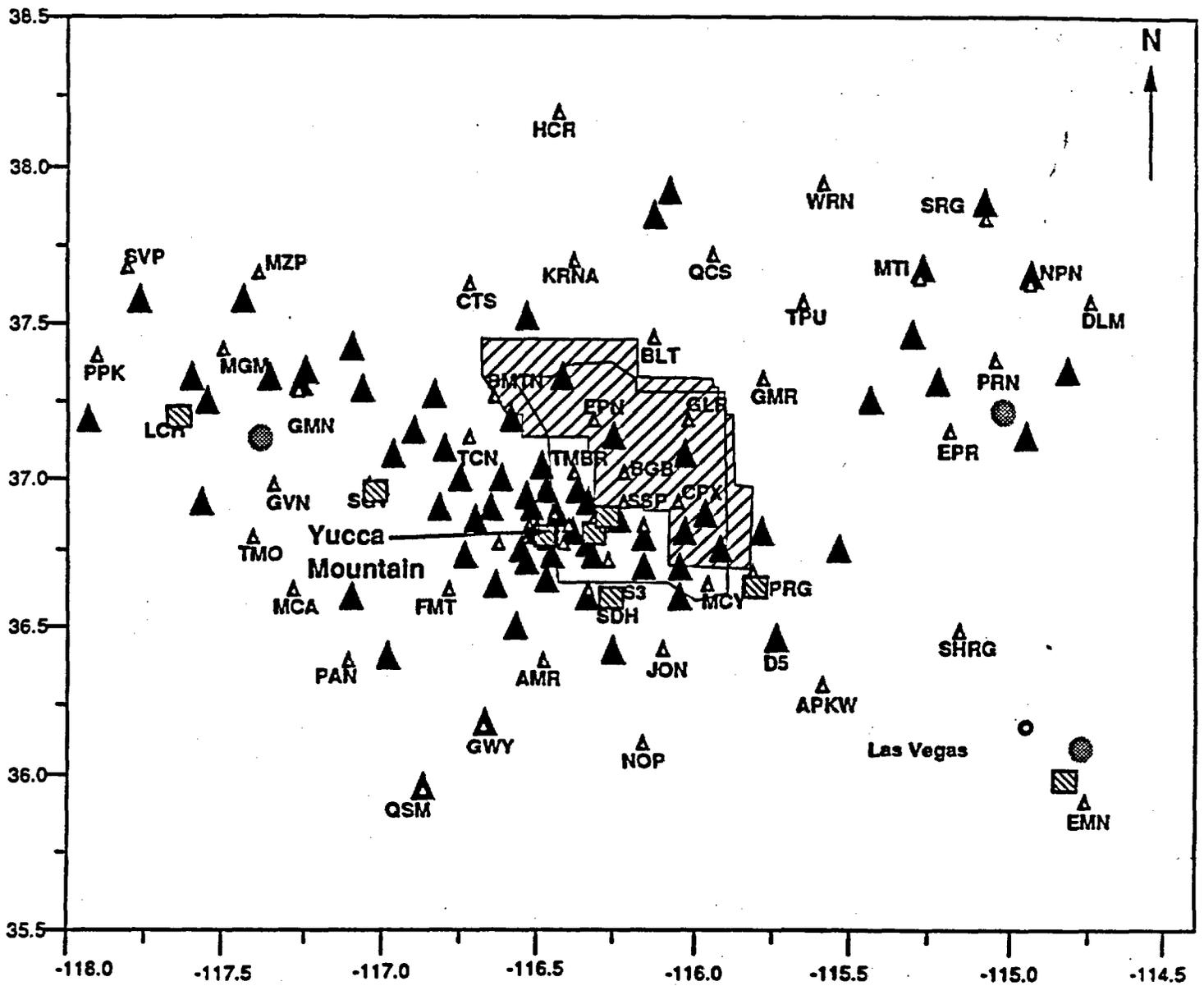


Horizontal Component of SV Radiation Pattern



ML Distance Correction for Attenuation & Spreading





- | | | | |
|---|---|--|--|
|  strong motion station |  existing FM station |  approximate boundaries of the Nevada Test Site |  zone of potential induced seismicity |
|  national network station |  new digital station | | |

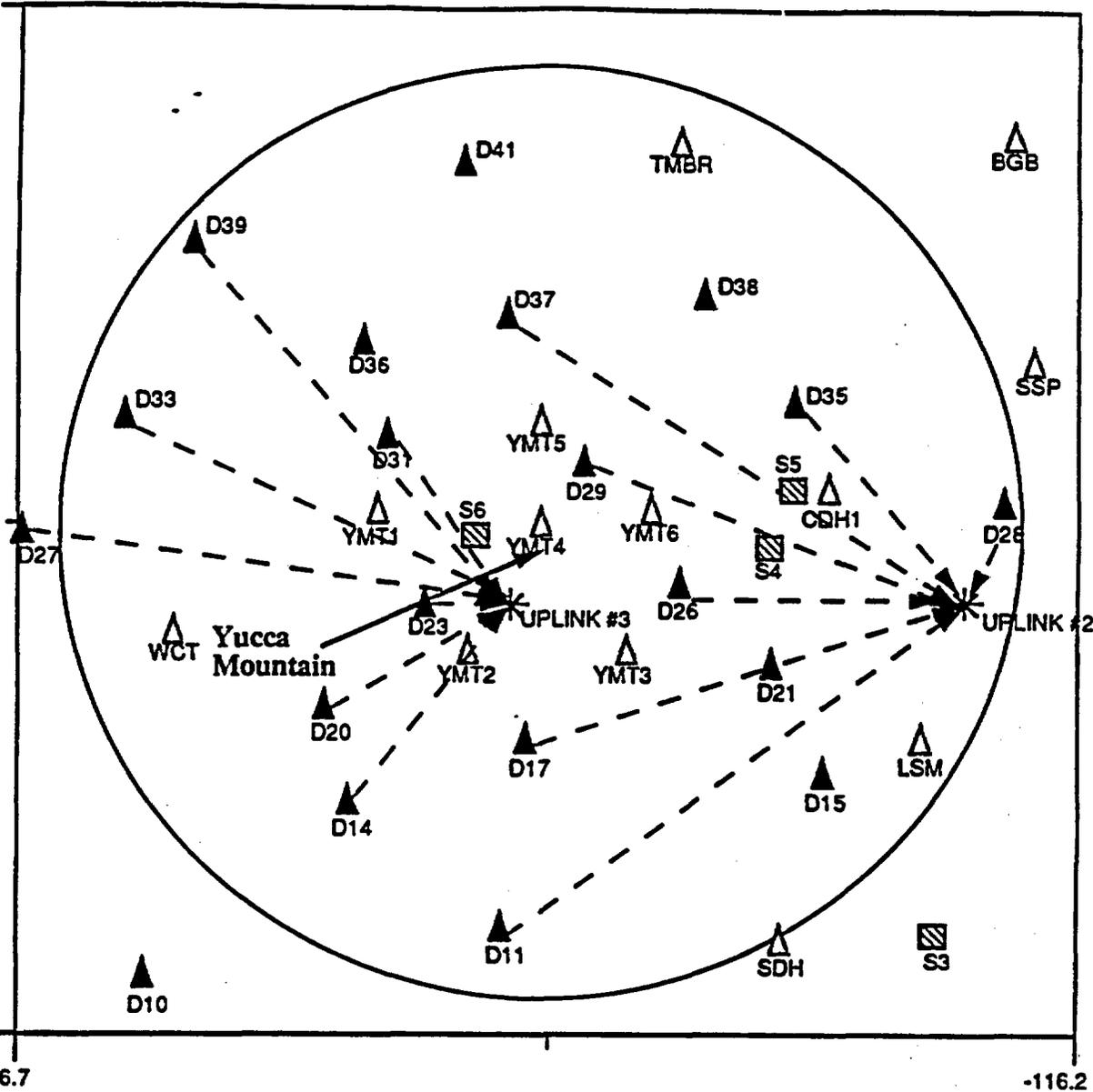
Upgraded Southern Great Basin Seismic Network seismograph stations (tentative)

37.1

36.6

-116.7

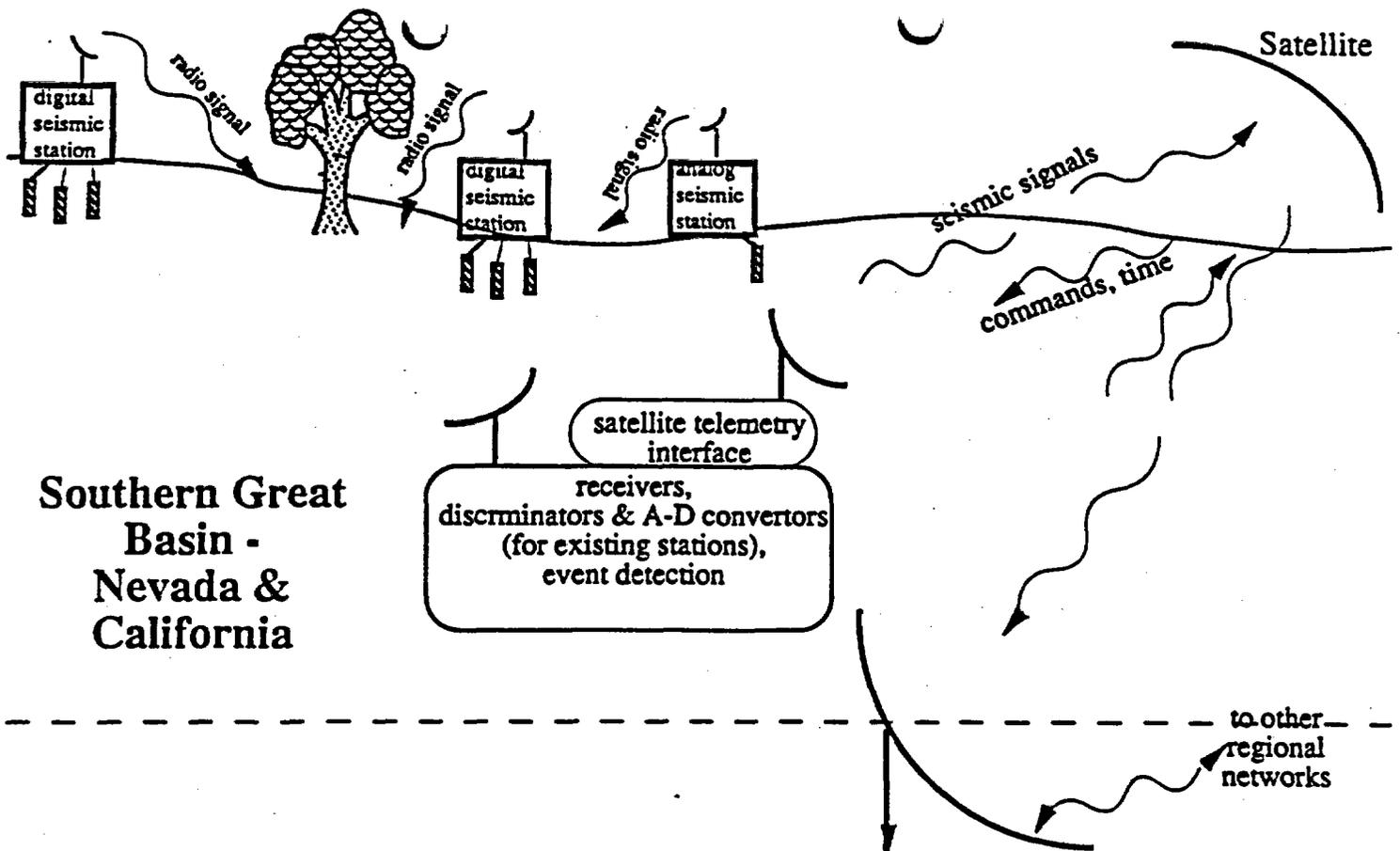
-116.2



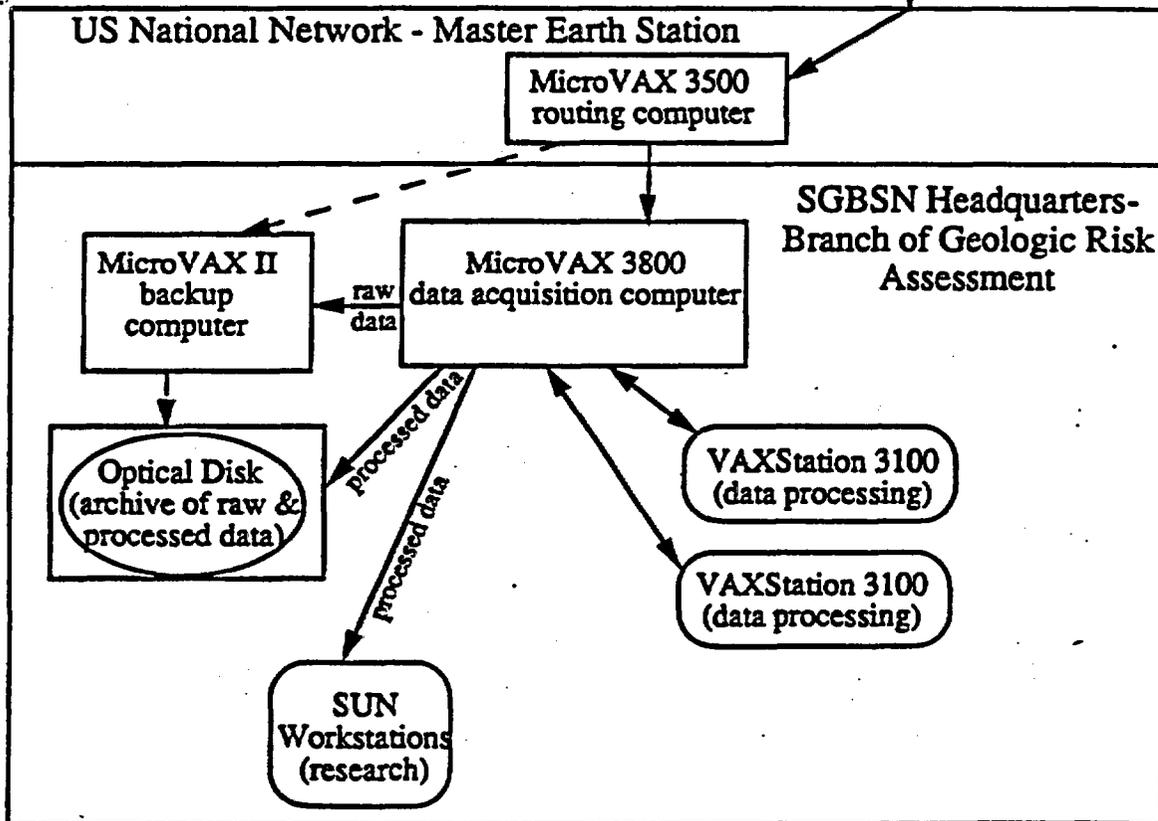
▨ strong motion station

△ existing FM station

▲ new digital station



USGS - Golden Colorado



Data Flow - Upgraded SGBSN

History of SGBSN Upgrade

FY87 - Funding approved; upgrade to proceed in stages with \$1,400,000 allocated for FY88, \$1,700,000 for FY89, and \$228,000 for FY90. Major elements include

- 1) increase station density, dynamic range and bandwidth to improve reliability of seismicity catalog parameters and to provide digital waveforms for more sophisticated studies,
- 2) obtain portable seismographs for high resolution studies,
- 3) install strong motion accelerographs for site response studies,
- 4) convert phone line telemetry to satellite telemetry using the U.S. National Seismograph Network facilities, and
- 5) reduce operating costs and increase recording reliability.

FY88 - Begin detailed planning; software development, identification of specific hardware.

FY89 - FY88 funding made available through REECO and Bureau of Reclamation. Purchased new computer system, begin procurement of portable & strong motion seismographs. Software development proceeds and detailed network design matures. Preliminary field work done.

FY90 - FY89 funding made available through the USGS. Most remaining procurements for the network initiated (80% of stations, all telemetry). Field work ceases due to lack of road and site permits.

FY91(?) - FY90 funding made available? All remaining procurements initiated (items that age, 20% of stations)? Field work/deployment allowed to proceed?

Current/Future Scheduling of SGBSN Upgrade

Summer, 1990 - Finalize FY89 procurement paperwork. Receive portable seismographs. Continue software development. Begin remote station and telemetry node siting whenever permits are granted.

Fall, 1990 - Issue request for proposals for all permanent remote stations & telemetry. Field test portable seismographs if s.w.o. is lifted & authorizations are obtained. Continue software development.

Winter, 1990 - Evaluate proposals. Finalize FY90/91 procurement paperwork? Continue software development.

Spring, 1991 - Make contract awards. Begin preparing remote station and telemetry node sites contingent on previous field work and permitting. Continue software development.

Summer, 1991 - Begin receiving and lab testing of new instrumentation. Continue software development.

Fall 1991 - First deployment of instrumentation for permanent network? Continue software development.

How will routine analyses be improved?

1. Dynamic range will increase from 50 db to >130 db;

- * earthquakes with $ML=0.0$ to 6.0 will be recorded on scale.

2. Station spacing decreased from >25 km to approx. 7 km near Yucca Mtn and 15-25 km beyond, & 3 components of ground motion will be recorded;

- * earthquakes will be located with enough accuracy to associate them with faults,

- * spatial sampling will be adequate for robust magnitude estimates,

- * an adequate number of propagation paths will be sampled for derivation of models of Earth structure.

3. Frequency bandwidth increases from 1-10 Hz to .03-50 Hz;

- * reliable estimates of scale moment can be made,

- * site response and attenuation at frequencies of engineering interest can be estimated (see #1 also).

4. Availability of high quality digital waveforms;

- * high resolution studies of Earth structure & source processes will be possible.

5. Reduced operating costs and failure rates.

Other scientific possibilities?

- * Strong motion studies
- * Aftershock studies
- * Detailed structural or source studies using portable seismographs
- * Readily available data from other regional networks via the USNSN facilities

What more do we need?

- * Freedom of access to do field work.
- * A final, unchanging budget.
- * A flexible QA program that allows for continuous development.
- * (Advanced) notice of program activities & changes.