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DOE/EIS - 0138
Volume II A.1 Pages 1,006-1,503

FINAL
ENVIRONMENTAL IMPACT STATEMENT

SUPERCONDUCTING SUPER COLLIDER

Volume II
Comment Resolution Document

A. Comments
1. Letters

December 1988

U.S. Department of Energy

UNITED STATES
DEPARTMENT OF ENERGY
WASHINGTON, D.C. 20545
ER-65/GTN

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U.S. Department of Energy
Washington D.C. 20585

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LETTER 653

MARICOPA COUNTY
COMMUNITY DEVELOPMENT AGENCY

403 County Administration Building
111 S. 3rd Avenue
Phoenix, Arizona 85003

261-5901

September 27, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U. S. Department of Energy
Washington, D.C. 20545

RE: SSC DEIS COMMENTS

Dear Dr. Hess:

Thank you for the opportunity to review and to comment on the referenced project.

Our overall conclusion is that the EIS Draft is a well-written, structured and documented report. The facts appear to be balanced throughout. The document reinforces the position of the Maricopa County SSC site as it clearly demonstrates the excellence of the technical and environmental characteristics
1 of the area in which the SSC has been proposed.

It is clear that the Arizona site will demand less acquisition of private property than the other contending sites. This is an important point to consider because massive land acquisition can be time consuming, disruptive and have a negative social impact on the community. Also, climate, meteorological conditions and the availability of materials, equipment and labor force favors the selection of Arizona. One can derive that the ecological impact on Arizona is not significant and that mitigation measures could be implemented throughout the project to reduce habitat loss. The impact on farm land is limited and no wet lands would be disturbed.

Furthermore, Arizona has had recent experience in major infrastructure construction such as the Palo Verde Nuclear
2 Generating Station and the Colorado-Arizona Project (tunneling expertise). The Phoenix Metro Area fairs favorably with the

Dr. Wilmot Hess
September 27, 1988
Page Two

other sites when one views the accelerated population and economic growth of Arizona as well as quality of life factors. Air quality at the site is excellent. The Arizona site offers opportunities for solar energy utilization. However, solar energy is not addressed in the study. Another factor which is not considered in the study, but which is important, is the location of the site in the southwestern portion of the United States as it relates to the Pacific Rim Area.

3 In reviewing the report, we find that the socioeconomics and infrastructure analysis on page 111 of Volume IV needs strengthening particularly when discussing the future completion of Maricopa County's freeway system (p.129). It is important to note that a half-cent sales tax was approved to complete a multi-billion dollar highway network in Maricopa County. It is also valuable to mention that Phoenix Sky Harbor is an International airport, one of the busiest in the nation (see p.132). Comments quoted from Yatzeck on the same page with respect to airport operations will need verification as aviation delay figures may have changed recently due to competition among airline companies which may have resulted in a more efficient aviation system. Furthermore, characteristics of the Phoenix Goodyear Airport should be expanded due to its regional importance in western Maricopa County.

4 Additionally, we find that the two Air Force Bases (Luke AFB and Williams AFB) should be mentioned in the report due to their significance in Maricopa County.

It has been a pleasure assisting the Arizona SSC Project team on the development of the proposal and providing comments about the SSC Draft EIS Study. Please call me at 261-7206 if you have any questions about this letter.

Sincerely,

Guido Ardaya B.

Guido Ardaya B., CID
Principal Planner, Economic Development
Environment Review Officer

GAB/bme
cc: Joseph R. Comfort, PhD
SSC Project, Arizona

LETTER 654

SWCA ENVIRONMENTAL CONSULTANTS

COMMENTS FROM SWCA, INC. PRESENTED AT THE SUPERCONDUCTING SUPER COLLIDER DEIS PUBLIC HEARING AT TEMPE, ARIZONA ON 3 OCTOBER, 1988

I am Dr. Scott Mills, representing the environmental consulting firm of SWCA, Inc. Our company has been involved with the Arizona SSC project for more than two years. Our major involvement was assisting in the preparation of the Environmental Section of the proposal for the Sierrita Site. In addition, we have visited the Maricopa Site, met with State and Federal resource agencies and environmental groups, and reviewed numerous drafts of the Environmental Section of the Maricopa proposal and proposals from the other states now being considered for the SSC.

We have reviewed the Environmental and Cultural Resource Sections of the DEIS and would like to provide the following comments.

1 Overall, the DEIS appears to present a reasonable evaluation of the environmental and cultural resources of each site. However, the amount of information provided for each site varies widely. The greatest disparity appears to exist between the Arizona and Texas sites. Arizona clearly appeared to provide the most complete assessment of any of the states being considered. My company believes that decisions should be made on the greatest amount of information that can be gathered, and we strongly encouraged the Arizona SSC team to identify and assess as many potential environmental impacts as possible as early as possible. It has been our experience that a lack of information usually leads to worst-case scenario speculation. Given the limited time period available, we think the Arizona team did an excellent job in presenting a fair assessment of environmental impacts that would be caused by the SSC. However, after reading the DEIS, we are concerned that the limited amount of text devoted to potential environmental issues for a number of other sites gives the impression of fewer impacts rather than insufficient information. We trust that our recommendations to provide a fair, detailed assessment of impacts will not be misinterpreted as an indication that the Arizona Site will have the greatest impacts on the environment. We would even encourage a delay in the site decision pending more complete environmental impact assessments of all the sites.

We found a number of errors in the DEIS pertaining to environmental aspects of the Arizona Site. I believe most of these have been included in the comments provided by the

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SWCA ENVIRONMENTAL CONSULTANTS

Arizona SSC Project Technical Committee, but I would like to mention a few in the time I have today.

2 Requirements of the Arizona Native Plant Law have been misinterpreted. Mitigation for the disturbance of native plants covered under the law is not required as stated in Appendix 5 (5.1.5-2) and at various other places in the DEIS. All that is required is notification of the Arizona Commission of Agriculture and Horticulture prior to removal of these plants. We do, however, recommend salvage of native plants and revegetation of areas disturbed during construction, and it is our understanding that such mitigation is planned.

3 Federal statuses of a number of species are used inconsistently and sometimes incorrectly, and population status in the study area is often lacking. Gila Monster is incorrectly listed as a Category 1 species in Table 4-17, though correctly as a Category 2 species in Appendix 11. Wiggin's Cholla is incorrectly listed as a Category 3 species (which means it has been dropped from consideration) in Appendix 11, though it is likely it will soon be downlisted from its Category 2 status. In keeping with the liberal inclusion of any listed species that might occur in the area of a Site, Peregrine Falcon and Bald Eagle should be included in Table 4-17, Federally listed and Candidate species, as well as in Table 4-18, State-Protected Species. It would be better to title these and corresponding tables from other sites "Species That May Occur." It should be made clear which species potentially breed or winter and which are just casual migrants. Swainson's Hawk is identified as a migrant only in the Arizona Site in Chapter 5, but not in Chapter 4 or Appendix 11.

4 The statement made in Chapter 4 that ecosystems within drainages "behave as a series of islands of biological productivity in the sea of desert pavement," overemphasizes the differences between riparian and upland habitats at the Arizona Site. Riparian habitats in this area are poorly developed compared with those in areas with greater rainfall or drainage. Productivity in many areas of the Upland Subdivision of Sonoran Desertscrub are as high or higher than that along washes in the Lower Colorado Subdivision. It is doubtful whether any of the riparian habitats in the area would be considered "woodlands."

5 We disagree with two statements in Appendix 11 concerning water sources in desert areas. The statement in 11.3.1 that "creating new water sources can become an attractive nuisance for wildlife which will disturb predator/prey relationships, change exploitation of food resources, and increase competition with species not indigenous to the

SWCA ENVIRONMENTAL CONSULTANTS

desert" is very misleading. Native water-dependent habitats have decreased dramatically in recent years; creation of new ones is desirable. As long as vegetation around water sources is limited to native species, virtually no exotic animals would be likely to colonize these new habitats. The Arizona Game and Fish Department and the Bureau of Land Management have been creating water sources in desert habitats for years for the benefit of native wildlife. Creation of water sources with associated native riparian vegetation could be an extremely effective wildlife mitigation measure. However, availability of permanent water is not a principal limiting factor for the population density of many bird species, as stated in this section.

6 The visual impacts of the campus and injector facility may not be as significant as suggested in Appendix 16 because of the existence of a nearby town, freeway, and agricultural fields, which already disrupt the natural-looking landscape. The campus and injector facilities will be no more visible or visually-dominating than these existing manmade features. Construction of the SSC will not disrupt a pristine landscape as implied in the DEIS, though it will have significant impact.

LETTER 655

ARIZONA DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

206 South Seventeenth Avenue Phoenix, Arizona 85007

ROSE MOFFORD
Governor

CHARLES L. MILLER
Director

September 19, 1988

THOMAS A. BRYANT II
State Engineer

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U. S. Department of Energy
Washington, DC 20545

Attention: SSC DEIS Comments

Re: Environmental Impact Statement
Superconducting Super Collidor
Comments on August, 88 Draft

DEIS Volume I, Chapter 3
Proposed Action and Alternatives
Table 3-3 (Page 3-27)

1 Miles of new road - Listed at 101 miles, includes Estrella Freeway. Should not include entire Estrella Freeway, Northern 40 miles would be constructed for other purposes, though expanded for the SSC. The Southern 18 miles would duplicate the primary SSC road and, therefore, is counted twice.

Table 3-4
(Page 3-29)

2 ESTIMATED ACREAGE - includes duplication as noted above for Estrella. Further duplication is evident in right-of-way for railroad facility, since the railroad construction would occur on land set aside for SSC.

DEIS Volume IV, Appendix 14
Infrastructure Assessments
Transportation - Arizona 10

Maricopa-Mobile - Gila Bend Road

3 Any construction activity upgrading the dirt road would have almost zero impact on current traffic, current traffic being so low as to be insignificant. The proposed hazardous waste disposal facility has projected 8-10 trucks per day over the next several years. Mobile community does not generate more than 100 vehicle trips per day, thus such construction impacts would be minimal.

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Dr. W. Hess
September 19, 1988
Page 2

4 In regard to connections to I-8 for the lower ring access, Arizona does not believe direct access to I-8 at uncontrolled locations is feasible. We proposed one point of connection at the Freeman TI with a ring access road providing local site access. Regarding traffic impacts to I-8, there should be none in either the near or long term. I-8 operates well below capacity both now and in the twenty year projections. Project traffic exiting or entering I-8 via the existing interchange would have almost no impact.

5 Regarding the proposed Estrella Freeway it is anticipated this freeway would be coincident with the SSC access road as it connected to Vekol TI, but separate from the SSC facilities. The Estrella road would, when available, provide employee access to community facilities. Additionally, the Arizona proposal does include funding for temporary access with a 2 lane facility, along this corridor. It should be noted the Arizona proposal does now include funding for a 4 lane road from Vekol TI to the campus area.

6 The Modified access roads plan shown on 14.2.1-2 essentially depict the proposed Arizona plan with the exception of the 2 lane access north to the possible Estrella Freeway.

Infrastructure Assessments
Transportation - Arizona 17

Southern Pacific Main Line

7 Arizona has never experienced the closing of a railroad during roadway construction. We do not in this plan foresee any closure of rail traffic for any type of roadway construction. Therefore, in the worst case, we anticipate a reduction of rail traffic speeds through the construction zones.

Grade crossings are considered viable in the short term to permit earliest start up of SSC construction. Grade separations are considered in the longer term when general traffic is present.

Very truly yours,

James P. Oxley

JAMES P. OXLEY
Assistant State Engineer
Design Section

JPO:bjk

cc: J. Comfort

LETTER 656

Arizona Public Service Company
P.O. BOX 53999 • PHOENIX, ARIZONA 85072-3999

October 3, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U. S. Department of Energy
Washington, D.C. 20545

Dear Dr. Hess:

1 At the request of the Arizona SSC Task Force, Arizona Public Service Company (APS) has reviewed the electric power portions of the draft Environmental Impact Statement (EIS) issued by DOE for the SSC. Because some passages of the EIS, particularly the summaries, seem to be written in an unexpectedly negative tenor regarding APS' ability to provide power for the SSC, I plan to speak at the EIS hearing today to convince the SSC Site Task Force that we at APS are most positive about our ability to serve the SSC. Furthermore, we believe you will agree that APS is in an extremely advantageous position to serve the SSC once you are aware of all the facts.

At the EIS hearing, DOE will be presented with APS' written item-by-item commentary as part of the official State of Arizona response. In addition, please note the attached letter sent to Secretary of Energy John Herrington by Mark DeMichele, President and Chief Executive Officer of APS. With this letter, Mr. DeMichele has made clear his personal commitment to the SSC Project.

The APS commentary in the Arizona response to the EIS, along with the attached letter and our previous submittals forwarded to DOE by the Arizona SSC Task Force, should convince you that not only is APS ready, willing, and able to provide power for the SSC, but that APS is in an extremely advantageous position to do so compared to utilities in other states. Please review this material and see for yourself that APS offers the following benefits:

2 1. In addition to the dual (east and west) 230-kV transmission feeder lines, APS has proposed a 230-kV transmission tie-line to link the two major SSC substations. This tie-line is unique among our competitors' proposals and will provide enhanced reliability for the SSC at the Arizona/Maricopa Site.

2. APS is ready to construct the dual 230-kV transmission feeder lines and the station to station 230 kV transmission tie line. Final EIS approval has been granted for the line routes, engineering plans are completed, most of the right-of-way has been purchased, and we foresee no problems in obtaining the remaining portions of the right-of-way. While the APS plans were drafted prior to our knowledge of the SSC, our plans specify that the line will be built with the capability of supporting an eventual upgrade to double its initial capacity. The upgrade will be put into effect immediately upon construction if necessary for the SSC. Furthermore, APS' plans presently specify an in-service date of 1997, but changing this date to meet the needs of the SSC represent a part of the normal electric utility planning process and will not pose a problem for APS.

3. The scheduled generation additions in the APS 20-year resource plan (forwarded to DOE on 3/15/88) are readily available and can easily accommodate the SSC and related secondary loads. Our goal is to adher to a prudent reserve margin (16% during the term of the SSC) as closely as possible and we will continue to do so with the addition of the SSC.

4. Generation and transmission facilities for construction power are readily available. Within 50 miles of the SSC site, there are 5 major power plants (Agua Fria, Kyrene, Ocotillo, Palo Verde, and West Phoenix) with 21 existing generating units having a total generating capacity of 5500 MW, and an APS 69 kV line to the Arizona/Maricopa Site has just been completed and is ready to be energized.

Please also consider APS' traditionally high transmission reliability and our established history of successfully meeting rapid load growth with the timely construction of new generating facilities.

We trust that, after a site-by-site evaluation, you will conclude that APS is in the best position to expeditiously provide the SSC with electrical energy of the highest quality and reliability in the full amounts and at the times needed for both construction and operation.

With sincere regards,

Jack Davis

Jack Davis, Manager
APS Power Contracts

JED/JFP:mw
Attachment

LETTER 657

Arizona Public Service Company
P.O. BOX 53999 • PHOENIX, ARIZONA 85072-3999

O. MARK DE MICHELE
PRESIDENT AND CHIEF EXECUTIVE OFFICER
(602) 250-3438

September 22, 1988

Honorable John Herrington
Secretary of Energy
U.S. Department of Energy
Washington, D.C. 20545

Dear Secretary Herrington:

Today my staff has completed a thorough review of the Draft Environmental Impact Statement (EIS) for the Superconducting Super Collider (SSC), at the request of the Arizona SSC Project Task Force. Specifically, we were asked to address and clarify the sections pertaining to the furnishing of electrical energy to the SSC at the Arizona/Maricopa Site. Our detailed analysis of these sections has been made part of an official response to the EIS by the Task Force, which will be sent to the Department of Energy.

In the EIS, we found several passages which seemed to raise some question on the ability of Arizona Public Service Company to serve the anticipated SSC load in a reliable and timely manner. Nothing could be further from the truth - our company is in an extremely strong position with respect to both generation and transmission capabilities, and we are most anxious to provide energy for the SSC. Our reliability record, as stated in past Arizona SSC submissions, is among the best in the nation. 1

Planned transmission facilities, already approved, cross the proposed SSC Site. We can and will move up the completion date of these facilities upon notification of an award of the SSC facility to Arizona. Our generating capacity is strong with large reserve margins and it will be no problem to supply the 220 megawatt SSC load with our traditional reliability and with adequate reserve margin on the scheduled completion date. Finally, construction power can be easily furnished from a 69 kV line nearing completion this fall.

I am confident the materials we submitted to the Task Force will clarify our capabilities, and I wanted to make you personally aware of our intent to provide all required construction and operating electrical energy for the SSC when it is needed, and to add my personal commitment to the project.

Sincerely,

O. Mark DeMichele

LETTER 658

Response to the Draft Environmental Impact Statement

For The

Superconducting Super Collider

Oct. 3, 1988

by the

Arizona SSC Technical Team

1 Dr. Temple, distinguished members of the panel I am Don Morris of 1317 E. Speedway Blvd., Tucson, AZ. I am Project Manager for the AZ SSC Project Technical Committee and speak for the hundreds of Arizonans who have labored so diligently to make the SSC Project a success on the national, regional, and local levels. Since 1983 members of the Technical Committee have thoroughly examined the Grand Canyon State seeking the perfect location for the Super Collider. We feel strongly that the Arizona/Maricopa site exceeds every technical criteria for siting the SSC as expressed in the Invitation for Site Proposals.

2 Our committee has meticulously reviewed the DEIS so that the Final EIS can become the most complete and accurate document possible. The conclusions of our review suggest that there may be many internal inconsistencies, errors, and incorrect conclusions drawn from data presented in the DEIS. These gaps are inevitable given the limited time frame that was placed upon DOE and subcontractor personnel to prepare the DEIS. Rather than detail all these corrections here, I will submit 33 pages of detailed commentary upon the close of my presentation. One clear result from the rapid preparation of the DEIS is that differing amounts of information provided by each state caused significantly different analyses of the attendant environmental impacts. Clearly, the preparers of the DEIS could only use the data made available to them, but the analysis is such that states that provided more information appear to have more environmental impacts than those that provided less information. Conspicuous examples of this phenomena are the following:

3 1) AZ provided detailed information on Threatened and Endangered species and received a in-depth analysis, whereas Texas provided considerably less information and a less detailed analysis. The Department should remember the comments of Mr. David Curtis, Acting Field Supervisor, U.S. Fish and Wildlife Service, Ft. Worth, TX (Appendix 11, p. A26-28), and I quote "There is no indication that environmeatal studies have been carried out in sufficient detail to give fish and wildlife resources equal consideration under the law. This apparent failure could result in an incomplete DEIS. Inadequate consideration of fish and wildlife resources during project analysis and planning could result in significant adverse impacts and costly mitigation requirements. We encourage more thorough environmental studies should this site (Texas) continue to receive high consideration for development." (end quote)

4 2) Similarly an analysis of cultural resource impacts suggests that unequal amounts of data can result in misleading conclusions. A lack of information does not imply a lack of cultural resources or conflicts and, therefore, should not leave that impression.

5 We would encourage the Secretary to carefully consider these inequalities in the DEIS when rendering his decision. As the DEIS is to be a resource for decision-making, it must be evaluated thoughtfully so that all sites are illuminated equally by the harsh light of potential environmental impacts.

6 One important impact of the SSC not adequately addressed by the DEIS is the effect of SSC construction and operation upon people living adjacent to the SSC "footprint." These people will not be compensated for their inconveniences because their lands are not required for siting the SSC, yet they will have to endure the unpleasantness, as described in the DEIS, of a major construction

site in their backyards. At the Arizona site, after the 4 necessary relocations are completed there are no residents immediately adjacent to suffer the consequences and inconveniences of a seven-year construction program. In this respect, the Arizona site can provide a location that may greatly decrease the risk of litigation from neighboring residents. We would suggest that the Department carefully consider this type of impact when rendering a final decision.

7 Another important consequence left unaddressed by the DEIS is a recent case in the Second Circuit of the United States Court of Appeals concerning construction in wetlands. Although the future impact of this litigation is not adequately known, I would like to remind the Department that the Arizona site is the only site on the BQL that does not impact wetland environments.

8 As the DEIS notes, the Arizona site is located in a desert area of lowland creosote bush flats and saguaro, palo verde and shrub spotted mountains. The lowland areas, where most of the SSC construction will take place has been used for grazing for decades. In this lowland area, within or adjacent to the SSC site will be built a hazardous waste disposal facility, a conventional waste disposal facility, and decisions are pending for two oil refineries and a commercial practice landing strip. Thus the lowland areas are no longer pristine and have the potential of being developed with various facilities in addition to the SSC.

9 The upland areas of the Maricopa Mountains are much less disturbed by human intervention. The mountains and pediments are habitat for desert bighorn sheep and desert tortoise, both sensitive species. For this reason, the Bureau of Land Management has included these areas as Wilderness Study Areas (WSA). However, over the past decade, human activities primarily in the form of off-road vehicles have increased, threatening the relatively pristine nature of the mountains especially as it concerns wildlife habitat. With Phoenix expanding toward the SSC site growth will bring with it further environmental pressures to the region. Two new, large residential developments are encroaching into this area. Residents from these new developments will surely look to the Maricopa Mountains for their recreational release.

10 Construction of the SSC around the Maricopa Mountains will permit greater control of human disruption of the mountainous wildlife areas. There is thus a potential to integrate a high technology facility with wilderness protection, a unique and powerful marriage.

11 A common theme among our six competitors for the SSC is their need to bolster their slumping economies. We in Arizona also recognize the economic benefits the SSC could bring but do not pursue it as a social or public works program. The SSC is a research and development program. The promise of economic salvation may garner enthusiasm, but it will not ensure successful construction and operation, nor will it guarantee the highest research productivity. We in Arizona are enjoying a vibrant economy with moderate growth, not because we are blessed with tremendous natural resources or some special talent but because of our quality of life. It is this quality of life that we feel will attract the best and the brightest and assure that the SSC will be a success in Arizona.

Review Comments on the Draft EIS for the Superconducting Super Collider by the Arizona SSC Technical Team

The following comments are listed in an order identical to that of their occurrence in the DEIS.

Volume 1, Chapter 3

pp. 3-25, paragraph 5. The disposal of spoils is an important component of the various impacts and mitigations associated with the construction of the SSC. The following is a summary statement which considers many aspects of the spoils generation and disposal which are found in many sections throughout the DEIS.

Throughout the entire DEIS no consistent calculation for the volume of spoils (excavated material) potentially produced at the Arizona SSC site is given. The document refers to at least three different estimates ranging from 2.45 x 10^6 yd^3 to 2.8 x 10^6 yd^3. All estimates greatly exceed that calculated by the Arizona SSC Project (1.43 x 10^6 yd^3, given on p. 93 of the Maricopa Site Proposal). The DEIS estimate must be in error, for it assumes that the entire 53-mile long collider tunnel will produce spoils. Clearly, because at least 11% (DEIS) to 22% (Arizona-Maricopa SSC Site Proposal, Sept. 2, 1987) of the collider tunnel would be constructed by cut-and-cover methods, a technique that upon completion does <u>not</u> produce spoils, the DEIS has greatly over estimated the amount of spoils that need to be properly disposed. Depending upon the specified density of the backfill, it is conceivable that more material than is produced by the cut-and-cover excavations will be necessary for backfilling. The potential net effect is that substantial portions of the collider tunnel excavation will <u>consume</u> rather than produce "unwanted" excavated materials. This fact further serves to bring the DEIS calculated volume of spoils into question.

12

The DEIS considers four options for the disposal of spoils at the Arizona SSC site: 1) to place the material at established mine dumps at the Sacaton mine, 2) likewise placing the material at the New Cornelia mine, 3) to spread the material on site within the high-energy booster ring, and 4) for use as a building material in the Phoenix metropolitan area (DEIS, Volume IV, Appendix 10, p. 3). The Sacaton mine was selected by the DEIS as the ultimate repository for the Arizona SSC site spoils because it is "the most likely (worst case) choice of the options presented by each state (DEIS, Vol. I, Chap. 5, p. 5.1.6-18)." There is some confusion in the DEIS when discussing "most likely" versus "worst case" options for spoils disposed at the Arizona SSC site. The option evaluated, clearly is a worst case scenario. A most likely case, and for the Arizona SSC site, the most probable option is to use the spoils material for road construction. The DEIS points out that 80 to 121 miles of new or upgraded road construction will be necessary for the Arizona SSC site (DEIS, Vol. I, Chap. 3, p. 3-25). It also recognizes that spoils could be used for aggregate (DEIS, Vol. I, Chap. 3, p. 3-54), and one mitigation that would reduce adverse impacts is the use of spoils for road construction (DEIS, Vol. I, Chap. 3, p. 3-64). The use of spoils for road construction was advocated in the May 20, 1988 data submittal to the DOE by the Arizona SSC Project (p. 6 of the submittal). To reiterate, the

spoils can be used for road construction at and in the vicinity of the Arizona SSC site; to use the Sacaton mine for spoils disposal will ignore the potential use of this material as a needed commodity and waste a greatly needed resource. Preliminary calculations by Sergent, Hauskins, & Beckwith (supplied to DOE with the 5/20/88 data submittal as Appendix 5) suggest that 35,000 yd^3 of borrow (which would be spoils) per mile are needed to construct a 50-foot roadway subgrade sufficient for a 4-lane roadway. If 2.8×10^6 yd^3 of spoils are generated (a maximum?), conservatively that is sufficient material for construction of 80 miles of 4-lane roadway, merely 66% of the potential needs for the site. Clearly this type of analysis presents a more credible view of the appropriate spoils disposal mechanism without unfairly and unjustly overestimating the potential impacts attributed to spoils disposal on air quality, vehicle miles traveled, and safety assessments. These onerous assessments are an example of the errors present in the DEIS when the basic assumptions used do not accurately reflect the site conditions.

In summary, all sections of the DEIS dependent upon the generation, transportation, and final disposition of spoils at the Arizona SSC site are in error, and do not in any way represent the conditions that are most probable for this site. There is an internal inconsistency in the volumetric calculations, a misunderstanding with respect to the most probable use of this material, and resulting from these errors are a series of inappropriate conclusions regarding the ultimate environmental consequences of spoils disposal.

13 pp. 3-27, Table 3-3. Under the section titled miles of new roads, the number for Arizona is listed at 101 miles. This includes the proposed Estrella Freeway running from Interstate 10 (I-10) south to I-8. As mentioned in the DEIS the Estrella Freeway would be constructed for other purposes and therefore need not be included in the DEIS. However, if included, the estimated mileage is too high. The section (approximately 8 mi) running from Big Tank (just northeast of J2) south to I-8 is counted twice. Once as part of the Estrella Freeway (as a new 4-lane road) and once as an SSC site road (new 2-lane road). This section, as drawn in Volume IV, Appendix 1, Figures 1.2.1-3 and 1.2.1-4, follow the same alignment down Vekol Road and therefore need not be counted twice. The correct total miles of new road, including the Estrella Freeway, should be 93 miles. If the Estrella Freeway is not included the total miles of new roads would remain 54 miles.

14 pp. 3-54, Table 3-7. This Table identifies 36 acres of prime and important farmland converted for SSC use at the Arizona site. Prime farmland is defined in the U.S. Code of Federal Regulations (CFR 657) known as the "Farmland Protection Policy Act of 1981". Under section 657.5iC, prime farmland includes soils that have an aridic moisture regime and the area has a developed irrigation water supply that is dependable and of adequate quality. A dependable water supply is one in which enough water is available for irrigation in 8 out of 10 years for the crops commonly grown. All of the soils at the Arizona site have an aridic moisture regime. Therefore, a dependable water supply is essential for any portion of the SSC site to be identified as prime farmland. None of the soils of the Arizona SSC site have a dependable, developed irrigation water supply. This conclusion is drawn from on-site inspections, aerial photos, land

ownership maps and discussions with Soil Conservation Service personnel. As a result there is no prime farmland affected by the project and Table 3-7 should state that 0 acres of prime and important farmlands would be converted for SSC use in Arizona. Also, the percentage of inventory in the site region, the next line in Table 3-7, would be 0.

15 Also in Table 3-7 the State of Arizona SSC Site is listed as having 95 Historic sites. This should be changed to 10, as is correctly stated in Volume I, Chapter 4, Section 4.10.1.2, second paragraph, third sentence. See also the comment on Volume I, Chapter 5, Section 5.1.9.1, fifth paragraph, found below.

16 pp. 3-63, Sec. 3.6.3, third paragraph. The "Arizona Cactus Law" (which is correctly called the State of Arizona Native Plant Law) has not been properly interpreted here, and does not require restoration and revegetation of disturbed land, as implied in the text. The Law requires only that the Commission of Agriculture and Horticulture be notified 30 days in advance of disturbance (grading). Mitigation is not required as stated in the DEIS. All cacti do not have to be collected. The purpose of the notification is to allow the opportunity for cacti to be salvaged, usually by landscaping companies or nurseries. However, mitigation by salvage and replanting remains an attractive option for reducing environmental impacts of the project. The interpretation of the Law in this summary volume contradicts that in Volume IV, Appendix 5A, Sec. 5.1.9.5.B, pp.78.

17 pp. 3-67, section 3.7.4. The second paragraph states that: "Arizona, Michigan, North Carolina, and Tennessee will have regional exceedances of NAAQS carbon monoxide limits resulting from SSC-related emissions." The DEIS treatment of ambient carbon monoxide (CO) concentrations for the Arizona site is incorrect. For reasons unknown, the DEIS uses worst case CO concentrations for the Phoenix metropolitan area to represent background CO concentrations for the SSC site. Use of Phoenix CO concentrations for the SSC vicinity is inappropriate because of the 30 miles distance separating the two locations.

Rather than Phoenix data, CO measurements at the Sierra Estrella Sallport should be used to represent background conditions. Data from this location were used in the DEIS for establishing background conditions for sulfur dioxide, nitrogen dioxide, ozone, and total suspended particulates. Use of CO data from the Sierra Estrella Sallport for background conditions would demonstrate that NAAQS for CO would not be exceeded.

It should also be noted that this statement contradicts paragraphs 5 and 6, Volume IV, Appendix 8. The paragraphs state:

18 "These high backgrounds of CO are not characteristic of the proposed SSC sites in Arizona, Michigan, North Carolina, and Tennessee, each of which is rural. Actual site CO concentrations are expected to be much lower than that estimated. NAAQS CO violations are not expected."

"The impact of SSC site CO emissions is negligible on the metropolitan areas' air quality because (1) these are low CO emission rates and (2) sites are relatively distant from the metropolitan center.

Modify DEIS language to reflect these facts.

19 pp. 3-69, Section 3.7.11. The prime and important farmland acres for the Arizona site should be reported as 0. See comment on Volume 1, Chapter 3, pp. 3-54, Table 3-7 for explanation.

20 Volume 1, Chapter 4

pp. 4-2, Table 4-1. The physiography for Arizona should be Basin and Range not Sonoran Desert.

21 pp. 4-2, Table 4-1. References to variably cemented basin-fill and fanglomerate under the "Stratigraphy at Shaft Locations" and "Stratigraphy at Tunnel Depth" are misleading. Fanglomerate is defined as variably cemented alluvial fans deposits that comprise the basin-fill. These two terms are describing the same rock units. Correct such that only one term appears, fanglomerate is preferable. "Geologic Structure" notes the presence of faults within the ring, please add that no faults are known to intersect the collider tunnel.

22 pp. 4-5, Section 4.1.2. This section on stratigraphy refers to basinfill/fanglomerate in the valleys as though these were separate and distinct rocks units. They are not, both terms describe the <u>same</u> rock unit. Correct the written description such that only fanglomerate appears.

23 pp. 4-6, Section 4.1.3. "Geologic Structure" correctly notes that the rocks at the Arizona site are tilted and faulted, but takes special care to note that some shear zones are up to 10 feet wide. This passage is misleading and does not accurately reflect the characteristics of the rock units intersected by the collider tunnel as currently known. The entire collider ring surface trace has been walked out by several Arizona SSC Project team members including geologists, hydrologists, and engineers. No shear zones of that great thickness were ever noted. More typically the shear zones are one to two feet thick, and all shear zones are mylonitic. As a result the shear zones are loci of greater strength than the surrounding bedrock, and not zones of increased weakness as is often the case with shear zones. Correct the passage to read " . . .are also tilted and faulted (including shear zones locally up to 10 ft wide that are not known to intersect the collider tunnel)."

24 pp. 4-23, Table 4-5. The mean annual precipitation for Arizona is listed as 10.33 inches. Nowhere, in any document submitted by the Arizona SSC Project or in the published literature is the mean annual rainfall around the Maricopa site that high. The correct figure should be approximately 7.0 inches as given in the Arizona-Maricopa SSC Proposal, Sept. 2, 1987; Volume 7, Table 7-1, and as found in Sellers and Hill (1974).

25 pp. 4-24, Table 4-5. A heading in the Table reads:

"Mean annual dewpoint
humidity (%)"

This should be strictly; Mean annual dewpoint.

26 pp. 4-27, Table 4-6. The carbon monoxide concentrations shown in this table for Arizona are not representative of the SSC site. The highest annual carbon monoxide measurements made at the Sierra Estrella Sailport from 1976-1981 ranged from 1,486 ug/m^3 (1976) to 13,714 ug/m^3 (1977) for one-hour, and from 915 ug/m^3 (1976, 1979, 1980, and 1981) to 7,200 ug/m^3 (1977) for eight hours. Measurements at the Sierra Estrella Sailport have been used to establish air quality conditions at the SSC site for total suspended particulates, sulfur dioxide, nitrogen dioxide, and ozone. Carbon monoxide measurements made at the Sierra Estrella Sailport should also be used to establish CO conditions at the SSC site.

27 pp 4-40, Table 4-15. Within the table there is a listing of industrial sources within the SSC ring. Included in this category are oil and gas pipelines. Under Texas, "none" is listed. In Volume 6, Table 6.2.1.5-2 of the Texas SSC Proposal a total of 13 oil and gas pipelines are listed as crossing the ring or short tunnel.

28 pp. 4-42, Sec. 4.6.2.2, first paragraph. It should be pointed out that control of dust during construction (e.g., wetting the soil) is a successful mitigation procedure for Valley fever spores.

29 pp. 4-44, Sec. 4.7. The first paragraph, last sentence, reads: "The only culturally important species are raptors (all sites) and feral burros (Arizona)". This should read: "The only culturally important species are raptors (all sites)." Rather than being culturally important, feral burros are considered by many to be a "nuisance species", one which competes with native animals such as bighorn sheep.

30 pp. 4-44, Sec. 4.7.1. The second paragraph, first sentence, reads: "...ecological resources are widely used for recreational activities". This should read: "...ecological resources are widely used for recreational activities <u>and grazing</u>".

pp. 4-44, Sec. 4.7.1. The second paragraph, last sentence, reads: "Unlike the other six sites, the Arizona site is predominantly unmodified by human activities and maintains many wilderness characteristics.". This is not entirely true. Although portions of the Arizona site maintain many wilderness characteristics, a large percentage of the Arizona site has been modified by cattle grazing, off-road vehicles and other human activities. Remove this language for it does

not accurately characterize the Arizona site.

31 pp. 4-46, Table 4-16. Second column, second row. "Gila Bend River" should read "Gila River".

32 pp. 4-47, Sec. 4.7.2. The first paragraph, first sentence, reads: "...Gila Bend drainage basin." This should read: "...Gila River drainage basin."

pp. 4-47, Sec. 4.7.2. The third paragraph, first sentence, reads: "The ecosystems...are moderately undisturbed desert scrub systems that: 1) are slow to recover from stress...". This should read: The ecosystems...are moderately undisturbed desert scrub systems that: 1) are slow to recover from disturbance." Sonoran desert scrub systems are by nature adapted to many forms of stress (e.g., moisture stress, heat stress); this ability to tolerate stress decreases their ability to recover from disturbance (e.g., habitat destruction, fire).

33 pp. 4-47, Sec. 4.7.2. The third paragraph, first sentence, reads: "The ecosystems...are moderately undisturbed desert scrub systems that: ...2) behave as a series of islands of biological productivity in the sea of desert pavement...". This should read: "The ecosystems...are moderately undisturbed desert scrub systems that: ...2) behave as a mosaic of interacting units, in which nutrients and energy flow between the more productive desert wash community and the less productive desert scrub communities."

34 pp. 4-47, Sec. 4.7.2, fourth and fifth paragraphs. The term 'ecotype' is not appropriately used here or elsewhere in the EIS, and should be replaced by 'vegetational associations'. Ecotype has a precise definition, referring to a population of a species which exhibits distinct morphological, physiological, or other adaptations.

35 pp. 4-47, Sec. 4.7.2. The fifth paragraph, last sentence, reads: "The woodland ecotype is limited to the two ephemeral washes traversing the site.". This should read: "There are many ephemeral washes that traverse the site; the larger of these support woodland associations along their edges."

36 pp. 4-52, Sec. 4.7.4.1. An additional summary table should be inserted which lists known occurrences of threatened and endangered species in the specific area of the proposed site; such a table would list 0 threatened and endangered species at the proposed Arizona site.

37 pp. 4-53, Sec. 4.7.4.1. The second paragraph, first sentence, reads: "There is one endangered species near the proposed Arizona site, the Tumamoc globeberry". This should read: "There are no endangered species at the proposed Arizona site; the closest known population of an endangered species in the

area is the Tumamoc globeberry, approximately 30 miles south of the Arizona site."

38 pp. 4-55, Table 4-17. Under the Arizona listing for federally listed and candidate threatened and endangered species in the region of the site alternatives the Gila Monster is incorrectly listed as a Category 1 species; it is actually listed as Category 2.

39 pp. 4-56, Sec. 4.7.4.1. The first paragraph, second sentence, states that the tortoise population in the North Maricopa Mountains "is located in areas of proposed activities, especially B7." This should read: " is located in areas of proposed activities, especially E7".

40 pp. 4-56, Sec. 4.7.4.2. The first paragraph, second sentence, reads: "The sites differ drastically in the number of state-protected species in the area of the proposed site.". It would be helpful to add that the reason for these differences include differences in the content of state laws (e.g., some states have Endangered Species Acts which protect animals and/or plants, while others, such as Arizona, have laws which protect certain culturally valuable plant species, and which list, but provide no legal protection for endangered and threatened animals), as well as real differences in numbers of rare species.

41 pp. 4-62, Sec. 4.7.5.1. The first paragraph, first sentence, reads: "The limited ranges of the desert tortoise, the desert bighorn sheep, and the Gila monster make the Arizona site unique.". This statement should read: "The Arizona site, as well as large expanses of the surrounding desert, support populations of two state-threatened species, the desert bighorn and the desert tortoise." The term 'unique' implies that the ranges of these species are limited to the Arizona site, which is not true.

pp. 4-62, Sec. 4.7.5.1. The first paragraph, second sentence, reads: "The Maricopa Mountains are covered by terrestrial plant and animal communities which are similar to those in the immediate region; the Maricopa Mountains have far less riparian woodlands.". Neither the Maricopa Mountains or the immediate surrounding area support any true riparian woodlands; rather, both support a few xeroriparian woodlands, although these are neither extensive in acreage nor well-developed.

42 pp. 4-62, Sec. 4.7.5.1. The second paragraph, first sentence, reads: The desert tortoise's requirement for wash areas and easy water availability may limit its distribution in the area.". This statement is not necessarily true. Factors limiting the desert tortoise in the area are not completely understood at this time, and may include a requirement for ungrazed habitat as well as for appropriate topography (e.g., rocky slopes and washes). A need for 'easy water availability' has not been documented; in fact, tortoises can survive for long periods without free water by obtaining moisture from their food.

43 pp. 4-63, Sec. 4.7.5.1. The second paragraph, second sentence, reads: "...and the species is unique to the Sonoran region of the western U.S. and Mexico", referring to the Gila monster. This should read: "..and the species occurs throughout the large, Sonoran region of the western U.S. and Mexico."

44 pp. 4-69, sec 4.8.3. The fourth sentence reads: "The Arizona site is located in an underdeveloped portion of Maricopa County, not only because of Federal land ownership/management policies, but also because of the lack of water for irrigation." The region around the Arizona site is undeveloped not because of a lack of water but because the size of Arizona coupled with its small population has allowed growth to concentrate in the most optimum areas, such as where Phoenix is located. Phoenix has historically been an important center of habitation because of its location at the confluence of the Salt, Gila, Verde, and Agua Fria rivers. The prior lack of growth around the Arizona SSC site can be attributed primarily to; its isolation from Phoenix because of the Gila River Indian Reservation and Sierra Estrella, and secondarily to the lack of surface water and the greater depth to ground water.

45 pp. 4-75, sec. 4.8.6, paragraph 5. The third sentence reads: "Limited irrigated farming is carried on in the southern part of the SSC site." Since 1985 the Arizona SSC Technical Team has conducted site-specific field investigations covering the length and breadth of the Arizona site. At no time over the last three years has agriculture, irrigated or otherwise been observed in the southern portion of the site. Based on the criterion for prime farmland, as described in the response to Volume 1, Chapter 3, Table 3-7, pp. 3-54 there is no prime farmland at the Arizona SSC site. The nearest farming to the site is approximately two and one-half miles north of F8, and two miles northeast of J1.

46 pp. 4-77, Table 4-23. The table lists potential prime farmland at 3,400 acres and actual prime farmland at 500 acres, with the difference being that potential prime farmland is potential due to its need for irrigation. Previously prime farmland acreage was listed as 36 acres now it appears as 500. Any farming done near the site, or in Maricopa or Pinal County for that matter, needs irrigation. Because there are no irrigation systems within the SSC site footprint there is no actual prime farmland at the Arizona site.

47 pp. 4-94, Section 4.10.1.2, second paragraph. The first sentence states: "Several phases of field research at the proposed Arizona SSC site have been completed by Arizona State University." We feel that full credit for the level of effort done by the Arizona SSC Technical Team is not recognized here. We would like to add that these surveys provide very nearly complete coverage of the SSC site. Historic and archaeological surveys have been conducted of all of Campus Areas A, B, and C; the buried beam access areas J-1 through J-6; and a total of 10.9 mi of the ring circumference that will be impacted by open trench construction. The State Historic Preservation Office and the Bureau of Land Management indicate that surveys are not needed for these portions of

the ring circumference that will be constructed by tunneling. Additional surveys will be needed for those ongoing impacts that cannot be identified until the design phase of the project. This would include such activities as the construction of roads leading to access shafts and the selection of areas to be used for spoil disposal.

Volume I, Chapter 5

48 pp. 5.1.1-2, Section 5.1.1.2. Reference is made to only 50% of the volume of excavated materials would be rock, implying the rest would be soil. The authors of the DEIS have made the assumption that fanglomerate materials are a soil. This is incorrect. By definition fanglomerate is "a sedimentary rock consisting of slightly waterworn, heterogeneous fragments of all sizes, deposited in an alluvial fan and later cemented into a firm rock (Bates and Jackson, 1980)." Even an engineering geology definition of soil refers only to the "unconsolidated materials above bedrock (Bates and Jackson, 1980)." It is clear then that any reference to fanglomerate (or alternatively cemented basin-fill deposits) as a soil is incorrect. There is a consistent misunderstanding about this point throughout the DEIS. Therefore, relative to the volume of excavated materials, the entire volume produced at the Arizona site will be rock because all materials to be excavated are rocks.

49 pp. 5.1.3-7, Table 5.1.3.3. The worst case ambient air CO concentrations for the Arizona SSC site are incorrect. As explained in the comment to Volume I, Chapter 4, pp 4-27, Table 4-6 and comments to Volume IV, Appendix 5a and 8, the concentrations used to represent the SSC Site should be replaced by those measured at the Sierra Estrella Sailport.

50 pp. 5.1.3-8, Table 5.1.3-4. The estimated PM_{10} and/or total suspended particulate emissions for the Arizona SSC Site are incorrect. It is physically impossible for PM_{10} emissions to exceed TSP emissions.

51 pp. 5.1.5-1, Sec. 5.1.5.1.B, first paragraph. Additional impacts to wildlife include possible changed patterns of human presence in remote areas of the Wilderness Study Area which presently are used by off road vehicle (ORV) enthusiasts.

52 pp. 5.1.5-1, Sec. 5.1.5.1.B.1, second paragraph. It should be mentioned that reclamation could be enhanced by addition of fertilizer which would enhance the rapid development of desert shrub species.

53 pp. 5.1.5-2, Sec. 5.1.5.1.B.1. The third paragraph reads: "The Arizona Native Plant Law prohibits the collection of many plant species in Arizona, including all cacti. Major construction projects require permitting to renew and revegetate disturbed areas." It should be added that the law allows for

permitted removal of protected plants through conservation methods, and does not require revegetation. Further explanation is given in the comment to Volume I, Chapter 3, Sec. 3.6.3, pp. 3-63.

54 pp. 5.1.5-2, Sec. 5.1.5.1.B.1. The fourth paragraph, third sentence, reads: "...with sizeable populations occurring in the Bender Wash (E5) and Waterman Wash (F8) areas...", referring to the desert tortoise. Although additional censuses of tortoise populations are needed, available information suggests that mountain pediment areas (e.g., E7, F8), rather than the large wash areas, support the larger tortoise populations.

55 pp. 5.1.5-10, Sec. 5.1.5.2.A, first paragraph. It needs to be mentioned that the closest known population of the Endangered tumamoc globeberry is 30 miles from the proposed Arizona SSC site, and that field surveys of disturbance areas around the ring by Arizona State University researchers revealed no globeberry present at the site.

56 pp. 5.1.5-10, Sec. 5.1.5.2.A, first paragraph. Although the nightblooming cereus has been located on the site, as indicated in the text, it needs to be mentioned that this cactus occurs at low densities throughout a large range which includes, but is by no means restricted to, the proposed SSC site.

57 pp. 5.1.5-39, Sec. 5.1.5.4.A, first paragraph. It is not necessarily true that the numbers of individuals who poach reptiles, cacti, and mesquite will increase because of the increased access provided by the SSC, since poaching is often higher in areas of low population density and less developed off-road-vehicle routes.

58 pp. 5.1.5-42, Sec. 5.1.5.4.G. (Texas) Does this paragraph imply that the SSC will allow hunting and fishing to occur uncontrolled on SSC property?

59 pp. 5.1.6-3, Sec. 5.1.6.1.B., second paragraph. The first sentence reads: "The potential for contracting Valley Fever at the Arizona site is a special case requiring special control measures." We question the necessity of using "special control measures"; mitigation for Valley Fever spores can be accomplished through standard dust control procedures, procedures which OSHA regulations normally require in high-dust areas.

60 pp. 5.1.9-1, Section 5.1.9.1, third paragraph. The second sentence states: "Only limited archaeological field surveys have been completed at any of the proposed sites". However, at the Arizona site all of the areas that will receive direct surface impacts as currently known have been surveyed for archaeological sites and historic buildings. This is a survey of 4,970 acres, and includes all of Campus Areas A, B, C, and 10.9 mi of the ring circumference. Additional surveys would be required only for activities that cannot be currently defined,

such as the specific locations of access roads to access chambers or areas used for spoil disposal.

61 pp. 5.1.9-1, Section 5.1.9.1, fifth paragraph. The second sentence reads: "An historic building and sites survey has not been performed at the proposed Arizona SSC site, although standing structures are expected to be rare." This should read: An historic building and sites survey has been completed at the Arizona SSC site, and a total of five structures were identified, of which only one structure remains standing. Other historic sites include three areas of historic refuse and two historic trails/roads, bringing the total of historic sites to 10 for the Arizona SSC site.

62 pp. 5.1.10-5, Sec. 5.1.10.2. Why is it necessary to modify recognized and widely used visual classification systems and use a separate, untested evaluation scheme for this EIS, when the Arizona site has already been evaluated by the BLM?

63 pp. 5.1.10-8, Sec. 5.1.10.3.A. The second paragraph, second sentence, reads: "The impacts on views from the Wilderness Study Areas would be national in scope". This statement is based on a faulty assumption. For a visual impact to be of national significance, the impact must be to a designated Wilderness Area, not to a Wilderness Study Area.

64 pp. 5.2-3, first paragraph. The fourth sentence states: "Regional exceedances of NAAQS carbon monoxide limits resulting from SSC-related emissions occur in Arizona, Michigan, North Carolina, and Tennessee." This statement is incorrect with respect to Arizona as explained in prior comments (Volume I, Chapter 3, pp. 3-67, section 3.7.4; Volume I, Chapter 4, pp. 4-27, Table 4-6; Volume I, Chapter 5, pp. 5.1.3-7, Table 5.1.3-3, etc.)

65 pp. 5.3-1, sec. 5.3.2.1: This mentions that in the absence of the SSC the Maricopa site would remain a popular multiple use recreational area in the Sonoran desert. How is popular defined, by the number of people that use it, by how much those that do use it like it? As it stands it is an unfair and misleading statement and should be removed to reflect a less pejorative perspective.

66 pp. 5.4-1, Section 5.4. This section refers to the loss of extractable metallic resources in Arizona and other states resulting from siting the SSC. The DEIS does acknowledge that this loss would be of little economic importance. This statement is in complete contradiction with Table 5.6-3 and the conclusions about economic geologic resources in Appendix 5, Sect. 5.1.1.6. For a metallic resource to be extractable implies that the resource is some type of ore and therefore of some economic significance. Table 5.6-3 and the section cited in Appendix 5 point out very clearly that whatever the nature of the resources present at the Arizona site they are uneconomic or of little economic significance.

By the logic normally used in evaluating the economic worth of geologic resources, the potential resources at the Arizona site are not extractable because they are not economic. Statements suggesting that there are extractable geologic resources at the Arizona site are in error and contradict more accurate statements in the DEIS itself.

Volume IV, Appendix 1-3

Appendix I, sec. 1.2, pp. 1. Under the section on Arizona it reads: "The proposal located 11.9 mi (22%) of the collider ring in cut-and-cover tunnel and the remainder in tunnel boring machine (TBM) tunnel. The proposal limited the maximum depth of cut-and-cover tunnel to 80 ft below the existing ground surface. However, in some areas the proposed cut-and-cover was actually greater than 80 ft, and in these areas this was changed to TBM tunnel. Also, where the cut-and-cover tunnel crossed the Gila Bend-Maricopa Road, the Southern Pacific Railroad tracks, and the Butterfield Stage Route the cut-and-cover tunnel was changed to TBM tunnel because these facilities should not be interrupted or destroyed by open cut construction. This results in a total of 6.0 mi (11%) of the collider ring in cut-and-cover tunnel." Numerous mistakes have been made in these calculations. First, the Arizona-Maricopa SSC Site Proposal, submitted Sept. 2, 1987 did not limit the maximum depth of cut-and-cover to 80 feet. In fact in Volume 3, Page 93, first paragraph, of the Arizona Proposal it says: "The experience of local contractors with the fanglomerate demonstrates, however, stable open-cut excavations to depths of between 80 and 100 feet." Second, at the end of the same paragraph it says: "However, experience shows there is significant increased flexibility and reduced costs using cut-and-fill as an alternative to TBM tunneling up to a depth of 100 feet."

67

Based on Figure 3-2 from the Arizona-Maricopa SSC Site Proposal (the 1:24,000 scale cross-section) and using 100 feet as the maximum depth for cut-and-cover tunnel the following lengths of collider ring could be constructed using cut-and-cover construction:

1) On the west side of the site, from K3 to just south of the Maricopa-Gila Bend Road.

This is approximately 3.85 mi. Assuming a 1/4 mi length of this section would have to be tunneled under the S.P. Railroad (which is certainly excessive because where the Central Arizona Project canal crosses railroad tracks and Interstates it remains surface construction to aprroximately 100 meters from the actual concerned area) this would be 3.6 mi of cut-and-cover tunnel.

2) On the east side of the site, from mile 4.3 to mile 12.75

This is approximately 8.45 mi. Assuming a 1/4 mi length under the Butterfield Stage route, and a 1/3 mi length under the Gila Bend-Maricopa Road and S.P. Railroad (which are alongside each other) would have to be tunneled, this would be 7.9 mi of cut-and-cover tunnel.

These two sections total to 11.5 mi (21.7%) of cut-and-cover for the main

tunnel at the Arizona-Maricopa SSC Site.

Volume IV, Appendix 5a

68 Sections of the DEIS discussing earth resources (DEIS, Vol. 1, Chap. 4, Sect. 4.1; Vol. I, Chap. 5, Sect. 5.1.1; and Appendix 5, Sect. 5.1.1) all suffer from basic misunderstandings in the definitions of some technical terms used and the geologic setting of the Arizona SSC site.

pp. 1, Section 5.1, paragraph 1. This paragraph correctly points out that the Arizona site is in the Basin and Range physiographic province, but proper conventions of grammar necessitate that the words basin and range should be capitalized (VandenDolder, 1988).

69 The term bajada is incorrectly used to describe the intermontane valleys adjacent to the Maricopa Mountains. Bajada describes "a broad, continuous alluvial slope or gently inclined detrital surface extending from the base of mountain ranges out into and around an inland basin, formed by the lateral coalescence of a series of separate but confluent alluvial fans, and having an undulating character due to the convexities of the component fans. A bajada is a surface of deposition, as contrasted with a pediment, a surface of erosion that resembles a bajada in surface form (Bates and Jackson, 1980)." As the detrital surfaces extending away from the Maricopa Mountains are erosional surfaces (Pearthree, 1988), a correct characterization would be that of a pediment. All references to a bajada are inappropriate and incorrect.

The geographically correct way of stating the last sentence would be: "Three major drainages are present in the site area: Waterman Wash, which drains the northeast quadrant into Rainbow Valley; Bender Wash, which receives runoff from the south and southwest portion of the ring; and Vekol Wash, which drains the southeast quadrant into the Vekol Valley."

70 pp. 1, Sect. 5.1.1.2, paragraph 1. The DEIS states that "the time scale used to approximate the ages of rock units is the 'Decade of North American Geology 1983 Geologic Time Scale' (Palmer, 1983)," and yet throughout the entire discussion of stratigraphy and lithologies present at the Arizona site this time scale is not used. For example, the DEIS makes reference to granitic rocks at the site formed 3,400 million years ago during the early Proterozoic (p. 6). According to Palmer (1983) 3,400 Ma is the boundary between the Early and Middle Archean, not the Early Proterozoic, the actual age of the granitic rocks present at the site. Tertiary rocks are given an age range of 1.8 to 65 Ma, yet Palmer (1983) defines the Tertiary as 1.6 to 66.4 Ma. Middle and Late Tertiary age boundaries are defined (20 to 40 Ma and 1.8 to 20 Ma, respectively) by the DEIS, yet Palmer (1983) does not formally divide the Tertiary Period into Early, Middle, and Late Epochs. In Arizona, informal usage defines the Middle Tertiary as Oligocene to Early Mid-Miocene (36.6 to 15.1 Ma), and Late Tertiary as Middle Mid-Miocene to the Pliocene-Pleistocene boundary (15.1 to 1.6 Ma). The DEIS goes on to define the Late Tertiary as 50 Ma. This definition is problematic at best, for the Late Tertiary is 1.6 to 15.1 Ma in Arizona

informal usage, or 50 Ma could be defining the Early Tertiary. Usage suggests, but is by no means clear that the DEIS is discussing rocks of Late Tertiary age (1.6 to 15.1 Ma). Finally, the Quaternary is defined in the DEIS as 1.8 Ma to present, whereas Palmer (1983) defines the Quaternary Period as 1.6 Ma to present. Although some might find these distinctions trivial, the problem is symptomatic of the DEIS in general. A time scale is specified by the DEIS, but not used in practice, which in turn leads to misleading and in many instances incorrect conclusions.

71 pp. 2, Figure 5.1.1-1. The Figure makes reference to the Both Hills; this feature is incorrectly labelled and should read Booth Hills.

72 pp. 3, Figure 5.1.1-2. This Figure suffers from a lack of proofreading, violation of the rules of stratigraphic nomenclature, and poorly compiled data. Geologic unit X_{gb} is mislabelled gabbero, the correct spelling is gabbro. The only formal stratigraphic name recognized at the Arizona site is Pinal Schist, all other rock unit names are informal and should not be capitalized. Examples of this error include: Booth Hill Quartz Diorite rather than the correct Booth Hills quartz diorite, and Porphyritic Granite rather than the correct porphyritic granite. All Proterozoic rock units, except for the Pinal Schist, all Tertiary rock units, and all Quaternary rock units have informal stratigraphic names, to portray these rock units otherwise is misleading and incorrect. The conventions of stratigraphic nomenclature also are violated in Table 5.1.1-1. Also, Figure 5.1.1-2 shows a fault contact between Middle Tertiary volcanic and sedimentary rocks and Quaternary-Tertiary fanglomerate. The relationship between basin-fill sediments and bedrock is rarely exposed, but where it has been observed (Sacaton and Twin Buttes open-pit mines, and borings in Vekol Valley) it is always depositional. There is no evidence to infer fault contact between the basin-fill sediments and bedrock at the Arizona site. Remove the fault symbology, such that the stratigraphic column reflects the current knowledge of the site. Lastly, the approximate maximum thickness of the Quaternary alluvium deposits is vastly overestimated at 210 feet. As stated in the Maricopa Site proposal (Vol. 3, Sect. 3.5.1.1, p. 39) alluvium refers only to those unconsolidated and non-indurated sediments typically found as surface soils. A review of the seismic refraction data provided to DOE in the March 15, 1988 Supplemental Data Submission (Appendices 15-2, 15-4, 15-5, 15-8, and 15-9) suggests that the maximum thickness of alluvium rarely exceeds 20 feet and is more typically 8 to 10 feet. In fact, Table 5.1.1-1 describes the Quaternary alluvium as thin deposits of sand and silt directly contradicting the thickness listed in Figure 5.1.1-2.

73 pp. 4 and 5, Table 5.1.1-1. The conventions of stratigraphic nomenclature are again violated in this table. The column labelled "Formation" must be relabelled rock units, for there are no formally named formations recognized at the Arizona site, with the exception of Pinal Schist. All rock unit names must be relabelled to reflect conformance with stratigraphic nomenclature and standard geologic practice according to the following table:

DEIS	Corrected Label
Alluvium	Alluvium (Quaternary)
Basin-Fill (Younger Fanglomerate)	Basin-fill (younger fanglomerate) (Quaternary-Tertiary)
Basin-Fill (Older Fanglomerate)	Basin-fill (older fanglomerate) (Quaternary-Tertiary)
Upper Conglomerate	Upper conglomerate (Tertiary)
Welded Tuff	Welded tuff (Tertiary)
Middle Conglomerate	Middle conglomerate (Tertiary)
Basalt Flows	Basalt flows (Tertiary)
Lower Conglomerate	Lower conglomerate (Tertiary)
Porphyritic Granite	Porphyritic granite (Early Proterozoic)
Booth Hills Quartz Diorite	Booth Hills quartz diorite (Early Proterozoic)
Pinal Schist	Pinal Schist (Early Proterozoic)

Lastly, with regard to the rock unit (Formation) column, why are the ages only shown for the Tertiary? Standard and correct practice would dictate that the ages should be listed for all rock units as shown above.

The "Other Characteristics" column for the lower conglomerate provides misleading information. It should read, "Clasts are typically one inch in diameter, but can be locally as large as three feet." The same column describing fracture fillings within the Booth Hills quartz diorite is also misleading. Epidote is not replacing biotite and hornblende along all fractures in this rock unit, nor is it present along all fractures. The first sentence of this column should be corrected to read, "Along some fractures epidote is present, and locally replaces biotite and hornblende . . ."

74 pp. 6, Section 5.1.1.2. The most important flaw in this section discussing

the stratigraphy of the Arizona site is the written description on DEIS page 6. The section contains abundant errors and greatly confuses a simple geologic setting. The text refers to granitic rocks of Archean age that do not exist. No Archean rocks are known in the western U.S. Cordillera south of the Cheyenne belt in southern Wyoming (Karlstrom and others, 1987). The granitic rocks at the Arizona site are thought to be Early Proterozoic (approximately 1.7 Ga) by correlation with similar exposures in central Arizona (Reynolds, 1987). A radiometric age determination for the porphyritic granite is currently underway (DeWitt, 1988). Other errors include incorrect age assessments (discussed above), and references to non-existent rock types such as dionite and porphyrite granite. The following text provides a preferable and correct summary of the stratigraphy present at the Arizona site.

> The Arizona site is composed predominantly of Early Proterozoic (1.6 to 2.5 Ga) plutonic and metamorphic rocks. The oldest rock unit, Early Proterozoic Pinal Schist, occurs in the southern Maricopa Mountains. The schist has been intruded by Early Proterozoic granitic rocks, of which most of the site is composed. The plutonic rocks consist of two separate granitic plutons and a dioritic pluton. The Early Proterozoic granites consist of an older porphyritic granite which is intruded by dikes and irregular masses of leucocratic granite. Mafic and felsite dikes of presumed Tertiary (1.6 to 66.4 Ma) age locally intrude the crystalline rocks. A sequence of middle Tertiary (15.1 to 36.6 Ma) sedimentary and volcanic rocks overlies the Proterozoic basement in the southeastern corner of the range. This sequence consists of a gently southwest-dipping stack of rocks that form an asymmetric southeasterly plunging trough that disappears beneath younger sediments. From oldest to youngest the middle Tertiary rocks are lower conglomerate, basalt, middle conglomerate, welded tuff, and upper conglomerate. The total thickness of the middle Tertiary section is in excess of 1,250 feet. A whole-rock K-Ar age determination has yielded an age of 20.44 Ma (Early Miocene) for the basalt from this sequence (Shafiqullah and others, 1980). The alluvial basins surrounding the Maricopa Mountains contain Late Tertiary (1.6 to 15.1 Ma) and younger clastic sediments up to several thousand feet thick. Fanglomerate, locally conglomeratic alluvial fan deposits cemented by calcium carbonate, is the predominant lithology in the basins. Overlying the fanglomerate are unconsolidated and non-indurated sediments (alluvium) typically found as surface soils in the desert basins of the Southwest.

75 pp. 6, Section 5.1.1.3. Proterozoic rocks at the Arizona site are described as over 570-million-years old, which would also include Archean rocks, if they were present. Correct to read Early Proterozoic (1.6 to 2.5 Ga).

76 Alluvium and fanglomerate are used synonymously to characterize the basin-fill sediments that the collider tunnel will intersect. These two terms are not synonmyns. Alluvium describes only those unconsolidated and non-indurated sediments found as near surface soils. The collider tunnel will not be hosted by any of this material. Fanglomerate identifies those materials underlying the alluvium that are locally conglomeratic alluvial fan deposits cemented by calcium

carbonate. It is the fanglomerate units that constitute most of the material the collider ring will intersect.

pp. 10, Section 5.1.1.4. This entire section gives a misleading and incomplete description of the engineering characteristics of the site. As such it contributes little to the Draft Environmental Impact Statement, which in any event should restrict itself to assessing the potential environmental impacts of siting, building, and operating the SSC. If evaluating the engineering consequences of building the SSC at any given site is a goal of the site evaluation process at present, it should be done through a focused, thorough, and accurate engineering study.

77 In particular it is apparent that the Arizona-Maricopa site proposal and the nine engineering reports provided to DOE (March 15, 1988 submittal) that serve as background for the site proposal have been inappropriately paraphrased, simplified, and misconstrued. These reports are the results of a preliminary geotechnical investigation of the Arizona site that evaluate the site on the basis of rock mass characteristics. This approach provides the greatest utility when attempting to evaluate the engineering significance of earth materials for construction and to determine the appropriate construction methodology. As portrayed in this section of the DEIS, nearly three years of site-specific investigations have been presented in a way that is of no benefit to evaluating the issues of interest, that is, potential environmental impacts. It is our opinion that summaries of geoengineering conditions for all sites should be removed from the final EIS because no site is evaluated appropriately. Suspecting that this will not occur, only the major errors in this section are critiqued as follows, but it is stressed that the section is replete with error and misunderstanding and not representative of the considerable professional engineering data that was supplied to DOE for review.

78 The "bullets" identifying the geoengineering materials at the Arizona site differentiate basin-fill sediments (younger and older fanglomerate) and fanglomerate; and this erroneous interpretation carries through the DEIS in several other places as well. These two terms refer to the same rock unit, therefore, there is no need to subdivide them into two catagories. Correct the bullets such that a separate bullet for fanglomerate does not appear, and correct all other references in the document that confuse these strata.

79 The second-to-last sentence on pp. 10 states: "Recent alluvium at the Arizona site was not studied . . ." This is not true. Reports by Nowatzki and others (1988) and Beckwith and Weeks (1988), previously supplied to DOE, describe borings, testing procedures, and results of those tests for the Recent alluvium. The next sentence suggests that "soft clays, unconsolidated sands, and collapse-susceptible soils may be present" at the site. These specific conditions can and do occur in similar environments as noted by the DEIS, but they are not known to be prevalent or even major constituents at the Arizona site, and they are routinely designed for by engineers working in Arizona when the conditions are recognized. Inclusion of the quoted statement is simply speculation by the DEIS authors and is not defended or justified by any data. Correct the language in the DEIS to reflect the true conditions of the Arizona site.

80 pp. 11, paragraph 1. The second to last sentence reads: "Basin-fill is found at 13 shaft locations, two experimental halls, and the booster facilities." Arizona SSC Project data suggests that basin-fill will be found at four experimental halls (K2, K3, K4, and K5), not two, and at 18 shafts, not 13 (Arizona-Maricopa SSC Proposal, 1987; volume 3, figure 3-2). In addition, the last sentence states, "Fanglomerate is expected at only one shaft location." The terms basin-fill and fanglomerate are used interchangeably so based on the previous comment 18 shafts, not one, are in fanglomerate.

81 pp. 11 pavagraph 2. The first sentence is an incomplete sentence whose meaning is unclear. The second sentence refers to "good strength characteristics." This term is subjective and of no meaning in an engineering context. Certainly adequate data are available to accurately portray the favorability of these materials for construction. Please define "good" strength and its attendant implications for engineering. The last paragraph implies that the geoengineering properties of the fanglomerate are based solely upon the Unified Soil Classification System. Considerably more than the basic soil classifications is known about these materials. A thorough review of all data submitted to DOE reveals that these properties are known from a systematic testing program that included: field slope testing, sieve analyses, Atterburg limits analyses, direct shear testing, unconsolidated undrained triaxial testing, compaction tests, dilatometer and pressuremeter test, permeability tests, and consolidation tests. Correct the DEIS language to reflect the greater knowledge of the fanglomerate materials than it currently suggests.

82 pp. 11, paragraph 3. Change the fourth sentence to read, "Quartz diorite may be encountered, but is not expected, in excavations for the booster/injector facilities." In the next sentence granitic rock units are recognized as having "fair to good strength characteristics." Again, considerable analyses are available to define the rock mass properties important to SSC construction. Please define fair to good strength and explain its relevance.

83 pp. 11, paragraph 4. Second bulleted item refers to expectations that properties in the granitic rocks will vary rapidly. Exactly what properties are expected to vary and how fast or over how long an interval will they vary? In an engineering context this evaluation is misleading if not useless. If the sentence refers to the <u>geotechnical</u> properties of the granitic rocks, to topic of variability has been discussed in detail in documents submitted to the DOE (see 3/15/88 submittal, Appendix 15-2, p. 61-63.). The third bulleted item refers to "rapid" changes again; please define the meaning of rapid in this case. From the available data, most knowledgeable engineers would conclude that the variation in the geotechnical properties of any of the granitic or volcanic rock masses at the site is not particularly great for tunnel and shaft construction, nor would this variation occur over unfavorably short distances. Greater variation is expected in the volcanic assemblage than that estimated for the granitic rocks, nonetheless professional engineers working with <u>all</u> the available data have judged these materials as an excellent medium for tunnelling (see 3/15/88 submittal, Appendix 15-2, p. 63-64).

84 pp. 14, fourth "bullet." Add the following ". . . if perched groundwater occurs at this depth it is well below the elevation of the collider tunnel."

85 pp. 27, paragraph 2. The last sentence reads: "Recoverable groundwater volume in storage has been estimated to be about 3.1 million acre-ft in the upper 1,500 ft of saturated sediments (Hollett and Marie 1987; Wilson 1979)." This estimate of 3.1 maf was first found in Wilson (1979) and assumed reserves of 1.5 million acre-ft from 0 to 500 feet below the water table, and 1.6 million acre-ft from 500 to 1,500 below the water table. Further work by Hollett and Marie (1987) refined the estimate from 0 to 450 feet below the water table to 375,000 acre-ft. Assuming the lower section, from 500 to 1,500 feet to be correct than a more reasonable estimate for basin water reserves would be 2.0 million acre-ft.

This is also found in Vol. 4, Appendix 7, pp. 96

86 pp. 33, Section 5.1.3.2. The second sentence reads: "The extreme high temperature recorded was 123°F in September... This is incorrect it should read: The extreme high temperature recorded was 123°F in July...(Sellers and Hill, 1974)

87 pp. 42, Section 5.1.4.2, part B. The fourth sentence reads: "It should be noted that no data are available for Sierra Estrella Sallport after 1978 (Provident Energy Company 1979)." Monitoring at the Sierra Estrella Sallport continued until 1980 for ozone, 1981 for carbon monoxide and nitrogen dioxide, and 1982 for sulfur dioxide and TSP. Data for these years were included in section 5 of the March 15, 1988 Arizona submittal to the Department of Energy. These data are also reported in the annual air quality reports issued by the Arizona Department of Environmental Quality (ADEQ) (formerly the Arizona Department of Health Services). The Estrella Sallport Site is identified in the ADEQ documents as the Maricopa site for Pinal County.

88 pp. 44, Table 5.1.4-3. The Table presents highest 1-hr and 8-hr regional CO concentrations measured in the Phoenix metropolitan area for background CO concentrations at the SSC site. The CO concentrations indicated in Table 5.1.4-3 should be replaced by carbon monoxide concentrations measured at the Sierra Estrella Sallport from 1976 through 1981. During these years, the highest annual 1-hour concentration ranged from 1,486 ug/m^3 to 13,714 ug/m^3 and the highest annual 8-hour concentration ranged from 915 ug/m^3 to 7,200 ug/m^3.

89 pp. 45, Figure 5.1.4-1. The location of the Sierra Estrella Sallport is approximately 6 mi ENE of Mobile not SE as shown in the Figure.

90 pp. 46, part D. The last sentence reads: "The closest PSD Class I area that permits minimal air quality deterioration is Superstition Wilderness 30 mi

northwest of the site." The actual distance of the Superstition Wilderness from the SSC Site is 50 mi.

91 pp. 50, Figure 5.1.5-1. The map showing the location of sensitive noise receptors shows a home on the west side of the El Paso natural gas line approximately 1.5 mi east of E9. This is a mistake for there is no home at this location. The nearest home to this area is approximately 2 mi to the northwest of the aforementioned location on the east side of the El Paso natural gas line.

92 pp. 51, section 5.1.5.4: The third sentence reads: "The ring tunnel will be located 100 ft below the railroad on the west crossing and 300 feet below the railroad on the east crossing." This should read: The ring tunnel will be located 125 feet below Interstate 8 on the west crossing and 360 feet below Interstate 8 on the east crossing (Arizona-Maricopa SSC Proposal, 1987; volume 3, figure 3-2).

93 The second to last sentence in the same section reads: "The railroad passes within 1/2 mile of interaction points K3 and K4." This should read: The railroad passes within 1/2 mile of interaction points K5 and K6.

94 pp. 59, sec. 5.1.8.2, second paragraph. Based on the map shown in figure 5.1.8-1 the southwest regional landfill is about 25 to 30 miles from the site not 50 miles.

95 pp. 62-64, Sec. 5.1.9.1. There are no references given for the citations in this section (e.g., Rea 1983; Warren and Anderson 1985; Webb and Wilshire 1983; Keill 1970; Sundell 1974).

96 pp. 62, Sec. 5.1.9.1.A, third paragraph. This section needs to be modified as in the summary volume (see response to Volume I, Sec. 4.7.2, pp 4-47, third paragraph, first sentence).

97 pp. 62, Sec. 5.1.9.1.B, first paragraph. The author has read a general textbook on deserts and characterized this site accordingly. Many of the characteristics mentioned are not primary at this site. Rather, this site, particularly in areas that will be most impacted by SSC construction, is a relatively low diversity, low nutrient and low organic matter accumulation site.

98 pp. 62, Sec. 5.1.9.1.B, second paragraph. The second sentence, which reads, "...the costs associated with desert reclamation are high" should read: "costs of desert reclamation are no higher than in other biomes and may be considerably lower."

99 pp. 64, Sec. 5.1.9.1.C, first paragraph. The use of the term 'ecotype' is not appropriate here, and should be replaced by 'vegetational associations' (see response to Volume I, Sec. 4.7.2, pp. 4-47, fourth and fifth paragraphs).

100 pp. 64, Sec. 5.1.9.1.C, third paragraph. The site supports only limited areas of xeroriparian woodlands, and these are not well-developed examples of this community type.

101 pp. 71-73, Sec. 5.1.9.2. There are no references given for the citations in this section.

102 pp. 71, Sec. 5.1.9.2, 1. Arizona Upland Association. The first paragraph, second sentence reads: "...the association is dominated by leguminous trees, including mesquite, iron wood, and a few palo verde, and by shrubs and cacti". This should read: "...the association is dominated by palo verde, shrubs, and cacti."

103 pp. 71, Sec. 5.1.9.2, 2. Lower Colorado Association. The first paragraph, fourth sentence, reads: "The few annuals are dominated by plantain and Mediterranean grass". This is not entirely correct. There are many, not few, species (and numbers of individuals) of annuals at the site. Although plantain and Mediterranean grass are common annuals at the site, they are not the dominant species throughout the site.

104 pp. 71, Sec. 5.1.9.1, 2. Lower Colorado Association. The second paragraph, second sentence, reads: "Most noticeable along the washes are increased frequencies of triangle leaf bursage, ratany, and the columnar cactus saguaro". This statement is not entirely correct; although these three species do increase in abundance along washes compared to the surrounding desert, there are many other shrubs and small trees which also occur along washes, and which are equally 'noticeable'.

105 pp. 73, fifth paragraph. The porcupine is not a predator as indicated in the first sentence.

106 pp. 74, Sec. 5.1.9.3. There are no references given for the citations in this section.

107 pp. 75, Section 5.1.9.5. The second sentence states: "The hawk is remarkably similar to the red-tailed hawk in appearance and life history." Swainson's hawk is not "remarkably similar" to the red-tailed hawk. It nests mostly in grasslands where palo verde trees do not grow.

108 pp. 75, Sec. 5.1.9.4. There are no references given for the citations in this section.

109 pp 75-82, Sec. 5.1.9.5. There are no references given for the citations in this section.

110 pp. 76, Table 5.1.9-3. If the Tumamoc globeberry is "not believed to be present in the Maricopa Mountains" as stated in the text, it should not be included in the table entitled "Threatened and endangered species at the Arizona site."

111 pp. 77, Sec. 5.1.9.5.A.3. The third paragraph, third sentence, reads: "During the University of Arizona's reconnaissance of the proposed site...". This should read "During Arizona State University's reconnaissance of the proposed site...".

112 pp. 78, Sec. 5.1.9.5.B. This paragraph regarding the Arizona Native Plant Law is correct, but the Law is not properly interpreted in Volume I, Chapter 3, Sec. 3.6.3, pp. 3-63, third paragraph, and in Volume I, Chapter 5, Sec. 5.1.5.1.B.1, pp. 5-2, third paragraph.

113 pp. 84, Sec. 5.1.9.6.B. This paragraph needs to be modified as in the summary volume (see Volume 1, Sec. 4.7.5.1., pp. 4-62, first paragraph, second sentence.

114 pp. 110, Appendix 5. The last sentence of the second paragraph states: "It is estimated that only 10-15% of the potentially prime farmland at the Arizona site are actually irrigated and performing as prime farmland." As mentioned in the response to Volume I, Chapter 3, pp. 3-57, Table 3-7 none of the potential prime farmland acres at the Arizona site are actually irrigated and therefore no acres are performing as prime farmland.

115 pp. 135, Section 5.1.11.2. Paragraphs one and two read: "APS has plans to bring a fifth unit on line at their Cholla steam generating plant in the year 2005. This will increase capacity to APS by approximately 340 MW (Arizona Public Service Company 1986c).

APS also plans to construct several 230-kV transmission lines and substations, including a new 230-kV line between the existing Santa Rosa and Gila Bend substations. Construction is scheduled to begin in 1996 with a planned in-service date of 1997. APS has proposed both preferred and alternate routes to situate the new line, and has already filed an environmental assessment report for the proposed construction project (APS 1988, USDOI)."

While the above statements are correct, important facts pertinent to the SSC project are omitted. APS suggests that the two paragraphs be deleted and

replaced with the following:

Having a 1987 generating capacity of 3,660 MW, APS plans to make 9 additions to its generating capacity during the 10-year period 1987-1996 to provide an additional 1,361 MW to serve projected load growth, bringing 1996 total generating capacity to 5,021 MW. During the subsequent 10-year period 1997-2006, APS plans 9 more additions to provide another 1,871 MW of generating capacity, bringing year 2006 total generating capacity to 6,892 MW. This resource schedule can and will be adjusted as necessary to correspond with any changes in the load forecast such as the addition of the SSC (Arizona Public Service Company 1986c).

During the next 10 years, APS also plans to construct numerous transmission lines and substations, including a new 230-kV line between the existing Santa Rosa and Gila Bend substations. APS has obtained final approval for a routing of the Santa Rosa-Gila Bend line across the SSC Maricopa Site. When constructed, this 230-kV line will provide the two independent power sources required for the SSC because the existing Santa Rosa and Gila Bend substations are interconnected with other 230-kV lines. The current plan is to begin construction in 1996 with a planned in-service date of May 1, 1997, but the timing of the line can and will be advanced to accommodate the needs of the SSC (APS 1988, USDOI).

116 pp. 135, Section 5.1.11.2, fourth paragraph. This paragraph reads: "Natural gas demands for the area in the vicinity of the Arizona site are met by the Southwest Gas Corporation (Southwest), El Paso Natural Gas Company, Arizona Public Service Company, the Salt River Project, and the Black Mountain Gas Company (Arizona Department of Commerce 1987)."

Neither Arizona Public Service Company nor Salt River Project are involved in the sale or distribution of natural gas. The above statement should be rewritten with these two electric utilities omitted as follows:

Natural gas demands for the area in the vicinity of the Arizona site are met by the Southwest Gas Corporation (Southwest), El Paso Natural Gas Company, and the Black Mountain Gas Company (Arizona Department of Commerce 1987).

117 pp. 150, Sec. 5.1.13.2.D, second paragraph. In addition to the mentioned disturbances, two oil refineries are planned for the area, and a waste facility (in addition to the hazardous waste facility) will be built near the NE corner of the ring.

118 pp. 151, Sec. 5.1.13.3.A, fourth paragraph, and 5.1.13.3.B, pp. 152, second paragraph. If the Wilderness Study Area was designated as Wilderness, the jeep trails would no longer be usable and therefore visual sensitivity from the trails would not exist.

Volume IV, Appendix 6

no comment

Volume IV, Appendix 7

119 pp. 15, sec. 7.1.3.1, first paragraph. The last sentence, in referring to the portions of the Arizona site where surface disturbance would occur, states: "This area falls within Waterman Wash, an ephemeral drainage sloping to the northeast (Figure 7-1)". The wording of this sentence makes it appear that the described structures are located in Waterman Wash. None of the mentioned structures are located in Waterman Wash. A more appropriate statement would be: This area falls within the Waterman Wash drainage basin.

120 pp. 15, sec. 7.1.3.1, third paragraph. The first sentence reads: "The major surface disturbance would be located in Waterman Wash, where the campus and injector complex, two additional external beam access areas, J3 and J4, and all of the cut-and-cover tunnel excavation comprise about 900 to 1,000 acres of the watershed." The wording of this sentence makes it appear that these structures are located in the wash, which none are. More accurate wording would be: The major surface disturbance would be located in the Waterman Wash drainage basin, where ... of the watershed.

121 In the same paragraph, second sentence, the DEIS says: "Waterman Wash has a drainage area of over 150 mi^2, so the disturbance would be only about 1% of the watershed." The actual drainage area of Waterman Wash is over 400 mi^2 (USGS, 1984; pp. 406). Therefore, the sentence should read: Waterman Wash has a drainage area of over 400 mi^2, so the disturbance would be less than .5% of the watershed.

122 pp. 17, sec. 7.1.3.1, first paragraph. The second sentence states: "Because of the ill-defined nature of channels of desert washes and bajadas, this operation would require levees and diversions channels along the upstream side of the excavations to collect and divert all flood flows around the excavation." This is a misleading and in some respects erroneous statement. The potential for flash flooding in the drainages crossed by the portion of the SSC to be constructed from the surface is a long-accepted and well understood problem in Arizona. Similar conditions were encountered and mitigated for hundreds of miles along the Central Arizona Project. Although channels in desert washes can change rapidly depending on the magnitude and frequency of flow, analysis of aerial photos from the Arizona site will reveal a system of very well-defined channels.

123 **Volume IV, Appendix 8**

pp. 5, Table 8-1. The EPA AP-42 expression used to calculate emissions from material transfer processes:

"$E_3 = (K)(0.0018)(S/5)(U/5)(H/5) / (M/2)^2(Y/6)^{0.35}$"

has recently been modified by EPA. The new expression (presented in "Interim Report on New or Revised PM_{10} and other Emission Factors," USEPA, April 1988) is:

$E_3 = (K)(0.0032)(U/5)^{1.3} / (M/2)^{1.4}$

124 pp. 12. The third line from the top indicates that 440m is equivalent to 2.25 mi. Four hundred and forty meters (440m) is equal to 0.27 mi, not 2.25 mi.

125 pp. 12. The first sentence of the fourth paragraph states: " Carbon monoxide (CO) NAAQS exceedances would result in Arizona, Michigan, North Carolina, and Tennessee. These exceedances can be attributed to high CO backgrounds." With respect to Arizona, this statement is incorrect. The high background referenced for the Arizona Site is from the Phoenix metropolitan area located approximately 30 mi distant. Ambient background CO measurements made between 1976 and 1982 at the Sierra Estrella Sailport located approximately 8 mi from the SSC Site towards Phoenix indicate maximum annual 1-hr CO concentrations of 1,486 ug/m^3 (1976) to 13,714 ug/m^3 (1977). Maximum 8-hr CO concentrations ranged from 915 ug/m^3 (1976, 1979, 1980, 1981) to 7,200 ug/m^3 (1977). Addition of the worst case CO concentration due to construction of the Arizona SSC Site (1,058 ug/m^3 for 1-hr, 867 ug/m^3 for 8-hr, See Vol. IV, Appendix 8, Page 17, Table 8-9) to these background levels would not produce exceedances of the NAAQS for CO. It should be noted that the CO measurements made at the Sierra Estrella Sailport have been documented in: (a) Section 5 of the March 15, 1988 Arizona Submittal to the DOE, (b) the PSD Permit Application of Provident Energy Company, and (c) the annual air quality reports issued by the Arizona Department of Environmental Quality (formerly the Arizona Department of Health Services). Correct the DEIS language so that these facts are recognized.

126 pp. 13, sec 8.4.1. The first paragraph states "Data used in developing the emissions inventory calculation reflect the influence of local conditions on the design, control methods, and operations of the SSC in Arizona." At this time it should be mentioned, as was done in Appendix 8, Table 8-9, that in some calculations air quality data, not likely to be representative of Phoenix or Tucson were used.

127 pp. 14, sec 8.4.1, Table 8-4. This Table gives the percentage of cut-and-cover collider ring as 20%. Yet previously (Volume IV, Appendix 1, sec. 1.2, pp. 1) the DEIS stated that it had reduced the amount of cut-and-cover possible at the site to 6.0 mi (or 11%). In this case the use of 20% is detrimental to the Arizona site as it increases the amount of fuel combustion emissions (Table 8-5) and fugitive dust emissions (Table 8-7). If changes are to be made to that proposed by the Arizona SSC Project some consistency would be appreciated and is rightfully expected.

128 pp. 17, Table 8-9. The specified background 1-hr and 8-hr CO concentrations which are representative of the Phoenix metropolitan area should be replaced by those measured at the Sierra Estrella Sallport. These measurements are discussed in the comment to pp. 12 of Appendix 8.

Volume IV, Appendix 10

129 sec. 10.3.3., pp. 2 The paragraph explaining the proposed sewage disposal, comments that the method of sewage treatment proposed by the State of Arizona is unacceptable to the Arizona Department of Environmental Quality (ADEQ). It further explains that a tertiary treatment system would be required. This statement is wrong and should be corrected to read: "The method of sewage treatment proposed by the State of Arizona is acceptable to the Arizona Department of Environmental Quality (ADEQ). No tertiary treatment system would be required." This discrepancy arose from a letter sent by P. Scheidiger of ADEQ to Mr. Joe Comfort of the Arizona SSC Technical Team and subsequently sent to the DOE with the March 15, 1988 data submittal. At the time there was confusion at the ADEQ on the volume of sewage to be produced. A second letter from P. Scheidiger to Mr Joe Comfort corrected the mistake and acknowledged his misunderstanding of the volume of sewage to be produced by the SSC Project. The letter further remarks that the initial plan as proposed by the Arizona-Maricopa SSC Site Proposal is in fact adequate. This letter was sent to the DOE May 2, 1988. It was received as evidenced by its presence in the refereences for the DEIS in Volume I, Chapter 9, pp. 9-15, reference #5. For some reason the correction was not considered in the writing of the DEIS.

Volume IV, Appendix 11

130 pp. 5, Sec. 11.3.1. The fifth sentence states: "Creating new water sources can become an attractive nuisance for wildlife which may disturb predator/prey relationships, change exploitation of food resources, and increase competition with species not indigenous to the desert." This statement is very misleading. Native water-dependent habitats have decreased dramatically in Arizona in recent years, and creation of new ones are desirable. Disturbances to existing ecosystems would be minimal and limited to the immediate area around the water source. As long as vegetation around such water sources was limited to native species, virtually no exotic animals would be likely to colonize these new habitats. The Arizona Game and Fish Department and Bureau of Land Management have been creating water sources in desert areas for years for the benefit of native wildlife. Introductions of exotic wildlife, mostly fish and bullfrogs, usually occurs only where they have purposely been planted. Such introductions should easily be prevented in a controlled setting.

131 pp. 5, Sec. 11.3.1.2, second paragraph. The primary disturbance areas have been surveyed in large part for threatened and endangered species and

none were found, supporting the statement that, "globeberry is unlikely to occur".

132 pp. 6, Sec. 11.3.1.2, fourth paragraph. The four locations of the night-blooming cereus have been specified (see Volume IV, Appendix 5A, Sec. 5.1.9.5.A.3, pp. 77); it is not true that these four locations are "...at unspecified sites".

133 pp. 7, Sec. 11.3.1.2, first paragraph. There is no reference listed for (Ross 1986).

134 pp. 7, Sec. 11.3.1.2,. The first paragraph, second sentence, needs to be modified as in the summary volume (see response to Sec. 5.1.5.1.B.1, pp. 5-2, fourth paragraph, third sentence).

135 pp. 9, Sec. 11.3.1.3, first paragraph. The ephemeral drainages on the site have no real riparian communities. Some of the larger drainages support a poorly developed xeroriparian vegetation association. Generally, the desert washes support small desert trees, trees which are also present at lower densities on the pediments and mountain slopes.

136 pp. 9, Sec. 11.3.1.4, first paragraph. It is unlikely that the SSC project will cause an increase in cacti and reptile collection compared to that resulting from the new residential developments in the area. It is more likely that the SSC can prevent collection by controlling access. In either case, the DEIS statement is purely speculative with no basis in fact and it should be deleted.

137 pp. 9, Sec. 11.3.1.4, third paragraph. The correct spelling of 'sagarro' is 'saguaro'.

Volume IV, Appendix 14.2

138 pp. 8 to 10, Section 1, Roads. The following are general comments from The Arizona Department of Transportation given to the Arizona SSC Project for submittal in this document (ADOT 1988). They are concerning the construction of new roads and the upgrading of current ones as described in this section of the DEIS.

Maricopa-Mobile - Gila Bend Road

Any construction activity upgrading the dirt road would have almost zero impact on current traffic, current traffic being so low as to be insignificant. The proposed hazardous waste disposal facility has projected 8-10 trucks per day over the next several years. Mobile community does not generate more than 100 vehicle trips per day, thus such construction impacts would be minimal.

I-8 Access

In regard to connections to I-8 for the lower ring access, the Arizona Department of Transportation does not believe direct access to I-8 at uncontrolled locations is feasible. We proposed one point of connection at the Freeman TI (traffic interchange) with a ring access road providing local site access. Regarding traffic impacts to I-8, there should be none in either the near or long term. I-8 operates well below capacity both now and in the twenty year projections. Project traffic exiting or entering I-8 via the existing interchange would have almost no impact.

Estrella Freeway

Regarding the proposed Estrella Freeway it is anticipated this freeway would be coincident with the SSC access road as it connected to Vekol TI, but separate from the SSC facilities. The Estrella road would, when available, provide employee access to community facilities. Additionally, the Arizona proposal does include funding for temporary access with a 2-lane facility, along this corridor. It should be noted the Arizona proposal does now include funding for a 4-lane road from Vekol TI to the campus area.

The Modified access roads plan shown on 14.2.1-2 essentially depict the proposed Arizona plan with the exception of the 2-lane access north to the possible Estrella Freeway.

pp. 17-18, Section 2, Rail. The following are comments from the Arizona Department of Transportation regarding the sections on Rail.

Southern Pacific Main Line

139 Arizona has never experienced the closing of a railroad during roadway construction. We do not in this plan foresee any closure of rail traffic for any type of roadway construction. Therefore, in the worst case, we anticipate a reduction of rail traffic speeds through the construction zones.

Grade crossings are considered viable in the short-term to permit earliest start up of SSC construction. Grade separations are considered in the longer term when general traffic is present.

pp. 100, Section 14.2.2.3, ninth paragraph. The last sentence reads: "On a utility-specific basis APS does not project that its reserves would be sufficient to meet the SSC load in 1996 unless construction of planned generating units
140 is accelerated, power purchases are made, or other arrangements for obtaining power are concluded.

This statement implies a negative tone tending to obscure the positive statements of commitment and support for the SSC Project by APS management. We suggest that this statement be rephrased as follows:

APS does not plan to have excess reserves in 1996, but when the proposal to

site the SSC at the Arizona Maricopa Site is confirmed, APS will modify its resource plan to provide power for the SSC by accelerating the timing of planned generating units and/or power purchases or by some other arrangement to obtain the required power.

pp. 102, Table 14.2.2-1. The subject table shows the APS 20-year load forecast and resource schedule for the years 1987 to 2006 from the 1987 APS Long Range Forecast as provided to DOE on 3/15/88. This plan was developed without including the potential load of the SSC; therefore, the final columns in the table which highlight "Planned Reserves w/o SSC" versus "Planned Reserves w/SSC" are erroneous and misleading. The APS plan can and will be modified to accommodate both SSC and secondary loads, a well as the required 16% reserve margin, when the proposal to site the SSC at the Arizona Maricopa Site is confirmed.

141 Any electric utility which gains an unforeseeable 200-MW load such as the SSC will necessarily have to change its resource plan corresponding to the change in load forecast. Most utilities do this on an annual basis in an attempt to iterate towards an action plan which provides an amount of resources (generation plus purchases minus sales) approximately equal to loads plus required reserves.

APS suggests that the entire Table 14.2.2-1 be deleted from the final draft of the EIS because the columns labeled "Planned Reserves w/SSC" and "Percent Reserves w/SSC" do not represent APS plans. The following statements could be substituted for the table:

With 1987 generating capacity of 3,660 MW and a planned capacity of 5,021 MW for 1996, APS more than meets DOE criteria which requires generation capacity to be greater than 2,400 MW (12 times the SSC peak load of 200 MW), both now and in the future. APS operates 5 major power plants (Agua Fria, Kyrene, Ocotillo, Palo Verde, and West Phoenix) located within 50 miles of the Arizona SSC site with 21 generating units having a presently installed generating capacity which totals 5,499.4 MW.

pp. 103, Section 14.2.2.3, second paragraph. The first sentence states: "Because of the influx of construction and operations workers and secondary commercial and industrial activities supporting the SSC and its workers, APS cannot meet the demand of increased growth in the SSC region without affecting the schedule of future generating capacity and power purchases."

142 This statement implies a negative tone tending to obscure the positive statements of commitment and support for the SSC Project by APS management. We suggest that this statement be rephrased as follows:

APS is committed to meet the demand of increased growth in the SSC region and will assure a sufficient and reliable supply of power to provide for both SSC load and secondary loads while maintaining a 16% reserve margin.

143 pp. 103, Section 14.2.2.3, sixth paragraph. This paragraph states: "The

final location of the proposed SSC facility may require the relocation of several transmission lines in the vicinity. This would require some rerouting of lines to maintain system continuity and customer service. Any impacts from this rerouting would be short-term and negligible."

These statements do not apply to the Arizona site. The only lines in the area are an APS 69-kV distribution line presently being constructed along the Maricopa-Gila Bend Road at the west intersection of the road and the SSC ring. The next closest line is a Tucson Electric Power Company 345-kV line which is located approximately 5 miles east of the Arizona site. Otherwise, the closest lines are the APS Liberty-Gila Bend 230-kV line, located about 10 miles to the west at its closest approach, and the APS 230-kV lines terminating at Santa Rosa Substation, located approximately 15 miles due east of the site. The Santa Rosa 230-kV lines emanate to the north (one line to Kyrene Power Plant) and south (two lines to Saguaro Power Plant). It is not anticipated that any lines would need to be relocated, nor any outage to customers occur, in order to locate the SSC at the Maricopa Site.

The above paragraph should be deleted and replaced with the following:

It is not anticipated that any existing power transmission lines would need to be relocated nor that any interruption of service to existing customers be required in order to locate the SSC at the Arizona site.

pp. 103, Section 14.2.2.3, sixth paragraph. This paragraph states: "Currently, 12,272 MW of the total 15,803 MW net capacity additions planned to be operational in 1996 are not yet under construction. Thus, the region would have a reduced ability to respond to increases in demand in the 1990s if construction of this capacity does not proceed on schedule."

144 The above information is from page 81 of the September, 1987, publication from the North American Electric Reliability Council (NERC) titled 1987 Reliability assessment, the Future of Bulk Electric System Reliability in North America 1987-1996, which was provided to DOE by APS on 3/15/88 in the response to RRFI Question No. 11, Utility Data Section. These statements apply to the entire Western Systems Coordinating Council (WSCC) power system, including 14 western states, the northern part of the Mexican province of Baja California, and the Canadian provinces of British Columbia and Alberta. Broad statements such as this do not reflect upon APS ability to meet future loads on the APS system, and we suggest that the subject text be deleted from the final draft of the EIS.

The following figures are from the 1986 Arizona Loads and Resources Report 1987 to 1986:

1987 gen. capacity owned by AZ utilities	14,656.1 MW
additional generating capacity 1987-1996	3,022.3 MW
1996 gen. capacity owned by AZ utilities	17,678.4 MW

The following figures are from the most recent APS Long Range Forecast dated 6/3/87 (This is information previously provided by APS on 3/15/88 in the response

to RFI Question No. 4, Utility Data Section):

1987 gen. capacity owned by APS	3,660 MW
additional APS gen. capacity 1988 - 1996	1,361 MW
1996 gen. capacity owned by APS	5,021 MW

Of the 1,361 MW of generation planned to be added by APS between now and 1996, the Long Range Forecast shows that only 12 MW (less than 1%) represent construction at a new site. The remaining 1,349 MW of new generation will be provided a follows:

Palo Verde Unit 3 (operational 1/10/88)	370 MW
Cholla Unit 4 recapture from layoff to SCE	350 MW
Ocotillo Units 1 & 2 recommissioning	229 MW
Ocotillo Solar Power Facility	10 MW
Saguaro Units 1 & 2 recommissioning	214 MW
Cholla Units 2 & 3 uprate	68 MW
West Phoenix Units 4, 5, & 6 recommissioning	108 MW
TOTAL	1,349 MW

There should be no doubt regarding the ability of APS to provide power to its customers. APS has a long history of successfully meeting the challenge of rapid load growth in Arizona and has not failed to provide additional generating capacity in a timely manner during a period when the growth rate was much higher than is forecast for the next 10 years.

pp. 104, Section 14.2.2.3. The first paragraph states: "An issue expected to be of continuing concern during the next 10 years is the effect of heavy-economy transfers on bulk electric power system reliability. Over the last few years, reduced gas and oil prices have allowed utilities to generate energy more economically with local gas and oil-fired units. Because of this increased incentive for economic energy transfers, portions of the regional transmission systems are loaded to higher levels for sustained periods of time. The mode of operation poses greater risks to system reliability because of reduced operating margin. It is expected that over the long term, the cost differential between gas/oil-fired generating units and other generating resources would increase, thereby exacerbating this problem."

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APS suggests that the above paragraph be deleted because it is a slightly inaccurate and highly irrelevant paraphrase of text from the September, 1987, publication from the North American Electric Reliability Council (NERC) titled 1987 Reliability Assessment, the Future of Bulk Electric System Reliability in North America 1987-1996. Taken out of context, the above statements appear to present a cause for concern regarding the reliability of transmission to the SSC; however, the paragraph immediately following the paraphrased section of the NERC report indicates that the primary area of concern is the 500-kV alternating current (AC) Pacific Intertie, electrically remote from loads in southern Arizona. The AC Pacific Intertie consists of two 500-kV lines extending from hydroelectric generation in the Pacific Northwest to California utilities. The topic is concluded with these statements: "Operating restrictions (defined by nomograms) have been imposed to limit simultaneous imports to California. These operating restric-

tions are required to assure that reliable system performance can be maintained in the event of a disturbance." In other words, no transmission problem exists because California utilities coordinate with each other to limit their power imports from neighboring states.

Also omitted from the paraphrased text was the preceding sentence which states: "The WSCC transmission systems are adequate to accommodate anticipated firm and most economy energy transfer schedules during the 10-year period." Note that an economy energy transfer schedule is a commitment from one utility to sell power to another utility and is agreed to only after all firm loads, such as the SSC, are assured adequate and reliable transmission capacity.

Enclosed is a copy of pages 80 to 87 of the NERC report, which contain the entire report on the WSCC. The portion of text which has been paraphrased in the DEIS is highlighted on pp. 81-82. Please note that a specific report on the Arizona-New Mexico Power Area is on pp. 85-86. APS proposes that the following text containing quotes from this NERC report on the WSCC replace the subject text in the final draft of the EIS:

Generation Capacity

"[WSCC] Generation capacity margins projected for the summer peak decrease from 30% to 22% over the next 10 years. These capacity margins are adequate and will enable WSCC to respond to additional load growth above that forecasted in the event of an accelerated economic recovery." (p. 81)

In Arizona-New Mexico Power Area (AZ-NM), consisting of Arizona, most of New Mexico and the western-most part of Texas, "generating capacity margins during summer peak will decrease from 37% to 28% over the next 10 years but will be adequate to supply projected loads." (p. 85)

146

The AZ-NM area utilities continue to forecast generating capacity levels which are significantly greater than their minimum capacity margins." (p. 86)

Transmission Adequacy and Operations

"The [WSCC] transmission systems as planned will be adequate to serve projected loads." (p. 80) Additionally, because there exists transmission capacity above and beyond that required to serve all loads, "the WSCC transmission systems are adequate to accommodate anticipated firm and most economy energy transfer schedules during the 10-year period (1987-1996." (p. 81)

"The AZ-NM utilities are actively working with California utilities, both directly and through WSCC, to increase the assurance that the present and proposed remedial action schemes [associated with the AC Pacific Intertie] will not degrade system reliability in the AZ-NM area." (p. 86) Utmost care is used to ensure that any potential problems with the Pacific Intertie cannot adversely affect other power systems in the WSCC.

It should be noted that the NERC Reliability Assessment does not provide as favorable a report for electric power systems in most other areas of the North American continent.

Volume IV, Appendix 15

147 References. Please add to the references:

Montero, L., Bostwick, T., Minnis, P., and Rice, G. An Archaeological Survey of the Maricopa SSC Site, Arizona. Draft Report on file at the Office of Cultural Resource Management, Department of Anthropology, Arizona State University. Tempe, Arizona. 1988

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Arizona Climate 1931-1972. W.D. Sellers and R.H. Hill, eds. The University of Arizona Press, 1974.

Arizona-Maricopa SSC Site Proposal, Sept. 2, 1987.

Bates, R. L., and Jackson, J. A., eds., 1980, Glossary of Geology, 2nd edition: Falls Church, VA, American Geological Institute, 751 p.

DeWitt, Ed, 1988 (Geologist, Central Mineral Resources, U.S. Geological Survey): private communication to J. W. Welty (20 July, 1988).

Hollett, K.J. and Marie, James R., 1987. Simulation of the groundwater flow system and proposed withdrawals in the northern part of Vekol Valley, Arizona. U. S. Geological Survey Water Resources Investigations Report 85-4340.

Karlstrom, K. E., Bowring, S. A., and Conway, C. M., 1987, Tectonic significance of an Early Proterozoic two-province boundary in central Arizona: Geological Society of America Bulletin, v. 99, p. 529-538.

148 Palmer, A. R., 1983, The Decade of North America Geology 1983 Time Scale: Geology, v. 11, p. 503-504.

Pearthree, P. M., 1988 (Research Geologist, Arizona Geological Survey): private communication to J. W. Welty (20 September, 1988).

Reynolds, S. J., 1987 (Research Geologist, Arizona Geological Survey): private communication to J. W. Welty (20 April, 1987).

Shafiqullah, M., Damon, P. E., Lynch, D. J., Reynolds, S. J., Rehrig, W. A., and Raymond, R.H., 1980, K-Ar geochronology and geologic history of southwestern Arizona and adjacent areas, in Jenney, J. P., and Stone, Claudia, eds., Studies in western Arizona: Arizona Geological Society Digest, v. 12, p. 201-260.

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White, Natalie D., and Garrett, W.B., 1984. Water Resources Data Arizona Water Year 1982. U.S. Geological Survey Water-Data Report AZ-82-1.

Wilson, R. P., 1979. Availability of ground water on federal land near the Ak-Chin Indian Reservation, Arizona. A reconnaissance study. USGS Open File Report 79-1165.

LETTER 658 (CONTINUED)

1987 RELIABILITY ASSESSMENT

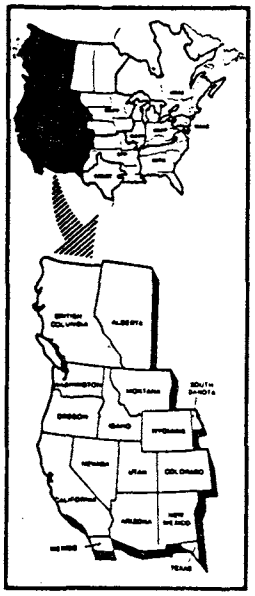
THE FUTURE OF BULK ELECTRIC SYSTEM RELIABILITY IN NORTH AMERICA 1987–1996

SEPTEMBER 1987

North American
Electric
Reliability
Council

IIA.1- 1053

WSCC *Western Systems Coordinating Council*



WSCC has made major progress in a comprehensive review of its bulk electric system reliability criteria. in developing project review procedures to deal with problems related to heavy transmission system utilization, and in the use of remedial action schemes as a substitute for additional transmission facility investment. Projected WSCC capacity margins for the 1987-1996 period will meet present reliability criteria. In addition. the transmission systems as planned will be adequate to serve projected loads.

	Actual	Forecast		
	Summer 1986 / Winter 1986/87	1987 / 1987/88	1996 / 1996/97	Growth Rate (%/year)
WSCC — U.S.				
Summer Peak—MW	81,787	85,932	103,604	2.1
Winter Peak—MW	76,171	82,040	97,978	2.0
Annual Energy—GWh	480,218	500,574	598,002	2.0
Installed Capability (summer)—MW	124,140	123,087	134,372	1.0
WSCC — Canada				
Summer Peak—MW	9,496	10,214	13,361	3.0
Winter Peak—MW	11,751	12,939	16,882	3.0
Annual Energy—GWh	72,922	76,474	101,905	3.2
Installed Capability (winter)—MW	17,686	17,686	19,574	1.1
WSCC — Mexico				
Summer Peak—MW	619	682	1,215	6.6
Winter Peak—MW	393	441	785	6.6
Annual Energy—GWh	2,834	3,231	5,865	6.8
Installed Capability (summer)—MW	828	1,028	1,418	3.6
WSCC — Total				
Summer Peak—MW	91,768	96,769	118,103	2.2
Winter Peak—MW	88,315	95,243	115,645	2.2
Annual Energy—GWh	555,974	580,279	705,772	2.2
Installed Capability (summer)—MW	142,885	142,032	155,412	1.0

Peak Demand and Energy

The accompanying tables provide a comparison of this year's forecast of peak demand and energy with last year's forecast and summarize the 1986 peak demand and energy experience.

WSCC (U.S., Canada and Mexico) Comparison of Forecasts

	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	2.2%	2.4%
Annual Energy Growth Rate (%/yr)	2.2%	2.4%
Forecasts for Year 1995:		
Summer Peak Demand—MW	115,715	118,101
% Change	-2.0%	
Annual Energy—GWh (Median Hydro)	689,968	698,709
% Change	-1.3%	

WSCC (U.S., Canada and Mexico) 1986 Peak Demand and Energy Experience

	1986 Actual vs 1985 Actual	1986 Actual vs 1986 Forecast
Summer Peak Demand	-1.6%	-3.8%
December Peak Demand	-2.6%	-5.8%
Annual Energy	0.5%	-1.2%

DOE-PARAPHRASED SECTION

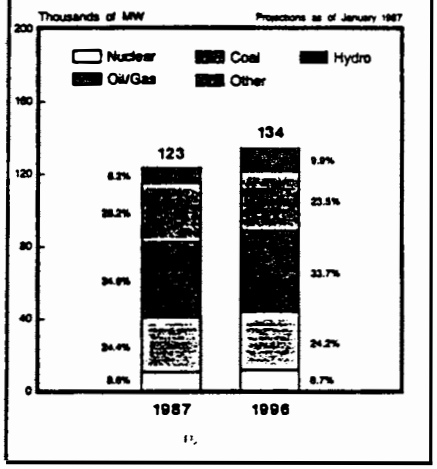
Generating Capacity

Net hydroelectric generating capacity additions (3,357 MW) planned through the 1987-1996 period represent 21% of the total planned generating capacity additions within the Region. Net coal-fired generating capacity additions (6,383 MW) represent 40% and non-utility generation (NUG) additions (4,890 MW) represent 31% of WSCC's planned generating capacity additions.

Generation capacity margins projected for the summer peak decrease from 30% to 22% over the next 10 years. These capacity margins are adequate and will enable WSCC to respond to additional load growth above that forecasted in the event of an accelerated economic recovery.

Currently, 12,272 MW of the total 15,803 MW net capacity additions planned to be operational in 1996 are not yet under construction. With the exception of NUG additions, which typically have a one- to two-year construction period, the Region will have reduced ability to respond to increases in demand in the 1990's if construction of this capacity does not proceed on schedule.

WSCC—U.S. Generating Capacity by Fuel Summer



Transmission Adequacy and Operations

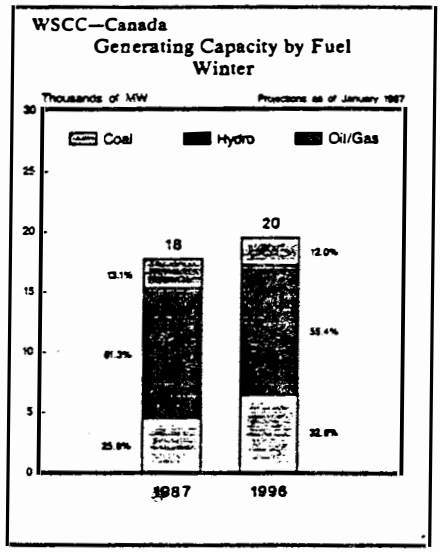
The WSCC transmission systems are adequate to accommodate anticipated firm and most economy energy transfer schedules during the 10-year period (1987-1996).

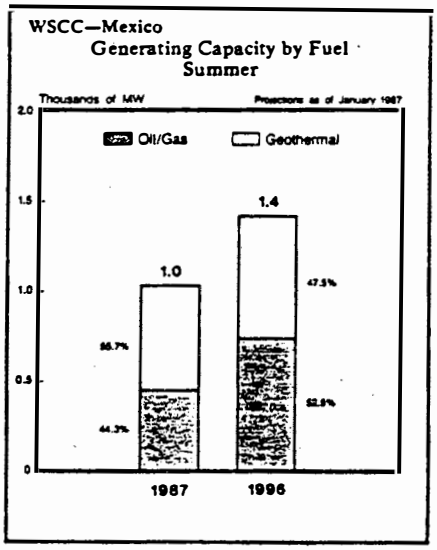
An issue which is expected to be of continuing concern during the next 10 years is the effect of heavy economy transfers on bulk electric power system reliability. The Region's diverse load and capacity resource mix, combined with localized surpluses of baseload capacity, large fuel price differentials, and efforts to increase regional operating efficiency will continue to make economy energy transfers between areas economically beneficial for buyers and sellers alike.

Over the last two years, reduced gas and oil prices have allowed utilities to generate energy more economically with local gas- and oil-fired units. In addition, new baseload generating units have recently been placed in service within areas that have historically imported relatively large amounts of energy. Th e conditions have re-

CONT'D

WSCC





sulted in reduced economy energy transfers within the Region. It is expected that over the long-term, the cost differential between gas/oil-fired generating units and other generating resources will increase, resulting in a return to more economy energy transfers.

Because of the expected increases in economy energy transfers, portions of the regional transmission systems will be loaded to higher levels for sustained periods of time. Thus, the bulk transmission systems will be operated to provide greater economic advantages even though this mode of operation will pose greater risks to system reliability due to reduced operating margin.

WSCC member systems are making a concerted effort to maintain an acceptable level of existing and future system reliability while accommodating higher transfer levels. Major work has been completed and additional work is underway to improve the reliability of the Pacific Intertie and associated remedial action schemes. Relays and associated equipment are being replaced and additional circuit breakers and redundant communication systems are being added where appropriate. An independent detection scheme to initiate controlled islanding for loss of the two 500 kV ac lines of the Pacific Intertie, should the primary transfer trip scheme fail, has been placed in service in a monitor mode to evaluate its feasibility.

Operating restrictions (defined by nomograms) have been imposed to limit simultaneous imports to California. These operating restrictions are required to assure that acceptable system performance can be maintained in the event of a disturbance.

The Council has supported a number of other activities in an effort to promote an acceptable level of future system reliability. Some of the more noteworthy activities include the following:

- During 1986, the Council initiated a comprehensive review of its planning and operating reliability criteria. The review is scheduled to be completed during 1987.
- Special study groups have been formed to evaluate major projects planned during the next ten years to ensure that performance of each project is in compliance with WSCC criteria.
- WSCC System Disturbance Reports are routinely analyzed to identify the factors which contributed to the disturbance and improvements which should be made. The status of implementing disturbance report recommendations is updated three times per year. Since 1979, over 250 disturbance report recommendations have been implemented to enhance the reliability of the WSCC interconnected systems.
- Through WSCC's Dispatcher Training Program, operating personnel are schooled in interconnected sys-

tems operation to promote overall system reliability. During 1986, 246 participants attended the 12 training sessions which were held at various locations throughout the WSCC Region and received more than 6,000 man-hours of training.

During the 1987-1996 time frame, several key planned transmission projects and transfer path uprates are likely to have a significant effect on the operation of the WSCC interconnected systems and their energy transfer capability. These projects and uprates include:

- Upgrading the transfer capability of the Northwest to California 500 kV ac Pacific Intertie from 2,800 MW to 3,200 MW—1987.
- Completion of the 1,600 MW Intermountain Power Project Generating Plant in Utah and the associated ±500 kV dc line to California — 1986-87.
- DC Terminal Expansion Project, upgrading the Celilo-Sylmar ±500 kV dc line from 2,000 MW to 3,100 MW—1989.
- Completion of the third Northwest to California 500 kV ac Pacific Intertie — 1991.
- Increasing the Arizona-California transfer capability from 4,700 MW to 5,200-5,500 MW — 1987.
- The addition of phase shifting transformers in southwestern Colorado to partially control loop (parallel) flow — 1988.

The Council has placed a high priority on studying the effects of these projects on the reliability of the WSCC interconnected systems and evaluating alternative remedial action schemes which will confine the effects of disturbances involving these projects to the project participants, consequently minimizing the effects on neighboring systems.

One issue that the Council and its members continue to study is development of an equitable solution to major and minor loop (parallel) flows. Loop flow requires some utilities to provide uncompensated transmission service to others.

Non-Utility Generation

Of the four WSCC areas, the California-Southern Nevada Power Area is projecting the highest growth in non-utility generation. Increased NUG facilities have been stimulated by the California Regulatory Commissions' interpretations of the Federal government's Public Utility Regulatory Policies Act (PURPA) of 1978. Because of the oversupply of NUGs, the California Public Utilities Commission has suspended most of the standard offers which the California investor-owned utilities were required to sign to buy electric power from developers.

In most cases, the utilities have little or no control over non-utility generation operation, and must accept the energy when delivered. Since most of these NUGs are baseload in nature, the host utility's load-following generating capacity must work harder, which increases wear and tear, maintenance, and perhaps outage rates on thermal equipment. In addition, many NUGs are small, low-voltage units and are likely to separate from the system during distribution system disturbances. These factors, plus uncertainty about the long-term economic viability of non-utility generation, raise significant concerns about reliability issues in those areas expecting major NUG development.

Northwest Power Pool Area

The Northwest Power Pool (NWPP) Area is comprised of the states of Washington, Oregon, Idaho, Utah, portions of Montana, Wyoming, Nevada and California, and the Canadian provinces of British Columbia and Alberta.

Projections of peak demand and energy requirements for the 1987-1996 period are presented in the accompanying tables. Winter generating capacity margins for this winter peaking area decrease from 24 to 14% over the next 10 years but will be adequate to maintain area reliability.

Northwest Power Pool (U.S.) Comparison of Forecasts

	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	1.5%	1.8%
Annual Energy Growth Rate (%/yr)	1.6%	2.0%
Forecasts for Year 1995:		
Summer Peak Demand—MW	30,242	30,530
% Change	-0.9%	
Annual Energy—GWh	215,929	219,006
% Change	-1.4%	

WSCC

Northwest Power Pool (Canada) Comparison of Forecasts	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	3.0%	2.8%
Annual Energy Growth Rate (%/yr)	3.2%	2.9%
Forecasts for Year 1995:		
Summer Peak Demand—MW	12,900	13,174
% Change	-2.1%	
Annual Energy—GWh	98,724	95,559
%Change	3.3%	

Progress continues in completing the Colstrip 500 kV transmission system. A temporary Colstrip generator tripping scheme for loss of either section of the Taft-Dworshak-Hatwai 500 kV line will remain in service until the Taft-Bell 500 kV line is energized in the fall of 1987.

The Cranbrook-Langdon 500 kV interconnection between British Columbia and Alberta has been in service since January 1986, strengthening the interconnection between Alberta and British Columbia.

Upon completion of tests associated with new series capacitors between Table Mountain and Tesla Substations in California early in 1987, the transfer capability of the ac Pacific Intertie will be upgraded from 2,800 MW to 3,200 MW. This uprate has been considered in the seasonal nomograms prepared by WSCC. The amount of Northwest generator tripping will be increased for single and double line outages at the new transfer capability level.

The Celilo-Sylmar dc expansion project to increase the capacity of the line from 2,000 MW to 3,100 MW by 1989 has entered the construction phase. Specifications are being prepared for related dynamic voltage support facilities to be installed at Malin and Table Mountain Substations as part of the project.

Planning is in progress regarding the upgrade of the ac Pacific Intertie to 4,800 MW through construction of a third 500 kV line in northern California. The new 500 kV line, scheduled for completion by 1991, will extend from Tesla Substation in California, north to the Malin-Meridian 500 kV line in Oregon. Addition of the third ac Pacific Intertie line should eliminate the need for the NE/SE Islanding Scheme as remedial action for loss of the two existing ac Pacific Intertie lines. A decision regarding the actual routing of the line is expected in 1987. All routes under consideration provide some separation from the existing Malin-Round Mountain lines to minimize the likelihood of a three-line outage.

An aggressive program is in progress to improve the reliability of the Pacific Intertie by taking measures to reduce the likelihood of outages, and by upgrading and/or replacing remedial action schemes to insure proper remedial action for Pacific Intertie outages. The program is scheduled to be completed in three phases by 1990. Measures being taken to improve remedial action schemes involve the use of redundancy, monitoring, and separation of schemes to reduce the likelihood of a major remedial action scheme failure.

Rocky Mountain Power Area

The Rocky Mountain Power Area (RMPA) consists of Colorado, eastern Wyoming and a small portion of South Dakota. The accompanying table presents this year's forecast of peak demand and energy as compared to last year's forecast. Summer generation capacity margins will decrease from 35% to 27% over the next 10 years but will be adequate to maintain area reliability.

Rocky Mountain Power Area Comparison of Forecasts	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	2.6%	3.3%
Annual Energy Growth Rate (%/yr)	2.8%	2.9%
Forecasts for Year 1995:		
Summer Peak Demand—MW	7,493	8,213
% Change	-8.8%	
Annual Energy—GWh	47,315	47,886
% Change	-1.2%	

The 100 MW Nucla Fluidized Bed Combustion Demonstration Project, located in western Colorado, is scheduled to begin operation in the third quarter of 1987. This two-year testing program should demonstrate the ability of this technology to burn a wide range of fuels with improved boiler efficiency and with no scrubbers required to maintain air quality.

The Rifle-San Juan 345 kV transmission line, 265 miles in length, is nearing completion. The Rifle to Montrose

section of this line is now in service. The Rifle-San Juan line will serve loads in western Colorado as well as strengthen the interconnected transmission system between Colorado and the Arizona/New Mexico area.

The transmission system northeast of Denver continues to be heavily loaded. To relieve the heavy loading, plans are underway to uprate certain existing line sections and to construct a new 230 kV line between the Ault Substation and Ft. St. Vrain Switchyard, both in Colorado. Much of this work is scheduled during the next 3 to 5 years.

The Hayden-Blue River 230 kV transmission line, 90 miles in length, is scheduled for completion during the fourth quarter of 1987. This line will substantially increase transmission capacity between western and eastern Colorado.

Construction of a third ac-dc-ac tie between WSCC and MAPP in southwestern Nebraska, near Sidney, is scheduled for completion in 1987. The transfer capability of this dc tie is 200 MW in either direction.

The existing 138 kV transmission system connecting northern Colorado and Utah is very heavily loaded at times. These heavy loading conditions are due to a combination of firm schedules, economy schedules, and loop flow. To provide relief, plans are underway to construct, by the early 1990's, a new 345 kV line between Colorado and Utah.

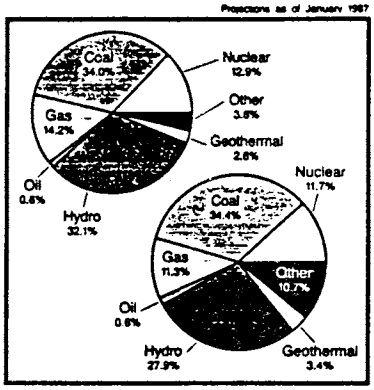
During 1986, loop flow continued to adversely impact the transmission system between the Arizona/New Mexico and Colorado/Utah areas. In an effort to mitigate this problem, the Western Area Power Administration is proceeding with plans to install phase-shifting transformers to control loop flow in the western Colorado portion of the interconnected system.

Generating capacity has been installed in RMPA which is surplus to the near-term load requirements within the area. A significant amount of coal-fired generating capacity is available for area load growth and export to other areas. Surplus capacity (approximately 1,000 MW) was available in the 1986 summer and 1986/87 winter operating seasons. The export of surplus generation is limited by the transmission capacity to outside areas and the marketability of surplus energy which has been affected by lower gas and oil prices and new baseload nuclear units recently placed in operation in Arizona and California. The surplus baseload capacity will be available for 5 to 10 years before being absorbed by area growth.

Growth in NUG facilities has been relatively slow in RMPA. This can be attributed to the substantial amount of surplus coal-fired generating capacity available within the area which results in low avoided costs.

WSCC—U.S.
Electrical Energy Production[a]
by Fuel

Projections as of January 1987



1987 481,469 GWh
1996 570,309 GWh

[a] From primary energy sources (pumped storage generation and net imports excluded)

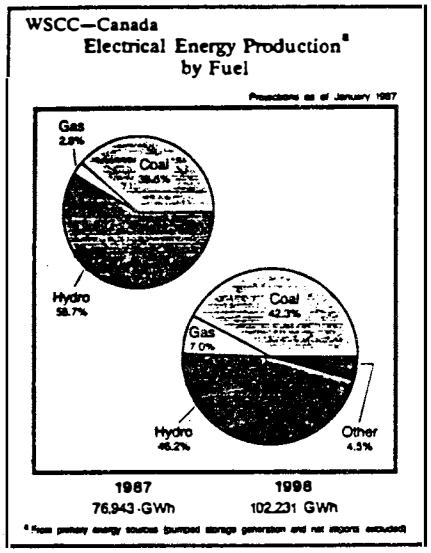
Arizona-New Mexico Power Area

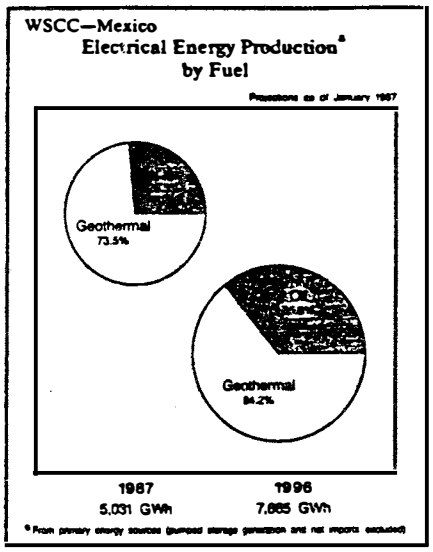
The Arizona-New Mexico Power Area (AZ-NM) consists of Arizona, most of New Mexico and the western-most part of Texas. The accompanying table depicts this year's forecast of peak demand and energy as compared to last year's forecast. Generating capacity margins during summer peak will decrease from 37% to 28% over the next 10 years but will be adequate to supply projected loads.

Arizona-New Mexico Power Area
Comparison of Forecasts

	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	3.1%	3.6%
Annual Energy Growth Rate (%/yr)	3.2%	3.3%
Forecasts for Year 1995:		
Summer Peak Demand—MW	14,130	14,404
% Change	-1.9%	
Annual Energy—GWh	69,861	70,452
% Change	-0.8%	

WSCC





Projected net generating capacity additions for the 1987-1996 period total approximately 2,940 MW and are predominately coal-fired and nuclear units.

During 1986, two Palo Verde nuclear generating units with a combined capability of 2,540 MW were placed in commercial operation in southwestern Arizona. The third Palo Verde unit (1,270 MW) is expected to be placed in commercial operation during the third quarter of 1987. The AZ-NM area's share of the Palo Verde nuclear plant represents approximately 60% of the area's planned net generating capacity additions over the next 10 years. The AZ-NM area utilities continue to forecast generating capacity levels which are significantly greater than their minimum capacity margins. This situation has resulted in an increasing need to market surplus electric energy to neighboring areas in the near-term.

Although the Arizona to California transmission system has been strengthened, the transmission system emanating to the west from the Four Corners area has not. It is anticipated that clockwise loop flow will, as in the past, inhibit power transfers from the Four Corners area power plants to their respective Arizona/California owners. For this reason, the AZ-NM area utilities continue to support WSCC's efforts to develop loop flow control procedures as well as long-range plans to reduce the impact of loop flow.

With the continuing economic incentives for California utilities to maximize Pacific Northwest and Southwest imports, the use of sophisticated remedial action schemes such as generator tripping and controlled system islanding are being expanded. Should these remedial action schemes fail to operate as planned, the adverse effect on the AZ-NM area is a matter of serious concern. The AZ-NM utilities are actively working with California utilities, both directly and through WSCC, to increase the assurance that the present and proposed remedial action schemes will not degrade system reliability in the AZ-NM area.

California-Southern Nevada Power Area

The California-Southern Nevada Power Area encompasses California, southern Nevada and the northern portion of Baja California, Mexico.

The accompanying table presents this year's forecast of summer peak demand and energy for the U.S. portion of the area as compared to last year's forecast. Generating capacity margins during summer peak will decrease from 25% to 20% over the next 10 years but will be adequate to supply projected loads.

California-Southern Nevada Power Area (U.S.) Comparison of Forecasts

	This Year's Forecast (1987-1996)	Last Year's Forecast (1986-1995)
10-Year Forecasts:		
Summer Peak Demand Growth Rate (%/yr)	2.1%	2.1%
Annual Energy Growth Rate (%/yr)	2.0%	2.2%
Forecasts for Year 1995:		
Summer Peak Demand—GWh	50,479	50,961
% Change	-1.0%	
Annual Energy—GWh	252,628	260,183
% Change	-2.9%	

The 913 MW Rancho Seco unit, which has been shut down since December 26, 1985, is scheduled to return to service by the first quarter of 1988. During 1986, over 894 MW of non-utility generation were placed in operation bringing the area total NUG capacity to 3,829 MW.

Over the next ten years, a number of interrelated factors will affect overall system reliability in the California-Southern Nevada Power Area. These factors include the following:

- Remedial action schemes will continue to be used to support existing or increased power transfers.
- In order to provide reliable operation, special operating limits are being observed.
- Phase-shifting transformers scheduled for installation in Colorado and under consideration in the Utah to Arizona/New Mexico interface could have a significant effect upon the California/Southern Nevada systems.
- A number of projects which will result in increased energy transfer capability into the California/Southern Nevada area are:
  - Increasing the ac Pacific Intertie transfer capability
  - Increasing the Arizona-California transfer capability
  - Completion of the Intermountain Power Project
  - Addition of the second Palo Verde-Devers 500 kV transmission line
  - Expansion of the dc Pacific Intertie
  - Completion of the California/Oregon Transmission Project (third ac Pacific Intertie line)
  - Addition of the Mead-Adelanto dc transmission line

These factors and others, as mentioned under the various individual area headings, illustrate the necessity for continual coordination of planning and operation to achieve an acceptable level of interconnected systems reliability. The members of WSCC, through their coordinated efforts, are achieving this objective.

Western Systems Coordinating Council (WSCC), with 60 member systems and 4 affiliates, encompasses approximately 1.8 million square miles of territory in 14 western states plus parts of 2 Canadian provinces and the northern portion of Baja California, Mexico. The Region is characterized by extremes in population and load densities in addition to long distances between load centers and electric power generation sources. The Region is subdivided into 4 areas, namely: the Northwest Power Pool Area, which is winter peaking and heavily dependent on hydro generation; the Rocky Mountain Power Area, which is either summer or winter peaking with a 24% hydro and 62% coal-fired generation mix; the Arizona-New Mexico Power Area, which is summer peaking with a 30% gas/oil and 50% coal-fired generation mix; and the California-Southern Nevada Power Area, which is summer peaking and heavily dependent on gas- and oil-fired generation.

LETTER 659

Congress of the United States
Washington, DC 20515

October 3, 1988

The Honorable John Herrington
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Secretary:

As you are no doubt aware, the Arizona congressional delegation must be in Washington today as the 100th Congress completes its legislative business, and we prepare for our State's presentation to you tomorrow in support of our effort to construct and operate the Superconducting Super Collider (SSC). We did, however, wish to have included in the record of this important hearing on the draft environmental impact statement (EIS) published by the Department August 28, 1988 some thoughts we share on the subject.

We have long contended that Arizona is uniquely positioned to provide the land, resources and skills required to make this vital project a success. Our State offers exceptional geologic and weather conditions, readily transferable land, a highly skilled and experienced construction and technical labor pool, and outstanding cultural, educational, and environmental resources. Perhaps as significant and distinguishing is the fact that there is presently no discernable opposition from any constituency affected by this project.

1 That there are so few public witnesses that have sought an opportunity to submit testimony here today should be construed only as evidence of the very broad and enthusiastic support this project enjoys in our State, and we would add, in the West generally. The political, academic, environmental, business, labor and other communities that maintain an interest in this endeavor are foresquare behind it and resolved to ensure its success into the future.

As the draft EIS underscores, the Arizona/Maricopa site would permit tunneling above the water table and would not adversely impact any surrounding watersheds or ecosystems. Further, the requisite land could be easily transferred, sufficient electrical power, natural gas and water are available to the site, and necessary infrastructure improvements and vegetation relocation can be achieved with minimal effort. A superb geological setting permits optimal construction flexibility and would allow, in our view, significant savings in cost and construction time.

The Honorable John Herrington
October 3, 1988
page two

We are pleased that the draft EIS underscores the merits of the Arizona/Maricopa site which we have long touted, and that there exist no known unacceptable or unmitigatable environmental impacts of building the SSC here. We are satisfied that the executive and legislative branches in the State are committed to satisfying the infrastructure requirements set forth in the draft EIS. Further, we reiterate our own resolve to work with the appropriate committees in the House and Senate to give expeditious and favorable consideration to wilderness area redesignations that would be necessitated by selection of the Arizona/Maricopa site.

Finally, Mr. Secretary, we applaud you for your continued leadership in promoting the SSC as a national imperative, and in conducting this site selection process in a manner that is even-handed and that grants primary consideration to the technical merits of each site. We, the Members of the Arizona congressional delegation, pledge our continued best efforts to elevate this project to the forefront of the debate on domestic priorities, and to securing the requisite political support to sustain the project through the construction and operational phases.

Sincerely,

Dennis DeConcini

John McCain

Bob Stump

Morris Udall

John J. Rhodes III

Jim Kolbe

Jon Kyl

LETTER 660

Dr. Temple and distinguished members of the panel I would like to thank you for this opportunity to express my comments here today.

My name is Dr. George Brooks and I reside at 5018 S. 21st Way Phoenix

I have been a landowner in the Mobile area for more than 20 years. I have seen and been a part of tremendous change here in the Phoenix area. With continued growth being encouraged and inevitable I think the SSC would be a tremendous guide in developing intelligent and environmentally sensitive growth.

One of the reasons I have been following the progress of the SSC during the past several years is that I saw it as a means of responsible growth, as an anchor on the western side of the Rainbow Valley, towards which development could be focused as Phoenix continues to grow South and West. The SSC can ensure that the Ak-Chin and Gila Bend Indians are not left by the wayside as
1 the technology corridor fills in not only towards Phoenix, but with the SSC, towards Gila Bend.

I am not troubled by the fact that should the SSC come to Arizona my land would be needed for it. I welcome its arrival because I believe that central Arizona can be, and will be, a national focus for high tech research and development. The SSC can, and will be, a major addition to what is now a developing corridor of science and technology between Phoenix and Tucson.

I have seen, from the hard work carried out by the Arizona team over the past few years, and confirmed in the Draft Environmental Impact Study, that the Arizona site works. In some areas the study understates some truly unique

benefits of the site, including an ideal climate; beautiful, scenery which is beautiful yet common here in Arizona; and a site which is perfect not only for development of a science research facility now, but also with the land needed for the inevitable partnership between science and industry, when the research from of the SSC are developed into the new technologies of the future.

In looking through the DEIS and learning more about the other sites one thought came to mind. Regardless of the SSC's effect on the plants and the animals the most important impact will be on people, and the Arizona site far and away will impact the fewest number of people. Nowhere else in the country can you find as large an area of non-unique, undeveloped, and yet easily obtainable land so close to a major metropolitan area with all of its amenities.

I am also surprised to see that there is no mention to the edge that Arizona has in being able to build the SSC on time, and on budget. Did any of the other states do as complete a job? I don't want to see another pork barrel project which takes more years, and more billions to build. Arizona has shown, with its detailed studies on construction scheduling and costs, that the job can be done, not just on time, but ahead of time. That is the Arizona spirit at work.

I see Arizona in the next century as being not just a new 'silicon valley', but a new focus for the development of technologies only dreamed of today. The SSC offers a promise for America in the 21st Century. Our Lord created this vast landscape. HE created this great land to which the people of Arizona have come. Together, they are a resource which can, no will, build the SSC, and man its operation, bringing to the SSC the Arizona spirit of resourcefulness and hard work.

LETTER 661

TO: DEPARTMENT OF ENERGY

DATE: October 3, 1988

My name is Charles Hamilton. I am President of Trivestcor, Inc. I appreciate the opportunity to speak here today in this open forum. I would like to speak today as a geographer. I have a masters degree in Geography with a specialization in Land Use Planning.

I was in Texas last Monday and witnessed the show put on in Waxahaxie by the propoderance of civic leaders who claimed to have thoroughly analyzed the EIS report. They continuely stated from their analysis that the Texas site was supported by the EIS report, and it should be built in Texas in spite of numerous problems. They felt from their own analysis, that all problems were minimal. In articles written about other sites similar statements have been made.
I contend there are some real problems at these sites that cannot easily be mitigated. As you well know, an organization called CATCH (citizens against the supercollider here) has been formed in Illinois, North Carolina and Tennessee. This is not a small organization. The numbers of people who belong to CATCH in each state are substantial. In Texas an organization called TASC (Texans against the supercollider) has been formed. They claim they sent to you 400 petitions signed by Texans against the collider. They also claim that for every person that signed a petition at least three others wanted to, but were afraid to because of local political pressure. It is my contention that if you locate the collider at anyone of these sites you will be buying litigation, which we all know will be extremely expensive and time consuming. But more importantly you will create
1 battlefields within these communities. These battlefields will destroy the internal fibers that holds these communities together.

In all sites, with the exception of the Arizona site, a supercollider will have to be forced on either the physical or cultural landscape and in most cases both. This is substantiated by the EIS report and at what expense? When you tunnel under a watertable it becomes very expensive. It is extremely difficult to guesstimate the problems that will be incurred and the costs related to those problems. When you move people it is not only expensive, but in many cases it is emotionally traumatic. When you change floodplains it not only is very costly, but it creates new problems. It is uncomprehensible that the DOE would consider disrupting thousands of acres of wetlands or affecting the preservation of historic and prehistoric sites.

A common thread stated at the Texas hearings and has been stated at the other sites is: whatever it costs environmentally is small in comparison to the economic benefits that would be received. I ask, received by whom?

It would be nice to think in 1988 man has learned the overwhelming importance of living in harmony with his environment. Throughout history man has abused both his physical and cultural environment for economic benefit, and all to frequently man has found the economic benefits not to be worth it. We in Arizona, unlike Texas and some of the other sites, have learned the importance of working with our environment. Arizonans have developed quality land use plans, as evidenced by the planned communities of Sun Cor, Stan Mar and Estrella all in close proximity of the collider site.

LETTER 6061 (CONTINUED)

Department of Energy
October 3, 1988

Gentlemen, we have an opportunity here in 1988 to show the world that we have learned something about how to live in our environment. That man, nature, science, and business can live in harmony with each other instead of at the expense of each other. The Arizona supercollider site offers such an opportunity. It is a site that has a superior geology, it is a site that can enhance its own physical environment, it is a site that has no water problems, it is a site that has no detrimental effect on nature, it is a site that effects no floodplains and most importantly, it is a site that does not disrupt the lives of people. In fact, it is the only site that not only meets your criteria but substantially exceeds it. Instead of superimposing the collider ring on an area, it can be blended into the Phoenix infrastructure, and be a model for the world. Gentlemen, we have the opportunity to create something very special here, instead of destroying something very precious - our environment. Thank you very much.

Charles F. Hamilton
5478 E. Oakhurst Way
Scottsdale, Az 85254

LETTER 662

Arizona State University

Department of Physics (602) 965-3561
Tempe, Arizona 85287-1504
FAX (602) 965-7954

October 3, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545

Dear Dr. Hess,

I am submitting the attached statement titled "Environmental Benefits of the Superconducting Super Collider in Arizona" in response to the Draft EIS, DOE/EIS-1038D, issued August, 1988.

I appreciate the opportunity to respond and I thank you for your consideration.

Sincerely yours,

Joseph R. Comfort

Joseph R. Comfort
Professor of Physics

ENVIRONMENTAL BENEFITS OF THE
SUPERCONDUCTING SUPER COLLIDER IN ARIZONA

Remarks Presented to the Department of Energy
During Hearings on the Draft Environmental Impact Statement
for the Superconducting Super Collider
Tempe, Arizona; October 3, 1988

Joseph R. Comfort

My name is Joseph Comfort and I am the Associate Project Manager for the Arizona SSC Project. My address is the Physics Department, Arizona State University, Tempe, AZ 85287 where I am also a Professor of Physics. My research interests are in experimental nuclear and particle physics. I have been associated with the Arizona SSC Project since its inception five years ago.

1 I wish to comment briefly on the Draft Environmental Impact Statement issued by the Department of Energy for the SSC, especially with regards to the overall impact of siting the SSC in the Phoenix metropolitan area.

In a dynamic environment, it is important to distinguish between the direct socioeconomic impacts of a large-scale project such as the SSC and the otherwise natural development of the

2 region. In my view, the Draft EIS does not make this distinction sufficiently clear in Arizona's case, nor does it recognize how the regional developments will provide benefits that will offset some of the direct impacts of the SSC.

225-775 0 - 88 (Book 4) - 3

Just last week, the U.S. Census Bureau reported that, during the 1980's, Phoenix was the nation's fastest growing metropolitan area of those having populations in excess of one million. This growth speaks clearly to the attractiveness of the region in terms of jobs, climate, life-styles, and future opportunities. At current growth rates, only a few months of the normal influx of new residents will accomodate all of the jobs created by the SSC during its construction and operation over the next 30 year or more, as well as all other jobs stimulated by the presence of the SSC in the region. In human terms, the SSC slips right into the proposed Arizona site.

Arizona has all of the resources and experience needed to construct and operate the SSC. The $3-billion Central Arizona Project, the $9-billion Palo Verde Nuclear Generating Station, and the $5-billion freeway system in Maricopa County now under construction serve as clear examples. The SSC is a welcome addition and not a burden. In economic terms, the SSC slips right into the proposed Arizona site.

3 The dynamics of the region are best illustrated with the accompanying map. One of the areas of greatest growth at this time is along the interstate I-10 corridor to the West. Once beyond the Estrella mountains, development can and will occur down into Rainbow Valley, towards the SSC site. In fact, construction for a major planned community there has already begun. A second area of major growth is along the I-10 corridor to the Southeast towards Tucson. Master plans for another major planned community, just West of Casa Grande towards the SSC site, have already been

approved. In terms of community development, the SSC slips right into the proposed Arizona site.

The SSC Campus is near interstate I-8, a transcontinental freight railway, transcontinental oil and gas pipelines, and an extension canal of the CAP. Plans exist for a new 230-kV electrical transmission line to pass across the site and a hazardous waste disposal facility is under construction inside the SSC ring perimeter. Expect for four relocations, the SSC will not impact existing infrastructures, but will instead slip right into the proposed Arizona site.

The Arizona SSC Project takes exception to the comments in the Draft EIS that the SSC might be visually incongruous at the proposed Arizona SSC site. Architecture that is environmentally sensitive should be mentioned as a mitigation. In fact, infrastructures impairing visual resources already exist. The most important Eastern portion of the site is on land that has been overgrazed and has revegetated with creosote bush. Near the
4 adjacent community of Mobile, a conventional waste facility is being planned, one or two oil refineries are under study, and land is being purchased for a pilot-training airstrip. These developments will occur with or without the SSC. However, in terms of the potential for the growth of industrial infrastructures, the SSC slips right into the proposed Arizona site.

Finally, the proposed Arizona site encircles portions of three
5 Wilderness Study Areas managed by the Bureau of Land Management. BLM has recommended that the areas not be classified as wilderness, in large part because of the extensive human presence

that has already occurred. The Arizona SSC Project, however, endorses all efforts to maintain the Maricopa Mountain region in as primitive a state as is reasonably feasible. The Project believes that the SSC will be able to demarcate the boundaries of such a primitive region and that it will have the political leverage to preclude damaging intrusions into an environmentally sensitive and attractive area. Environmentally, therefore, the SSC slips right into the proposed Arizona site.

This is the COURT CASE CITED! Courtesy of Joe Comfort

but also to continue to protect employees who are "deprived of employment."

We cannot agree with the district court that the legislative history of Title VII supports its conclusion that Congress intended to exempt § 797 separation allowances from federal income taxation. As the district court concedes, the legislative history provides no evidence of congressional intent to exempt such payments from federal income tax. Rather, the legislative history would appear to demonstrate that Congress gave no thought to the tax treatment of these allowances. Further, as previously discussed, § 797d(b)'s reference to "compensation" cannot be construed as a clear and specific exemption of the separation allowance from taxable "income". Consequently, while we may agree with the district court that taxation of the employee's already reduced benefits under Title VII seems contrary to Title VII's goal of employee protection, we are constrained by *Glenshaw*'s requirements of a "specific exemption" and "clear congressional intent" to conclude that § 797d(b) does not exempt the allowance from federal income taxation. We agree with the district court that if Congress intended a meaning other than that which emerges from the face of the statute and its legislative history, then Congress itself may act to correct the statute.

In light of the government's concession that the $784.58 paid on behalf of appellees for health and welfare premiums was not taxable income, we affirm so much of the judgment below as pertains to that amount. In all other respects, however, we reverse and remand with instructions to dismiss the complaint.

John A. BERSANI, Newport Galleria Group, Robert J. Congel and the Pyramid Companies, Appellants,

v.

Joseph ROBICHAUD and Citizens in Support of Attleboro Mall, Intervenor-Plaintiffs-Appellants,

Home Building Association of Massachusetts, Intervenor-Plaintiff,

United States Environmental Protection Agency, United States Army Corps of Engineers, Lee Thomas, in his official capacity as Administrator of the United States Environmental Protection Agency, Richard K. Dawson, in his official capacity as Assistant Secretary for Civil Works, United States Army, and Jennifer Joy Wilson, in her official capacity as Assistant Administrator for External Affairs, United States Environmental Protection Agency, Appellees,

Sierra Club, Environmental Defense Fund, National Wildlife Federation, National Audubon Society, Conservation Law Foundation of New England, Inc., Massachusetts Audubon Society, Citizens for Responsible Environmental Management, Massachusetts Society for Conservation Professionals, Audubon Society of Rhode Island, Rhode Island Association of Conservation Commissioners and Natural Resources Defense Council, Intervenor-Defendants.

Nos. 852, 902, Dockets 87-6275, 87-6295.

United States Court of Appeals, Second Circuit.

Argued March 16, 1988.

Decided June 8, 1988.

Developers brought action to challenge final determination of Environmental Protection Agency denying them permission to construct shopping mall on swamp. The United States District Court for the Northern District of New York, Thomas J. McAvoy, J., 674 F.Supp. 405, granted summa-

ry judgment for EPA, and developers appealed. The Court of Appeals, Timbers, Circuit Judge, held that: (1) EPA's "market entry" theory, considering availability of alternative sites at time developer entered market for site instead of at time it applied for permit, was consistent with both regulatory language and past practice, and (2) EPA's interpretation, while not necessarily entitled to deference, was reasonable and was thus properly upheld by district court.

Affirmed.

George C. Pratt, Circuit Judge, dissented and filed opinion.

1. Health and Environment ⟹25.7(13)

EPA's "market entry approach" to developers' application to construct shopping mall on wetlands—considering availability of practical alternative to discharge of dredged or fill material at time applicant entered market for site instead of at time it applied for permit—was consistent with language of Clean Water Act regulatory guidelines and with past practice of Army Corps of Engineers and Environmental Protection Agency. Federal Water Pollution Control Act Amendments of 1972, §§ 101 et seq., 301(a), 404(b)(1), (c), as amended, 33 U.S.C.A. §§ 1251 et seq., 1311(a), 1344(b)(1), (c).

See publication Words and Phrases for other judicial constructions and definitions.

2. Health and Environment ⟹25.7(13)

Environmental Protection Agency's interpretation of regulations under Clean Water Act containing requirements for issuing permit for discharge of dredged or fill materials, adopting "market entry" approach to availability of alternative sites, though not necessarily entitled to deference, was reasonable and was thus properly upheld by district court. 5 U.S.C.A. § 706(2)(A); Federal Water Pollution Control Act Amendments of 1972, § 404(b)(1), as amended, 33 U.S.C.A. § 1344(b)(1).

3. Federal Courts ⟹766

On appeal from district court's grant of summary judgment, Court of Appeals must subject that judgment to plenary review and must apply same test applied by district court.

4. Administrative Law and Procedure ⟹797

Agency's interpretation of its own regulations raises question of law and thus is freely reviewable by Court of Appeals.

Albert J. Beveridge, III, Washington, D.C. (Gary H. Baise, Virginia S. Albrecht, Marc A. Zeppetello, David M. Friedland, and Beveridge & Diamond, Washington, D.C., on the brief), for appellants.

Paul D. Kamenar, Washington, D.C. (Daniel J. Popeo, Washington, D.C., and Henry M. Holzer, Brooklyn, N.Y., on the brief), for intervenor-appellants.

Donald A. Carr, Dept. of Justice, Washington, D.C. (Roger J. Marzulla, Acting Asst. Atty. Gen., Peter R. Steenland, Jr., Margaret N. Strand, Dept. of Justice, Gail B. Cooper, E.P.A., Washington, D.C., and Ann H. Williams-Dawe, E.P.A., Boston, Mass., on the brief), for appellees.

James T.B. Tripp, Environmental Defense Fund, New York City (Michael E. Herz, Environmental Defense Fund, New York City, Michael J. Bean, Environmental Defense Fund, Washington, D.C., Hope Babcock, National Audubon Society, Washington, D.C., Robert Dreher, Sierra Club Legal Defense Fund, Washington, D.C., Jerry Jackson, National Wildlife Federation, Washington, D.C., and Peter Shelley, Conservation Law Foundation of New England, Boston, Mass., on the brief), for intervenor-appellees.

R. Sarah Compton, Carl W. Schwarz, Kurt J. Olson, and McDermott, Will & Emery, U.S. Chamber of Commerce, Washington, D.C., and Robin S. Conrad, National Chamber Litigation Center, Washington, D.C., filed a brief as amicus curiae.

Before TIMBERS, PRATT and MINER, Circuit Judges.

TIMBERS, Circuit Judge:

Appellants John A. Bersani, the Pyramid Companies, Newport Galleria Group and

Robert J. Coogel ("Pyramid", collectively) appeal from a judgment entered October 23, 1987 in the Northern District of New York, Thomas J. McAvoy, *District Judge*, granting summary judgment in favor of appellees, the United States Environmental Protection Agency ("EPA"), the United States Army Corps of Engineers (the "Corps"), Lee Thomas, the Administrator of the EPA, Richard K. Dawson, Assistant Secretary for Civil Works, United States Army, and Jennifer Joy Wilson, Assistant Administrator for External Affairs of the EPA (the "Federal Appellees" collectively), and denying Pyramid's motion for summary judgment. 674 F.Supp. 405.

This case arises out of Pyramid's attempt to build a shopping mall on certain wetlands in Massachusetts known as Sweedens Swamp. Acting under the Clean Water Act, 33 U.S.C. § 1251 *et seq.* (1982), EPA vetoed the approval by the Corps of a permit to build the mall because EPA found that an alternative site had been available to Pyramid at the time it entered the market to search for a site for the mall. The alternative site was purchased later by another developer and arguably became unavailable by the time Pyramid applied for a permit to build the mall.

On appeal, the thrust of Pyramid's argument is a challenge to what it calls EPA's "market entry" theory, i.e., the interpretation by EPA of the relevant regulation, which led EPA to consider the availability of alternative sites at the time Pyramid entered the market for a site, instead of at the time it applied for a permit. Pyramid argues principally (1) that the market entry approach is contrary to the regulatory language and past practice; and (2) that since the Corps, another agency which was jointly responsible with EPA for administering the program in question, interpreted the pertinent regulation in a different way than EPA had, and since the market entry issue does not involve environmental expertise, this Court should not defer to EPA's interpretation of the regulation. Other subordinate claims are raised by appellants as well as by two intervenors and the amicus curiae.[1]

We hold (1) that the market entry theory is consistent with both the regulatory language and past practice; (2) that EPA's interpretation, while not necessarily entitled to deference, is reasonable; and (3) that EPA's application of the regulation is supported by the administrative record. We agree with the district court's conclusion that EPA's findings were not arbitrary and capricious. We also hold that Pyramid's other arguments, and the arguments of one intervenor and the amicus, lack merit.

We affirm.

I.

We shall summarize only those facts and prior proceedings believed necessary to an

1. The amicus curiae, the United States Chamber of Commerce ("Chamber of Commerce") filed a brief in support of Pyramid's position. This brief raises two points also raised in Pyramid's brief, and one new point: that EPA exceeded its authority under § 404(c) by engaging in a *de novo* review of Pyramid's compliance with the regulation in question.

The Citizens in Support of Attleboro Mall and Joseph Robichaud ("Citizens", collectively) have intervened as plaintiffs/appellants and have submitted a brief raising two issues not covered by Pyramid in its brief: (1) whether EPA exceeded its authority under the relevant statute by considering the historical and cumulative effects of discharges on other wetlands, and (2) whether EPA arbitrarily rejected Pyramid's mitigation efforts.

The Conservation Law Foundation ("CLF") has intervened as a defendant/appellee and has submitted a brief raising six points, four of which are covered by the Federal Appellees in their brief. In the other two points, CLF: (1) answers the arguments of the Citizens and the Chamber of Commerce, asserting that EPA's decision was wholly within its authority, and (2) asserts that in any event the appropriate remedy for any defects in EPA's decision would be a remand.

Upon reviewing each of these new points, we hold (1) that EPA's decision was wholly within its authority, and (2) that EPA did not arbitrarily reject Pyramid's efforts at mitigation but rather had ample basis to reject those efforts on the ground that they were not likely to succeed. In light of our holding with regard to the district court's decision, discussed in the body of our opinion, we need not reach the issue of whether remand would be the appropriate remedy for defects in EPA's actions.

The other arguments of the two intervenors and the amicus will be dealt with in our discussion of the arguments of Pyramid and the Federal Appellees.

understanding of the issues raised on appeal.

Statutory and Regulatory Framework

One of the sections of the Clean Water Act (the "Act") relevant to the instant case is § 301(a), 33 U.S.C. § 1311(a) (1982), which prohibits the discharge of any pollutant, including dredged or fill materials, into the nation's navigable waters, except in compliance with the Act's provisions, including § 404. It is undisputed that Sweedens Swamp is a "navigable water", as defined in 33 U.S.C. § 1362 (1982), and that Pyramid's shopping center proposal will involve the discharge of dredged or fill materials.

Section 404 of the Act, 33 U.S.C. § 1344 (1982 & Supp. III 1985), focusing on dredged or fill materials, provides that the United States Army and EPA will share responsibility for implementation of its provisions. EPA and the Corps also share responsibility for enforcing the Act. 33 U.S.C. §§ 1311 (1982), 1319 (1982), 1344(n) and (s) (1982). Section 404(a) authorizes the Secretary of the Army, acting through the Corps, to issue permits for the discharge of dredged or fill materials at particular sites. 33 U.S.C. § 1344(a) (1982). Section 404(b) provides that, subject to § 404(c), the Corps must base its decisions regarding permits on guidelines (the "404(b)(1) guidelines") developed by EPA in conjunction with the Secretary of the Army. 33 U.S.C. § 1344(b) (Supp. III 1985).

The 404(b)(1) guidelines, published at 40 C.F.R. Part 230 (1987), are regulations containing the requirements for issuing a permit for discharge of dredged or fill materials. 40 C.F.R. § 230.10(a)[2] covers "non-water dependent activities" (i.e., activities that could be performed on non-wetland sites, such as building a mall) and provides essentially that the Corps must determine whether an alternative site is available that would cause less harm to the wetlands. Specifically, it provides that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative" to the proposal that would have a "less adverse impact" on the "aquatic ecosystem". It also provides that a practicable alternative may include "an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity." 40 C.F.R. 230.10(a)(2). It further provides that, "unless clearly demonstrated otherwise", practicable alternatives are (1) "presumed to be available" and (2) "presumed to have less adverse impact on the aquatic ecosystem". 40 C.F.R. 230.10(a)(3). Thus, an applicant such as Pyramid must rebut both of these presumptions in order to obtain a permit. Sections 230.10(c) and (d) require that the Corps not permit any discharge that would contribute to significant degradation of the nation's wetlands and that any adverse impacts must be mitigated through practicable measures.

In addition to following the 404(b)(1) guidelines, the Corps may conduct a "pub-

2. Section 230.10(a)(2) and (3) provide:

"(a) Except as provided under section 404(b)(2) [pertaining to navigation] no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

. . . . . .

(2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

(3) Where the activity associated with a discharge which is proposed for a special aquatic site [defined in Subpart E to include wetlands] does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise."

lic interest review". 33 C.F.R. § 320.4 (1987). This public interest review is not mandatory under § 404, unlike consideration of the 404(b) guidelines. In a public interest review, the Corps' decision must reflect the "national concern" for protection and use of resources but must also consider the "needs and welfare of the people." *Id.*

Under § 404(c) of the Act, 33 U.S.C. § 1344(c), EPA has veto power over any decision of the Corps to issue a permit. It is this provision that is at the heart of the instant case.

Specifically, § 404(c) provides that the Administrator of EPA may prohibit the specification of a disposal site "whenever he determines, after notice and opportunity for public hearings, that the discharge of materials into such area will have an unacceptable adverse effect" on, among other things, wildlife.[3] An "unacceptable adverse effect" is defined in 40 C.F.R. § 231.2(e) as an effect that is likely to result in, among other things, "significant loss of or damage to ... wildlife habitat". The procedure under § 404(c) begins with the Regional Administrator ("RA") who, under § 231.3(a), must notify the Corps and the applicant when it is possible he will find an "unacceptable adverse effect". If within 15 days the applicant fails to satisfy the RA that no such affect will occur, the RA must publish his proposed determination to veto the grant of a permit. A period for public comment and an optional public hearing follows, after which the RA either withdraws the determination or submits a recommended determination to the national Administrator, whose decision to affirm, modify or rescind the RA's recommendation is the final determination of EPA for purposes of judicial review. The burden of proving that the discharge will have an "unacceptable adverse effect" is on EPA. 45 Fed.Reg. 85,336, 85,338 (1980); 44 Fed. Reg. 58,076, 58,080 (1979).

In short, both EPA and the Corps are responsible for administering the program for granting permits for discharges of pollutants into wetlands under § 404. The Corps has the authority to issue permits following the 404(b)(1) guidelines developed by it and EPA; EPA has the authority under § 404(c) to veto any permit granted by the Corps. The Corps processes about 11,000 permit applications each year. EPA has vetoed five decisions by the Corps to grant permits.

B. *Factual Background of the Sweedens Swamp Project*

Sweedens Swamp is a 49.5 acre wetland which is part of an 80 acre site near Interstate 95 in South Attleboro, Massachusetts. Although some illegal dumping and motorbike intrusions have occurred, these activities have been found to have had little impact on the site which remains a "high-quality red maple swamp" providing wildlife habitat and protecting the area from flooding and pollution.

The effort to build a mall on Sweedens Swamp was initiated by Pyramid's predecessor, the Edward J. DeBartolo Corporation ("DeBartolo"). DeBartolo purchased the Swamp some time before April 1982. At the time of this purchase an alternative site was available in North Attleboro (the "North Attleboro site"). Since Massachusetts requires state approval (in addition to federal approval) for projects that would fill wetlands, DeBartolo applied to the Massachusetts Department of Environmental Quality Engineering ("DEQE") for permission to build on Sweedens Swamp. DEQE denied the application in April 1982.

3. Section 404(c), 33 U.S.C. § 1344(c), authorizes the Administrator:

"to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection."

Pyramid took over the project in 1983 while the appeal of the DEQE denial was pending. In April 1983, Massachusetts adopted more rigorous standards for approval of permits. The new standards added wildlife habitat as a value of wetlands to be protected and required the absence of a "practicable alternative". In March 1986, DEQE granted approval under the old, less stringent, regulations. The Massachusetts District Court reversed on the ground that DEQE should have applied the new regulations, but the Massachusetts Supreme Judicial Court ultimately upheld DEQE's approval. *Citizens for Responsible Environmental Management v. Attleboro Mall, Inc.*, 400 Mass. 668, 511 N.E.2d 562 (1987).

One of the key issues in dispute in the instant case is just when did Pyramid begin searching for a suitable site for its mall. EPA asserts that Pyramid began to search in the Spring of 1983. Pyramid asserts that it began to search several months later, in September 1983. The difference is crucial because on July 1, 1983—a date between the starting dates claimed by EPA and Pyramid—a competitor of Pyramid, the New England Development Co. ("NED"), purchased options to buy the North Attleboro site. This site was located upland and could have served as a "practicable alternative" to Sweedens Swamp, *if* it had been "available" at the relevant time. Thus, if the relevant time to determine whether an alternative is "available" is the time the applicant is searching for a site (an issue that is hotly disputed), and if Pyramid began to search at a time *before* NED acquired options on the North Attleboro site, there definitely would have been a "practicable alternative" to Sweedens Swamp, and Pyramid's application should have been denied. On the other hand, if Pyramid did not begin its search until *after* NED acquired options on the North Attleboro site, then the site arguably was not "available" and the permit should have been granted. Of course it also is possible that the North Attleboro site remained "available" after NED's acquisition of the options, since Pyramid arguably could have purchased the options from NED. Moreover, since the North Attleboro site indisputably was "available" when Pyramid's predecessor, DeBartolo, purchased Sweedens Swamp, one might argue, as EPA does, that Pyramid should be held to stand in its predecessor's shoes. The district court apparently agreed with Pyramid on the issue of when Pyramid entered the market, stating that "Pyramid initially became interested in developing a shopping mall in the Attleboro area in September 1983". *Bersani v. EPA*, 674 F.Supp. 405, 409 (N.D.N.Y.1987).

In December 1983, Pyramid purchased Sweedens Swamp from DeBartolo. In August 1984, Pyramid applied under § 404(a) to the New England regional division of the Corps (the "NE Corps") for a permit. It sought to fill or alter 32 of the 49.6 acres of the Swamp; to excavate nine acres of uplands to create artificial wetlands; and to alter 18.3 acres of existing wetlands to improve its environmental quality. Later Pyramid proposed to mitigate the adverse impact on the wetlands by creating 36 acres of replacement wetlands in an off-site gravel pit.

During the review of Pyramid's application by EPA, by the Fish and Wildlife Service ("FWS") and by the Corps, Pyramid submitted information on "practicable alternatives", especially the North Attleboro site. In rejecting that site as an alternative, Pyramid asserted that building a mall there was not *feasible*, not that the site was *unavailable*. In the words of the district court, Pyramid claimed that

> "the site lacked sufficient traffic volume and sufficient access from local roads, potential department store tenants had expressed strong doubts about the *feasibility* of the site and previous attempts to develop the site had met with strong resistance from the surrounding community."

Bersani, supra, 674 F.Supp. at 410 (emphasis added).

In November 1984, EPA and FWS submitted official comments to the NE Corps recommending denial of the application because Pyramid's proposal was inconsistent with the 404(b)(1) guidelines. Pyramid had failed (1) to overcome the presumption of the availability of alternatives and (2) to

mitigate adequately the adverse impact on wildlife. EPA threatened a § 404(c) review. Pyramid then proposed to create additional artificial wetlands at a nearby upland site, a proposal it eventually abandoned.

In January 1985, the NE Corps hired a consultant to investigate the feasibility of Sweedens Swamp and the North Attleboro site. The consultant reported that either site was feasible but that from a commercial standpoint only one mall could survive in the area. On February 19, 1985, the NE Corps advised Pyramid that denial of its permit was imminent. On May 2, 1985, the NE Corps sent its recommendation to deny the permit to the national headquarters of the Corps. Although the NE Corps ordinarily makes the final decision on whether to grant a permit, *see* 33 C.F.R. § 325.8 (1982), in the instant case, because of widespread publicity, General John F. Wall, the Director of Civil Works at the national headquarters of the Corps, decided to review the NE Corps' decision. Wall reached a different conclusion. He decided to grant the permit after finding that Pyramid's offsite mitigation proposal would reduce the adverse impacts sufficiently to allow the "practicable alternative" test to be deemed satisfied. He stated:

> "In a proper case, mitigation measures can be said to reduce adverse impacts of a proposed activity to the point where there is no 'easily identifiable difference in impact' between the proposed activity (including mitigation) versus the alternatives to that activity."

Although he did not explicitly address the issue, Wall apparently assumed that the relevant time to determine whether there was a practicable alternative was the time of the application, not the time the applicant entered the market. In other words, Wall appears to have assumed that the market entry theory was not the correct approach. For example, while addressing the traditional "practicable alternatives" analysis as an alternative ground for his decision, Wall found that the North Attleboro site was unavailable "because it has been optioned by another developer". Since the site was *not* optioned at the time EPA argues Pyramid entered the market, this language suggests (to Pyramid at least) that Wall could not have been employing the market entry approach.

On May 31, 1985, Wall ordered the NE Corps to send Pyramid, EPA and FWS a notice of its intent to grant the permit. The NE Corps complied on June 28, 1985.

On July 23, 1985, EPA's RA initiated a § 404(c) review of the Corps' decision. Following the procedure set forth in 40 C.F.R. Part 231 (discussed above), EPA published notice of its intent to prohibit the project in the *Federal Register*; held a public hearing on September 25, 1985; and permitted a period for public comment which closed on October 4, 1985. A second hearing was held on November 18, 1985.

On March 4, 1986, the RA recommended that EPA veto the permit because of adverse impacts on wildlife and available "practicable alternatives". In particular, the RA found that Pyramid had not overcome the presumption that an alternative existed, in part because Pyramid had failed to provide information on the availability of the North Attleboro site. After first refusing to provide the information, Pyramid later had claimed "there is no further or more detailed information. It simply does not exist." The RA alternatively reasoned that the North Attleboro site had been available to DeBartolo, and that EPA should attribute this availability to Pyramid because Pyramid had benefitted from DeBartolo's application for state approval.

On May 13, 1986, EPA issued its final determination, which prohibited Pyramid from using Sweedens Swamp. It found (1) that the filling of the Swamp would adversely affect wildlife; (2) that the North Attleboro site could have been available to Pyramid at the time Pyramid investigated the area to search for a site; (3) that considering Pyramid's failure or unwillingness to provide further materials about its investigation of alternative sites, it was uncontested that, at best, Pyramid never checked the availability of the North Attleboro site as an alternative; (4) that the North Attleboro site was feasible and would have a

less adverse impact on the wetland environment; and (5) that the mitigation proposal did not make the project preferable to other alternatives because of scientific uncertainty of success. In the second of these findings, EPA used what Pyramid calls the "market entry" approach.

On July 1, 1986, Pyramid commenced the instant action in the district court to vacate EPA's final determination as arbitrary and capricious. After the parties filed cross-motions for summary judgment, the newspapers reported that Pyramid intended to enter a joint venture with NEI to build a mall at the North Attleboro site. Affidavits submitted concerning this development did not indicate whether Pyramid planned to continue the Sweedens Swamp project. Since the joint venture agreement was still in draft form, EPA did not take the position that the case was moot.

On October 6, 1987, the court granted EPA's motion for summary judgment. The court stated that, with regard to the market entry theory, EPA's interpretation of its regulations was entitled to deference. This appeal followed.

For the reasons which follow, we affirm.

II.

[1] One of Pyramid's principal contentions is that the market entry approach is inconsistent with both the language of the 404(b)(1) guidelines and the past practice of the Corps and EPA.

A.

With regard to the language of the regulations, Pyramid reasons that the 404(b)(1) guidelines are framed in the present tense, while the market entry approach focuses on the *past* by considering whether a practicable alternative *was* available at the time the applicant entered the market to search for a site. To support its argument that the 404(b)(1) guidelines are framed in the present tense, Pyramid quotes the following language:

> "An alternative is practicable if it *is* available.... If it is otherwise a practicable alternative, an area not *presently* owned by the applicant which *could* reasonably be obtained, utilized, expended or managed in order to fulfill the basic purpose of the proposed activity *may be* considered."

40 C.F.R. § 230.10(a)(2) (emphasis added). It then argues that EPA says "is" means "was". It cites *Gwaltney of Smithfield v. Chesapeake Bay Foundation*, 108 S.Ct. 376, 381 (1987), to indicate that the Supreme Court believes that the "most natural" reading of present tense language in § 505(a) of the Act refers only to the present and future.

While this argument has a certain surface appeal, we are persuaded that it is contrary to a common sense reading of the regulations; that it entails an overly literal and narrow interpretation of the language; and that it creates requirements not intended by Congress.

First, while it is true that the language is in the present tense, it does not follow that the "most natural" reading of the regulations would create a time-of-application rule. As EPA points out, "the regulations do not indicate *when* it is to be determined whether an alternative 'is' available," (emphasis in original) i.e., the "present" of the regulations might be the time the application is submitted; the time it is *reviewed*; or any number of other times. Based upon a reading of the language in the context of the controlling statute and the regulations as a whole, moreover, we conclude that when the agencies drafted the language in question they simply were not thinking of the specific issues raised by the instant case, in which an applicant had available alternatives at the time it was selecting its site but these alternatives had evaporated by the time it applied for a permit. We therefore agree with the district court that the regulations are essentially silent on the issue of timing and that it would be appropriate to consider the objectives of the Act and the intent underlying the promulgation of the regulations. *Bersani, supra*, 674 F.Supp. at 412.

Second, as EPA has pointed out, the preamble to the 404(b)(1) guidelines states that the purpose of the "practicable alter-

natives" analysis is "to recognize the special value of wetlands and to avoid their unnecessary destruction, particularly where practicable alternatives were available in non-aquatic areas to achieve the basic purpose of the proposal." 45 Fed. Reg. 85,338 (1980) (emphasis added). In other words, the purpose is to create an incentive for developers to avoid choosing wetlands when they could choose an alternative upland site. Pyramid's reading of the regulations would thwart this purpose because it would remove the incentive for a developer to search for an alternative site at the time such an incentive is needed, i.e., at the time it is making the decision to select a particular site. If the practicable alternatives analysis were applied to the time of the application for a permit, the developer would have little incentive to search for alternatives, especially if it were confident that alternatives soon would disappear. Conversely, in a case in which alternatives were not available at the time the developer made its selection, but became available by the time of application, the developer's application would be denied even though it could not have explored the alternative site at the time of its decision.

Pyramid attacks this reasoning by arguing that few developers would take the risk that an available alternative site would become unavailable and that EPA's reading improperly considers the motives and subjective state of mind of the applicant. These arguments are wide of the mark. Whether most real-life developers would take such a risk is irrelevant. The point is that Pyramid's time-of-application theory is completely at odds with the expressed intent of the regulations to provide an incentive to avoid choosing wetlands. Similarly, EPA's interpretation does not require courts to investigate the subjective state of mind of a developer. EPA discusses state-of-mind issues only because it is discussing the *purpose* behind the regulations, which is concerned with incentives, and thus in fact is indirectly concerned with the developer's state of mind.

In short, we conclude that a commonsense reading of the statute can lead only to the use of the market entry approach used by EPA.

B.

With regard to the past practice of the Corps and EPA, Pyramid asserts that neither has ever applied a market entry approach. It first cites two previous final determinations of EPA, known as the "Final Determination of the Assistant Administrator for External Affairs Concerning the Jack Maybank Site on Jehossee Island, South Carolina Pursuant to Section 404(c) of the Clean Water Act," April 5, 1985 ("Maybank Determination"), and the "Final Determination of the Administrator Concerning M.A. Norden Site Pursuant to Section 404(c) of the Clean Water Act," June 15, 1984 ("Norden Determination"). On the basis of these determinations, Pyramid argues that, had EPA been using a market entry approach in these cases, it would have examined whether alternatives were available at earlier times and that EPA had failed to make such an examination. Pyramid also cites *National Audubon Society v. Hartz Mountain Dev. Corp.*, 14 Envtl.L. Rep. 20724 (Envtl.L.Inst.) (D.N.J. Oct. 24, 1983), *Friends of the Earth v. Hintz*, 800 F.2d 822 (9 Cir.1986), and *Hough v. Marsh*, 557 F.Supp. 74 (D.Mass.1982), as examples of cases in which courts have upheld Corps decisions which had examined only those practicable alternatives that were available at the time of the permit review.

Our examination of these prior decisions has satisfied us, however, that the issue raised in the instant case simply has not been addressed before. In *National Audubon Society*, the actual issue was whether the alternative site had to be available to the applicant or any developer. In *Hintz*, the court, while addressing other issues, simply approved a Corps decision in which only those alternatives available at the time of the review were considered. In *Hough*, the court invalidated a permit not because the Corps had considered past alternatives but rather because it assumed that such alternatives continued to exist during the entire selection process. Similarly, the Maybank Determination in fact addressed

another issue. In the Norden Determination, where about 60 possible alternative sites were identified, of which seven were available at the time of application, EPA did not address the timing issue explicitly, because it was not required to—the presence of the seven currently available alternatives made it unnecessary to reach the issue.

We believe that the issue essentially is one of first impression. We view EPA's action in the instant case as an application of the regulatory language to the specific needs of this case which arose here for the first time. We therefore hold that EPA has not acted contrary to prior practice under the regulations.

III.

[2] We turn next to the issue of whether EPA's interpretation of the 404(b)(1) guidelines is entitled to the deference usually accorded an agency with regard to its interpretation of regulations it is charged with administering, *see EPA v. National Crushed Stone Ass'n*, 449 U.S. 64, 83 (1980), and participated in formulating. *See also United States v. Mascoma Heavy Equip. Sales Corp.*, 801 F.2d 70, 76 (2 Cir.), *cert. denied*, 107 S.Ct. 672 (1986). The district court implied in its decision that it was according EPA such deference in examining its market entry approach.

Pyramid contends that such deference was unwarranted because two agencies—EPA and the Corps—developed and administered the regulations, and the Corps reached a different conclusion from that of EPA on the market entry issue. It asserts that, contrary to EPA's market entry approach, the "Corps' position is that the availability should be determined as of the time an application is under review." Pyramid points out that under § 404(b) the regulations are to be developed by EPA "in conjunction with" the Secretary of the Army (who acts through the Corps). It cites *General Elec. Co. v. Gilbert*, 429 U.S. 125, 144–45 (1976), for the proposition that a court must use its own judgment in construing a regulation when two agencies with responsibility for administering it reach divergent conclusions. It also contends that the Corps has greater experience with and expertise in assessing the "availability" of alternatives than EPA, because it is the Corps that makes the initial decision on thousands of applications while EPA reviews under § 404(c) only rarely. Furthermore, Pyramid claims that the availability analysis implicates zoning, economic and financial issues, not environmental ones.

In response, EPA asserts that the Corps did not take a developed opposing policy position on the issue of what time is relevant in the "practicable alternatives" analysis. The reason for this is that the Corps, acting through General Wall, based its decision primarily on its finding that Pyramid's mitigation proposal was workable. EPA also asserts, on the issue of its expertise, that its "selective and most infrequent invocation" of its veto power underscores EPA's "seriousness" about using the veto. Finally EPA asserts that the Act's legislative history indicates that Congress intended EPA to have the "final word" on any disputes with the Corps.

While none of EPA's assertions is entirely persuasive, there also are difficulties with Pyramid's position. It is undeniable, for example, that Wall in fact did find that the North Attleboro site was "unavailable" and thus it appears that the Corps tacitly was applying a time-of-application test. On the other hand, it is possible that Wall believed that Pyramid did not enter the market until after NED had purchased the North Attleboro site. Accordingly, Wall may have found the alternative site "unavailable" under the market entry approach. Pyramid's and EPA's other arguments similarly cut both ways or are inconclusive.

Even if we are not thoroughly persuaded that EPA's interpretation was entitled to deference, however, we nevertheless conclude that the district court's decision in its favor must be upheld. As Pyramid itself points out (to the detriment of its argument), the issue of deference is separate from the issue of the standards of review of the district court and of our Court.

[3, 4] On appeal, we must subject the district court's judgment to plenary review, *Potenza v. New York Shipping Ass'n*, 804 F.2d 235, 239 (2 Cir.1986), *cert. denied*, 107 S.Ct. 1955 (1987), and apply the same summary judgment test as applied by the district court. *See T.W. Elec. Serv., Inc. v. Pacific Elec. Contractors Ass'n*, 809 F.2d 626, 630 (9 Cir.1987). An agency's interpretation of its own regulations raises a question of law. *White Indus. v. FAA*, 692 F.2d 532, 534 (8 Cir.1982), and thus is freely reviewable by our Court. *Pennzoil Co. v. FERC*, 789 F.2d 1128, 1135 (5 Cir.1986).

The standard of review for the district court in this case is that the court shall set aside EPA's findings, conclusions or actions only if they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Administrative Procedure Act § 10(e), 5 U.S.C. § 706(2)(A) (1982). As stated by the Supreme Court in *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983),

> "[A] reviewing court may not set aside an agency rule that is rational, based on consideration of the relevant factors, and within the scope of the authority delegated to the agency by the statute.... The scope of review under the 'arbitrary and capricious' standard is narrow and a court is not to substitute its judgment for that of the agency. Nevertheless, the agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'"

Id. at 42-43 (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)).

Applying these standards, we are convinced that EPA's market entry interpretation was reasonable, and therefore was neither "arbitrary and capricious" nor "not in accordance with law." We therefore hold that the district court correctly found that EPA's interpretation of the regulations was reasonable.

IV.

Finally, we turn to Pyramid's subordinate claims, three of which warrant brief mention. Pyramid claims (1) that the market entry theory violates administrative law principles because it is not specific enough to put the public on notice of when it must consider alternative sites; (2) that EPA's application of the market entry theory was unfair in this case; and (3) that the district court exceeded its authority in supplying a rationale for EPA's decision which was not offered by EPA.

As for the claim that the market entry approach is not specific enough, Pyramid reasons that any number of points in time could constitute "entry" into the market. It speculates whether market entry occurs "from the time the first internal memorandum is written," or the time "the first consultant [is] hired," or the time the "first negotiation for a site [is] conducted." We are persuaded, however, that EPA is correct in asserting that it is unnecessary to pin down the standard to such a degree and that it would confuse things further to attempt to do so. Since the point of "entry" necessarily will vary from case to case, we believe the concept of "market entry" is the best method and is specific enough to put a developer on notice of when it should be considering alternative sites.

With regard to the claim that EPA applied the market entry approach unfairly in the instant case, Pyramid asserts that the way EPA announced a "new" standard (the market entry rule) and then applied it "retroactively" in this case was fundamentally unfair. It also asserts that EPA's failure to address evidence that the North Attleboro site was unavailable at the time of Pyramid's market entry was unfair. According to Pyramid, such fundamental unfairness violates the principles underlying the Administrative Procedure Act. *See Morton v. Ruiz*, 415 U.S. 199, 232 (1974).

As we held above, however, we view EPA's interpretation of the rules as a reasonable application of the regulatory language to the unique facts of this case—a case in which it became necessary for the first time to reach the issue of *when* availability should be determined. EPA did not

create and announce a "new" standard and apply it retroactively to Pyramid. Rather, EPA interpreted the law to apply it to the facts of this case.

Moreover, we believe the extensive administrative record supports a finding that the North Attleboro site was available to Pyramid when it entered the market. Even if Pyramid were found not to have entered the market until September 1983, after NED had acquired options to purchase the North Attleboro site, it does not necessarily follow that the site was unavailable. Aside from the fact that NED did not acquire all the options for the North Attleboro site until June 1984, it also was possible for Pyramid to attempt to purchase the options from NED. The record shows no such attempts to purchase the site, or even to investigate its availability. Alternatively, even though the district court apparently was not persuaded by it, there also is evidence in the record to show that Pyramid actually entered the market in the Spring of 1983, before NED had purchased its options. Finally, the evidence shows that the North Attleboro site had been available to DeBartolo, Pyramid's predecessor. EPA could reasonably have determined that Pyramid should be held to "stand in the shoes" of DeBartolo, especially since it was able to obtain state approval of the project under the less-stringent state standards that had originally applied to DeBartolo.

Finally, Pyramid contends that the district court improperly supplied a rationale for EPA's final determination that EPA itself did not articulate. It is true that the district court rejected one of EPA's grounds for finding that Pyramid had failed to rebut the presumption that a practicable alternative was available. This ground was that the "trade custom" of developers was to investigate a potential development site for many months before purchasing it. EPA reasoned that, if Pyramid had purchased Sweedens Swamp in December 1983, it was unlikely, in view of the trade custom, that it had entered the market only eight weeks earlier—in September 1983—as Pyramid claimed. The court accepted what it characterized as EPA's finding that the North Attleboro site in any event was still available in September 1983, when even Pyramid admitted it had entered the market.

Pyramid asserts that EPA did not make this finding and that the court improperly supplied a rationale for EPA's determination that EPA did not articulate itself. This assertion fails, however, because EPA *did* make the finding. In its final determination it stated several reasons why it believed the North Attleboro site should be deemed to have been "available". It stated, among other things, (1) that NED could "have been talked into relinquishing its interest" in the site even in September or December 1983; (2) that Pyramid never investigated the availability of the North Attleboro site because it believed it was too far from the highway; and (3) that Pyramid had refused to provide EPA with information on the time of its entry into the market, stating that such information "simply does not exist". Thus, the trade custom ground to support the finding of availability was accompanied by several other grounds in the final determination. The district court therefore did not "supply" a rationale for EPA. Rather, EPA supplied several for itself.

We affirm the district court's decision in all respects.

V.

To summarize:

We hold (1) that the market entry theory is consistent with both the regulatory language and past practice; (2) that EPA's interpretation, while not necessarily entitled to deference, is reasonable and its application of its rule is supported by the record; and (3) that Pyramid's other arguments lack merit.

Affirmed.

GEORGE C. PRATT, Circuit Judge, dissenting:

Finding that a "common-sense reading" of 33 U.S.C. § 1344(c) "can lead only to the use of the market entry approach", the

majority today holds that in determining whether an "alternative is available", EPA is to look, not at the present circumstances and most current data, but rather at circumstances and data which existed, perhaps years earlier, when the developer "entered the market". This market entry theory approaches a sensitive environmental problem through a time warp, it ignores the statute's basic purpose, and it creates unfair and anomolous results. I therefore dissent.

I. *The Legislative History and Purpose of Section 1344.*

Section 1344 was enacted by congress in 1972 as part of a broad-based improvement to a national water policy that had been, as congress termed it, "inadequate in every vital aspect." S.Rep. No. 414, 92 Cong., 2d Sess. 7 (1972). Specifically, the section was intended to address the delicate balance between those activities which endanger "marine environment [and] ecological systems" on the one hand, and those activities "essential for the maintenance of interstate and foreign commerce" on the other. Conf.Rep. No. 1236, 92nd Cong., 2d Sess. 43–44 (1972).

Section 1344 is unusual: its primary purpose is neither to punish those who illegally infringe on national wetlands, nor, as the majority opines, "to provide an incentive [to developers] to avoid choosing wetlands". To the contrary, the statute is directed at the land itself without any regard to whether the party seeking to develop it has clean hands. Thus, if the "biological integrity" of a specific wetland area outweighs the "interstate and foreign commerce" advantages that the site could provide, the site should remain undeveloped regardless of which developer is seeking the permit. *See* S.Rep. No. 414, 92nd Cong., 2d Sess. 7 (1972); Conf.Rep. No. 1236, 92nd Cong., 2d Sess. 43–44 (1972). Conversely, if the balance weighs in favor of commerce or other economic advantages, then the land should be developed, again regardless of the specific developer involved. *Id.* In short, congress designed the section to preserve the environment consistent with reasonable accommodation to the economic and social needs of the public; it was not concerned with the identities or past activities of particular developers.

II. *The Purpose of Section 1344 and the Market Entry Theory.*

In this case I have no problem with EPA's basic approach. It conscientiously attempted to weigh the economic advantages against the ecological disadvantages of developing Sweedens Swamp and, in approaching this determination, it properly looked to alternate available sites. However, EPA went wrong—seriously wrong—when it adopted the market entry theory to decide whether an alternate site was available. By focusing on the decisionmaking techniques and tactics of a particular developer, instead of the actual alternatives to disturbing the wetland, EPA ignored the statute's central purpose.

The market entry theory in effect taints a particular developer with respect to a particular site, while ignoring the crucial question of whether the site itself should be preserved. Under the market entry theory, developer A would be denied a permit on a specific site because when he entered the market alternatives were available, but latecomer developer B, who entered the market after those alternatives had become unavailable, would be entitled to a permit for developing the same site. In such a case, the theory no longer protects the land, but instead becomes a distorted punitive device: it punishes developer A by denying him a permit, but grants developer B a permit for the same property—and the only difference between them is when they "entered the market".

The market entry theory has further problems. In this case, for example, if a Donald Trump had "entered the market" after NED took the option on the North Attleboro site and made it unavailable, under EPA's approach he apparently would have been entitled to a permit to develop Sweedens Swamp. But after obtaining the permit and the land, could Trump then sell the package to Pyramid to develop? Or

LETTER 662 (CONTINUED)

he build the mall and then sell the developed site to Pyramid? If, on the one hand, the answer to these questions is "yes", then the market entry theory is no more than a troublesome mirage that could easily be circumvented by Pyramid's using a second party to buy the land and obtain the permit. If, on the other hand, the answer is "no", then Pyramid is forever tainted, forever prohibited—somewhat like a bill of attainder—from owning this particular site, and only because at some time in the past it had "entered the market" while an alternative was still available.

Furthermore, in a business that needs as much predictability as possible, the market entry theory will regretably inject equisite vagueness. When does a developer enter the market? When he first contemplates a development in the area? If so, in what area—the neighborhood, the village, the town, the state or the region? Does he enter the market when he first takes some affirmative action? If so, is that when he instructs his staff to research possible sites, when he commits money for more intensive study of those sites, when he contacts a real estate broker, when he first visits a site, or when he makes his first offer to purchase? Without answers to these questions a developer can never know whether to proceed through the expense of contracts, zoning proceedings, and EPA applications. Such a vague standard as "market entry" falls far short of the requirement that an agency articulate its standards with sufficient clarity so that the affected community may know what those standards are. *See Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Insurance Co.*, 463 U.S. 29, 48 (1983); *Port Terminal Railroad Ass'n v. United States*, 551 F.2d 1336, 1344-45 (5th Cir. 1977).

Even more important, the result reached by EPA and the majority is contrary to what congress sought to achieve when it passed § 1344. Pyramid has been "punished" for beginning its quest when the North Attleboro site was still available; but Sweedens Swamp nevertheless could be destroyed through an identical application by some other developer who happened to enter the market after that alternate site became unavailable. And this would be so even if another, better-suited site should become available after the second developer enters the market, because the "common sense" market entry theory looks only, and blindly, to the alternatives available at the time the applicant "entered the market".

III. *The Proper Theory for Determining Whether an Alternate Site is Available.*

Since congress delegated to EPA the responsibility for striking a difficult and sensitive balance among economic and ecological concerns, EPA should do so only after considering the circumstances which exist, not when the developer first conceived of his idea, nor when he entered the market, nor even when he submitted his application; rather, EPA, like a court of equity, should have the full benefit of, and should be required to consider, the circumstances which exist at the time it makes its decision. This is the only method which would allow EPA to make a fully informed decision—as congress intended—based on whether, at the moment, there is available a site which can provide needed economic and social benefits to the public, without unnecessarily disturbing valuable wetlands.

Such a "time of decision" theory is reinforced by the present-tense language of the regulation, which commands EPA to determine whether an alternate site "is available". *See Gwaltney of Smithfield v. Chesapeake Bay Foundation*, 108 S.Ct. 376, 381 (1987) (present tense language in regulation means agency should apply that regulation to present, not past, circumstances). It is also supported by the express statements of congress when it passed the statute, and, I would submit, by true "common sense". Any agency given the unenviable task of balancing essentially incomparable factors in determining what is in the public's best interest, should look to the most up-to-date data, and evaluate the most current circumstances. Any other analysis would effectively tie the agency to an irrelevant date in the past, when the

LETTER 662 (CONTINUED)

question to be decided is how to balance the environmental and commercial interests of the present and the future.

In re WILLINGTON CONVALESCENT HOME, INC., Debtor.

Martin W. HOFFMAN, Trustee, Plaintiff-Appellant,

v.

STATE OF CONNECTICUT, DEPARTMENT OF INCOME MAINTENANCE and State of Connecticut, Department of Health Services, Defendants-Appellees,

United States of America, Intervenor-Appellee.

In re Edward ZERA, Debtor.

Martin W. HOFFMAN, Trustee, Plaintiff-Appellant,

v.

STATE OF CONNECTICUT, DEPARTMENT OF REVENUE SERVICES, Defendant-Appellee,

United States of America, Intervenor-Appellee.

Nos. 481, 482, Dockets 87-5021, 87-5023.

United States Court of Appeals, Second Circuit.

Argued Jan. 27, 1988.

Decided June 15, 1988.

Chapter 7 trustee for debtors in unrelated bankruptcy proceedings brought action against state for turnover of certain funds and to recover funds paid state by one debtor in allegedly preferential transfer. The United States Bankruptcy Court for the District of Connecticut, Robert L. Krechevsky, J., 39 B.R. 781, denied state's motions to dismiss, and appeals were taken. The District Court, 72 B.R. 997 and 72 B.R. 1002, Peter C. Dorsey, J., reversed, and trustee appealed. The Court of Appeals, Miner, Circuit Judge, held that turnover proceedings and preference actions seeking monetary recovery from state are outside scope of Bankruptcy Code waiver of sovereign immunity provision, and thus are barred by Eleventh Amendment.

Judgments of district court affirmed.

1. Bankruptcy ⟹2058

Bankruptcy Code section, providing that, notwithstanding assertion of sovereign immunity, provision of Title 11 containing term "creditor," "entity," or "governmental unit" applies to governmental units, waives state sovereign immunity only to extent necessary for bankruptcy court to determine state's rights in debtor's estate. Bankr.Code, 11 U.S.C.A. §§ 106, 106(c).

2. Bankruptcy ⟹2058

Bankruptcy Code turnover proceedings and preference actions seeking monetary recovery from state are outside scope of Bankruptcy Code waiver of sovereign immunity provision, and thus are barred by Eleventh Amendment. Bankr.Code, 11 U.S.C.A. §§ 106(c), 542(b), 547(b); U.S.C.A. Const.Amend. 11.

3. Federal Courts ⟹265

Suits by Chapter 7 trustee in unrelated bankruptcy proceedings against state for turnover of funds owed debtor by Connecticut for medicaid services and to recover monies transferred to state allegedly in preferential transfers were barred by Eleventh Amendment. Bankr.Code, 11 U.S.C.A. §§ 106(c), 542(b), 547(b); U.S.C.A. Const. Amend. 11.

Martin W. Hoffman, Trustee, Hartford, Conn., in both cases for plaintiff-appellant.

Kenneth A. Graham, Asst. Connecticut State Atty. Gen., Hartford, Conn. (Joseph I. Lieberman, Connecticut State Atty. Gen., of counsel) for defendants-appellees State

LETTER 663

LANDOWNERS NEAR THE "MARICOPA" SITE - MARICOPA COUNTY

ARIZONANS FOR THE SUPERCONDUCTING SUPER COLLIDER HERE

1 We, the undersigned owners of land in Maricopa County, Arizona, near the "Maricopa" site, fully support the US Department of Energy Superconducting Super Collider Project in its attempt to locate the SSC at the best qualified site and believe that Arizona's "Maricopa" site is the best qualified location for the SSC. We believe the US DOE Draft Environmental Impact Statement clearly demonstrates that the "Maricopa" site is the IDEAL Location for the Superconducting Super Collider.

SIGNATURE (Print name below)	ADDRESS	No. Miles land is from SSC	Book Page Parcel No./Number of Ac

LETTER 664

APPLIED ENVIRONMENTAL CONSULTANTS, INC.

October 3, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, D.C. 20545

Dear Dr. Hess:

Our company prepared the information requested by the DOE for evaluating the impact of the SSC on Noise and Air Quality. We have reviewed the Draft Environmental Impact Statement (Draft EIS) for the Arizona SSC Site and have found several discrepancies. I would like to highlight what I feel is a major discrepancy in the Draft EIS which should be corrected.

I would like to first of all express disappointment that the majority of the air quality data provided to the DOE was not included in the preparation of the Draft EIS. We assume that this was due to the tremendous effort necessary to prepare the EIS and the time constraints under which it had to be prepared. One of the data sets which was not considered, however, and which produced serious and erroneous consequences is the carbon monoxide data collected at the Sierra Estrella Sailport. The Draft EIS used worst case carbon monoxide measurements in the Phoenix metropolitan area to represent background conditions at the SSC Site. 1

Use of the Phoenix data to represent SSC background conditions is inappropriate because Phoenix is a major urban center whereas the SSC vicinity is a rural undeveloped area. Furthermore, Phoenix and the SSC are 30 miles apart with the Sierra Estrella Mountains and South Mountain interposed between them.

It is our opinion that carbon monoxide measurements at the Sierra Estrella Sailport provide representative background concentrations for the SSC Site. The Sierra Estrella Sailport is located approximately 7 miles from the SSC ring and is in a rural environment similar to the SSC Site. Measurements at this location were used to establish background conditions for sulfur dioxide, nitrogen dioxide, ozone and total suspended particulates. There is no reason why measurements at this same location should not be used to establish background CO conditions for the SSC Site.

Use of worst case Phoenix CO concentrations for background conditions at the SSC Site will indicate that CO emissions from activity at the SSC Site will cause exceedances of the CO NAAQS. The fallacy of these calculations is recognized in the Appendices of the Draft EIS. I will quote paragraphs 5 and 6 of pp. 12, Volume IV, Appendix 8: 2

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"These high backgrounds of CO are not characteristic of the proposed SSC sites in Arizona, Michigan, North Carolina, and Tennessee, each of which is rural. Actual site CO concentrations are expected to be much lower than that estimated. NAAQS CO violations are not expected."

"The impact of SSC Site CO emissions is negligible on the metropolitan areas' air quality because (1) these are low CO emission rates and (2) sites are relatively distant from the metropolitan center."

The body of the Draft EIS, however, does not contain these qualifiers. It states, and again I quote from pp.3-67 of Section 3.7.4

"Arizona, Michigan, North Carolina, and Tennessee will have regional exceedances of NAAQS carbon monoxide limits resulting from SSC-related emissions."

Thus unless one reads the complete Draft EIS with the appendices, which is extremely voluminous, one is left with the mistaken impression that the SSC will cause exceedances of the standard.

We thus urge the DOE to take the following actions in preparing the final EIS.

1. Use CO measurements at the Sierra Estrella Sailport for background conditions at the Arizona SSC Site, and

2. If the Sierra Estrella Sailport measurements cannot be used, then to modify the language in the body of the Draft EIS to include the quotations specified in the appendices (paragraphs 5 and 6 of pp.12, Volume IV, Appendix 8) which would acknowledge that the calculated exceedances of the CO standards are incorrect and would not occur.

Sincerely yours,

Louis C. Thanukos

Louis C. Thanukos, Ph.D.
Manager, Environmental Projects

cc: Dr. Joseph Comfort

LETTER 664 (CONTINUED)

FINAL REPORT

SUMMARY OF AMBIENT PARTICULATE MEASUREMENTS IN THE VICINITY OF THE MARICOPA SSC SITE

June 27, 1988

Prepared for

The Arizona Super Collider Project
Arizona Department of Commerce

Prepared by

Herbert J. Verville
Louis C. Thanukos, Ph.D.
Charles T. Moore
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1.0 INTRODUCTION

This document summarizes the results of an ambient particulate monitoring program conducted at the Maricopa Superconducting Super Collider (SSC) Site. The program included ambient measurement of total suspended particulates (TSP) and particulate matter less than 10 microns aerodynamic diameter (PM_{10}). This program represents one component of the overall air quality assessment conducted at the Maricopa SSC Site, which is described in Section 5 of the Arizona submittal to the Department of Energy (DOE).

The objectives of the particulate monitoring program were three-fold:

1. To establish ambient TSP and PM_{10} concentrations at the Maricopa SSC Site;
2. To establish a relationship between concurrent TSP and PM_{10} measurements; and
3. To compare the measured concentrations with historical measurements at a nearby site (the Sierra Estrella Sailport).

3

The ensuing sections of this document summarize the activities implemented to achieve the above objectives. Section 2 provides background information on the SSC site. This is followed in Section 3 by a description of the monitoring program including the monitoring site, equipment, monitoring procedures and quality assurance procedures. A summary of the particulate concentrations measured at the Maricopa SSC Site is presented in Section 4. Conclusions with respect to the objectives of the monitoring program are presented in Section 5.

2.0 BACKGROUND INFORMATION

2.1 Description of the Maricopa SSC Site Location

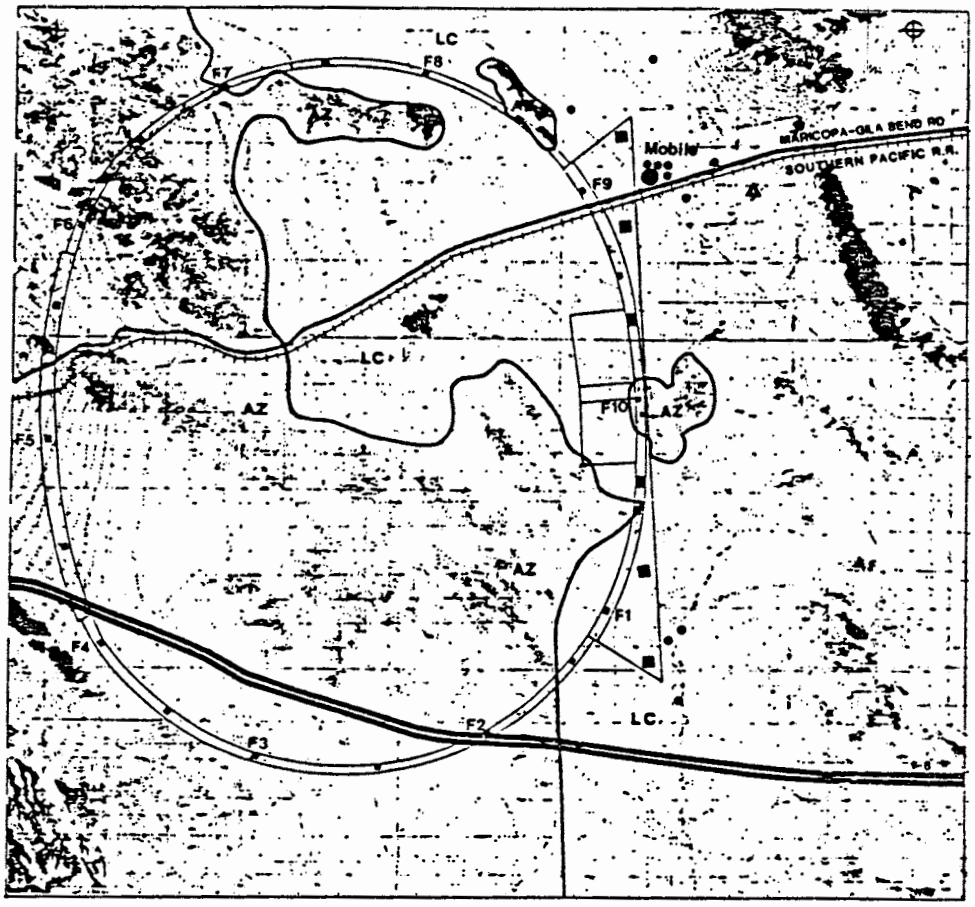
The Maricopa SSC Site is located in a rural area approximately 30 miles south-southwest of Phoenix. Natural desert vegetation in the area encompassing the SSC ring and approximately 10 miles outside the ring boundary consists primarily of Arizona Upland and Lower Colorado desert scrub vegetation communities (Figure 2.1). Also within this area is the sparsely populated community of Mobile, several isolated private land holdings with structures, and unpaved dirt roads. The primary sources of particulate matter in the area is from dust generated on the dirt road network and naturally occurring wind blown dust from desert surfaces. Although agricultural fields do exist to the east and southeast of the SSC ring, these are considered to be an insignificant source of particulates due to their distance from the SSC ring, as is the case with the Metro-Phoenix area.

2.2 Attainment Status

National Ambient Air Quality Standards (NAAQS) and Arizona Ambient Air Quality Standards (AAAQS) for particulate matter regulated by the Clean Air Act are listed in Table 2.1. The Maricopa SSC Site lies within an attainment area for TSP.

PM_{10} replaced TSP as a criteria pollutant on the federal level effective July 31, 1987. The PM_{10} standard, however, has not been adopted by Arizona to date. Until the EPA approves Arizona's PM_{10} State Implementation Plan, the existing TSP standards will remain in effect. When approved by the EPA, the Arizona PM_{10} standard will be the same as the NAAQS since Arizona Statutes forbid standards stricter than federal standards.

Designation of attainment/non-attainment PM_{10} areas within each state have not been made. EPA has preliminarily classified areas within each state according to three groups: Group 1 areas are those that have a 95% or greater probability of exceeding the standards; Group 2 areas are those with a 20-95% probability of exceeding the standards (or with insufficient data for making a determination); and Group 3 areas are those with less than a 20% probability of exceeding the standards. The Maricopa SSC Site lies within a PM_{10} Group 3 area as shown in Figure 2.2.



LEGEND

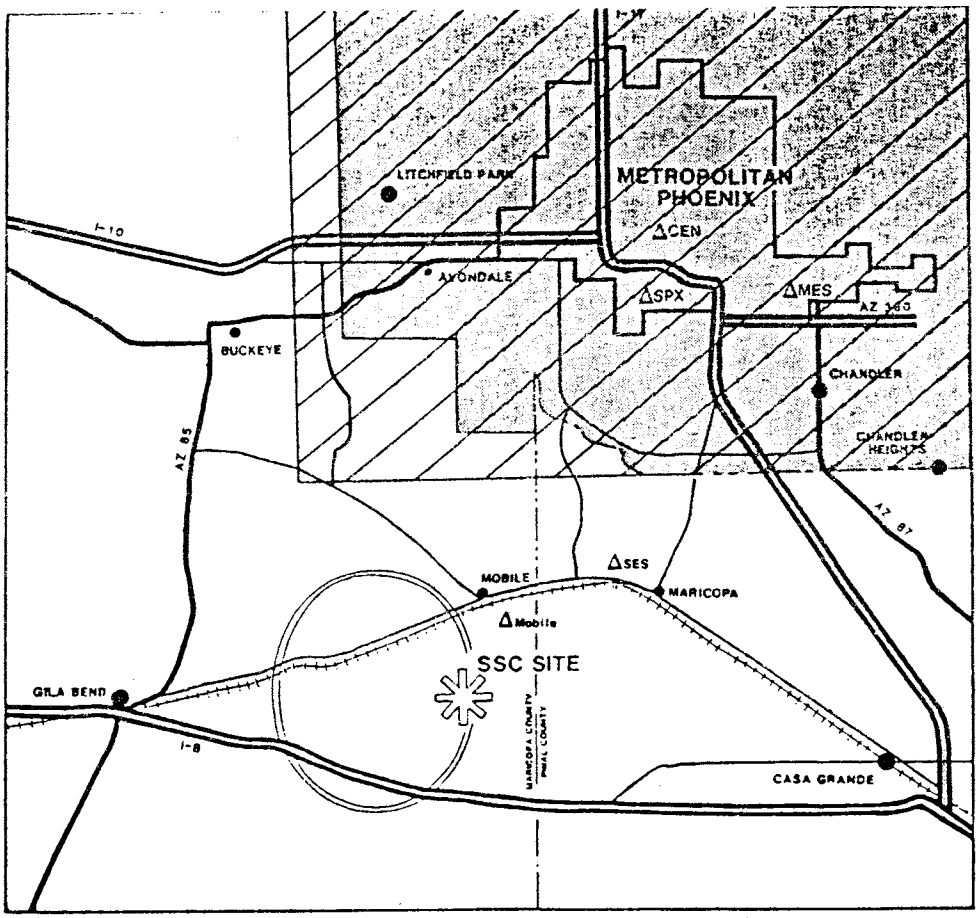
- AZ — ARIZONA UPLAND DESERTSCRUB
- LC — LOWER COLORADO DESERTSCRUB
- ● SCHOOL
- • RESIDENCE
- △ AIR QUALITY MONITORING SITE

Figure 2.1 Distribution of vegetation types, schools and residences within two miles of the Maricopa SSC ring.

Table 2.1 National and Arizona Ambient Air Quality Standards for particulates.

Pollutant	Primary/ Secondary	Averaging Time	Arizona Standard ug/m^3	Federal Standard* ug/m^3
Particulate Matter (TSP)	Primary	24-Hour	260	—
	Primary	Annual (Geom. Mean)	75	—
	Secondary	24-Hour	150	—
	Secondary	Annual (Geom. Mean)	60	—
Particulate Matter (PM_{10})	Primary & Secondary	24-Hour	—	150
		Annual (Arith. Mean)	—	50

* Short term standards (24-hour duration) for PM_{10} are not to be exceeded more than once per year based on a 3-year running average.



PM10 Group 3

PM10 Group 1

TSP Non-Attainment Area

Δ Air Quality Monitoring Site

N

0 10

Mi.

Figure 2.2 SSC site location in relation to Metro Phoenix TSP non-attainment area, PM_{10} areas, and air quality monitoring sites.

3.0 DESCRIPTION OF THE MONITORING PROGRAM

3.1 Monitoring Location

Daily measurements of TSP and PM_{10} were measured between December 5, 1987 and May 3, 1988 at the "Mobile site," located approximately 3 miles east of the SSC ring (Figures 2.1 and 2.2). The site is located sufficiently distant from sources of particulates that the data should be representative of particulate concentrations in the general vicinity of the SSC site. Particulate concentrations within the SSC ring may be less than those measured at the Mobile site due to the reduced presence of human activity within the SSC ring.

3.2 Monitoring Equipment

The monitoring equipment consisted of two standard TSP hi-volume samplers and two Sierra Anderson Model 1200 PM_{10} size selective inlet (SSI) samplers. Each sampler was equipped with an internal flow controller, 7-day time clock, running time meter, and Dickson flow recorder. The samplers were mounted at the corners of a 4-foot wide, by 8-foot long, by 8-foot high platform with the PM_{10} samplers located at diagonally opposite corners.

3.3 Monitoring Procedures

The monitoring schedule consisted of repeated sampling on two consecutive days followed by one day off for changing filters. Sampling durations were 24-hours (midnight to midnight) with the most distant TSP and PM_{10} sampler on the platform operating simultaneously. The samplers were assigned identification numbers and were run in pairs as follows:

A. Pair #1

TSP Sampler #3005
PM_{10} Sampler #3

B. Pair #2

TSP Sampler #3002
PM_{10} Sampler #4

All sampling procedures employed during monitoring, followed published EPA guidelines. The standard operating field procedures used to collect samples are presented in Appendix A.

Glass fiber filters were used to collect both TSP and PM_{10} samples. Filters were weighed before and after exposure using a calibrated analytical balance with an accuracy of ± 0.0005 g. All filter weighing was conducted in a humidity and temperature controlled laboratory at Arizona State University. The filter weighing procedures which were followed are also presented in Appendix A.

3.4 Quality Assurance Procedures

Quality assurance procedures employed during the monitoring program consisted of: (a) multipoint and single point calibration of the sampling equipment, (b) humidity and temperature control of the filter weighing environment, (c) inspection of the filters and calibration of the analytical balance, and (d) final data review.

A. Sampler Calibration

Each sampler was set to operate at a flow rate of 40 cfm when received from the vendor. The samplers were operated for approximately one month after which a multi-point calibration of each sampler was performed using a calibrated multi-flow orifice and manometer. Upon completion of the monitoring program, each sampler was recalibrated. The initial and final calibration flow equations, along with the variances between the calibrations are presented in Table 3.1. A detailed description of the method utilized to derive these equations and the actual work-sheets are presented in Appendix B. All variances, except for PM_{10} sampler #4 (-8.52%), were within ± 7%, which is the tolerance established by EPA guidelines.

Single point operational flow rate checks were made periodically to track the in-control conditions of the sampler calibration. These were performed by placing the calibration orifice on the sampler (with flow controller connected) and determining the standard volumetric flow rate (Q_{std}) using both the orifice's certification curve and the sampler's calibration curve. If the difference between the two flow rates exceeded ± 7%, the sampler was recalibrated. As a result of the single point calibration checks performed during monitoring, PM_{10} sampler #4 and TSP sampler #3005 were recalibrated.

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Table 3.1 Initial and final calibration flow rate equations for the TSP and PM_{10} samplers used to monitor particulates at the Maricopa SSC Site.

Sampler	Calibration Curve *
A. Initial Calibrations	
PM_{10} #3	Q_{std} = (Y − 12.5339) / 0.881604 @ 40 cfm : Y = 47.80
PM_{10} #4	Q_{std} = (Y + 1.56669) / 0.834629 @ 40 cfm : Y = 31.82
TSP #3002	Q_{std} = (Y − 10.6983) / 0.919822 @ 40 cfm : Y = 47.49
TSP #3005 (Prior to 1/14/88)	Q_{std} = (Ym + 1.2541) / 0.0560717 @ 40 cfm : Ym = 0.99
TSP #3005 (After 1/14/88)	Q_{std} = (Y − 1.01214) / 0.504143 @ 40 cfm : Y = 21.18
B. Final Calibrations	
PM_{10} #3	Q_{std} = (Y − 7.3671) / 0.9600 @ 40 cfm : Y = 45.77 % Difference From Initial Calibration = −4.25%
PM_{10} #4	Q_{std} = (Y + 0.3004) / 0.7352 @ 40 cfm : Y = 31.82 % Difference From Initial Calibration = −8.52%
TSP #3002	Q_{std} = (Y − 17.6778) / 0.7825 @ 40 cfm : Y = 48.98 % Difference From Initial Calibration = +3.14%
TSP #3005	Q_{std} = (Y + 3.129) / 0.6185 @ 40 cfm : Y = 21.61 % Difference From Initial Calibration = −2.03%

* Q_{std} = Flow rate (cfm).
Y = Average flow rate calculated from flow recorder chart for 24-hr sampling period (cfm).
Ym = Average manometer reading for 24-hr sampling period (reading taken before and after sampling period).

B. Filter Weighing Environment Checks

Before pre-weighing and final weighing of the filters, the humidity and temperature of the laboratory were checked and recorded in the filter weighing log book. The laboratory environment was checked to insure that the temperature remained between 15 and 30 degrees Celsius (not varying more than ± 3 degrees) and the humidity remained < 50% (not varying more than ± 5%).

C. Filter Checks

All filters were allowed to equilibrate in the weighing environment for at least 24 hours prior to both pre-weighing and final weighing. Each filter was inspected to insure that they were free of loose particles, pinholes, or damage of any kind. If any damage was discovered, the filter was discarded.

D. Analytical Balance Checks

Prior to each filter weighing session, the analytical balance was checked by weighing a standard Class-S weight of between 3 and 5 g. Actual and measured weights, the date, and the operator's initials were recorded in the filter weighing log book.

E. Final Data Review

The final data review consisted of visually checking the data records for each sample to insure all final calculations were made correctly. Concentrations that were based on sampling periods less than 23 hours, as a result of equipment or power failures, were considered invalid. For three samples, the TSP concentrations were less than the concurrent PM_{10} concentrations. These were attributed to untraceable equipment or operator errors and were also considered invalid.

3.5 Calculation of TSP and PM_{10} Concentrations

Final TSP and PM_{10} concentrations were calculated using the equation:

$$CONC = (NFW * 10^6) / (Q_{std} * T) \qquad (3.1)$$

where: CONC = Concentration in ug/m^3 (TSP and PM_{10})
NFW = net filter mass gain in g
Q_{std} = Volumetric flow rate in cfm
T = Sampling time in min (Q_{std} * T = total air volume sampled)

4.0 PRESENTATION OF DATA

4.1 Data Recovery and Total Number of Measurements

A total of 102 sampling days were scheduled for the Maricopa SSC monitoring program. The monthly and total data recovery statistics for both TSP and PM_{10} are presented in Table 4.1. Excluding May, monthly data recovery percentages for TSP ranged between 71% (January, 1988) and 95% (December and March, 1988), while PM_{10} data recovery percentages ranged between 74% (December, 1987) and 100% (March, 1988). Total data recovery percentages were 83% for TSP (85 samples) and 86% for PM_{10} (88 samples).

4.2 Measured TSP and PM_{10} Concentrations

A listing of individual TSP and PM_{10} concentrations measured during the monitoring program is presented in Table 4.2 with monthly and total data summaries presented in Table 4.3. A more comprehensive data listing, including net filter mass gain and volumetric flow rate is presented in Appendix C. TSP values ranged from a low of 5.8 ug/m^3 to a high of 129.7 ug/m^3. The monthly mean ranged from 27.2 ug/m^3 for December to 50.1 ug/m^3 for March. The mean value of TSP for the measurement period was 38.4 ug/m^3, based on 85 samples.

PM_{10} concentrations, based upon 92 samples averaged 22.5 ug/m^3 for the measurement period. Monthly values for PM_{10} varied less than for TSP: from 17.1 ug/m^3 in December to 25.7 ug/m^3 in March. Individual PM_{10} concentrations varied from 2.4 ug/m^3 to 59.5 ug/m^3.

4.3 Relationship Between PM_{10} and TSP

An evaluation of the relationship between concurrent PM_{10} and TSP concentrations was performed using linear regression analysis. The best fit regression equation describing the relationship is illustrated in Figure 4.1 and is given by:

$$PM_{10} = TSP\ (0.528617) + 2.6937 \qquad (4.1)$$

The correlation coefficient of the regression was 0.902. Expression 4.1 indicates that, for typical TSP concentrations measured at the site (38.4 ug/m^3), approximately 60 percent are in the PM_{10} size range.

Table 4.1 Data recovery statistics for the Maricopa SSC particulate sampling program.*

Month	Scheduled Sampling Days	TSP Data Recovery (Samples)	TSP Data Recovery (%)	PM_{10} Data Recovery (Samples)	PM_{10} Data Recovery (%)
Dec	19	18	95	14	74
Jan	21	15	71	18	86
Feb	19	14	74	18	95
Mar	21	20	95	21	100
Apr	20	16	80	15	75
May	2	2	100	2	100
Total	102	85	83	88	86

* Sampling duration: December 5, 1987 to May 3, 1988.

Table 4.2 TSP and PM_{10} sampling data collected at the Mobile monitoring site.

Run Date	TSP Conc. (ug/m3)	PM_{10} Conc. (ug/m3)	Run Date	TSP Conc. (ug/m3)	PM_{10} Conc. (ug/m3)
12/05/87	26.8	NA	02/17/88	NA	20.6
12/06/87	18.1	11.7	02/18/88	51.0	27.1
12/08/87	31.3	NA	02/20/88	30.8	20.1
12/09/87	48.9	29.9	02/21/88	38.6	25.8
12/11/87	74.2	52.5	02/23/88	84.4	45.4
12/12/87	26.5	NA	02/24/88	72.5	39.5
12/14/87	40.4	23.7	02/26/88	55.7	30.8
12/15/87	47.6	NA	02/29/88	18.7	9.7
12/17/87	21.6	18.2	03/01/88	NA	7.5
12/18/87	13.1	8.0	03/03/88	16.9	9.6
12/20/87	14.1	10.7	03/04/88	17.2	9.0
12/21/87	12.2	9.2	03/06/88	31.0	19.7
12/24/87	10.1	5.9	03/07/88	22.6	12.2
12/25/87	9.2	5.7	03/09/88	36.2	20.0
12/27/87	20.4	16.3	03/10/88	75.6	33.3
12/28/87	31.9	19.2	03/12/88	18.5	8.7
12/30/87	23.2	14.8	03/13/88	43.3	18.6
12/31/87	20.1	13.1	03/15/88	36.9	22.0
01/01/88	14.2	10.1	03/16/88	50.1	28.6
01/03/88	27.7	21.5	03/18/88	58.9	29.8
01/04/88	66.8	59.5	03/19/88	95.5	44.5
01/09/88	33.3	22.9	03/21/88	57.3	33.4
01/10/88	43.5	32.7	03/22/88	47.7	27.3
01/12/88	40.8	29.8	03/24/88	60.1	36.5
01/13/88	35.5	22.5	03/25/88	66.3	40.3
01/15/88	74.2	58.0	03/27/88	48.1	24.2
01/16/88	34.8	18.2	03/28/88	129.7	58.5
01/18/88	NA	4.1	03/30/88	54.6	40.1
01/19/88	26.1	5.3	03/31/88	35.6	16.5
01/21/88	22.1	13.8	04/02/88	47.0	31.1
01/22/88	23.7	10.6	04/05/88	51.9	35.2
01/24/88	21.2	16.0	04/08/88	44.5	23.3
01/25/88	32.0	16.5	04/09/88	62.7	NA
01/27/88	NA	19.9	04/11/88	69.1	51.7
01/30/88	NA	13.2	04/14/88	32.7	21.6
01/31/88	29.1	18.3	04/15/88	26.2	12.6
02/02/88	50.2	25.4	04/18/88	20.3	13.9
02/03/88	5.8	2.4	04/20/88	17.3	12.5
02/05/88	NA	8.4	04/21/88	12.1	5.6
02/06/88	44.9	44.9	04/23/88	14.0	9.5
02/08/88	25.1	16.8	04/24/88	25.2	15.1
02/09/88	31.2	17.7	04/26/88	27.8	25.2
02/11/88	NA	22.1	04/27/88	37.8	24.1
02/12/88	39.4	20.2	04/29/88	34.1	28.3
02/14/88	NA	21.0	04/30/88	62.3	23.5
02/15/88	34.4	20.5	05/02/88	25.9	21.9
			05/03/88	57.3	30.6

Table 4.3 Ambient particle summary for the Maricopa SSC Site.

Month	TSP (ug/m^3) Number of Measurements	Mean	Min	Max	PM_{10} (ug/m^3) Number of Measurements	Mean	Min	Max
1987 December	18	27.2	9.2	74.2	14	17.1	5.7	52.5
1988 January	15	35.0	14.2	74.2	18	21.8	4.0	59.5
February	14	41.6	5.8	84.4	18	21.6	2.4	45.4
March	20	50.1	16.9	129.7	21	25.7	7.5	58.5
April	16	36.6	12.1	69.1	15	22.2	5.6	51.7
May	2	42.0*	26.8	57.2	2	26.2*	21.9	30.6
TOTALS	85	38.4	5.8	129.7	88	22.1	2.4	59.5

* The monthly mean is not reliable due to insufficient measurements.

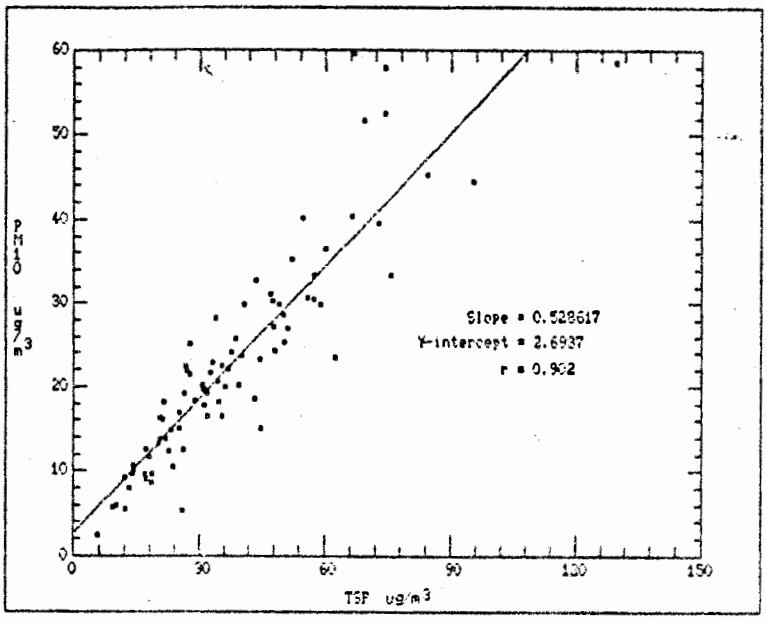

Figure 4.1 Linear regression between TSP and PM_{10} concentrations measured at the Maricopa SSC Site.

Equation 4.1 is based upon limited data and should be used with caution. Furthermore the data represents winter-spring type particulate size distributions which may differ from those existing during summer and early fall.

4.4 Comparison of TSP Concentrations with Prior Measurements

Prior TSP measurements in the vicinity of the Maricopa SSC Site were made at the Sierra Estrella Sailport (SES) between 1976 and 1981. The SES site is located approximately 8 miles east-northeast of the SSC ring (Figure 2.2).

A comparison of available monthly TSP data measured at the SES and Mobile monitoring sites is presented in Table 4.4. The 1987 December, 1988 January, and 1988 April TSP 24-hr arithmetic means were less than the comparable 1976, 1978, and 1979 monthly data. The 1988 February and March 24-hr arithmetic means were less than the comparable 1976 and 1977 data but exceeded the 1978 monthly data. The 24-hr maximum and minimum TSP concentrations at the Mobile site were also generally less than those measured at the SES site.

Table 4.4 Comparison between TSP concentrations measured at the Mobile Site and historical concentrations measured at the SES site (1976 to 1978).

	No. of 24-Hr Smpls.	24-Hr Max.	24-Hr Min.	24-Hr Arith. Mean
SES Dec 1976	16	133	24	76
1977	14	428	14	134
1978	16	72	5	66
Mobile Dec 1987	18	74	9	27
SES Jan 1976	13	122	35	80
1977	15	86	9	45
1978	15	75	12	38
Mobile Jan 1988	15	74	14	35
SES Feb 1976	15	198	28	88
1977	14	126	56	82
1978	14	81	6	30
Mobile Feb 1988	14	84	6	42
SES Mar 1976	15	239	24	106
1977	16	338	36	109
1978	15	73	5	35
Mobile Mar 1988	20	130	16	50
SES Apr 1976	15	210	35	98
1977	15	168	33	81
1978	15	89	19	53
Mobile Apr 1988	16	69	12	37

5.0 CONCLUSIONS

The results of the assessment of ambient particulate concentrations in the vicinity of the Maricopa SSC Site allow tentative conclusions to be drawn with respect to the three objectives of the monitoring program which were:

1. To establish ambient TSP and PM_{10} concentrations at the Maricopa SSC Site;
2. To establish a relationship between concurrent TSP and PM_{10} measurements; and
3. To compare the concentrations measured during the program with measured historical concentrations.

5.1 Ambient Particulate Concentrations

The area encompassing the Maricopa SSC Site has been classified by EPA as a PM_{10} Group 3 area. As such, the area has the highest probability of being in attainment of the NAAQS among the three PM_{10} classification groups. Measured PM_{10} concentrations in the vicinity of the SSC site between December 5, 1987 and May 3, 1988 averaged 22.5 ug/m^3, and were well below standards. This appears to corroborate the area's PM_{10} Group 3 classification.

Although TSP standards in Arizona will be replaced by the current NAAQS for PM_{10}, the AAAQS for TSP are still in effect. The Maricopa SSC Site lies within an attainment area for TSP. Ambient TSP concentrations measured in the vicinity of the SSC site were well below the current AAAQS in conformance with the attainment designation of the area.

5.2 Relationship Between PM_{10} and TSP Concentrations.

The linear regression performed between PM_{10} and TSP concentrations measured in the vicinity of the SSC site (Equation 4.1), suggests that the PM_{10} portion of the total suspended particulate matter is approximately 60%. The relationship between PM_{10} and TSP as determined from this study, however, should be viewed with caution since the monitoring was performed under winter and spring conditions which may be characterized by particulate size distributions which differ from summer conditions.

5.3 Current and Historical TSP Concentrations

Comparison of current TSP measurements at the Mobile site with prior TSP measurements at the SES site suggests that the current concentrations at the Mobile site are lower. Reasons for this cannot be determined with the limited available data, but could be attributed to: (a) a temporal decrease in TSP particulates and/or (b) the Mobile site's greater distance from TSP sources.

Appendix A

Standard Operating Field Procedures
and
Filter Weighing Procedures

STANDARD OPERATING FIELD PROCEDURES
FOR MARICOPA SITE

I. INSTRUMENTS ON-SITE

A. Pair #1

1. PM-10 #4
2. Hi-Vol #3005

B. Pair #2

1. PM-10 #3
2. Hi-Vol #3002

II. SAMPLING PROCEDURES

A. Filter Removal (After Initial Set-Up of Station)

1. Until Hi-Vol #3005 is equipped with a flow recorder, upon arrival at station run instrument Pair #1 (both instruments simultaneously) for at least 5 minutes to establish run-temperature conditions. Connect manometer tube to nipple located at bottom of motor on Hi-Vol #3005. Record the manometer displacement on the "final flow reading" line on the current sample data log sheet for the sample. Disconnect manometer tube and shut-off both instruments.

2. For each instrument, open the shelter and remove the faceplate of the sampler by loosening the four wingnuts and swinging the bolts outward. Lift the exposed filter from the supporting screen by grasping it gently at the ends, not at the corners.

3. Check the filter for signs of air leakage. Leakage may result from a worn faceplate gasket or from an improperly installed gasket. If signs of leakage are observed (i.e., fuzziness of the sample outline), replace gasket before next sampling period.

4. Check the appearance of the particulates. Any changes from normal color may indicate new emission sources, construction activity, or dust storms. Make note of any change in filter color and any known reasons for such change on the current sample data log sheet.

5. Fold filter lengthwise at the middle with the exposed side in. If the collected sample is not centered on the filter, fold so that exposed portions do not contact unexposed portions. Place folded filter into its properly numbered folder and then into properly numbered manilla envelope. Note: if exposed filter has been damaged during removal, place all pieces of filter (exposed sides contacting exposed sides) into folder.

6. Visually inspect the gasket face to see if glass fibers from the filter are being left behind due to overtightening of the faceplate wingnuts and the consequent cutting of the filter along the gasket interface. Make note of any adjustments on the current sample data log sheet which need to be made prior to the next sampling period.

7. Remove the flow recorder chart from each instrument, indicating on back of each chart the date and time of removal. Be sure that the PM-10 or Hi-Vol instrument ID#, the run date of the sample, and the corresponding filter ID# are marked on the back of the flow recorder chart. Place the flow recorder chart in the manilla envelope containing the exposed filter.

8. Record the running time meter reading on the "final running time meter" line on the current sample data log sheet

Filter Installation

1. For each instrument, open the shelter and remove the faceplate of the sampler by loosening the four wingnuts and swinging the bolts outward.

2. Wipe all dirt from the support screen and faceplate.

3. Inspect the new, properly numbered, unexposed filter to be used for each instrument and if damaged, discard and replace with undamaged filter.

4. Center the filter with the rough side up on the wire screen so that the gasket will form an airtight seal on the outer edge (1 cm) of the filter when the faceplate is in position.

5. Tighten the four wingnuts just enough to prevent leakage when the filter is aligned and the faceplate is in place Do not overtighten

6. After installation of each filter, record the sample identification information on a new sample data log sheet: project name, station, run date of sample, filter number, and operator's initials.

7. Record the running time meter reading on the "initial running time meter" line on the new sample data log sheet

6 For each instrument with a flow recorder, remove any moisture from the inside of the recorder with a clean cloth Carefully insert a new chart into the recorder with the instrument ID#, filter ID#, run date, and date and time installed marked on the back of the chart. Do not bend the pen arm beyond its limits of travel while inserting the new chart. Be careful not to damage or weaken the center tab on the chart, but be sure the tab is centered on the slotted drive so that the chart will rotate the full 360 degrees in 24 hours without binding or slipping

9. Check to see that the pen head rests on zero (i.e., the smallest circle diameter on the chart). If not, tap the recorder lightly to make certain that the pen arm is free.

10. Check the time indicated by the pen. If it is in error, rotate the chart clockwise by inserting a screwdriver or coin into the slotted drive in the center of the chart face until the time is correct.

11. Turn the sampler on (never turn it on until a filter is in place) and observe it long enough to know whether the instrument motor and flow recorder are operating properly. Be sure pen markings on flow recorder chart are visible, if not replace pen cartridge.

12. Until Hi-Vol #3005 is equipped with a flow recorder, run instrument Pair #1 (both instruments simultaneously) for at least 5 minutes to establish run-temperature conditions. Connect manometer tube to nipple located at bottom of motor on Hi-Vol #3005. Record the manometer displacement on the "initial reading" line on the current sample data log sheet for the sample. Disconnect manometer tube and shut-off both instruments.

13. For each instrument, set timer to start and stop the sampler such that the sampler runs 24 hours, from midnight to midnight local time, on the sheduled run date.

FILTER WEIGHING PROCEDURES

A. Filter Preparation Prior to Initial Weighing

1. Inspect new filters individually on light table. If holes or defects such as tears, creases or lumps are observed, discard filter.

2. Number filters with numbering machine. Stamp the filter number on two diagonally opposite corners; one number on each side of filter.

3. Place each numbered filter in a manilla folder. Place filter identification number on folder for ease in selection of filters.

4. Store unweighed filters in weighing environment for at least 24 hours. The weighing environment should be between 15 and 30 degrees C (59 to 86 degrees F) and should not vary more than +3 degrees C (+5 degrees F). The relative humidity should be < 50% and not vary more than +5%.

B. Initial Filter weighing

1. Record date, and temperature and relative humidity of weighing environment in filter data log book.

2. Remove filter from carrying folder, being careful not to damage filter. If filter is damaged during removal or any time during weighing, discard filter. Clean filters must not be folded or creased prior to their use.

3. Before weighing first filter, check the balance by weighing a standard Class-S weight of between 3 and 5 g. Record the actual and measured weights, the date, and the operator's initials in the data log book. If the actual and measured values differ by more than +0.5 mg, report the values to the project supervisor prior to proceeding.

4. Weigh each filter and record the filter ID# and the weight under the "Initial Filter Weight" entry in the data log book. Measure the filter weights to the nearest milligram.

5. Place weighed filter in original carrying folder.

6. Upon completion of initial filter weighing, store preweighed filters for future use.

C. Final Weighing of Filters

1. Store used filters in weighing environment. Conditions of weighing environment should be as described in A.4. above. Record date, and weighing environment temperature and relative humidity in filter data log book.

2. Remove filter from carrying folder. Examine the folder to see if filter material has been dislodged from filter. Recover as much as possible by brushing the material from the folder onto the deposit on the filter with a soft camel-hair brush.

4. Examine the filter. If insects are embedded in the filter deposit, remove them with tweezers being careful not to disturb the filter deposit.

5. Check the weighing balance as described in B.3. above.

6. Weigh exposed filter to the nearest miligram, recording the weight under the "Final Filter Weight" entry for the appropriate Filter ID#.

7. Place weighed filter back into carrying folder and store at the Laboratory of Climatology, ASU.

SSI SAMPLER
CALIBRATION PROCEDURES

A. EQUIPMENT

1. Calibrated Multi-flow Orifice
2. Manometer
3. Filters
4. Calculator with Regession Capabilities

B. PROCEDURES

1. Record the official name of the station, date, calibrator's name, sampler ID#, orifice type and ID#, barometric pressure (based on station elevation), and average station pressure (for season) on calibration worksheet.
2. Place a clean filter on sampler inlet.
3. Connect the calibration orifice to the sampler inlet and connect the manometer to the orifice pressure tap.
4. Verify that Dickson recorder is properly connected to pressure tap on lower side of sampler motor and install a clean Dickson flow recorder chart and zero adjust the recorder pen
5. Render the flow controller inoperative by plugging the sampler motor directly into the 110 volt outlet.
6. Operate the sampler for at least five minutes to establish thermal equilibrium prior to calibration.
7. Adjust the calibration orifice to attain maximum flow allowing the sampler to run for an additional 2 minutes
8. Record the manometer displacement (pressure drop across orifice) and the Dickson recorder response on the calibration worksheet
9. Adjust the calibration orifice to attain minimum flow allowing the sampler to run for 2 minutes after the adjustment
10. Record the manometer displacement and the Dickson recorder response on the calibration worksheet
11. Based on the manometer displacements with the orifice adjusted to maximum and minimum flows respectively, adjust the orifice to attain flows at three additional flow rates that are spaced at equal intervals between the maximum and minimum orifice adjustments. Allow the sampler to run 2 minutes after each adjustment and record the manometer displacement and Dickson recorder response for each of these three adjustments.

12. For each manometer displacement, determine the standard volumetric flow rate (Qstd) using the least squares slope and intercept of the calibration orifice's transposed certification regression equation along with the station pressure based on elevation and the average station temperature for the season.

13. Determine the calibration relationship between the sampler's flow rate and Dickson recorder by calculating the least squares regression between the five values of the Dickson response (Y) and the five values of Qstd (X) for each of the five orifice adjustments. The final calibration equation for the sampler should be in the form of:

$$Y = mX + B$$

where: Y = Dickson response
m = slope of least squares regression
X = Qstd
B = Y-intercept of least squares regression

14. After the calibration relationship is determined, recheck each calibration point to determine if it is within the limits of linearity (±5%) by determining a Ycal value for each calibration point using the calculated calibration regression equation and the five Qstd values calculated from the orifice's certification regression equation during calibration:

$$Ycal = m(Qstd) + b$$

The percent difference for each value of Qstd is determined by comparing each Ycal value with the corresponding Y value (Dickson response) recorded during calibration using the equation:

$$\% \text{ difference} = (Y - Ycal)/Ycal * 100$$

where: Y = Dickson response as recorded for each orifice adjustment and calculated Qstd during calibration.
Ycal = value calculated for the same Qstd using the calculated calibration regression equation.

Any calibration points that are found to have a greater difference than ±5% should be repeated and a corrected calibration equation should be recalculated.

15. Upon completion of the calibration, with all calibration points within ±5% of linearity, subsequent flow rates following a sampling period are calculated using the average Dickson recorder readings for the sampling period and the equation:

$$Qstd = (Yav - b) / m$$

where: Qstd = volumetric flow rate during sampling period
Yav = average Dickson response over sampling period
b = y intercept of calibration regression equation
m = slope of calibration regression equation

High Volume Air Sampler Calibration Worksheet

Site location: SSR MARICOPA

Date: 12/16/87

Calibrated by: HJV + KL

Sampler No.: PQ110 #3

Transfer std. type: ORIFICE

(1) Barometric pressure, P_a mm Hg (or in.): 28.61 (726.1 mm)

(2) Temperature, T_a (K): 10°C

Serial No.:

Serial No.: 186 $Q_{STD} = 76.474 (\Delta H^{.4739})(\sqrt{P_a/(T_a+273)})$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)

Average barometric pressure P_a = _____

Seasonal average temperature T_a = _____

No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H \left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ I or ☐ $\sqrt{I\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ I or ☐ $\sqrt{I\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$
1	3.7		45.2612	54		54
2	3.4		43.4258	50		50
3	2.65		38.5863	45		45
4	1.6		30.3817	40		40
5	0.9		23.1310	33		33
6						

Least Squares Calculations

Linear regression of Y on X: Y = mX + b; Y = appropriate expression from Table 2.1; X = Q_{std}

Slope (m) = 0.881604 Intercept (b) = 12.5335 Correlation Coefficient (r) = 0.988651

To determine subsequent flow rate during use: X = 1/m (Y - b) | Q_{std} = 1/m (appropriate expression from Table 2.1 - b)

$Q_{STD} = (Y - 12.5335) / 0.881604$

PM_{10} #3 12/16/87

CALIBRATION

QSTD	DICKSON
1) 45.2012	54
2) 43.4258	50
3) 38.5883	45
4) 30.3817	40
5) 23.1310	33

DICKSON = m (QSTD) + b

DICKSON = 0.881604 (QSTD) + 12.5339

QSTD = (DICKSON − 12.5339) / 0.881604

CALIBRATION CHECK

1) DICKSON = 0.881604 (45.2012) + 12.5339 = 52.38

(54 − 52.38) / 52.38 × 100 = 3.09 %

2) DICKSON = 0.881604 (43.4258) + 12.5339 = 50.82

(50 − 50.82) / 50.82 × 100 = −1.61 %

3) DICKSON = 0.881604 (38.5883) + 12.5339 = 46.55

(45 − 46.55) / 46.55 × 100 = −3.33 %

4) DICKSON = 0.881604 (30.3817) + 12.5339 = 39.32

(40 − 39.32) / 39.32 × 100 = 1.73 %

5) DICKSON = 0.881604 (23.1310) + 12.5339 = 32.93

(33 − 32.93) / 32.93 × 100 = 0.21 %

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC Maricopa POST-CALIBRATION

Date: 5/4/88 (1) Barometric pressure, P_1 mm Hg (or in.) 28.61 (ELEV 1310)

Calibrated by: T. Miller (2) Temperature, T_2 (K) 10°C

Sampler No. PM10 # 3 Serial No.

Transfer std. type: ORIFICE Serial No. 186 $Q_{STD} = 76.474 (\Delta H^{.4739})(\sqrt{P_2/(T_2+273)})$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)
Average barometric pressure: P_a = _____
Seasonal average temperature: T_a = _____

No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H \left(\frac{P_1}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std. m³/min)	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1)	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1)
					☐ I or ☐ $\sqrt{I\left(\frac{P_1}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_1}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	☒ I or ☐ $\sqrt{I\left(\frac{P_1}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_1}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	0.4		15.750	22		22
2	1.2		26.510	33.5		33.5
3	2.1		34.560	40		40
4	2.5		37.537	44.5		44.5
5	3.4		43.426	48.5		48.5
6	3.6		44.618	50		50

Least Squares Calculations

Linear regression of Y on X: $Y = mX + b$. Y = appropriate expression from Table 2.1, $X = Q_{std}$

Slope (m) = 0.9600 Intercept (b) = 7.3671 Correlation Coefficient (r) = 0.9977

To determine subsequent flow rate during use: $X = 1/m\,(Y - b)$ | $Q_{std} = 1/m$ (appropriate expression from Table 2) − b)

$Q_{STD} = (Y - 7.3671)/0.9600$

PM10 #3 POST CALIBRATION CHECK 5/4/08

CALIBRATION

QSTD	DICKSON
1) 15.750	22
2) 26.510	33.5
3) 34.560	40
4) 37.537	44.5
5) 43.426	48.5
6) 44.618	50

DICKSON = m(QSTD) + b

DICKSON = 0.9600 (QSTD) + 7.3671

QSTD = (DICKSON − 7.3671) / 0.9600

CALIBRATION CHECK

1) DICKSON = 0.9600 (15.750) + 7.3671 = 22.48
(22 − 22.4871)/22.4871 × 100 = −2.17 %

2) DICKSON = 0.9600 (26.510) + 7.3671 = 32.8167
(33.5 − 32.8167)/32.8167 × 100 = 2.08 %

3) DICKSON = 0.9600 (34.560) + 7.3671 = 40.544
(40 − 40.5447)/40.5447 × 100 = −1.34 %

4) DICKSON = 0.9600 (37.537) + 7.3671 = 43.4026
(44.5 − 43.4026)/43.4026 × 100 = 2.53 %

5) DICKSON = 0.9600 (43.426) + 7.3671 = 49.056
(48.5 − 49.0561)/49.0561 × 100 = −1.13 %

6) DICKSON = 0.9600 (44.618) + 7.3671 = 50.200
(50 − 50.2004)/50.2004 × 100 = −0.40 %

High Volume Air Sampler Calibration Worksheet

Site location: SSC MARICOPA

Date: 12/16/81

Calibrated by: HUY KL

Sampler No: PM10 # 1

Transfer std type: ORIFICE

(1) Barometric pressure, P_2 mm Hg (or in.): 28.61 (HUV 1310)

(2) Temperature, T_2 (K): 10°C

Serial No:

Serial No: 196 $Q_{STD} = 76.474(\Delta H^{.4777})(2)\sqrt{P_2/(T_2+273)}$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)

Average barometric pressure P_a = _____

Seasonal average temperature: T_a = _____

No	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_a}\right)\left(\frac{T_2}{T_a}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_a}\right)\left(\frac{T_2}{T_a}\right)}$
1	4.4		49.0675	39.5		39.5
2	3.2		42.1957	35		35
3	2.2		36.3308	30.5		30.5
4	1.0		24.3153	19		19
5	0.55		18.3163	12		12
6						

Least Squares Calculations

Linear regression of Y on X: Y = mX + b, Y = appropriate expression from Table 2.1, X = Q_{std}

Slope (m) = 0.898999 Intercept (b) = -3.22711 Correlation Coefficient (r) = 0.992743

To determine subsequent flow rate during use: X = 1/m (Y - b) [Q_{std} = 1/m (appropriate expression from Table 2) - b]

$Q_{STD} = (Y + 3.22711)/0.898999$

PM10 #4 12/16/87

CALIBRATION

	QSTD	DICKSON
1)	49.0695	39.5
2)	42.1959	35
3)	35.3308	30.5
4)	24.3153	19
5)	18.3163	12

DICKSON = m(QSTD) + b

DICKSON = 0.898999 (QSTD) − 3.22711

QSTD = (DICKSON + 3.22711) / 0.898999

CALIBRATION CHECK

1) DICKSON = 0.898999 (49.0695) − 3.22711 = 40.89

(39.5 − 40.89) / 40.89 × 100 = −3.40 %

2) DICKSON = 0.898999 (42.1959) − 3.22711 = 34.71

(35 − 34.71) / 34.71 × 100 = 0.84 %

3) DICKSON = 0.898999 (35.3308) − 3.22711 = 28.54

(30.5 − 28.54) / 28.54 × 100 = 6.87 %

4) DICKSON = 0.898999 (24.3153) − 3.22711 = 18.63

(19 − 18.63) / 18.63 × 100 = 1.99 %

5) DICKSON = 0.898999 (18.3163) − 3.22711 = 13.24

(12 − 13.24) / 13.24 × 100 = −9.37 %

High Volume Air Sampler Calibration Worksheet

Site location: SSC [illegible]

Date: 1/6/86

(1) Barometric pressure, P_a mm Hg (or in.): 28.61 (EHV 3.0)

Calibrated by: HJV

(2) Temperature, T_a (K): 10°C

Sampler No: [illegible]

Serial No.:

Transfer std. type: CRIRIC

Serial No.: 186 (Q_{std} = 76.474 ($\Delta H^{.474}$)($\sqrt{P_a/(760 \times 298/T_a)}$))

Optional: P_{std} = 760 mm Hg (or 29.92 in.)

Average barometric pressure P_a = _____

Seasonal average temperature T_a = _____

No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H \left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	(X) 3 Q_{std} (from orifice certification std. m^3/min)	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1)	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1)
					☐ I or ☐ $\sqrt{I\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	☐ I or ☐ $\sqrt{I\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$
1	5.3		53.5737	42		42
2	4.15		47.7277	38.5		38.5
3	2.9		40.2726	33.5		33.5
4	1.9		32.1535	26		26
5	3.4		15.2506	11		11
6						

Least Squares Calculations

Linear regression of Y on X: Y = mX + b. Y = appropriate expression from Table 2.1. X = Q_{std}

Slope (m) = 0.334620 Intercept (b) = -1.56669 Correlation Coefficient (r) = 0.996805

To determine subsequent flow rate during use: X = 1/m (Y-b) Q_{std} = 1/m (appropriate expression from Table 2) - b)

Q_{std} = (I - 1.56669)/0.334621

PM10 #4 1/8/88

CALIBRATION

QSTD	DICKSON
1) 53.5937	42
2) 47.7279	38.5
3) 40.2726	33.5
4) 32.9595	26
5) 15.7506	11

DICKSON = m (QSTD) + b

DICKSON = 0.834629 (QSTD) - 1.56669

QSTD = (DICKSON + 1.56669) / 0.834629

CALIBRATION CHECK

1) DICKSON = 0.834629 (53.5937) - 1.56669 = 43.16

(42 - 43.16) / 43.16 × 100 = -2.69 %

2) DICKSON = 0.834629 (47.7279) - 1.56669 = 38.27

(38.5 - 38.27) / 38.27 × 100 = 0.60 %

3) DICKSON = 0.834629 (40.2726) - 1.56669 = 32.05

(33.5 - 32.05) / 32.05 × 100 = 4.52 %

4) DICKSON = 0.834629 (32.9595) - 1.56669 = 25.9-

(26 - 25.94) / 25.94 × 100 = 0.23 %

5) DICKSON = 0.834629 (15.7506) - 1.56669 = 11.58

(11 - 11.58) / 11.58 × 100 = -5.01 %

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC Maricopa — POST-CALIBRATION

Date: 5/4/88 — (1) Barometric pressure, P_2 mm Hg (or in): 28.61 (ELEV 13.0)

Calibrated by: T. Miller — (2) Temperature, T_2 (K): 10°C

Sampler No.: PM10 # 4 — Serial No.:

Transfer std. type: ORIFICE — Serial No. 186 $Q_{std} = 76.474(\Delta H^{.4739})(\sqrt{P_2/(T_2+273)})$

Optional: P_{std} = 760 mm Hg (or 29.92 in)
Average barometric pressure, P_a = _____
Seasonal average temperature, T_a = _____

No	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min)	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1)	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1)
					☐ I or ☐ $\sqrt{I\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	☒ I or ☐ $\sqrt{I\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	1.20		26.510	18.5		18.5
2	1.95		33.368	24.5		24.5
3	2.45		37.180	28		28
4	3.50		44.026	32		32
5	4.00		46.902	34		34
6	4.80		51.135	37		37

Least Squares Calculations

Linear regression of Y on X: Y = mX + b; Y = appropriate expression from Table 2.1; X = Q_{std}

Slope (m) = 0.7352 Intercept (b) = -0.3004 Correlation Coefficient (r) = 0.9965

To determine subsequent flow rate during use: X = 1/m (Y - b) | Q_{std} = 1/m (appropriate expression from Table 2) - b)

$Q_{std} = (Y + 0.3004)/0.7352$

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PM10 #4 POST-CALIBRATION CHECK 5/4/88

CALIBRATION

QSTD	DICKSON
1) 26.510	18.5
2) 33.368	24.5
3) 37.180	28
4) 44.026	32
5) 46.902	34
6) 51.135	37

DICKSON = m (QSTD) + b

DICKSON = 0.7352 (QSTD) - 0.3004

QSTD = (DICKSON + 0.3004) / 0.7352

CALIBRATION CHECK

1) DICKSON = 0.7352 (26.510) - 0.3004 = 19.1898

(18.5 - 19.1898) / 19.1898 × 100 = -3.59%

2) DICKSON = 0.7352 (33.368) - 0.3004 = 24.2318

(24.5 - 24.2318) / 24.2318 × 100 = 1.11%

3) DICKSON = 0.7352 (37.180) - 0.3004 = 27.0343

(28 - 27.0343) / 27.0343 × 100 = 3.57%

4) DICKSON = 0.7352 (44.026) - 0.3004 = 32.0675

(32 - 32.0675) / 32.0675 × 100 = -0.21%

5) DICKSON = 0.7352 (46.902) - 0.3004 = 34.1820

(34 - 34.1820) / 34.1820 × 100 = -0.53%

6) DICKSON = 0.7352 (51.135) - 0.3004 = 37.2941

(37 - 37.2941) / 37.2941 × 100 = -0.79%

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC MARICOPA

Date: 12/16/97

Calibrated by: HJW & KC

Sampler No: Hi-Vol # 2006

Transfer std. type: ORIFICE

(1) Barometric pressure, P_2 mm Hg (or in.): 28.61 (ELEV. 1300)

(2) Temperature, T_2 (K): 10°C

Serial No.:

Serial No: 196 $Q_{std} = 76.474\,(\Delta H^{.4734})\left(2\sqrt{P_2/(10+273)}\right)$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)
Average barometric pressure, P_a = _____
Seasonal average temperature, T_a = _____

No	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std. m³/min)	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ I or ☐ $\sqrt{I\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ I or ☐ $\sqrt{I\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	4.0		46.7025	53		53
2	3.35		42.1219	50		50
3	2.4		36.8181	46		46
4	1.4		28.5187	37.5		37.5
5	0.5		17.5614	26		26
6						

Least Squares Calculations

Linear regression of Y on X: Y = mX + b. Y = appropriate expression from Table 2.1. X = Q_{std}

Slope (m) = 0.919822 Intercept (b) = 10.6983 Correlation Coefficient (r) = 0.995731

To determine subsequent flow rate during use: X = 1/m (Y-b) [Q_{std} = 1/m (appropriate expression from Table 2) - b]

$Q_{std} = (Y - 10.6983)/0.919822$

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CALIBRATION

QSTD	DICKSON
1) 46.9025	53
2) 43.1219	50
3) 36.9181	46
4) 28.5187	37.5
5) 17.5074	26

DICKSON = m (QSTD) + b

DICKSON = 0.919822 (QSTD) + 10.6983

QSTD = (DICKSON - 10.6983) / 0.919822

CALIBRATION CHECK

1) DICKSON = 0.919822 (46.9025) + 10.6983 = 53.84

(53 - 53.84) / 53.84 × 100 = -1.56 %

2) DICKSON = 0.919822 (43.1219) + 10.6983 = 50.36

(50 - 50.36) / 50.36 × 100 = -0.71 %

3) DICKSON = 0.919822 (36.8181) + 10.6983 = 44.56

(46 - 44.56) / 44.56 × 100 = 3.23 %

4) DICKSON = 0.919822 (28.5187) + 10.6983 = 36.9

(37.5 - 36.93) / 36.93 × 100 = 1.54 %

5) DICKSON = 0.919822 (17.5074) + 10.6983 = 26.8

(26 - 26.80) / 26.80 × 100 = -2.99 %

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC Maricopa — POST CALIBRATION

Date: 5/4/88

Calibrated by: T. Miller

Sampler No. TSP #3002

Transfer std. type: ORIFICE

(1) Barometric pressure, P_2 mm Hg (or in.) 28.61 (ELEV 1310)

(2) Temperature, T_2 (K) 10°C

Serial No.

Serial No. 186 $Q_{STD} = 76.474(\Delta H^{.4734})(\sqrt{P_2/(T_2+273)})$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)

Average barometric pressure P_a =

Seasonal average temperature: T_a =

No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std. m³/min	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ I or ☐ $\sqrt{I\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ I or ☐ $\sqrt{I\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt[4]{\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	1.05		24.884	38		38
2	1.65		30.828	41		41
3	1.85		32.546	43		43
4	2.65		38.588	47.5		47.5
5	2.95		40.600	49		49
6	3.60		44.618	53.5		53.5

Least Squares Calculations

Linear regression of Y on X: Y = mX + b. Y = appropriate expression from Table 2.1 X = Q_{std}

Slope (m) = 0.7825 Intercept (b) = 17.6778 Correlation Coefficient (r) = 0.9921

To determine subsequent flow rate during use X = 1/m (Y b) Q_{std} = 1/m (appropriate expression from Table 2) b)

$Q_{STD} = (Y - 17.6778)/0.7825$

LETTER 66A (CONTINUED)

Hi-Vol #3002 POST-CALIBRATION CHECK 5/4/08

CALIBRATION

	Qstd	Dickson
1)	24.884	38
2)	30.828	41
3)	32.546	43
4)	38.588	47.5
5)	40.600	49
6)	44.618	53.5

Dickson = m(Qstd) + b

Dickson = 0.7825 (Qstd) + 17.6778

Qstd = (Dickson - 17.6778) / 0.7825

CALIBRATION CHECK

1) Dickson = 0.7825 (24.884) + 17.6778 = 37.1495

(38 - 37.1495) / 37.1495 = 2.29 %

2) Dickson = 0.7825 (30.828) + 17.6778 = 41.8007

(41 - 41.8007) / 41.8007 = -1.92 %

3) Dickson = 0.7825 (32.546) + 17.6778 = 43.1450

(43 - 43.1450) / 43.1450 = -0.34 %

4) Dickson = 0.7825 (38.588) + 17.6778 = 47.8729

(47.5 - 47.8729) / 47.8729 = -0.78 %

5) Dickson = 0.7825 (40.600) + 17.6778 = 49.4473

(49 - 49.4473) / 49.4473 = -0.90 %

6) Dickson = 0.7825 (44.618) + 17.6778 = 52.591

(53.5 - 52.5914) / 52.5914 = 1.73 %

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC MARICOPA

Date: 12/16/87 (1) Barometric pressure, P_2 mm Hg (or in.) 29.61 (Ave. 1310)

Calibrated by: HDV + KC (2) Temperature, T_2(K) 10°C

Sampler No. Hi-Vol #3005 (w/ Dickson Recorder) Serial No.

Transfer std type: ORIFICE Serial No. 186 $Q_{std} = 26.474\,(\Delta H^{.4739})\left(2\sqrt{P_2/(760 \times 29.92)}\right)$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)
Average barometric pressure, P_a = _____
Seasonal average temperature, T_a = _____

No.	1 ΔH Pressure drop across orifice (in.) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min	(monometer disagreement or gauge at sampler) 4 1 Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For interpretation of average pressure and seasonal average temperature (see Table 2.1) ☐ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	5.6		55.0105	1.9		1.9
2	4.4		49.0175	1.5		1.5
3	3.3		42.8157	1.3		1.3
4	2.0		33.7705	0.8		0.8
5	0.7		20.5339	0.3		0.3
6						

Least Squares Calculations

Linear regression of Y on X: Y = mX + b. Y = appropriate expression from Table 2.1. X = Q_{std}

Slope (m) = 0.0458001 Intercept (b) = -0.682178 Correlation Coefficient (r) = 0.995307

To determine subsequent flowrate during use: X = 1/m (Y - b) Q_{std} = 1/m (appropriate expression from Table 2) - b)

$Q_{std} = (Y + 0.682178)/0.0458001$

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12/16/87 Hi-Vol 3005 (NO DICKSON RECORDER)

(ΔH = [illegible] DISPLACEMENT BY MOTOR

CALIBRATION

QSTD	ΔH
1) 55.0105	1.9
2) 49.0695	1.5
3) 42.8157	1.3
4) 33.7705	0.8
5) 20.5339	0.3

$\Delta H = m(Q_{STD}) + b$

$\Delta H = 0.0458001\,(Q_{STD}) - 0.682998$

$Q_{STD} = (\Delta H + 0.682998)/0.0458001$

CALIBRATION CHECK

1) $\Delta H = 0.0458001\,(55.0105) - 0.682998 = 1.84$

$(1.9 - 1.84)/1.84 \times 100 = 3.26\%$

2) $\Delta H = 0.0458001\,(49.0695) - 0.682998 = 1.56$

$(1.5 - 1.56)/1.56 \times 100 = -3.85\%$

3) $\Delta H = 0.0458001\,(42.8157) - 0.682998 = 1.28$

$(1.3 - 1.28)/1.28 \times 100 = 1.56\%$

4) $\Delta H = 0.0458001\,(33.7705) - 0.682998 = 0.86$

$(0.8 - 0.86)/0.86 \times 100 = -6.98\%$

5) $\Delta H = 0.0458001\,(20.5339) - 0.682998 = 0.26$

$(0.3 - 0.26)/0.26 \times 100 = 15.38\%$

LETTER 664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC MARICOPA

Date: 1/8/88 (1) Barometric pressure, P_a mm Hg (or in.): 28.61 (ELEV 1310)

Calibrated by: HJV (2) Temperature, T_a (K): 10°C

Sampler No: Hi-Vol #3005 Serial No.:

Transfer std. type: ORIFICE Serial No.: 186 $Q_{std} = 76.474(\Delta H^{.4739})(\sqrt{P_a/(1.2231)})$

Optional: P_{std} = 760 mm Hg (or 29.92 in.); Average barometric pressure, P_a = ; Seasonal average temperature, T_a =					5 (Y)	
					For specific pressure and temperature corrections (see Table 2.1)	For incorporation of average pressure and seasonal average temperature (see Table 2.1)
					☐ 1 or ☐ $\sqrt{1\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$ or ☐ $\sqrt[1]{\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	☐ 1 or ☐ $\sqrt{1\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$ or ☐ $\sqrt[1]{\left(\frac{P_a}{P_a}\right)\left(\frac{T_a}{T_a}\right)}$
No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_a}{P_{std}}\right)\left(\frac{298}{T_a}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min	4 I Sampler flow rate indication (arbitrary)		
1	5.55		54.7772	1.85		1.85
2	4.7		50.6675	1.55		1.55
3	3.9		46.1431	1.35		1.35
4	3.1		41.5658	1.05		1.05
5	2.2		35.3308	0.75		0.75
6						

Least Aquares Calculations

Linear regression of Y on X: Y = mX + b. Y = appropriate expression from Table 2.1, X = Q_{std}

Slope (m) = 0.0560717 Intercept (b) = -1.2541 Correlation Coefficient (r) = 0.997582

To determine subsequent flow rate during use: X = 1/m (Y - b) Q_{std} = 1/m (appropriate expression from Table 2.1 - b)

Q_{std} = (Y + 1.2541) / 0.0560717

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Hi-Vol #3005 1/8/88 (NO DICKSON RECORDER) (ΔH = MANOMETER DISPLACEMENT AT NOTCH)

CALIBRATION

	Qstd	ΔH
1)	54.7772	1.85
2)	50.6275	1.55
3)	46.3431	1.35
4)	41.5658	1.05
5)	35.3308	0.75

$\Delta H = m(Q_{std}) + b$

$\Delta H = 0.0560717(Q_{std}) - 1.2541$

$Q_{std} = (\Delta H + 1.2541)/0.0560717$

CALIBRATION CHECK

1) $\Delta H = 0.0560717(54.7772) - 1.2541 = 1.82$

$(1.85-1.82)/1.82 \times 100 = 1.65\%$

2) $\Delta H = 0.0560717(50.6275) - 1.2541 = 1.58$

$(1.55-1.58)/1.58 \times 100 = -1.90\%$

3) $\Delta H = 0.0560717(46.3431) - 1.2541 = 1.34$

$(1.35-1.34)/1.34 \times 100 = 0.75\%$

4) $\Delta H = 0.0560717(41.5658) - 1.2541 = 1.08$

$(1.05-1.08)/1.08 \times 100 = -2.78\%$

5) $\Delta H = 0.0560717(35.3308) - 1.2541 = 0.73$

$(0.75-0.73)/0.73 \times 100 = 2.74\%$

LETTER 6664 (CONTINUED)

High Volume Air Sampler Calibration Worksheet

Site location: SSC MARICOPA

Date: 1/19/88 (1) Barometric pressure, P_2 mm Hg (or in.) 28.61 (ELEV 1314)

Calibrated by: HJV (2) Temperature, T_2 (K) 16°C

Sampler No. Hi-Vol # 3005 Serial No.

Transfer std. type: ORIFICE Serial No. 156 QSTD = 76.474 ($\Delta H^{.471}$) ($2\sqrt{P_2/(ELEV\ 273)}$)

Optional: P_{std} = 760 mm Hg (or 29.92 in.)
Average barometric pressure: P_a = _____
Seasonal average temperature: T_a = _____

No.	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min	4 1 Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ 1 or ☐ $\sqrt{1\left(\frac{P_2}{P_a}\right)\left(\frac{T_2}{T_a}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_a}\right)\left(\frac{T_2}{T_a}\right)}$
1	5.05		52.3805	27.5		27.5
2	4.00		46.9025	24.0		24.0
3	3.05		41.2967	22.0		22.0
4	1.80		32.1257	18.0		18.0
5	0.45		16.6517	9.0		9.0
6						

Least Squares Calculations

Linear regression of Y on X Y = mX + b, Y = appropriate expression from Table 2.1, X = Q_{std}

Slope (m) = 0.504143 Intercept (b) = 1.01214 Correlation Coefficient (r) = 0.996438

To determine subsequent flow rate during use: X = 1/m (Y-b) Q_{std} = 1/m (appropriate expression from Table 2) - b)

Q_{std} = (Y-1.01214)/0.504143

Hi-Vol #3005 1/14/88 (WITH DICKSON RECORDER)

CALIBRATION

	QSTD	DICKSON
1)	52.3805	27.5
2)	46.9025	24.0
3)	41.2467	22.0
4)	32.1257	18.0
5)	16.6547	9.0

DICKSON = m(QSTD) + b

DICKSON = 0.504143 (QSTD) + 1.01214

QSTD = (DICKSON - 1.01214) / 0.504143

CALIBRATION CHECK

1) DICKSON = 0.504143(52.3805) + 1.01214 = 27.42

(27.5 - 27.42) / 27.42 × 100 = 0.29 %

2) DICKSON = 0.504143(46.9025) + 1.01214 = 24.66

(24 - 24.66) / 24.66 × 100 = -2.68 %

3) DICKSON = 0.504143(41.2467) + 1.01214 = 21.81

(22.0 - 21.81) / 21.81 × 100 = 0.87 %

4) DICKSON = 0.504143(32.1257) + 1.01214 = 17.21

(18 - 17.21) / 17.21 × 100 = 4.59 %

5) DICKSON = 0.504143(16.6547) + 1.01214 = 9.4

(9 - 9.41) / 9.41 × 100 = -4.36 %

High Volume Air Sampler Calibration Worksheet

Site location: SSC Maricopa — POST-CALIBRATION

Date: 5/4/88 — (1) Barometric pressure, P_2 mm Hg (or in.): 28.61 (ELEV 1310)

Calibrated by: T. Miller — (2) Temperature, T_2 (K): 10°C

Sampler No.: TSP #3005 — Serial No.:

Transfer std type: ORIFICE — Serial No.: 186 $Q_{std} = 76.474(\Delta H^{.4739})(2)^{P_2/(T_2+273)}$

Optional: P_{std} = 760 mm Hg (or 29.92 in.)
Average barometric pressure P_a = ____
Seasonal average temperature T_a = ____

No	1 ΔH Pressure drop across orifice (in) or (cm)	$\sqrt{\Delta H\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	(X) 3 Q_{std} (from orifice certification std m³/min)	4 I Sampler flow rate indication (arbitrary)	5 (Y) For specific pressure and temperature corrections (see Table 2.1) ☐ I or ☐ $\sqrt{I\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_{std}}\right)\left(\frac{298}{T_2}\right)}$	5 (Y) For incorporation of average pressure and seasonal average temperature (see Table 2.1) ☒ I or ☐ $\sqrt{I\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$ or ☐ $\sqrt{\left(\frac{P_2}{P_a}\right)\left(\frac{T_a}{T_2}\right)}$
1	0.40		15.750	7		7
2	0.95		23.731	11		11
3	1.50		29.467	15		15
4	2.25		35.709	19		19
5	3.50		44.026	24.5		24.5
6	4.70		50.628	28		28

Least Squares Calculations

Linear regression of Y on X: Y = mX + b; Y = appropriate expression from Table 2.1, X = Q_{std}

Slope (m) = 0.6185 Intercept (b) = -3.129 Correlation Coefficient (r) = 0.9990

To determine subsequent flow rate during use: X = 1/m (Y - b) — Q_{std} = 1/m (appropriate expression from Table 2) - b)

$Q_{std} = (Y + 3.129)/0.6185$

Hi-Vol #3005 POST-CALIBRATION CHECK 5/4/88

CALIBRATION

	QSTD	DICKSON
1)	15.750	7
2)	23.731	11
3)	29.467	15
4)	35.709	19
5)	44.026	24.5
6)	50.628	28

DICKSON = m (QSTD) + b

DICKSON = 0.6185 (QSTD) - 3.129

QSTD = (DICKSON + 3.129) / 0.6185

CALIBRATION CHECK

1) DICKSON = 0.6185 (15.750) - 3.129 = 6.6124
(7 - 6.6124) / 6.6124 × 100 = 5.9 %

2) DICKSON = 0.6185 (23.731) - 3.129 = 11.5486
(11 - 11.5486) / 11.5486 × 100 = -4.75 %

3) DICKSON = 0.6185 (29.467) - 3.129 = 15.0963
(15 - 15.0963) / 15.0963 × 100 = -0.64 %

4) DICKSON = 0.6185 (35.709) - 3.129 = 18.9570
(19 - 18.9570) / 18.9570 × 100 = 0.23 %

5) DICKSON = 0.6185 (44.026) - 3.129 = 24.1011
(24.5 - 24.1011) / 24.1011 = 1.67 %

6) DICKSON = 0.6185 (50.628) - 3.129 = 28.1844
(28 - 28.1844) / 28.1844 = -0.65 %

LETTER 664 (CONTINUED)

Project Name: SSC MARICOPA

Measurement: OPERATIONAL FLOW CHECK $\%D = 100(Q_m - Q_a)/Q_a$

Performed: Hi-vol # 4005

Measurement Units: CFM

Date		1/2/88	1/11/93	1/14/93
Measurement: Calib	1			
	2			
	3			
Measurement: Result	1	35.65		
	2	39.94	46.62	46.10
	3			
Sum			46.62	46.10
Average, $\bar{X}$				
Range, R		-10.29	-10.7	-1.10

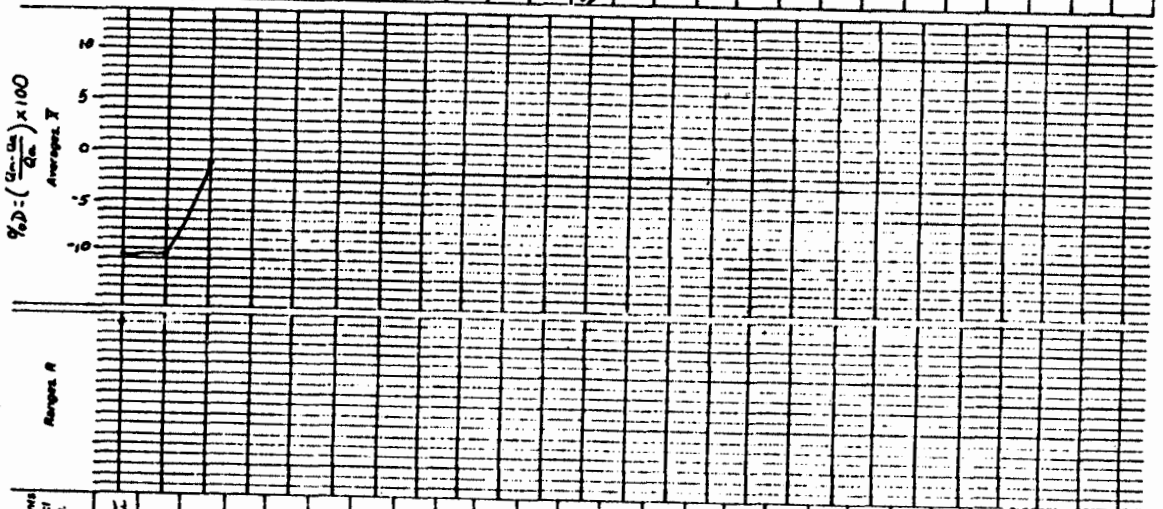
	1/2/88	1/11/93	1/14/93
ΔH	2.65	[illegible]	2.95
Y_m	0.95	[illegible]	0.9
Q_m	$= (Y_m + 0.68291E)/$ [illegible]		
Q_a	$= 76.474 (\Delta H^{0.5000})(\sqrt{P_a/(Ta+273)})$		
Q_{m2}	$= (Y_m + 1.2481)/0.560717$		
Q_{m3}	$= (Y - 1.07214)/0.5[illegible]4143$		
%D			

Y_m = MULTI-POINT MANOMETER DISPLACEMENT

ΔH = MANOMETER DISPLACEMENT

P_a = PRESSURE = 28.61

Ta = TEMP = 10°C



Comments (Corrective Action, etc.): Recalib.

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LETTER 6G4 (CONTINUED)

Project Name: SSC MARICOPA

Measurement Performed: OPERATIONAL FLOW CHECK %D = 100(Qm - Qa)/Qa

Measurement Units: CFM

Date		2/1/93	2/2/93													2/1/93	2/2/93																		
Measurement Code	1														ΔH		3.46																		
	2														Y		23																		
	3																																		
Measurement Result	1														11/2/93	Qm	= (Y+3.22711)/0.898999																		
	2	42.82	41.35													Qa	= 76.474 (ΔH^.4999)(√Pa/(Ta+273))																		
	3	42.61	41.48												11/2/93	Qa2	= (Y+1.5466)/0.824629																		
Sum																																			
Average, X																																			
Range, R		-0.49	0.41													%D																			

Y = DIRECTION RESPONSE
ΔH = MANOMETER DISPLACEMENT
Pa = PRESSURE = 28.61
Ta = TEMP = 10°C

$\%D = \left(\frac{Q_m - Q_a}{Q_a}\right) \times 100$

Average, X: 10, 5, 0, -5, -10

Range, R

Comments (Corrective Action, etc.)

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LETTER 6604 (CONTINUED)

Project Name: SSC MARICOPA

Measurement: OPERATIONAL FLOW CHECK $\%D = 100(Q_m - Q_a)/Q_a$

Performed: PM10 #3

Measurement Units: CFM

Date																																									
		1/6/88	1/13/88	1/20/88														1/13/88		1/20/88	1/28/88																			
Measurement Code	1																	ΔH	2.55		3	2.95																			
	2																	Y	[illegible]		[illegible]	48.0																			
	3																																								
Measurement Result	1	31.96	31.53	40.23														1/13/88	Q_m	=	(Y - (2.5334)) / 0.8816604																			
	2	31.81	31.61	40.60															Q_a	=	76.474 ($\Delta H^{.4999}$) ($\sqrt{P_a/(T_a+273)}$)																			
	3																																								
Sum																																									
Average, $\bar{X}$																																									
Range, R		0.2%	-2.7	-0.9														%D																							

Y = DIRSON RESPONSE
ΔH = MANOMETER DISPLACEMENT
P_a = PRESSURE = 24.61
T_a = TEMP = 10°C

Comments (Correct Action, etc.)
OK

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LETTER 604 (CONTINUED)

Project Name: SSC MARICOPA

Measurement: [illegible] FLOW CHECK %D = [illegible](Qm - Qa)/Qa

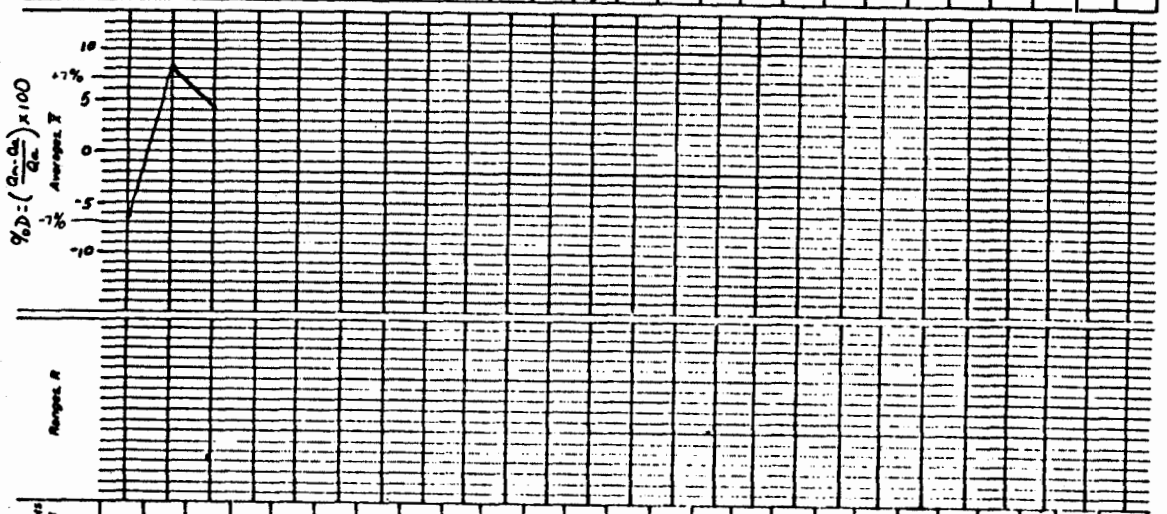
Performed: [illegible] # 3002

Measurement Units: CFM

Date		1/8/83	1/10/83	2/2/83
Measurement Code	1			
	2			
	3			
Measurement Result	1	24.05	19.55	39.47
	2	27.93	17.54	37.07
	3			
Sum				
Average, $\bar{X}$				
Range, R		-6.20%	8.02	4.17

	1/8/83	1/10/83	2/2/83
ΔH	1.55	[illegible]	2.66
Y	[illegible]	16.1	47
Qm	=(Y - 10.6983) / 0.419922		
Qa	= 76.474 (ΔH^.49999) (√Pa/(460+Ta))		
%D			

Y = DIGITAL RESPONSE
ΔH = MANOMETER DISPLACEMENT
Pa = PRESSURE = 28.61
Ta = TEMP = 10°C



Comments (Correct Action, etc.): OK

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LETTER 66A (CONTINUED)

Appendix C

Listing of TSP and PM_{10} Sampling Parameters and Concentrations for the Mobile Site

TSP and PM-10 sampling data collected at the Mobile monitoring site.

Run Date	Samplr ID #	Run Time (min)	Net Filter Wgt(g)	Qstd (cfm)	Total Vol. (m3)	TSP Conc. (ug/m3)	PM-10 Conc. (ug/m3)
12/05/87	3005	1391.7	0.0425	40.2003	1584.41	28.8238	
12/05/87	3	1454.5	0.0325	35.1247	1448.84		~~23.4628~~
12/06/87	3002	1441.5	0.0259	35.1173	1433.81	18.0683	
12/06/87	4	1404.0	0.0198	42.1845	1878.51		11.8909
12/08/87	3005	1393.1	0.0486	39.3088	1550.83	31.3381	
12/08/87	3	1454.8	0.0287	35.6919	1470.50		~~19.5171~~
12/09/87	3002	1440.7	0.0863	33.2148	1355.18	48.9232	
12/09/87	4	1410.0	0.0498	41.7152	1665.74		29.8967
12/11/87	3002	1432.1	0.1212	40.2814	1633.70	74.1877	
12/11/87	4	1386.0	0.0866	42.0147	1849.14		52.5122
12/12/87	3005	1395.5	0.0439	41.9837	1859.22	26.4582	
12/12/87	3	1469.8	0.0227	28.4607	1184.51		~~19.1640~~
12/14/87	3002	1448.3	0.0547	33.0789	1354.89	40.3724	
12/14/87	4	1404.0	0.0399	42.3142	1882.47		23.7152
12/15/87	3005	1392.2	0.0721	38.4189	1514.87	47.6012	
12/15/87	3	1481.1	0.0380	30.0204	1259.20		~~30.1779~~
12/17/87	3005	1392.2	0.0338	39.7545	1567.40	21.5643	
12/17/87	3	1468.6	0.0296	39.2368	1829.86		18.1633
12/18/87	3002	1458.8	0.0204	37.8353	1560.95	13.0689	
12/18/87	4	1410.0	0.0134	41.8649	1671.72		8.0157
12/20/87	3005	1392.2	0.0229	41.0920	1620.14	14.1346	
12/20/87	3	1448.3	0.0169	38.3858	1572.25		10.7489
12/21/87	3002	1443.2	0.0192	38.3788	1588.60	12.2402	
12/21/87	4	1398.0	0.0153	41.8649	1657.49		9.2308
12/24/87	3002	1440.2	0.0158	37.8994	1537.62	10.1455	
12/24/87	4	1404.0	0.0099	42.4640	1688.42		5.8635
12/25/87	3005	1396.9	0.0130	35.7417	1413.95	9.1941	
12/25/87	3	1464.7	0.0091	38.2440	1586.37		5.7363
12/27/87	3002	1442.6	0.0306	36.7481	1501.32	20.3820	
12/27/87	4	1410.0	0.0271	41.7152	1665.74		18.2691
12/28/87	3005	1389.5	0.0471	37.5252	1478.64	31.8987	
12/28/87	3	1457.9	0.0303	38.2440	1579.01		19.1892
12/30/87	3005	1393.0	0.0356	38.9519	1536.64	23.1674	
12/30/87	3	1460.2	0.0233	38.1023	1575.64		14.7877
12/31/87	3002	1439.8	0.0306	37.2917	1520.57	20.1240	
12/31/87	4	1410.0	0.0220	42.1645	1683.68		13.0666
01/01/88	3005	1390.2	0.0218	38.8627	1530.04	14.2480	
01/01/88	3	1455.4	0.0162	38.8112	1599.68		10.1270
01/03/88	3005	1403.5	0.0433	39.3086	1562.40	27.7137	
01/03/88	3	1467.7	0.0324	36.2590	1507.12		21.4980
01/04/88	3002	1437.7	0.1015	37.2917	1518.36	66.8486	
01/04/88	4	1404.0	0.1009	42.6138	1694.38		59.5499
01/09/88	3005	1397.5	0.0518	39.3086	1555.72	33.2964	
01/09/88	3	1462.4	0.0350	36.9680	1531.03		22.8604

TSP and PM-10 sampling data collected at the Mobile monitoring site.

Run Date	Samplr ID #	Run Time (min)	Net Filter Wgt(g)	Qstd (cfm)	Total Vol. (m3)	TSP Conc. (ug/m3)	PM-10 Conc. (ug/m3)
01/10/88	3002	1438.4	0.0651	36.7481	1496.95	43.4884	
01/10/88	4	1404.0	0.0546	42.0147	1670.56		32.6837
01/12/88	3005	1403.2	0.0572	35.2959	1402.61	40.7811	
01/12/88	3	1469.4	0.0506	40.7962	1697.87		29.8056
01/13/88	3002	1439.1	0.0533	36.8840	1503.22	35.4573	
01/13/88	4	1404.0	0.0378	42.3142	1682.47		22.4670
01/15/88	3005	1383.6	0.1290	44.3582	1738.11	74.2185	
01/15/88	3	1451.8	0.0905	37.9605	1560.74		57.9852
01/16/88	3002	1442.4	0.0505	35.5250	1451.15	34.7999	
01/16/88	4	1410.0	0.0308	42.4640	1695.64		18.1642
01/18/88	3005	102.3	0.0159	47.5815	137.85	NA	
01/18/88	3	1448.8	0.0065	39.0948	1604.06		4.0522
01/19/88	3002	1442.5	0.0397	37.2917	1523.42	26.0597	
01/19/88	4	1404.0	0.0089	42.4640	1688.42		5.2712
01/21/88	3005	1384.3	0.0326	37.6636	1476.54	22.0786	
01/21/88	3	1447.7	0.0221	38.9530	1597.03		13.8382
01/22/88	3002	1441.7	0.0364	37.5635	1533.68	23.7338	
01/22/88	4	1398.0	0.0177	42.3142	1675.28		10.5654
01/24/88	3005	1384.9	0.0346	41.6308	1632.77	21.1909	
01/24/88	3	1448.9	0.0249	37.9605	1557.63		15.9859
01/25/88	3002	1442.1	0.0559	42.7275	1745.00	32.0343	
01/25/88	4	1404.0	0.0279	42.4640	1688.42		16.5243
01/27/88	3005	102.5	0.0105	47.5815	138.12	NA	
01/27/88	3	1449.0	0.0335	41.0798	1685.74		19.8726
01/30/88	3005	101.1	0.0052	NA	NA	NA	
01/30/88	3	1450.0	0.0215	39.6619	1628.68		13.2009
01/31/88	3002	1439.0	0.0477	40.2814	1641.57	29.0576	
01/31/88	4	1386.0	0.0305	42.4640	1666.78		18.2988
02/02/88	3005	1383.6	0.0941	47.8294	1874.13	50.2101	
02/02/88	3	1447.3	0.0400	38.3858	1573.34		25.4236
02/03/88	3002	1442.0	0.0093	39.4660	1611.69	5.7703	
02/03/88	4	1392.0	0.0040	42.0147	1656.28		2.4151
02/05/88	3005	101.1	0.0097	NA	NA	NA	
02/05/88	3	1446.1	0.0134	39.0948	1601.07		8.3694
02/06/88	3002	1421.2	0.0742	41.0968	1654.08	44.8588	
02/06/88	4	1392.0	0.0251	42.6138	1679.90		44.9414
02/08/88	3005	1385.1	0.0471	47.8294	1876.18	25.1045	
02/08/88	3	1447.0	0.0262	37.9605	1555.58		16.8426
02/09/88	3002	1422.2	0.0515	40.9609	1649.77	31.2165	
02/09/88	4	1398.0	0.0297	42.3142	1675.28		17.7284
02/11/88	3005	102.4	0.0125	NA	NA	NA	
02/11/88	3	1449.2	0.0364	40.0873	1645.24		22.1245
02/12/88	3002	1420.7	0.0652	41.0968	1653.50	39.4316	
02/12/88	4	1392.0	0.0341	42.7635	1685.80		20.2278
02/14/88	3005	102.9	0.0063	NA	NA	NA	
02/14/88	3	1445.9	0.0336	39.0948	1600.85		20.9889

TSP and PM-10 sampling data collected at the Mobile monitoring site.

Run Date	Samplr ID #	Run Time (min)	Net Filter Wgt(g)	Qstd (cfm)	Total Vol. (m3)	TSP Conc. (ug/m3)	PM-10 Conc. (ug/m3)
02/15/88	3002	1419.9	0.0561	40.5532	1630.71	34.4023	
02/15/88	4	1398.0	0.0348	42.9133	1699.00		20.4827
02/17/88	3005	100.1	0.0108	NA	NA	NA	
02/17/88	3	1448.5	0.0326	38.6694	1586.28		20.5513
02/18/88	3002	1422.2	0.0819	39.8737	1605.98	50.9969	
02/18/88	4	1392.0	0.0453	42.4640	1673.99		27.0611
02/20/88	3005	1439.7	0.0578	46.0938	1879.35	30.7553	
02/20/88	3	1446.6	0.0311	37.8187	1549.35		20.0730
02/21/88	3002	1421.5	0.0637	40.9609	1648.96	38.6305	
02/21/88	4	1398.0	0.0435	42.6138	1687.14		25.7833
02/23/88	3005	1454.9	0.1629	46.8376	1929.84	84.4111	
02/23/88	3	1445.1	0.0711	38.2440	1565.15		45.4271
02/24/88	3002	1420.5	0.1195	40.9609	1647.80	72.5211	
02/24/88	4	1392.0	0.0859	42.3142	1668.09		39.5063
02/26/88	3005	1445.2	0.1091	47.8294	1957.57	55.7325	
02/26/88	3	1441.5	0.0489	38.9530	1590.19		30.7511
02/29/88	3005	1445.8	0.0362	47.3335	1938.07	18.6783	
02/29/88	3	1444.4	0.0153	38.3858	1570.19		9.7441
03/01/88	3002	1433.4	1.0381	41.0968	1668.28	NA	
03/01/88	4	1410.0	0.0127	42.6138	1701.62		7.4635
03/03/88	3005	1445.4	0.0316	45.5979	1866.49	16.9302	
03/03/88	3	1446.4	0.0146	36.9680	1514.28		9.6415
03/04/88	3002	1019.5	0.0203	40.9152	1181.31	17.1843	
03/04/88	4	1020.0	0.0109	42.0147	1213.65		8.9811
03/06/88	3005	1451.1	0.0597	46.8376	1924.80	31.0162	
03/06/88	3	1444.4	0.0308	38.2440	1564.39		19.6882
03/07/88	3002	1421.7	0.0368	40.4173	1627.30	22.6141	
03/07/88	4	1398.0	0.0203	41.8649	1657.49		12.2474
03/09/88	3005	1445.6	0.0602	40.6390	1663.74	36.1836	
03/09/88	3	1445.9	0.0319	38.9530	1595.04		19.9995
03/10/88	3002	1418.4	0.1235	40.6891	1634.44	75.5609	
03/10/88	4	1392.0	0.0566	43.0631	1697.61		33.3410
03/12/88	3005	1446.4	0.0341	45.1020	1847.47	18.4577	
03/12/88	3	1448.4	0.0134	37.5351	1539.64		8.7033
03/13/88	3002	1419.8	0.0675	38.7865	1559.56	43.2815	
03/13/88	4	1405.0	0.0314	42.4640	1689.63		18.5840
03/15/88	3005	1445.6	0.0772	51.0527	2090.07	36.9366	
03/15/88	3	1447.8	0.0349	38.6694	1585.51		22.0118
03/16/88	3002	1421.5	0.0837	41.5044	1670.84	50.0946	
03/16/88	4	1170.0	0.0403	42.4640	1407.02		28.6421
03/18/88	3005	1445.9	0.1189	49.3171	2019.43	58.8532	
03/18/88	3	1447.2	0.0469	38.3858	1573.23		29.8112
03/19/88	3002	1421.4	0.1596	41.5044	1670.72	95.5276	
03/19/88	4	1405.0	0.0752	42.4640	1689.63		44.5069
03/21/88	3005	1449.6	0.1091	46.3417	1902.45	57.3470	
03/21/88	3	1444.8	0.0515	37.6769	1541.62		33.4065

TSP and PM-10 sampling data collected at the Mobile monitoring site.

Run Date	Samplr ID #	Run Time (min)	Net Filter Wgt(g)	Qstd (cfm)	Total Vol. (m3)	TSP Conc. (ug/m3)	PM-10 Conc. (ug/m3)
03/22/88	3002	1423.0	0.0766	39.8737	1606.88	47.6699	
03/22/88	4	1386.0	0.0445	41.5654	1631.51		27.2754
03/24/88	3005	1443.7	0.1126	45.8458	1874.43	60.0715	
03/24/88	3	1442.5	0.0564	37.8167	1544.95		36.5059
03/25/88	3002	848.0	0.0634	39.8280	956.48	66.2844	
03/25/88	4	848.0	0.0308	41.6157	763.71		40.3297
03/27/88	3005	1449.1	0.0909	46.0938	1891.62	48.0540	
03/27/88	3	1449.2	0.0379	38.1023	1563.77		24.2363
03/28/88	3002	1418.4	0.2134	40.9609	1645.36	129.6980	
03/28/88	4	1392.0	0.0987	42.7635	1685.80		58.5479
03/30/88	3005	1446.5	0.0754	33.6985	1380.37	54.6229	
03/30/88	3	1447.2	0.0631	38.3858	1573.23		40.1035
03/31/88	3002	1419.0	0.0599	41.9121	1684.28	35.5641	
03/31/88	4	1405.0	0.0282	42.9133	1707.50		16.5153
04/02/88	3005	877.2	0.0532	45.5979	1132.76	46.9651	
04/02/88	3	886.1	0.0290	37.2005	933.52		31.0651
04/05/88	3005	563.9	0.0370	44.6061	712.34	51.9412	
04/05/88	3	557.1	0.0206	37.1097	585.48		35.1846
04/08/88	3005	1423.5	0.0845	47.0856	1898.19	44.5162	
04/08/88	3	1406.0	0.0360	38.8112	1545.38		23.2952
04/09/88	3002	1415.7	0.1146	45.5813	1827.47	62.7095	
04/09/88	4	NA	0.0665	42.0147	NA		NA
04/11/88	3005	1414.1	0.1227	44.3582	1776.43	69.0713	
04/11/88	3	1407.3	0.0800	38.8112	1546.61		51.7193
04/14/88	3005	1429.0	0.0591	44.6061	1805.18	32.7392	
04/14/88	3	1444.3	0.0340	38.5276	1575.68		21.5753
04/15/88	3002	1424.6	0.0437	41.3685	1669.00	26.1833	
04/15/88	4	1386.0	0.0207	41.8649	1643.26		12.5969
04/18/88	3005	1427.7	0.0377	45.8458	1853.66	20.3381	
04/18/88	3	1443.2	0.0212	37.3933	1528.32		13.8715
04/20/88	3005	1428.0	0.0317	45.3500	1834.00	17.2847	
04/20/88	3	1444.3	0.0200	39.0948	1599.08		12.5072
04/21/88	3002	1420.1	0.0121	24.9251	1002.42	12.0708	
04/21/88	4	1374.0	0.0087	40.2175	1564.93		5.5594
04/23/88	3005	1429.9	0.0285	50.3089	2037.25	13.9895	
04/23/88	3	1445.0	0.0155	39.6619	1623.06		9.5499
04/24/88	3002	1419.7	0.0244	24.1098	969.36	25.1714	
04/24/88	4	1380.0	0.0235	39.9180	1560.06		15.0635
04/26/88	3005	1427.3	0.0576	51.3006	2073.63	27.7774	
04/26/88	3	1445.2	0.0407	39.5201	1617.48		25.1626
04/27/88	3002	1420.1	0.0313	20.5765	827.53	37.8234	
04/27/88	4	1385.0	0.0360	40.2175	1577.46		24.0894
04/29/88	3005	1425.2	0.0702	51.0527	2060.57	34.0682	
04/29/88	3	1447.5	0.0460	39.6619	1625.87		28.2926
04/30/88	3002	1422.0	0.0986	39.3301	1583.86	62.2528	
04/30/88	4	1380.0	0.0365	39.7682	1554.20		23.4847

TSP and PM-10 sampling data collected at the Mobile monitoring site.

Run Date	Samplr ID #	Run Time (min)	Net Filter Wgt(g)	Qstd (cfm)	Total Vol. (m3)	TSP Conc. (ug/m3)	PM-10 Conc. (ug/m3)
05/02/88	3005	1430.3	0.0531	48.8212	1977.56	26.8513	
05/02/88	3	1441.6	0.0346	38.6694	1578.72		21.9165
05/03/88	3002	1426.0	0.0570	24.6534	995.61	57.2514	
05/03/86	4	1385.0	0.0486	40.5170	1589.21		30.5813

LETTER 665

Sierra Club

Comments on the Draft Environmental Impact Statement (DEIS) for the Superconducting Super Collider (SSC) Maricopa site. Presented to the Department of Energy (DOE) at the Arizona State University on 3 October 1988 by Chris Trask on behalf of the Palo Verde Group, Grand Canyon Chapter, Sierra Club.

Introduction:

1 Ladies and gentlemen: On the behalf of the Palo Verde Group of the Sierra Club, I wish to express our appreciation in having the opportunity to participate in the Department of Energy's review of the Draft Environmental Impact Statement (DEIS) for the Superconducting Super Collider. We have reviewed the DEIS in it's entirety, with respect to the Maricopa site, and we have prepared the following comments for your consideration. We will cover four of the five issues that were commented on previously at the scoping hearing of 9 February 1988, as well as one additional. These issues are: Water, wildlife, vegetation, surface management, and archaeological. We shall address each of these issues in turn. We would like to make it clear that the Sierra Club has not yet taken a final position on this proposed project. We are eager to see additional information regarding the environmental concerns that we will mention herein.

Water issues:

2 We notice immediately that the allocation of Central Arizona Project (CAP) water has been dropped from consideration, and it is now proposed that SSC water requirements be derived entirely from the North Vekol Valley (5.2.3). Although the DEIS states that the use of this water represents the major impact to natural resources at the Maricopa site (5.6.4.1), very little in the line of estimates for the impact to the depth-to water, presently estimated at over 350 feet (4.2.2.1), are presented. The continued operation of range improvements, such as stock tanks serviced by windmill-driven pumps, would be affected should the water table be lowered by any appreciable amount. This is an impact to the local economic community that does not appear to have been taken into consideration.

3 The amount of water to be used by SSC, estimated to be from 1,350 gal/minute (5.1.2.4) over the life of the project to 2,450 gal/minute (Table 3-8) during the operations phase is of some concern. Although the DEIS uses the former figure in comparison with the estimated annual recharge rate of 1,200 acre/ft/yr to 2,200 acre/ft/yr (5.1.2.4), it mentions only briefly (5.2.3) the fact that the withdrawal rate during the operational phase is nearly double that of the lifetime rate. The possibility of an overdraft of the aquifer (3.7.3) is well advised. Such an ac-

celerated discharge rate will certainly result in a significant, although localized, lowering of the water table. The effects of such a rate of withdrawal will certainly include a degree of subsidence (5.1.2), and should be taken into account during the design phase of the water collection system.

4 We highly encourage the recycling of water for non-potable uses as a means of reducing the demand on the aquifer (5.6.2.2). The reuse of cooler blowdown, brine concentrators, and sewage treatment are all in good order, but it is very discouraging to find that the DESI only casually mentions these conservation measures. We fully expect to see a more detailed disclosure of the practices to be used when and if a final EIS is published.

In addressing the issue of water quality, we are greatly concerned that the following statement would even exist:

> "At the Arizona site, lack of surface water and the great depth to the water table would effectively prevent transport of contaminants into the groundwater (page 5.1.2-26)."

5 Recent history has proven that even in an arid climate such as ours, such a statement can only be considered as being highly questionable. We only need to consider the recent discoveries of TCE plumes in the communities of Tucson, Phoenix, and Scottsdale, as well as other industrial and agricultural contaminants in domestic water supplies, to realise that such a guarantee is unrealistic. We most certainly hope that this sort of attitude will not prevail and that the final EIS will contain more suitable strategies for the proper containment and management of such materials that would threaten the quality of a now-pristene natural resource. The burden of proof should be upon the project proponents to demonstrate groundwater protection.

Wildlife issues:

6 We readily note that the forms of impact upon the desert bighorn sheep (*Ovis canadensis*) have been discussed, such as noise (5.1.5.4.A), increase human presence, and encroachment in general (4.7.5.1). It is also mentioned that the sheep population has, in general, been declining in the state over the last decade (4.7.5.1). Although the DEIS makes due mention of the possibilities of mitigating the noise impacts in this area (3.6.3), it later discusses in great detail the lack of importance of this matter (5.1.5.4.A). Given that the DEIS recognizes that the noise and other effects of increased human presence will probably have a negative effect upon the already declining sheep population, we can only express disappointment at the apparent lack of concern in this area. We do, however, recognize that some effort can be made to offset the impacts to this species, as mentioned by way of the placement of water sources and the alteration of fences during the design phase (3.6.3 and 5.1.5.1.B.1).

Inasmuch as protection is not mandated by the Endangered Species Act, the mitigation of negative impacts to this and other species in the vicinity of SSC are certainly of positive benefit to the biological community in the area.

The matter of the desert tortoise (Gopherus agassazii) appears to be to be addressed, being as the Bureau of Land Management (BLM) has developed guidelines for the mitigation of impacts to this species (5.1.5.1.B.1). Since it is stated in the DEIS that the populations are considerably higher in the northern Maricopa Mountains than in the lowlands (4.7.5.1), where the majority of the SSC activity will be located, it appears that the impacts are not as great as those of the desert bighorn sheep. However, we expect that a more thorough study of population densities throughout the SSC site will be conducted prior to the initiation of construction. 7

The Gila Monster (Heloderma suspectum) still requires that more imformation be devolped in order to properly estimate the impact to this species. Physical removal and relocation to equally suitable habitat, such as with the desert tortoise, should be considered as a viable measure. 8

Vegetation issues:

We are pleased to note that the DEIS mentions that the 570 acres not permanently disturbed by the construction of SSC will be restored and revegetated (3.6.3), and that the dry washes disturbed by cut-and-fill construction will be restored to their original topography (5.1.1.1). The use of native plants and the application of nitrogen-enhancing algae (5.1.5.1.B.1) will greatly enhance the recovery of these disturbed areas, as will the stockpiling and restoration of the veneer of topsoil at the spoils disposal site (5.1.10.3.A). We would like to see this latter practice extended to the cut-and-fill areas as well. 9

The DEIS correctly recognizes the need for these measures by having noted the low, stochastic productivity of the desert scrub systems in the three subdrainage basins and heavy reliance of these systems on bacterial nitrogen fixation (4.7.1 and 4.7.2). It is essential to the successful restoration of the impacted plant communities that these factors continue to be taken into account.

We will await the final EIS (should the Maricopa site be selected) to review the mitigation that is yet to be determined with respect to the protection of the nightblooming cereus (Cereus greggii = Peniocereus greggii) (5.1.5.2.A). We expect that this will take the form of collection and subsequent restoration and/or relocation of the effected specimens. In addition, it would be prudent that a more thorough study be made concerning the presence or lack thereof of the Tumamoc globeberry (Tumamoca Macdougalii) (4.7.4.1). 10

Archaeological issues:

11 With a total of seven prehistoric and ten historic sites having been identified within the SSC site (4.10.1.2), it should be required that a thorough evaluation of these and any subsequently discovered sites of historical significance (3.6.2) be made in order that their eligibility for the National Register be established (5.1.9.1.B).

Surface management issues:

We continue to be concerned with the likelihood that the presence of the SSC at the Maricopa site will threaten the integrity of the management of the surface resources with respect to the biological communities, in particular the North Maricopa Mountains, South Maricopa Mountains, and Butterfield Stage Memorial Wilderness Study Areas (WSA's). We note, from Table 3-3, that the only proposed withdrawals will be those areas associated with the near and far clusters. This withdrawal will affect all three WSA's, in particular the South Maricopa Mountains, and then only with respect to the far cluster. All other facilities appear to be accomodated by the use of rights-of-way.

12 Inasmuch as the North Maricopa Mountains WSA represents prime habitat for the desert bighorn sheep (4.7.5.1) as well as being considered by BLM as a long-term desert tortoise study site (5.1.5.1.B.1), it would appear obvious that it would be of little benefit to these species should the consistency of the stewardship of this area be degraded. We would therefore stress the minimization of the extent of these rights-of-way in order that the stewardship of this area remain intact. It is reasonable to assume that this minimization will have little impact on SSC operations,as only three shaft facilities are involved. It is stated in table 3-7 that the conversion of these WSA's will involve 1.2% of these areas. We would appreciate a more detailed description of the areas to be affected. We assume that this 1.2% is included in that portion of the site that is to be converted to light industrial use (3.7.10).

The DEIS pays great attention to the wild and unspoiled characteristics of these WSA's (4.7.1, 4.8.5, and 4.11.2). Although the BLM has recommended that none of these WSA's be nominated for wilderness designation and subsequent protection (4.8.5), it will be Congress that makes the decision as to whether or not these areas will be included in the wilderness designation (5.3.2.1). Although it is difficult to prevent any and all impacts to the WSA's and the surrounding areas, these impacts can be minimized and the characteristics of these areas maintained for both the biotic and recreational communities, and thereby retainiing the suitability of these areas for inclusion in the wilderness system.

Closing comments:

We of the Palo Verde Group of the Sierra Club respectfully submit these comments for the proposed Maricopa site for the Superconducting Super Collider to the Department of Energy for review and consideration. We again appreciate the opportunity to participate in this process, and we feel that continued cooperation between the state of Arizona, the Department of Energy, and concerned citizens will reduce the project's impact to the environment.

LETTER 670

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
BLDG A, 3RD FLOOR, DHOC
2490 WEST 26TH AVENUE
DENVER, COLORADO 80211

September 27, 1988

Dr. Wilmont Hess, Chairman
SSC Site Task Force
ER-651GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545

Dear Dr. Hess:

We would like to comment on the draft EIS for the Superconducting Super Collider (SSC) as to its impacts on prime and important farmland in Colorado.

The Soil Conservation Service in Colorado developed a Farmland Conversion Impact Rating (AD-1006) in response to a Department of Energy request of June 6, 1988.

Based on the maps and information provided for the SSC site in Colorado, we developed the AD-1006 rating on impacts. The SCS used the 7,690 acres to be converted directly as provided on the AD-1006. We did not evaluate the impacts of 830 acres to be converted indirectly as there was no site specific data to identify the specific location of these areas.

The SCS identified the acres and percentage of land on our report of July 15, 1988 as follows:

A.	Total Acres Prime And Unique Farmland	0
B.	Total Acres Statewide And Local Important Farmland	4197.7
C.	Percentage of Farmland In County Or Local Gov't. Unit To Be Converted	0.19%
D.	Percentage of Farmland in Gov't. Jurisdiction With Same or Higher Relative Value	41 %

The draft EIS data for the SSC has does not agree with the data we provided as follows.

Page 3-54 table 3-7 shows 464 acres of prime and important farmland converted. SCS did not identify any prime farmland to be converted.

Page 4-77 table 4-23 shows 2,000 acres of actual prime farmland. We do not agree with this data as there is no conversion of prime farmland.

Table 4-23 shows 4,700 acres of farmlands of statewide importance if they become irrigated. We have determined that this data should be 4,197 acres. Due to severe limitation of obtaining additional water supply and the over appropriation of existing water supply, it seems highly unlikely that this dry cropland will ever become irrigated.

We believe the farmlands of statewide importance should be increased from 3,200 as shown in table 4-23 to the 4,197 acres that SCS determined as being impacted.

On page 5.2-9 the title of the table 5.2-1 combines all of the inventories of prime and unique farmlands with those of statewide importance. Due the significant difference in the importance between these major cstegories of farmlands it would better represent the impacts if these categories were separated.

We appreciate the opportunity to comment on this draft EIS and hope that our recommended changes be incorporated in the data for Colorado.

Lowell E. Moldal, for

SHELDON G. BOONE
State Conservationist

cc: Michael Fair McHugh
Asst. Program Director
Colorado Joint Review Process Program

LETTER 671

Dear Dr. Hess:

I am writing to you in favor of building the new Superconduction Super Collider at the Fermilab site.

As a participant in the excellent Saturday Morning Scholars program at Fermilab which allows high school students to tour the facilities and talk with the experts in high energy Physics, I have learned the importance of this sort of research to the future of our nation. I feel I have benifited from this interaction of Fermilab with local high schools. I would hope that the same opportunity would be available to my children and my children's children.

1

As a student at the University of Illinois, I look forward to the opportunities that await me at a first rate institution such as Fermilab, either through the Co-op program or during my graduate studies.

As a registered voter and resident of Dupage County, I am encouraged by the positive effect that Fermilab has had on the surrounding community. Both the the economic and cultural benifits to the community are too numerous to mention.

Thank you for your time. I know you will agree that Fermilab is the best choice.

Sincerely,

Daniel Bergstrom
1180 Mt. Vernon Ct. Apt. E
Wheaton, IL 60187

LETTER 672

Sept 17, 1988
3N.371 Deer Run Dr.
St. Charles, Il. 60175

Dear Mr. Hess,

This is the BIG picture. Illinois can NOT afford the SSC. Bonds issued on the interest are in direct competition with the Illinois General Fund, of which education is a part of. Our school district recently passed a referendum which increased our property taxes quite substantially. Are we being asked to pay more for education in our property tax bill and now also in Governor Thompson's
1 request for a 40% increase in State Taxes? And what makes this more incredible is the fact that the SSC financing will be monies gone from the General Fund, the same fund that education allocates its money from.

When Governor Thompson asks us for a 40% increase in state taxes, is he getting worried about the mega-bucks he has promised the D.O.E.?

Illinois had better get its priorities in order. There are many better ways for us to be spending our money to serve the needs of the people.

Keep the SSC out of Illinois! Education needs our money, NOT the SSC!

Sincerely,

Mrs. Carol Hadamik

Mrs. Carol Hadamik

Will supercollider be a 'good neighbor?'

Once and for all, let's set the record straight. The people opposed to the SSC are not opposed to Fermilab. We are not even opposed to the SSC project. We are opposed to the siting of the SSC in Illinois, more specifically the highly populated Fox Valley area.

The supporters of the SSC have sent endless, redundant messages to the people of the Fox Valley concerning Fermilab. They have elaborated over what "good neighbors" they've been. They have spoken of their ducks, geese, hawks, herons and hiking paths. They can be applauded for a fine selling job of Fermi.

2 The supporters of the SSC are confused. Twenty years ago was the time to sell Fermilab to the people of the Fox Valley. Today they should be addressing the SSC '... a *completely different* issue.

Fermilab exists on its own 6,800 acres. It is conducting experiments using a 4-mile ring, a size easy to monitor. Not one person permanently lives on Fermi property.

I, too, have been fortunate to have good neighbors. Like Fermi, they too have done a superb landscaping job. They also have helped wildlife to flourish with their bird feeders, seeds, and even an occasional rescue from a window-well of a small helpless creature.

The difference between my good neighbors and Fermi is that my neighbors never told me that they were extending an experimental device under my home from theirs and that they would own the land under my home. My neighbor will never in any way cause an imbalance to our environment's delicate nature. My neighbor would never ask me if he could do something which might jeopardize the supply of water to my well. And he most certainly would never consider asking me to sacrifice my quality of life for his experiment when there was the possibility of his experiment being done in another area where it would affect far fewer people.

The opponents of the SSC are not against scientific research. We applaud and encourage it. I love America, too, and want to see mankind benefited by this type of research. But I will not succumb to the egotistical attitude that it has to be here in Illinois, so that we can be No. 1. If you truly believe in this project and its benefits, why is its location in Illinois so important? The same answers can be found out in another area of our country where fewer people will be disrupted and where our environment will not be as greatly affected.

If you can be truly honest with yourself for a moment, if you lived close to or on the ring, would you want it? You would have to admit ... the SSC does not belong in an area where so many people will be affected.

What have your neighbors asked of you lately? If my friends next door asked of me what Fermi is asking, I would have to say they would no longer be considered "good neighbors."

Carol Hadamik
St. Charles

Door was blocked to us

"good raider bill"

3 I have been actively opposing the siting of the SSC in Illinois for the past eight months and was one of about 150 Kane County residents who went to the Kane County Government Center Aug. 24 to show Gov. Thompson our displeasure with the "good neighbor bill" (a bill that will supposedly protect property values of affected land owners) he was about to sign.

I was outraged to witness the police-state tactics that we were subjected to. We were promised admittance to the meeting at 10 a.m., but when the meeting started, all the doors were locked and guarded by policemen. The *very* people who the bill was adopted for, were denied access to any communication with the officials responsible for the bill. These people may be giving up their homes for the state, couldn't the state give them 15 minutes of its time? It was degrading to be treated like a second-class citizen because I did not sport a pro-SSC button on my lapel.

I have stressed to my children the good fortune to live in a country where we are able to voice our opinion. I have to rethink how I am going to explain to my children what happened Aug. 24. How do I say that Democracy is a facade for our elected officials to hide behind? No matter what your concerns are, they will fall on deaf ears. They have made up their minds.

The state had made claims of wanting to "mitigate our concerns." I did not know this could be accomplished with a barred door between us.

Carol Hadamik
St. Charles

What would you think of a mother who filled her cart with cookies, candy and icecream, when her family was in dire need of milk, fruit, and vegetables!

Illinois, get your priorities in order!

We can NOT afford the $$C

LETTER 681

September 10, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
Washington, D. C., 20545

ATTN: SSC Draft EIS

Gentlemen:

1 As farmers in mid-northern Adams County. A county only 18 miles wide. We are opposed to the building of the Supper Collider in our area. With the area that Denver ie annexing for the new airport on the west (44 sq. miles) and the Collider in eastern Adams Co., plus a four lane highway, proposed by our Governor, thru the county will put a burden on what agriculture is left.

2 There are existing roads that could be used, Colorado 52 is only 7½ miles north of the proposed road, and runs almost direct to the Collider site. Also U.S. Highway 36 on the south could have an access road to the site.

3 Water for the Collider will take water from the sand hills area, that is now providing domestic water and water for agriculture.

4 We feel the Collider should be placed where it will not conflict with agriculture, and where roads could be built that would not be cutting up one small county.

5 If possible we would like to read this statement at the meeting in Ft. Morgan on the 29th. of September.

Sincerely,

Ray M. Schmidt

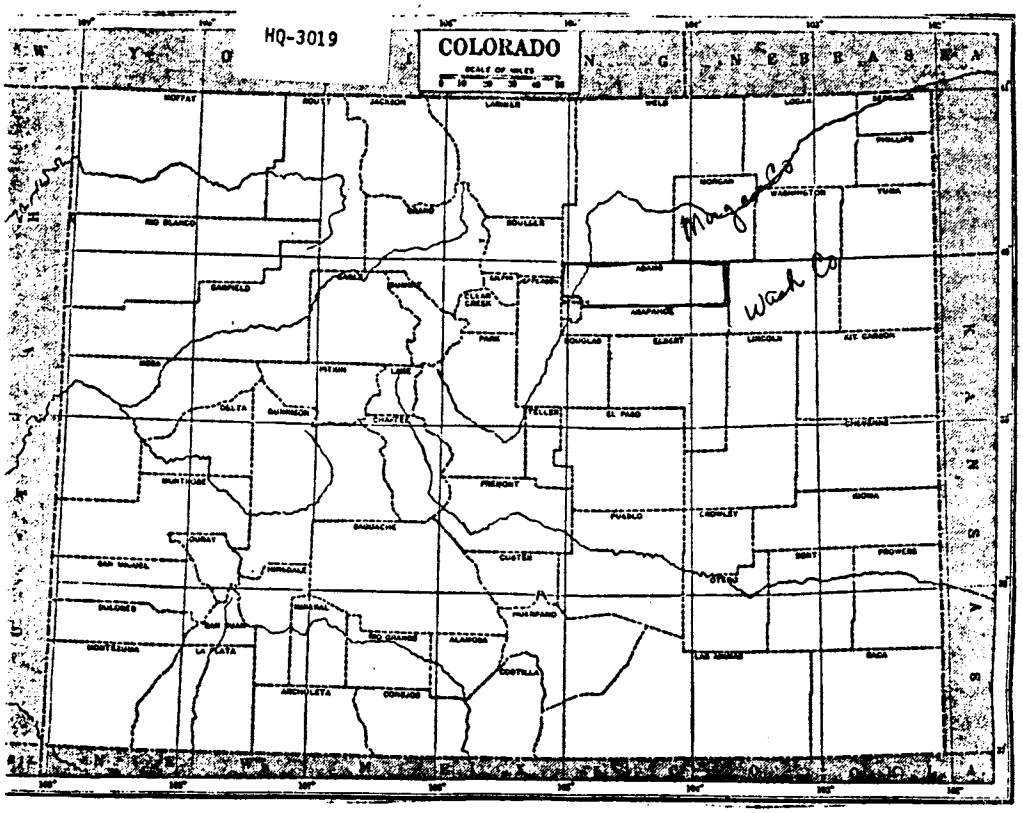
Ray M. Schmidt

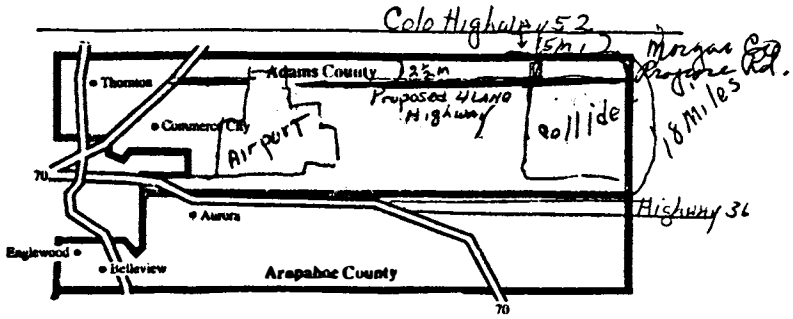
Barbara Schmidt

Barbara Schmidt

IIA.1- 1160

LETTER 681 (CONTINUED)





New Road would only be 7½ miles from Co. Highway 52

LETTER 683

UNIVERSITY OF DENVER
An Independent University
University Park, Denver, Colorado 80208

Department of Sociology

October 6, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545

Dear Dr. Hess:

Enclosed please find a copy of the Testimony I delivered at the DEIS Hearings on behalf of the State of Colorado and a copy of the scoping study (Social Impact Analysis: Colorado Siting of the SSC) of the Social Impact Task Group of the Colorado SSC Project.

Thank you.

Sincerely,

Dora G. Lodwick, Ph.D.
Assistant Professor

Enclosure

DGL/ars

THE UNIVERSITY OF DENVER IS AN AFFIRMATIVE ACTION INSTITUTION

TESTIMONY PRESENTED TO THE DOE

ON THE DRAFT OF THE ENVIRONMENTAL IMPACT STATEMENT

ON BEHALF OF THE STATE OF COLORADO

FORT MORGAN, SEPTEMBER 29, 1988

BY

DORA G. LODWICK, Ph.D.

INTRODUCTION

I am Dr. Dora G. Lodwick, Assistant Professor of Sociology from the University of Denver - a private university. My mailing address is: Department of Sociology, University of Denver, Denver, Colorado 80208-0209. I have been associated with the Socioenvironmental Task Force of the SSC Project Office since 1984 and was part of the Board of Scientists which reviewed the State's proposal before it was submitted to the Department of Energy on September 2, 1987.

Purpose:

I have chosen to testify before you today, because of some inadequacies which I found in your summary of Colorado's proposal particularly in the area of

1.) community values/attitudes as reflected in section 5.2.10.2 Local Setting (DEIS Volume IV, Appendix 5)

and

2.) in your assessments of the "boomtown effects" as presented in sections 14.1.2.1 (Conceptual Basis, #5 Quality of Life/Social Well-Being DEIS Volume IV, Appendix 14) and in Section 14.1.3.2 (Colorado, E.QUALITY OF LIFE/SOCIAL WELL BEING) especially #2 and #4.

1.) FIRST - COMMUNITY VALUES/ATTITUDES:

This topic was highlighted by the members of the Super Collider Site Evaluation Committee of the National Academy of Sciences and the National Academy of Engineering. They questioned the validity and reliability of letters and newspaper reports received as documentation of local and regional cooperation. Therefore, they agreed not to use that information in their deliberations and concluded:

> The committee strongly believes, however, that community acceptability, support, and cooperation will be important factors that must be considered carefully by DOE as it examines the best-qualified sites in the next stage of site selection process. (NAS/NAE, 1988:23)

However, the DEIS uses a mix of evaluation criteria. For example, for Colorado in section 5.2.10.2. (Local Setting) it states

> Community values and attitudes toward the SSC project are generally positive, as evidenced by the relative dearth of letters received from the public as part of the DOE public scoping process. (n=22 letters).

Colorado had, however, presented more valid documentation in Volume 4, (REGIONAL RESOURCES) section 4.9.1 (Existing and Potential Community Support) (State of Colorado, 1987) reporting a scoping study of 93 community leaders, in 1985, representing the principal opinion sectors of the community. The sample included (52%) business and political leaders; (24%) social service sector, including education; (10%) ranchers/farmers,

and (15%) others, primarily the elderly. (Center for Community Change Studies, 1985.) These opinion sectors are the major ones reflecting different types of reactions to large projects (Freudenberg, 1986; Leistritz et al, 1983). Seventy-seven percent of those were "strongly in favor" of building the SSC in the Region. Positive, neutral, and negative concerns were also explored (State of Colorado, 1987).

The Colorado proposal also reports a statewide telephone survey conducted in 1987 of 306 randomly selected registered voters. The findings indicated that 74% of those who had read or heard about the SSC favored building it in eastern Colorado.

Neither of these studies were reflected in 5.2.10.1 Local Setting. (DEIS, Volume IV, Appendix 5.)

Yet the DEIS reports surveys supportive of the SSC in the States of Illinois (Center for Governmental Studies, 1987), Texas (Ellis County Environmental Review Committee, 1988) and of Michigan (Steffin et al, 1988). I propose that you also report the two surveys which were conducted in Colorado and show support for the SSC.

Additional Evidence:

Additional evidence of community support is totally ignored in the DEIS representation of the Colorado proposal. The people in the communities of the Region of Influence as well as throughout the State, not only express POSITIVE ATTITUDES towards the project, but also have been voluntarily

225-775 0 - 88 (Book 4) - 6

involved in developing the planning for the project since 1985. This is documented in Colorado SSC Site Proposal Update (July 12, 1988) section 4.9.1.

Colorado has creatively involved community and statewide members in small groups for feedback and discussion as well as in larger massive-scale involvements and information programs. These are suggested as the best processes of citizen involvement (Pease and Smardon, 1984; Freudenberg, 1983; Priscolli, 1983).

The details of the process have been presented to you. I would simply note that the involvement started early - almost as soon as the State began to get actively involved in the planning. This has been a key factor in the tremendous support which the citizens of Colorado have given to this project (Hall, 1986). They have had time to examine its implications, to have their concerns addressed, and then to participate in bringing it to their communities. Their continued involvement will be formalized through the monitoring and mitigation strategies outlined in Colorado's SSC Site Proposal (1987) section 4.10.

2.) SECOND - BOOMTOWN EFFECTS

The classic research on the "boomtown effects" or the impacts of rapid growth on the quality of life of people in growing communities is referenced in 14.1.2.1. (Quality of Life/Social Well Being DEIS, Volume IV, Appendix 14). Some more recent work is reflected in Elkind-Savatasky (1986). I particularly call your attention to Freudenberg (1986) who

suggests that early predictions of doomsday or of economic well being were both too extreme but that we need to guard against assuming undifferentiated impacts on all people in all communities. (See also Napier et al, 1983.) It is critical to assess the past experience of particular communities and social groups with social change. We have done that in our research (Center for Community Change Studies, 1985).

The communities of Brush and Fort Morgan have both experienced rapid growth with the Pawnee Power Plant (Canan et al, 1985). Furthermore, they are supported by a state which is experienced with the "boom-bust" cycles of a mineral-based economy. Colorado has historically been identified as a state with innovative ways of meeting this challenge - particularly with the Western Slope Energy development efforts (Halstead et al, 1984).

The State knows how to handle rapid growth. It has institutionalized a realistic process which deals not only with the fiscal and infrastructural supports for rapid growth, but also with the social and cultural aspects through its Community Liaison Center. It has involved the people in a cooperative effort to develop flexible and realistic support systems to meet, both expected and unexpected, social changes.

Thank you.

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LETTER 697

Coalition for Alternatives to Shearon Harris

P.O. Box 2781, Chapel Hill NC 27515

SUPERCOLLIDER SUBSIDY MEANS NORTH CAROLINIANS LOSE;
Biased "Impact Statement" Ignores risk of getting collider half-built,
benefits of not building it; "EIS" full of errors
October 3, 1988: more info: Wells Eddleman 967-6912

The proposed super-collider will consume about $100 million worth of electricity each year if supplied by the Shearon Harris nuclear plant.

1 CP&L plans to charge the collider only about half that for electricity. The result -- citizens will pay about $50 million a year as an electric bill subsidy to the collider -- more if the nuclear plant repairs are costly. This adds up to over $ 1 billion if the collider runs for 25 years as planned.

If supplied from Duke Power plants, the collider's electric subsidy would still be about $30 million each year. That is $750 million over 25 years -- more money than the state claims it will get back from the

2 $600 million or so in taxpayer subsidies that Gov. Martin has promised in order to try to get the collider here. The electric rate subsidies to the collider are so large that the average North Carolina citizen will lose money on the collider even if the State's "benefit" claims were true.

The Dept of Energy's "Environmental Impact Statement" ignores

3 the economic and environmental costs of powering the collider, including about 150 tons of high level nuclear waste in 25 years if it is powered by nuclear plants.

It also ignores the risk that homes, land and resources will be taken for the collider, but then the government runs out of money to

4 build it. This would create costs without any benefits. It is fairly likely, since the collider is estimated to cost $9 billion to build, the federal budget deficit is high, and it will cost over $100 billion to clean up the mess at the Dept of Energy's nuclear bomb making plants.

MORE -- see back

If the DoE runs out of money, local homeowners, landowners, and the State will be "stuck" with losses. A recent report to Rep. Tom Bevill of the US House Appropriations Committee states that Dept of Energy projects cost about 5 times their original estimated cost to complete or abandon. Cost overruns mean it is even more likely the collider will be scrapped.

DoE ignores many benefits of not building the collider, including saving land, homes, communities, natural resources, and the $9 billion construction cost estimated by the U.S. House Appropriations subcommittee staff. Other savings include operating costs, one billion gallons a year of water (which the collider would evaporate or pollute), etc.

5

DoE's "impact statement" is full of errors and omissions which indicate bias and a determination to build the collider in spite of costs and public opposition. Errors include claiming there are no nuclear plants within 50 miles of the collider campus; omitting the Roxboro coal-fired plant from plants in the area; apparently omitting most of the costs and environmental impacts of supplying the collider with power and water which it will guzzle. Omissions appear to include many infrastructure costs to affected counties; finding a new landfill for collider wastes (existing ones nearby will be closed or closing when the collider is scheduled to start up); effects of spills of liquid helium or liquid nitrogen; and the problem of radioactive wastes from the collider going into sewers (including those that feed Raleigh's water supply), landfills or the air under the Nuclear Regulatory Commission's new "Below Regulatory Concern" policy, which will allow radioactive wastes to be released in many cases where they are now required to be contained.

6

7

8

9

END

LETTER 697 (CONTINUED)

United States General Accounting Office

GAO

Briefing Report to the Chairman, Committee on Governmental Affairs, United States Senate

July 1988

NUCLEAR HEALTH AND SAFETY

Dealing With Problems in the Nuclear Defense Complex Expected to Cost Over $100 Billion

GAO/RCED-88-197BR

IIA.1- 1172

LETTER 698

State of North Carolina

Superconducting Super Collider (SSC) Project

Dr. William L. Dunn, Project Director
Dr. Susan Dakin, Project Deputy Director

Information on the Superconducting Super Collider
or on any aspect of North Carolina's Site Proposal
can be obtained from the N.C. SSC Project Office:

please call 733-0194 or 733-2948

or write c/o the N.C. Board of Science and Technology,
116 W. Jones St., Raleigh, NC 27611

Summary of the Proposed North Carolina SSC Site

1 North Carolina has offered a site to the U.S. Department of Energy on which to build and operate the world's largest particle accelerator, the Superconducting Super Collider (SSC). North Carolina's proposed SSC site is geologically ideal for tunneling, well supplied with electricity and water, environmentally favorable, and almost completely rural; yet it is within 30 miles of rapidly growing sunbelt cities, an international airport, three major research universities, and the nation's largest planned research and development park.

2 North Carolina's proposed SSC site occupies a strategic position within the state and is at the heart of the East Coast. The site is north of Raleigh and Durham, and lies between Oxford on the east and Roxboro on the west (see map). The proposed campus area is 24 miles from Raleigh-Durham Airport, a rapidly expanding American Airlines hub that will offer nonstop service to Europe later this year and will average 400 daily departures by 1989. The site is easily accessible by Interstates 85 and 40 and an excellent state-run road system. North Carolina has offered an incentive package of highway improvements that would further enhance site access.

3 North Carolina's proposed site is 95% rural, but is within easy commuting distance of the Triangle area of Raleigh, Durham, Chapel Hill, and Research Triangle Park. Home of Duke University, the University of North Carolina at Chapel Hill, North Carolina State University, and state government, this rapidly growing area is a center not only for high technology and scientific research, but also for state-of-the-art medical care and for cultural activity. The Triangle area has gained a national reputation the high quality of life it offers.

4 The proposed site lies on gently rolling, largely forested terrain. Under the relatively shallow soil is unweathered metamorphosed volcanic bedrock that is ideal for tunneling and construction of the large underground chambers required for the SSC. The rock is nonporous, uniform for the purposes of tunnel boring, and strong enough for an almost entirely self-supporting tunnel, though not too hard for good tunneling advance rates. The proposed average shaft depth is about 175 feet. Thus, the tunnel would be below the local water table, and should not affect wells in the area, except for those few that are adjacent to the proposed tunnel location and would have to be relocated. The site is in a region of low seismicity, and there is no evidence for movement along faults within 50 miles of the site in over 150 million years.

5 Construction and operation of the SSC at the proposed site would have relatively slight effects on present activities and land uses in the area. In this predominantly rural area, background noise levels are low, noise generated by SSC construction has little potential to disturb sensitive receptors, and there are no sources of vibration that could interfere with SSC operation. About 106 relocations would be required. The State is undertaking a program to meet individually with citizens and businesses who could be displaced by the SSC. The Governor has provided his assurance that affected property owners would be adequately compensated for the loss of their land, including existing improvements. The North Carolina General Assembly unanimously passed legislation giving the State authority to provide the land for the SSC project.

6 Part of a popular region for hunting and fishing, the area of the site is botanically diverse and rich in game and nongame fish and wildlife. However, no federally threatened or endangered species are known to occur on or near the proposed site, and there are no wildlife refuges or sanctuaries in the vicinity. Although habitats for 23 plant and animal species rare in the state are scattered across the area, the SSC facilities could readily be positioned to avoid or minimize disruption to significant biological areas and to hunting and fishing areas, especially because the accelerator ring would be constructed by tunneling, rather than cut-and-cover, methods. No significant archaeological or paleontological sites would be affected, no sacred Native American sites are

known or expected to occur in the area, and only one significant historic structure lies on land proposed for SSC surface uses.

The proposed site's location in a headwaters area of the North Carolina Piedmont ensures an abundant supply of good-quality water, with relatively small wetland and floodplain areas. Again, construction by tunneling, along with appropriate mitigation of the effects of surface construction, would minimize the project's effects on the site's water resources. Cooling water would be supplied by Mayo Reservoir and Lake Butner, and the required 250 gallons per minute of drinking water would also come from Lake Butner. The site also is well served with electrical power. Either of two major utility companies (CP&L and Duke) could easily serve the SSC out of existing reserves. The two companies have pledged to cooperate with each other to provide efficient service to the SSC, thereby reducing the potential future impact of its 120 megawatt electrical demand on the rest of the region. 7

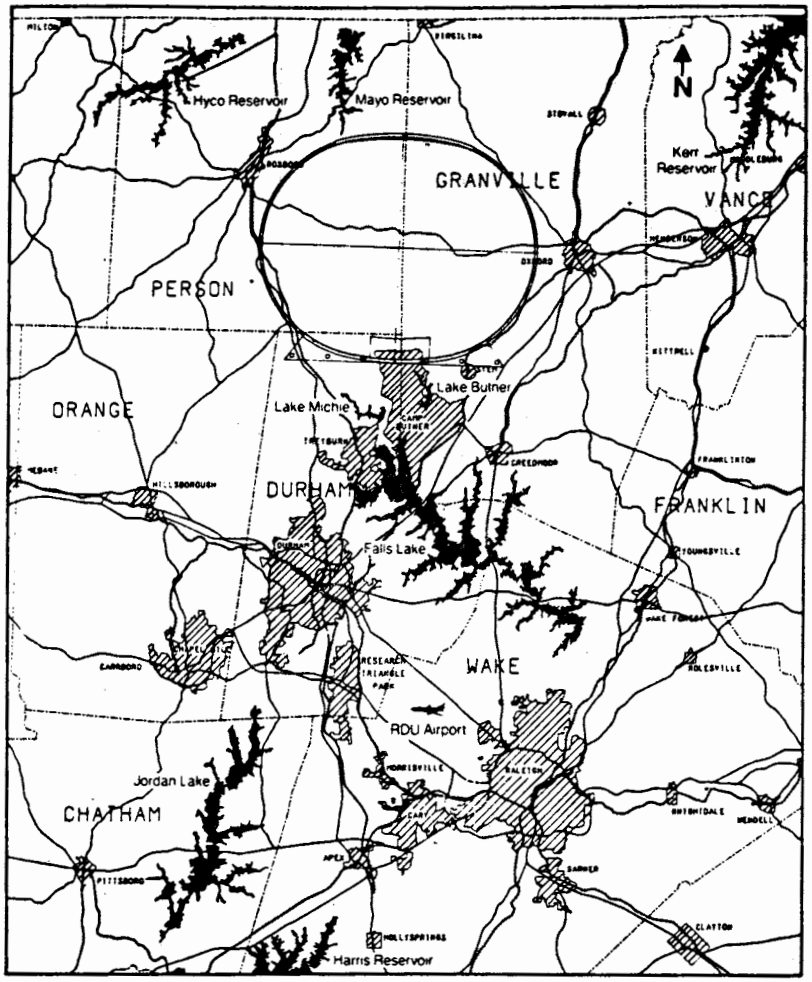
North Carolina's Triangle area provides an ideal environment for construction and operation of the SSC. Nearly 1.8 million people live within a 50-mile radius of the proposed site, and the 17 North Carolina counties within this radius offer a pool of nearly 50,000 construction workers. The 6,300-acre Research Triangle Park was founded in 1959 to take advantage of the research capabilities of the nearby universities and of the skilled training offered by the area's technical institutes. Conveniently situated along I-40 between Raleigh and Durham, the Park employs over 23,000. A major purpose of the Park is to engage the area's government, education, and business resources in cooperative ventures, such as Research Triangle Institute and the Microelectronics Center of North Carolina. The Triangle area has generated a large pool of skilled technicians to support Research Triangle Park firms and other high-technology businesses and university laboratories in the Triangle area. North Carolina's strong Community College System would be called on to provide specialized training to meet the SSC's needs for technical support personnel. The State has agreed to provide $10 million per year for higher education support of the SSC. The three major research universities in the Triangle would expand their faculties and programs in physics and other SSC-related disciplines, in order to enhance opportunities for collaboration with SSC staff and visiting scientists and to help stimulate the area's emergence as a center of high-energy physics research. 8

As an internationally known center for health-related research, the Triangle area provides outstanding medical facilities and services. Medicine is Durham's leading industry: more than 25% of the city's workforce is engaged in health-related occupations, and more than $400 million is invested annually in medical research in the city and county. The proximity of this medical research community to the proposed SSC site provides exciting possibilities for the continued technology transfer between high-energy physics and medicine, which in the past has involved developments in proton therapy and magnetic resonance imaging.

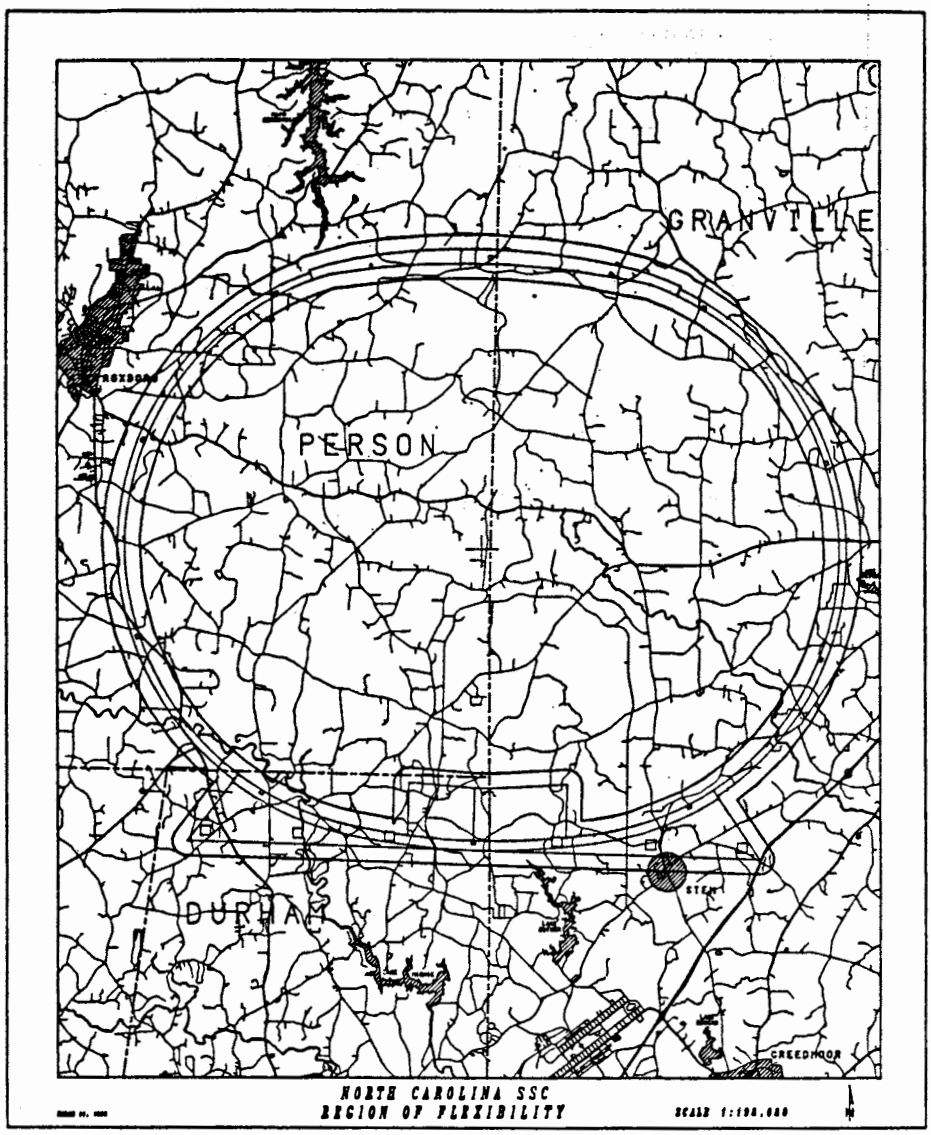
Contributing immeasurably to quality of life in the Triangle area are its thriving cultural institutions and diverse recreational opportunities. The area is home to the N.C. Symphony, the N.C. Museum of Art, the American Dance Festival, and the N.C. Museum of Life and Science. Nationally known performers appear regularly in the area's many concert and theater series, and opportunities are plentiful for participation in the arts. The area offers state parks, large recreational lakes, hunting and fishing, a popular minor-league baseball team, and the high-quality athletic competitions of three Atlantic Coast Conference teams. A tribute to regional interest in and support of athletics was the record attendance achieved when the Triangle area hosted the 1987 National Sports Festival.

North Carolina is proud of its status as an emerging high-technology state, rich in resources, varied in geography and opportunity, and having both a growing economy and a responsible government. It offers a site that is ideal for the SSC. 9

State of North Carolina
2 September 1987

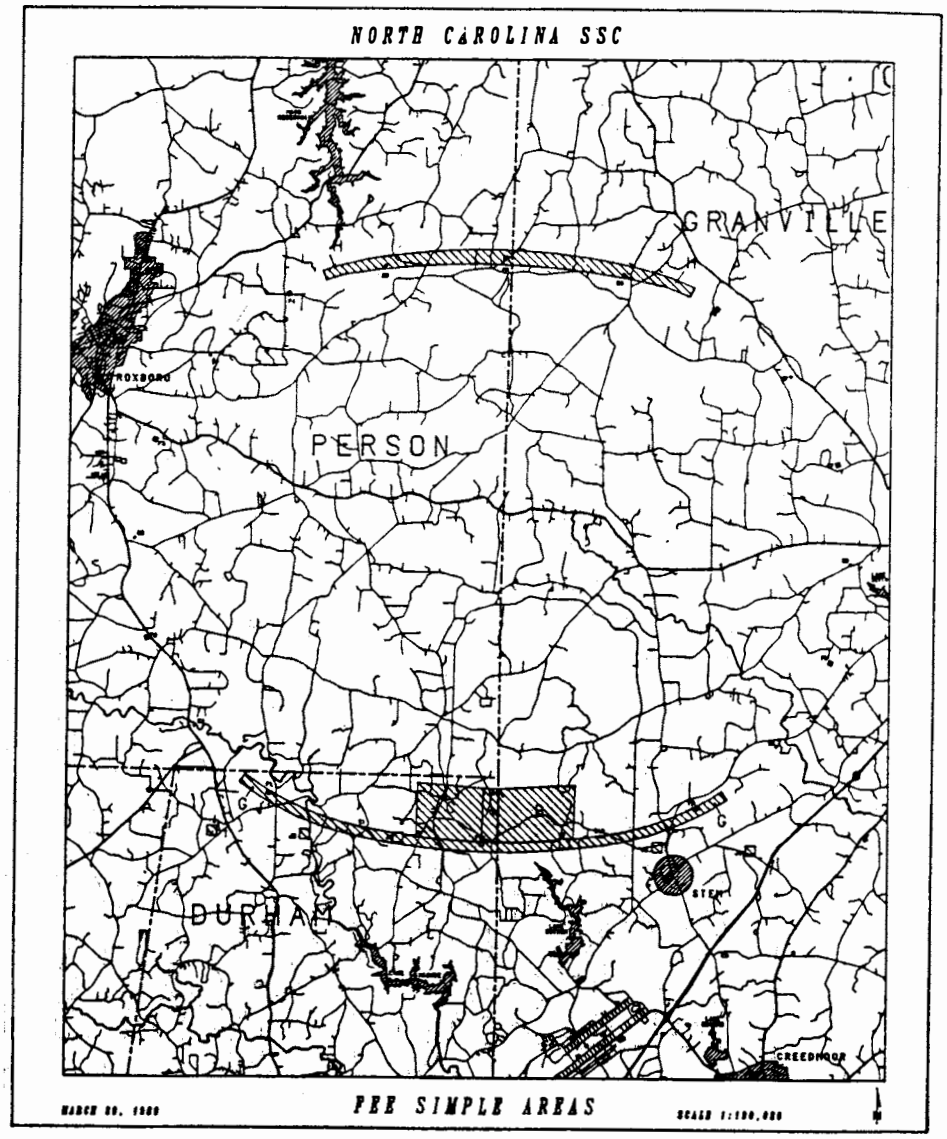


The region of the proposed North Carolina SSC site.



The region of flexibility extends 2,000 feet in any direction from the proposed collider location.

LETTER 698 (CONTINUED)



Land areas proposed to be purchased outright for the SSC:

The Educational Benefits of the Super Collider for North Carolina

A Statement by Representatives of Duke University and The Board of Governors of The University of North Carolina

The possibility of locating the world's largest scientific instrument in North Carolina holds great promise for education at all levels. For research universities the prospects are particularly exciting. The Super Collider would make the Triangle area a world center of high energy physics and ensure a permanent presence of many of the world's best scientists. The Super Collider would help invigorate our faculties through collegial exchanges and would offer the prospect of major scientific discoveries in which they could participate.

The presence of the Super Collider will benefit education in North Carolina in many ways beyond the rarified levels of particle research, however. The proximity to a number of traditionally black colleges and universities creates opportunities for increasing the nation's supply of minority scientists and engineers.

Moreover, the Super Collider will require high levels of skill in many areas other than physics. Computer science, electrical and mechanical engineering, materials science, and other fields will find an important laboratory in the construction and operation of the SSC. The extraordinarily demanding requirements of the experiments to be conducted at the SSC will spur technological advances to complement the scientific efforts.

Not only higher education will benefit from the SSC. As institutions actively engaged in the training of teachers and vitally concerned with the quality of education in our public schools, we believe that the SSC will provide powerful inspiration to young people who have an interest in science. Field trips to the SSC, workshops for teachers, students, and education faculty, and the presence in the community of so many first-rate scientific minds will all have an uplifting effect on the level of science education in our schools and colleges.

The SSC could also provide important opportunities for medical research, especially in the fields of cancer therapy and diagnosis. Currently, the closest proton therapy facility is in Boston; with the SSC, our medical centers could have significant opportunities for both therapy and research. Advances in superconducting magnet technology necessitated by the SSC could well have positive spin-offs for magnetic resonance imaging, for example.

In short, location of the SSC in North Carolina would create significant benefits for education at virtually every level. For the future of our state, region, and institutions, we strongly support North Carolina's bid for the SSC.

At the same time, we are aware of concerns in some parts of the community over the practical effects of locating the facility. First, to those who are concerned over the question of radiation produced by the SSC, we would say a word of reassurance.

Exhaustive analysis of the facility at Fermilab over the years has demonstrated no environmental danger from radiation. The SSC is expected to produce less radiation than Fermilab. The overall increase in natural background radiation expected to be produced by the SSC would be less than that experienced by an individual who moves from the Triangle to Asheville, for example.

A certain amount of low-level radioactive waste will be produced by the facility. We urge the state and federal governments to make every effort to minimize the production of such waste and to plan carefully and thoroughly for its disposal. We offer the services of our specialists in this area for any advice or assistance that may be needed.

As citizens of the community, we have deep concern for those who may be asked to yield part of their land, relocate, or otherwise experience inconvenience due to the siting of the SSC. We urge the state and federal governments to locate the facility in order to keep to an absolute minimum the number of dislocations required. For those whose property must be acquired, we call on the state to make ample and speedy compensation and to ensure that these individuals are cared for with the greatest sensitivity.

In sum, we believe that the future of our state and nation depends upon our ability to continue to create new knowledge and to improve our technological base. As a project of pure research and high technology, the SSC can make important contributions to both areas. In so doing, it can also provide great benefits for education in our state. We join in offering our assistance to the State of North Carolina in its efforts to secure the SSC.

Statement of the Potential Medical Benefits of the Super Collider

As physicians with a special interest in the diagnosis and treatment of cancer, we would like to call attention to the potential benefits of locating the Super Collider in North Carolina. The accelerator at Fermilab has long been used for neutron therapy. If the SSC is designed from the outset with medical applications in mind, the possibilities for significant therapy and research can be much greater.

Other accelerators have also been used for cancer therapy. Our group has had experience referring patients to the Cyclotron at Harvard and the Lawrence Radiation Laboratory at Berkeley in California. To have the world's largest accelerator within about 25 miles of medical centers in Durham, Chapel Hill, and Raleigh would create exciting opportunities for treatment and research.

The SSC will accelerate protons and can be made to produce neutrons by proton bombardment of selected materials. Both protons and neutrons can be highly useful in dealing with particular types of tumors. Protons can be focused very precisely for use on tumors in delicate areas of the body, and neutrons have a much greater killing power than the X-rays that are typically used in radiation therapy. Both proton and neutron therapy have demonstrated good results for specific tumors in selected situations.

The SSC can be a very valuable tool for both therapy and further research. The SSC offers high energy levels and good reliability. Location of the SSC in proximity to the Research Triangle area and its medical centers would put North Carolina in a unique position to lead research in these areas.

In addition, the development of the SSC in North Carolina could have many advantages for the production of radioisotopes with important clinical applications. Some of the isotopes of immediate interest could benefit positron emission tomography; others can be used with monoclonal antibodies for diagnostic imaging and for therapy. The SSC could make a significant impact on the production of medically important isotopes for use in our area and potentially for the United States.

In our estimation, the design costs associated with providing for these medical uses would be minimal if included initially. We are confident that if this facility is established it could be used to treat hundreds of patients every year.

In sum, we see very real benefits to the people of North Carolina and the southeast region through locating the SSC here. Our purposes today are twofold. The first is to inform the public of the important medical uses associated with accelerator technology, which include not only radiation therapy. Superconducting magnet technology has also made possible magnetic resonance imaging, an increasingly important diagnostic tool.

Second, we would like to urge the designers of the SSC to incorporate these concepts at the outset. The cost savings and increases in effectiveness by including medical applications from the first can be considerable. We stand ready to offer our assistance in determining how best to construct the SSC so that its medical uses can be maximized.

Coordinated by Dr. Halperin
Duke University Medical Center

LETTER 699

Route 2, Box 552
Oxford, NC 27565

MY NAME IS JAMES BURNETTE AND I AM A RESIDENT OF GRANVILLE COUNTY. THE DRAFT ENVIRONMENTAL IMPACT STATEMENT IS FILLED WITH NUMEROUS OMISSIONS, FACTUAL ERRORS, AND MISREPRESENTATIONS. I WISH TO ADDRESS THE TOPIC OF HABITAT LOSS.

1 BEING GREATLY INTERESTED IN WILDLIFE ALL MY LIFE, I HAVE BEEN CONCERNED WITH THE STEADY GROWTH THAT CUTS AWAY AT ALL WILDLIFE HABITAT FOR MANY YEARS. HOWEVER, THE PLACEMENT OF THE SSC IN NORTH CAROLINA WILL HAVE A TREMENDOUS IMMEDIATE EFFECT ON THIS AREA'S HABITAT.

2 THE DRAFT EIS TELLS US THAT NORTH CAROLINA WILL HAVE THE SECOND LARGEST NUMBER OF ACRES DISTURBED, 1190 ACRES (TABLE 3-7 PAGE 3-52.) WHEN CONSTRUCTION IS COMPLETE, IT WILL BE WORSE THAN A FOREST FIRE BECAUSE THE ANUMALS CAN NEVER GO BACK TO THESE 1190 ACRES THAT WAS THEIR HOME.

MANY WILDLIFE SPECIES NEED FAIRLY LARGE BODIES OF FOREST FOR THEIR PROTECTION AND WELL BEING. THE SSC WOULD BE AFFECTING SOME OF THESE LARGE BODIES OF WOODLAND.

3 THE DEIS STATES THAT THE ROANOKE BASS IS SENSITIVE TO INCREASED SEDIMENTATION. SO WHAT HAPPENS WHEN CONSTRUCTION BEGINS AND STREAMS ARE DISTURBED?

4 I NOTICED THAT THE VISUAL IMPACT OF THE SPOILS DUMPS WAS OF SOME CONCERN TO THE PLANNERS FOR THE SSC. SO THEY PLANNED BERMS AND TREES SO THAT PEOPLE WOULD NOT BE AS AWARE OF ITS PLACEMENT. BUT, YOU CAN'T CAMOFLAGE 40 ACRES OF SPOILS FROM THE WILDLIFE AND IT PROVIDES NO HABITAT AT ALL.

5 WE ARE TOLD THAT THE SSC WILL BE A MAJOR SOURCE OF GROWTH AND THAT THERE WILL BE 15,000 PEOPLE MOVING INTO OUR AREA TO CONSTRUCT THIS SSC. (P.3-65) EVERYONE HAS TO BE SOMEWHERE AND THESE NEW PEOPLE WILL TAKE UP SPACE. MORE HABITAT LOSS FOR HOUSING OF THESE WORKERS.

MANY OF THE WORKERS WILL PROBABLY BE HUNTERS THEMSELVES, SO NOW WE HAVE LESS HABITAT AND MORE HUNTERS IN THIS AREA OF NORTH CAROLINA.

SO, YOU CAN SEE WHY I FEEL THAT IF THE SSC COMES TO NORTH CAROLINA IT WILL BE A SAD DAY FOR WILDLIFE IN THESE THREE COUNTIES. AND IT IS CLEAR THAT THE NORTH CAROLINA SITE HAS NOT BEEN DEMONSTRATED TO BE AN ENVIRONMENTALLY ADEQUATE HOST SITE FOR THE SUPERCONDUCTING SUPER COLLIDER.

THANK YOU.

LETTER 700

Stephen W Sims
1004 Quarterhouse Rd
Roxboro, N.C. 27573

The draft Environmental Impact Statement is filled with numerous omissions, factual errors. misrepresentations and facts detrimental to North Carolina. I wish to address the topic of SCHOOL CAPACITIES, ...Schools in the Durham, Person and Granville County areas....

Currently in the three county area we are faced with inadequate facilities to handle the number of students we already have enrolled. Take for instance the Durham County school system. Presently there are more than 100 mobile classroom trailers on Durham County school campuses. These trailers amount to a stop-gap measure to provide classroom space quickly at minimal initial cost until adequate permanent facilities become available. In addition, the State of North Carolina has suggested that two of the county's elementary schools be abandoned due to their severe inadequacies. Two more schools in the county system are currently scheduled for replacement.

1

There are new schools which are being built to educate students coming from these old schools but at a very high expense. For example, Howard Easley Elementary School at an estimated cost of 5.1 million dollars. Add this figure to two other elementary schools presently being constructed and the total price tag tops 18 million dollars! An additional 42.5 million will be required to complete remaining projects and to finish new schools. No small change! And this is just to keep up with current demand. How much more can the taxpayers afford?

Well, if we are to believe the projected figures located in Table 3-7, page 3-56 of the EIS Volume IV, Chapter 3, the taxpayers will have to ante-up much more. In this table up to 2,972 more students will be attending schools in the three county area and up to 170 more teacher will be required.

2

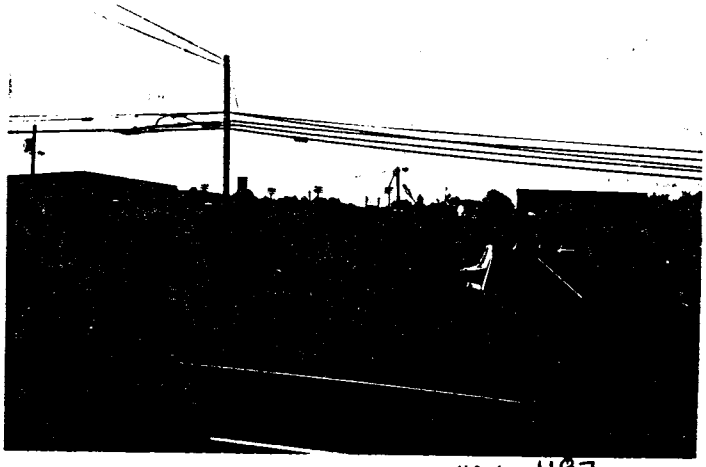
What does this mean in dollars and cents to the three county area, just to provide for the added burden the SSC incurs on an already burdened educational infrastructure? Approximately 7.3 million additional dollars to pay for an estimated 135 extra classrooms, with an additional 3.4 million dollars a year in increased payroll. Add this to the 4.6 million dollars that will be needed to accomodate SSC related growth JUST IN DURHAM COUNTY ALONE and you are talking MONEY!

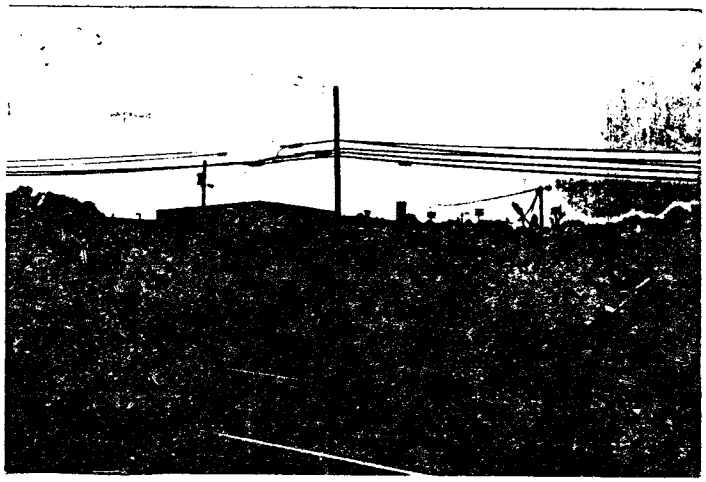
One of the means by which a school system is judged is by the ratios between students and teachers. As an example of excess student population in relation to the total number of teachers being employed in the Durham County School system in 1984-85 the pupil-teacher ratio was 18.3 to 1. Today's latest figures confirm a current ratio of 26 to 1 (K-6) and 24.5 to 1 (7-12). Similarly, in Person County the current pupil-teacher ratio is approximately 25 to 1 and in Granville County it ranges between 20 and 25 to 1. Additional pressures
3 to build new facilities or expand and renovate old ones will be placed on these school systems when the State's "Basic Education Program" is instituted in 1992. Additional funds to the county school systems will be forthcoming at that time but questions remain as to its adequacy.

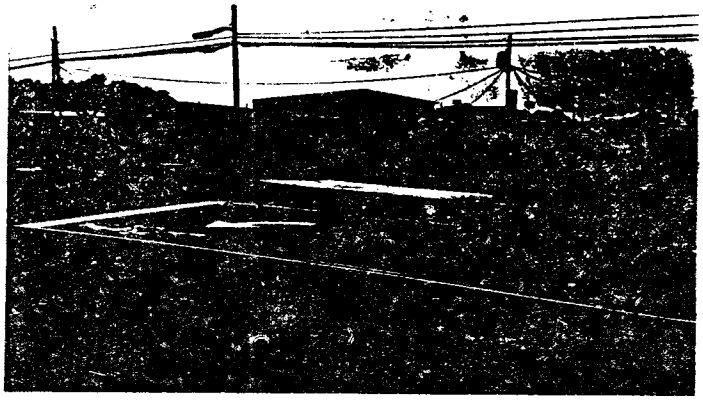
The "Basic Education Program" generally states that the pupil-teacher ratio shall not exceed the following: in grades K through 3 a ratio of 20 to 1; in grades 4 through 6 a ratio of 22 to 1; in grades 7 and 8 a ratio of 21 to 1; and grades 9 through 12 a ratio of 24.5 to 1. It appears at the present time that most of the three county school systems are not in compliance with the requirements of this future program. Therefore, more expenditures would seem to be in order to increase their educational staffs and facilities.

4 It seems likely that additional growth in this area (especially growth which in part removes a significant amount of tax revenues from the tax rolls, such as the proposed SSC) will come at the expense of the local area taxpayers, but perhaps most importantly, at the expense of the area's students. Due to the long lead time necessary in the planning and construction of new school facilities the quality of education may very well drop until new facilities are in place. This could only add to an already suspect educational pool from which to draw likely candidates for SSC jobs.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Super Collider.







LETTER 701

#35

Debbie Suggs
13314 Quarterhorse Run
Rougemont, NC 27572
471-1620

CATCH EIS Response

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the nonresponsiveness of the EIS to several concerns raised by the general public.

A search through Volume 1 of the draft EIS would lead one to believe that public concerns about the environmental effects of the Super Collider were entirely ignored. It takes a lot of reading to locate a response to any particular concern. Much information is buried in the ~~the~~ appendices and information about one topic may be found in as many as five different volumes. In addition, the information is not always consistent from volume to volume.

The concerns raised by Citizens Against the Collider Here relating to public opposition were ignored entirely in the draft EIS even though the Invitation for Site Proposals states "It is important to determine at an early stage what community support exists and how strong any opposition might be to siting the SSC in a region." Among the ignored concerns were late and non-existent notification of affected property owners by the State of North Carolina, lack of accessibility of the North Carolina site proposal, lack of public meetings concerning the SSC, diversion of state emergency funds for SSC proposal development, alarmingly low estimates of property values, organized groups opposing the SSC in North Carolina, lack of adequate mapping by the state, the uncertainty of Federal SSC construction funding, and the large number of people signing petitions opposing the North Carolina SSC site. The only response to public opposition was a sentence that stated that 364 letters opposing the North Carolina site were received by the DOE before June of this year.

1

Socioeconomic concerns raised by CATCH included the impact of placement of the beam abort in the two most populous areas in the region. This concern was

ignored in the draft EIS although it may result in a substantial impact on area housing, since the new housing subdivisions in this area will be seen as undesirable once the beam dump is placed beneath them.

Concerns raised about community disruption were not adequately addressed. The Rougemont community will experience the loss of two churches and their cemeteries, numerous families who have lived in the community all their lives, and most of the remaining farmland in the area. Negative impacts ignored by the EIS include the loss of traditional family lands, forced relocations of people who were previously relocated for Camp Butner, and relocations of elderly people and people with medical illnesses and/or their network of support in the community.

Socioeconomic effects relating to individual property owners were only given lip service in the draft EIS. No serious efforts were made to determine the fairness of any state's relocation procedures or the accuracy of estimates of property values.

The continued refusal of the state to identify property owners affected by SSC-related roads was revealed by CATCH and ignored in the draft EIS.

The explosive growth of this area without the SSC and the infrastructure impacts of additional growth caused by the SSC as well ~~as well~~ as the negative fiscal impact on local governments which was outlined in Governor Martin s SSC Feasibility task force report were superficially addressed in the draft EIS. The document did suggest that capital infrastructure improvements required in Durham County of about $4.6 million could be financed (by the county) with long-term bonds. Thank you for your support.

All of these unanswered questions lead to one more question.

Why was public input solicited?

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 702

#37.1

Pam Dowen
Rt. 2 Box 232
Rougemont NC
27572

CATCH EIS Response

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. [redacted] Am going talk about the nonresponsiveness of the EIS to several concerns raised by the general public.

Concerns relating to local education levels and impacts on educational facilities in this area. An update of the pressure on school facilities shows that at least 6 mobile teaching stations have been added to the 14 that were in place at Durham's Northern High School last spring. These were added despite construction of a new science wing this summer. Northern High School is the only high school that serves northern Durham County -- the area that will be the most heavily affected by SSC-related population increases. Appendix 14 says new facilities like classrooms may be needed due to SSC-induced growth.

1 15,000

One concern that was not addressed is the possibility of the SSC "crowding out" other investment in the area. This possibility was stated in Governor Martin's SSC Feasibility Task Force report.

The draft EIS apparently accepted endangered species information from the states at face value. Not only has none of the supplied information been confirmed, but the concerns raised about rare or significant animal and plant species in the CATCH response were only acknowledged, but not investigated.

2

Concerns raised by CATCH about water quality and water use were generally ignored. The increased demand on water supplies caused by SSC-related growth was considered a potentially significant, unmitigable impact in Appendix 7 on page 50.

3

Questions raised by CATCH concerning conflicts between the SSC design and Durham County's watershed ordinance were addressed in Appendix 5c, on page 91. The restrictions were simply listed, as if to say "These are the regulations we

will be violating."

Summer drought effects on water supplies were addressed in the draft EIS through only one statement: (quote) "The continued reliability of the surface water sources, especially under drought conditions, is a significant water resources issue in the area." Now that was an in-depth analysis.

4 A request for institution of a policy of full disclosure of isotopes produced and expected was not addressed.

The mechanics of hazardous waste storage and disposal in a sensitive watershed area were addressed in Appendix 10, on page 109 with these statements: "Hazardous waste generated by the SSC would be collected, treated, and stored in accordance with RCRA regulations. When sufficient quantities have accumulated, the material will be shipped to an approved disposal facility." ~~Thank you for such~~ What an in-depth discussion.

5

Questions raised by CATCH concerning decommissioning impacts included providing a timeline for monitoring of the site after decommissioning, how decommissioning actually will be carried out, levels of radioactivity in the tunnel, and future uses of the decommissioned tunnel. These were addressed in Appendix 3 by presenting (quote) "one possible way to decommission the SSC." This is not acceptable.

6

All of these unanswered questions lead to one more question.

7 Why was public input solicited?

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 703

Deck Stapleton
Rt 1 Bx 158 A
Stem, N.C 27581

49.

Air Quality - Potential Toxic Chemicals

The draft environmental impact statement for the superconducting super collider is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of potential toxic air emissions. Sources of toxic air emissions associated with the SSC were extremely poorly examined in the draft EIS. One of the potentially significant sources of toxic air emissions from a collider operation are the operation's cooling towers. Several potentially toxic chemicals are used in cooling towers as corrosion inhibitors, fungicides, algaecides, and bacteriacides. Many of
1 these chemicals are chromium and nickel salts. Hexavalent chromium is a constituent of many of the commercially-sold chromium compounds. Hexavalent chromium is a potent animal and human carcinogen and can pose serious health risks. Chromium emissions can be deposited in the air and on the ground and vegetation through cooling tower drift. Cooling tower drift was in no way addressed in the draft EIS.

As evidenced repeatedly in the literature, cooling tower drift can release significant amounts of chemicals like chromium, on the order of tons per year. The potential problems of cooling tower chromium emissions are so
2 significant that the U.S. EPA is currently investigating the development of a national emission standard for hazardous air pollutants or NESHAP regulation for chromium from cooling towers. The State of California has proposed the banning of all chromium chemical use in cooling towers in the State due to analyses that showed unacceptable health risks.

The draft EIS should address what chemicals would be used in cooling towers for water treatment purposes. It should also provide quantitative estimates of airborne releases. This data should in turn be used to perform quantitative risk assessment analyses to estimate potential human health risks. The risk assessments should be conducted using EPA-approved protocols which have been published in the Federal Register. The potential risks from cooling towers using chromium and other chemicals have clearly been determined by EPA and other States to be significant. Why was this topic totally passed over in the draft EIS analysis? In addition to the air quality concerns, how much of these chemicals potentially are released into water systems?

3

4

Besides chromium from cooling towers, the entire draft EIS makes much too light of the use and emission of hazardous toxic chemicals. The draft EIS really doesn't address the issue at all. It doesn't according to the draft EIS because (and I quote) "there are no anticipated public health impacts from the hazardous and toxic materials that are expected to be used." Who made this determination? Where is it documented? Have the potential public health risks been quantified? What toxics will be used? With an operation as large and expansive as the SSC, it will most certainly use a potential wide variety of chemicals for various purposes. Known and suspected carcinogens such as benzene, toluene, xylene, trichloroethylene, methylene chloride, and others will undoubtedly have uses as cleaning and degreasing agents. In addition to these degreasing chemicals, chloro-fluorocarbon use and emission in connection with refrigeration systems is also a possibility. Once again, because of the potential human health

5

risks that have been estimated, the U.S. EPA is currently developing a NESHAP regulation for degreasing operations. As a matter of community right-to-know, the draft EIS should have at least identified the substances likely to be used, instead of only containing the condescending and patronizing statement it did.

The use of these chemicals and potentially others would be occurring during the continual operation of the SSC, not just during construction. Potential toxics available for release during construction also exist. Where have these been delineated and addressed? The draft EIS make a big deal out of saying that fuel combustion is a primary source of air emissions
6 during construction. Fuel combustion generates several toxic air emissions from trace metals to polycyclic organic matter, some carcinogenic. These are never discussed in the draft EIS, nor is any human risk assessment performed. A similar case could be made for SSC and supporting road construction involving asphalt plants. Asphalt production generates several carcinogenic organic species. The draft EIS addresses none of this. Potential human health risks cannot simply be written off because someone conveniently "anticipates" there is no problem.

To compound all of this, there is no attempt to estimate potential
7 toxics to air associated with the influx of people who will work at the SSC. Residential fuel combustion, increased utility electricity generation, and commercial support facilities all have the potential for toxics releases. To perform a truly comprehensive environmental impact assessment you have to examine all of the contingencies associated with the project.

The draft EIS, as it stands, does a poor job of addressing potential toxic emissions to air and other media. It has only masked the topic behind sweeping generalities. It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the SSC.

LETTER 704

Rick Bowen
Rt 2 Box 232
Roxboro NC 27572
(919) 477-5132

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations and facts detrimental to North Carolina. I wish to address the topic of PUBLIC OPPOSITION TO NORTH CAROLINA'S PROPOSED SITE.

Between the dates of February 7, 1988 and May 13, 1988 Citizens Against The Collider Here were able to collect over 7,000 signatures from North Carolina residents who oppose the Super Collider site in North Carolina. The petition reads as follows:

We the undersigned citizens and residents of North Carolina do petition the President of the United States' Secretary of Energy to disapprove the construction of the Superconducting Super Collider Project of the United States Department of Energy and the so-called North Carolina site as proposed by the Office of the Governor, State of North Carolina.

Our opposition is based in part on these facts:

1 1. Local elected officials and residents have not been actively consulted in the development of plans for the North Carolina proposal.

2. The state of North Carolina has provided misleading and inaccurate data relative to the impact of the project on the area containing the proposed site.

3. Over sixteen thousand acres of land in Durham, Granville, and Person Counties would be taken destroying hundreds of family farms and prime residential areas. Millions of dollars would be removed from the tax assessment rolls due to the project and the additional acreage required for roads construction.

4. The state of North Carolina failed to conduct an environmental quality review, especially of those large underground areas in all three counties subject to radioactive contamination. There are many scientific unknowns about the environmental effects of the project. Such matters deserve an extensive environmental quality review process.
5. Less extensive and more appropriate alternatives are available. Both federal and state governments already own vast land areas which are far more suitable and less costly."

Over 7,000 residents of North Carolina signed this petition! Is this to be considered a small contigency of affected landowners? The Draft Environmental Impact Study states that there will only be 111 relocations, a figure which we know is incorrect. We sent copies of all the signatures in with the 185 Environmental Impact Statement and they were TOTALLY ignored! We were told by the Department of Energy in the first hearings that public opposition would be considered in chosing a site. Just WHEN will you acknowledge this sizeable public opposition!

It is clear that the North Carolina site has NOT been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

225-775 0 - 88 (Book 4) - 7

316

Petition Against North Carolina Superconducting Super Collider (SSC)

We the undersigned citizens and residents of North Carolina do petition the President of the United States' Secretary of Energy disapprove the construction of the Superconducting Super Collider Project of the United States Department of Energy and the so-called North Carolina site as proposed by the Office of the Governor, State of North Carolina.

Our opposition is based in part on these facts:

1. Local elected officials and residents have not been actively consulted in the development of plans for the North Carolina proposal.

2. The State of North Carolina has provided misleading and inaccurate data relative to the impact of the project on the area containing the proposed site.

3. Over sixteen thousand acres of land in Durham, Granville, and Person Counties would be taken destroying hundreds of family farms and prime residential area. Millions of dollars would be removed from the tax assessment rolls dues to the project and the additional acreage required for roads construction.

4. The State of North Carolina failed to conduct an environmental quality review, especially of those large underground areas in all three counties subject to radioactive contamination. There are many scientific unknowns about the environmental effects of the project. Such matters deserve an extensive environmental quality review process.

5. Less extensive and more appropriate alternatives are available. Both federal and state governments already own vast land areas which are far more suitable and less costly.

Respectively yours,

	Name	Address	Date
1.			
2.			
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10.			

LETTER 705

Comments on the Draft EIS for the SSC - October 3, 1988
Candy Scharver
Candy Scharver 919 477-1063

(Wave hi)(Play tape of dozer- 0-7 @15 seconds) Luckily I have only five minutes. This noise shall last for seven years, beginning autumn 1989 until mid 1996 (DEIS, vol 1, Chap 3-16).

Th Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of Noise. (sign noise)

1 Noise is defined as "unwanted sound" (DEIS Vol 1, Chap.5, 5.1.4-1).The sound you just heard was a dozer averaging 86dBA measured within 1 foot of a sound level meter at 0 incidence. Table 9-5 shows road construction equipment noise emissions (DEIS, vol 4, Appen.9,p.18). (TRANS 1). Note that these range from 84 to 88 dB at 50 feet. To refresh your memory this is 86 dBA at 50 - 100 feet from a darling little dozer (play tape 7-13). Does that annoy you?

This map depicts areas E and F where "human receptor high annoyance is expected." (TRANS 2) E designates service areas of which there are 10, 5.7 acres each; and F designates intermediate access areas of which there are also 10, .9 acres.) (TRANS 3 -leg. bld.pic)

2 Actually the area of this building is 4.7 acres - and would snuggle right into one of these service areas - and they shouldn't mind a little more noise at the Legislative Building. Human receptors are defined (DEIS 5.1.4-4) as "schools, residences, groups of residences, parks, camps, and wildlife refuges." Figure 5.2.4-5 shows "Human receptors at the NC Site." (TRANS 4) The DEIS states that "the number of human receptors at each point was not determined" thus " annoyance percentages cannot be reduced to actual number of people." Does that mean that the human receptors aren't human.?

Page 2 Noise - Comments on DEIS 10-3-88

During the construction phase and operations phase these areas will operate on a 24 hour per day 365 day per year basis. "Spoils haul truck noise (82 dBA at 100 feet) will be noticeable for long distances away from the road along haul routes."(Append.9, p.19).

3 "There could be 480 truck loads per day of excavated material (to the 17 sites - 330 acreas) if the tunnel boring machines operate simultaneously. The lucky E and F areas also shall have "temporary " (10 months) (p. 7 Appen. 9) noise increases such that two tables were included: noise emissions at night and noise emissions during the day. Guess what? Overall sound level during the day was 66 dBA and overall sound level during the night was 62 dBA. Only 4 dBA difference. Even 3 dBA can make a difference to your ear. Exposure to noise is cumulative!

Good hearing is similar to water - we take it for granted - until it is lost.

Finally, I'd like to address Appendix 9, Volume IV. The Federal Highway Administration and the Department of Housing and Urban Development (HUD) have attempted to quantify acceptable noise levels but p. 1 states that "these levels are not legally applicable to the

4 SSC." Yet, in Vol 4, Appendix 5 this Table 5.5.5-1 (TRANS 5) shows maximum permissible sound-pressure levels for noise radiated continuously from a facility (Durham County). LOOK AT THE DECIBEL LEVELS — All are less than 54 dB except at the lowest frequency band of 20 - 75 HZ. Most noise induced losses occur at the higher frequencies. These are relatively quiet levels:23;24;25;26;28;31;34;37;41;;47;54;69.

Apparently "Durham County promulgated (made known officially and formally) allowable property line noise level criteria for Research Triangle Park facilities

I quote ALTHOUGH NO PARTS OF THE SSC WILL BE LOCATED IN DURHAM COUNTY, COMPARING THE ALLOWABLE NOISE LEVELS WITH THE EXPECTED NOISE LEVELS FROM AN SSC SERVICE AREA IS APPROPRIATE, SINCE THE REGULATION DOES REPRESENT A STATEMENT OF ADJACENT COUNTY NOISE ACCEPTANCE."

(whoops) (TRANS 6)

5 "THE ALLOWABLE PROPERTY LINE NOISE LEVEL IS CALCULATED TO BE APPROXIMATELY 47 dBA. THE SERVICE AREAS WOULD EXCEED THIS LEVEL BY APPROXIMATELY 8 dBA."

(DEIS, VOL. IV, APPEN. 9, P.60)

WHY IS This DURHAM COUNTY REGULATION NOT APPLICABLE TO THE SSC? What about OSHA (Occupational Safety and Health Administration) standards? NC has a hearing loss statute : "penalty for willful failure to wear HPD's." (Hearing Protection Devices) (Noise Hearing and Conservation Manual, 4 th Edition, Berger, Ward, Morrill, and Dr. Larry Royster, who is from NC State in Raleigh, 1986).

Now ever since Earl told us at that fateful Feb. 4 Roxboro meeting we should be honored to have our homes and land condemned for this good cause; in other words, "Don't Worry, Be Happy!" ....

Well, that worried me and I'd like to quietly tell your collider where to go.

Fingerspell G-O T-O T-e-x-a-s.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider. (SSC).

Candice Scharver
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LETTER 706

#73

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Attitudes of Residents

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the opinion of residents in the three affected counties about the Super Collider.

1

In the North Carolina proposal for the Super Collider, it was noted that (quote) "The regions well-informed public...heartily supports the SSC project. No organized local opposition to the site proposal exists or is anticipated" (p. 1-5). The Governor even touts a poll conducted last March as evidence of public support for the Collider. However, this poll was conducted by the firm that employs the Governor's son and was done last March before many people in North Carolina knew anything about the Collider.

So C.A.T.C.H. sponsored a random telephone survey of nearly 800 households in the three affected counties to determine the attitudes of these residents. This evening telephone survey was conducted by Microcomputer Applications Specialists of Durham during the period of June 10th to the 26th. Computer-generated telephone numbers were randomly selected using all available telephone numbers in Durham, Granville, and Person counties--the three affected counties. The margin of error across all three counties is less than two percentage points.

2

Respondents were asked whether they favored the Super Collider, opposed it, or felt they did not know enough to make a decision about the Super Collider at that time. The findings revealed that 58 percent of those households polled felt they did not know enough about the project to make a decision at that time. In other words, even nine months after the submission of the

State's proposal, the Governor and his staff had not done an adequate job of informing the public about the Collider project.

However, of those who felt they did know enough to make a decision, 62 percent oppose the Super Collider as proposed in North Carolina. The percent in opposition ranged from 58 percent in Person County to 66 percent in Granville County. Men and women equally opposed the project and there were no differences in response between likely voters and non-voters. Residents in every part of each county opposed the Collider, except in southern Durham County near the Research Triangle Park where the opposition and support were evenly divided.

If the DOE decides to place the Super Collider in North Carolina they will be doing so not only against the wishes of the state politicians serving these three counties, but also against the wishes of the people living there. This opposition is not so much an opposition to the Collider as it is opposition to the Governor and his staff in their attempt to place the project here without consulting the people and local officials.

Copies of an abstract of the poll survey form, the poll results, and the poll news release are attached.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

ABSTRACT

The Attitudes of Residents in Affected Counties of North Carolina Towards the Proposed Superconducting Super Collider

More than 60 percent of those persons who feel they know enough to make a decision oppose locating the Superconducting Super Collider (SSC) in North Carolina according to a recent telephone survey. The survey, conducted for Citizens Against the Collider Here, or C.A.T.C.H., questioned residents of nearly 800 households in Durham, Granville, and Person Counties, where the SSC is proposed to be located.

Respondents were asked to indicate whether they favored the Super Collider, opposed it, or felt they did not know enough to make a decision at that time. The responses of residents from Durham, Granville, and Person counties are summarized below.

Opinion Towards the Superconducting Super Collider by County

	Favor		Oppose		Do Not Know Enough		
County	Number	Percent	Number	Percent	Number	Percent	Total
Durham	46	17	69	25	158	58	273
Granville	42	15	80	30	149	55	271
Person	39	17	54	23	141	60	234
Overall	127	16	203	26	448	58	778

Of those responding, 58 percent indicated that they did not know enough about the proposed Super Collider to make a decision at this time. This contradicts the North Carolina proposal which stated "The region's well-informed public... heartily supports the SSC project. No organized local opposition to the site proposal exists or is anticipated." (p. 1-5)

People in Granville County responded 2 to 1 against the project. While 15 percent favor the SSC, 30 percent oppose it, and 55 percent do not know enough to voice an opinion. In Durham County, 25 percent oppose the project, 17 percent are in favor, and 58 percent could not make a decision. In Person County, 23 percent oppose the SSC, 17 percent favor it, and 60 percent did not feel they knew enough about the proposed Super Collider to answer the question.

As shown below, while men and women equally opposed the project, men outnumber women 2-1/2 to 1 in support of the SSC and more women feel they do not know enough to make a decision about the SSC at this time.

Opinion Towards the Superconducting Super Collider by Sex

	Favor		Oppose		Do Not Know Enough	
Sex	Number	Percent	Number	Percent	Number	Percent
Female	47	10	125	26	301	64
Male	71	25	69	25	139	50

3

There were no differences in response based on frequency of voting among people favoring or opposing the SSC project, but those people who felt they did not know enough to make a decision at this time tend to vote less often.

Opinion Towards the Superconducting Super Collider by Voting Frequency

	Favor		Oppose		Do Not Know Enough	
Voting Frequency	Number	Percent	Number	Percent	Number	Percent
Never	12	11	17	16	77	73
Seldom	7	13	11	21	34	65
Sometimes	11	11	21	21	67	68
Most Times	39	21	57	31	89	48
Always	56	18	92	30	155	51

Those favoring the North Carolina SSC project were much more likely to feel they would not be affected by it. However, 47 percent of those opposing the project indicated that they would be affected in some way. Only 9 percent of the respondents who felt they would be affected by the project indicated they had been contacted by the State about the extent of their potential involvement.

Residents living in southern Durham County were split in their support of the project, while residents in both the city of Durham and in northern Durham County opposed the SSC. In Granville County, respondents living in or near Stem, Oxford, Butner, and Creedmoor were all in opposition to the project. In Person County, residents near Timberlake were in opposition by a 3 to 1 margin, and 56 percent of the Roxboro area residents were in opposition.

Opinion Towards the Superconducting Super Collider by Location

	Favor		Oppose		Do Not Know Enough	
County/Location	Number	Percent	Number	Percent	Number	Percent
Durham County						
South of Durham	17	23	16	22	41	55
Durham City	16	16	23	24	58	60
North of Durham	10	15	22	32	36	53
Granville County						
Bullock area	1	13	1	13	6	75
Butner area	10	17	17	28	33	55
Creedmoor area	6	13	10	21	32	67
Oxford area	18	16	35	32	58	52
Stem area	1	13	5	63	2	25
Person County						
Hurdle Mills area	4	31	3	23	6	46
Roxboro Area	25	16	32	21	98	63
Timberlake area	5	13	15	38	19	49

For those respondents indicating they were opposed to the North Carolina proposal for the SSC project, the primary reasons were:

Number of business and household relocations (28 percent of respondents)
Impact on the present way-of-life (28 percent)
Hazardous waste issue (18 percent)
Community opposition (15 percent)
Negative environmental impacts (14 percent)
Loss of taxable lands (14 percent)
Prohibitive costs (13 percent)
Increase in taxes (13 percent)

The primary reasons by proponents for favoring the project were:

Jobs (63 percent)
Scientific benefits (25 percent)
Prestige the project might bring to the area (13 percent)

The evening telephone survey was conducted by Microcomputer Applications Specialists during the period of June 10-26, 1988, using computer-generated, random telephone numbers of residences in all three counties. The margin of error in the findings for the three county totals is less than 4 percentage points.

For more information or copies of the complete findings of the survey, contact Bob Pasipanki, Public Information Officer, C.A.T.C.H., P.O. Box 507, Rougemont, NC 27572 (471-7513).

SSC Poll Questions

1. GOOD EVENING, WE ARE CONDUCTING A 1-MINUTE PUBLIC OPINION SURVEY ABOUT THE NORTH CAROLINA PROPOSAL TO LOCATE THE SUPERCONDUCTING SUPER COLLIDER IN DURHAM, GRANVILLE AND PERSON COUNTIES? ARE YOU AT LEAST 18 YEARS OF AGE? (If not, follow directions) DO YOU FAVOR THE SUPER COLLIDER, OPPOSE IT, OR FEEL YOU DO NOT KNOW ENOUGH TO MAKE A DECISION ABOUT THE SUPER COLLIDER AT THIS TIME?

- ☐ Favor [GO TO QUESTION 2a]
- ☐ Oppose [GO TO QUESTION 2b]
- ☐ Do Not Know Enough; No Opinion [GO TO QUESTION 3]

2a. WHAT REASON(S) LED YOU TO SUPPORT THE SUPER COLLIDER AS PROPOSED IN NORTH CAROLINA?

- ☐ Jobs
- ☐ Prestige
- ☐ Spin-off Industries
- ☐ Scientific Benefits
- ☐ Governor's Support of Project
- ☐ University Support
- ☐ New Roads
- ☐ Community Support
- ☐ Others; specify _____

4

[GO TO QUESTION 3]

2b. WHAT REASON(S) LED YOU TO OPPOSE THE SUPER COLLIDER AS PROPOSED IN NORTH CAROLINA?

- ☐ Lack of Jobs for Local Citizens
- ☐ Prohibitive Cost
- ☐ Lack of Environmental Study
- ☐ Lack of Economic Study
- ☐ Negative Environmental Impacts
- ☐ Impacts on Way-of-Life
- ☐ Lack of Involvement of Citizens
- ☐ Loss of Taxable Lands
- ☐ Community Opposition
- ☐ Number of Relocations
- ☐ Increase in Taxes
- ☐ Increase in Utility Costs
- ☐ Lack of Infrastructure Supports
- ☐ Lack of Careful Planning
- ☐ Fear of Department of Energy
- ☐ Federal Involvement
- ☐ Hazardous Waste Issues
- ☐ Radiation Fears
- ☐ Others; specify: _____

3. Indicate the sex of the respondent: ☐ Male ☐ Female

4. DO YOU VOTE ☐ ALWAYS ☐ MOST TIMES ☐ SOMETIMES ☐ SELDOM ☐ NEVER?

5. IN WHAT COUNTY DO YOU LIVE?

☐ Durham County [GO TO QUESTION 6a]

☐ Granville County [GO TO QUESTION 6b]

☐ Person County [GO TO QUESTION 6c]

6a. HOW WOULD YOU DESCRIBE WHERE YOU LIVE IN DURHAM COUNTY, NORTH OF THE DURHAM CITY LIMITS, IN THE CITY, NEAR INTERSTATE 40, OR SOUTH OF THE CITY?

☐ North of the city ☐ Near I-40 or south of the city

☐ In the city of Durham ☐ Other; specify: _____

[GO TO QUESTION 7]

6b. WE WOULD LIKE TO KNOW IN WHAT PART OF GRANVILLE COUNTY YOU LIVE, BUT DO NOT WANT YOUR COMPLETE ADDRESS. TELL US, WHAT IS YOU ZIPCODE?

☐ 27507 Bullock ☐ 27565 Oxford

☐ 27509 Butner ☐ 27581 Stem

☐ 27522 Creedmor ☐ 27582 Stovall

☐ 27564 Northside ☐ Other; specify: _ _ _ _ _

[GO TO QUESTION 7]

6c. WE WOULD LIKE TO KNOW IN WHAT PART OF PERSON COUNTY YOU LIVE, BUT DO NOT WANT YOUR COMPLETE ADDRESS. PLEASE TELL US, WHAT IS YOUR ZIPCODE?

☐ 27343 Semora ☐ 27573 Roxboro

☐ 27541 Hurdle Mills ☐ 27583 Timberlake

☐ Other; specify: _ _ _ _ _

7. ARE YOU LOCATED IN AN AREA YOU FEEL IS AFFECTED BY THE SUPER COLLIDER?

☐ Yes

☐ No

☐ Does Not Know

7a. If "Yes", HAVE YOU BEEN NOTIFIED BY THE STATE ABOUT THE EXTENT OF YOUR INVOLVEMENT? ☐ Yes ☐ No

THANK YOU FOR PARTICIPATING IN THIS TELEPHONE SURVEY.

LETTER 707

#9

JOBS AND IN-MIGRATION Harold Bowen

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of Jobs and In-Migration.

With the presentation of the SSC proposal in N.C., one continues to hear of the outstanding job opportunities. Yet, on a recent trip to Fermilab, it was discovered that the base paying jobs average around $6.00 to $7.00 per hour; Not the most outstanding salary known to the working world. Many of the technical jobs had a base of around $25,000. annually; still not an outstanding salary. On top of these considerations is the fact that there have not been any spin-off industries associated with the Fermilab area of Batavia, Illinois. Yes, the EIS states an influx, but the influx is scientists; not the working class common to normal labor pool. 1

On page 3-16 of the EIS, section 3.1.4; The construction of work of the SSC is detailed. Allow me to abbreviate some of the work to be done.

1. Cut and cover excavation for the installation of the injector facility.
2. Vertical tunneling of access shafts . . at approximately 2.5 mi. increments around the ring.
3. Tunnel boring using tunnel boring machines..
4. ..cut and cover or underground mining techniques...

All of these operations would require outside expertise workers. No local companies handle such activities in the proposed collider site. Jobs would not truly be created during this phase of construction; rather only an influx of outside workers, with such construction knowledge, would occur. 2

People who are currently a part of the local job force would lose their vacations due to forced sell/moving from the career locale with the coming of the SSC to the proposed N.C. site. Those who would lose could not be a part of the construction expertise as mentioned above, for their knowledge would not extend unto such labor skills.

Page 3-65 of the EIS states that "impacts to the State of N. C. with an increase of approximately 15,000...would be highest during construction with a lesser impact during operations". So, this statement supports the thought of jobs going to outside workers during construction; not the native public. 3

On that same page one discovers that the housing unit demand is nighest in N. C. of all the seven states on the best qualified list; Why? The influx of outside construction workers needing housing; 4,070 housing units. A side point to all of this has to be the increases in area traffic; already unbearable; overcrowding of schools(already bursting at the seams) and no gains can be obtained by such occurrances.

On page 3-69, section 3.7.11, one can find that fact of jobs lost to outsiders due to the taking of prime farm land; again, N. C. is highest with a figure of 593 acres. I believe this figure to be way off base, for I can name farmers in the immediate affected fee simple areas who farm more acreage than the total listed. As a matter of fact page 4-76 of the EIS mentions "The estimate of actual prime farmlands at the site amounts to 2,800 acres". 4

No matter how we look at this figure concept, jobs will be lost in farming and it's related industries; i.e. seed dealers, fertilizer companies, retailers, etc... Again, jobs for outsiders gained; loses of jobs already in operation.

On page 5.1.8-11, it can be found that as far as baseline employment factor goes, "the corresponding figure for the N. C. region is about 0.9%, with the relative increase less for all other regions". (????)

In migration of outsiders for the work force runs very high in N. C. proposed site. "Relatively small labor forces in N. C...result in estimates near the high end of the range" (5.1.8-14) These figures only increase for in migration of outside workers during the progressive construction and full operation(Table 5.1.8-4 on page 5.1 8-15 of the EIS clearly supports this fact) 5

The same page announces an increase in population to the N. C. site during construction "to about 15,000 persons" and with full operation figures to "almost 13,000". "4,100" would be in-migrant housing increases. Again, these are workers coming from outside of the SSC site area; not jobs for those who presently reside in the site area.

The bottom line is simply that jobs would not be produced for the ones directly affected by the placement of the SSC in the proposed N.C. site. These people lose their homes, lands, and incomes but are beaten out for the "jobs supposedly produced" by the SSC. This just gives me another reason to request the N.C. proposal to be rejected by the DOE for the placement of the SSC.

It is clear that the N. C site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collide

LETTER 708

THE WILDLIFE SOCIETY
NORTH CAROLINA CHAPTER

P.O. Box 37813, Raleigh, NC 27627

THE SUPERCONDUCTING SUPERCOLLIDER - WHAT DOE DID NOT TELL YOU IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

I am Phillip D. Doerr, a professional wildlife biologist, currently president of the North Carolina chapter of THE WILDLIFE SOCIETY

The Wildlife Society is an international organization of professionals serving the resource management fields, especially wildlife ecology and management. The North Carolina chapter includes administrators, biologists, educators, managers, researchers, and students. The Society promotes sound stewardship of wildlife resources and the environments on which wildlife and humans depend.

1 The North Carolina Chapter of THE WILDLIFE SOCIETY believes that DOE has not told North Carolina citizens the whole story about impacts of the SSC on the natural resources of the project area.

2 As part of it's responsibilities under The National Environmental Policy Act (NEPA), the state of North Carolina provided the Department of Energy (DOE) available environmental information for the project area, emphasizing, however, that sufficient biological surveys have not been conducted for that area. Preliminary studies indicate that important natural resources occur in the project area, however.

DOE ignored many of the concerns expressed by state natural resources agencies in preparing the Draft Environmental Impact Statement (DEIS).

Among the concerns of the wildlife professionals for the SSC project are the following:

9 State water quality designations for area streams were listed in the document, but the significance of these was not identified, resulting in a failure of the DEIS to adequately relate existing water quality problems to cumulative impacts from the SSC and associated development.

3 Although the 1988 drought emphasizes to local residents the serious deficiencies in available water resources, the DEIS finding that additional water demands from the project will not have a significant impact is questionable.

4 Recent preliminary studies showed that area streams are a significant refuge for a diverse population of freshwater molluscs (clams and mussels) which are important water quality indicators. The molluscs, and species such as the Carolina Darter, Neuse River waterdog and Carolina madtom are now limited to headwaters of project area drainage systems because of water quality degradation downstream. Game species such as the Roanoke bass are similarly impacted. The DEIS fails to address specific unique stream resources and the impact of the SSC on them.

Mussel species nationwide have declined dramatically, with many listed or proposed for listing as threatened or endangered by federal and state governments. To put the value of project area headwaters in perspective, only 1 native freshwater mussel species is found in the Neuse River from Raleigh to New Bern, while last week, 10 species were recorded in the South Flat River, a headwater tributary to the Neuse that is in the project area. Notably, 5 of the 10 species are being considered for threatened/endangered listing by the state. This recent discovery highlights the lack of knowledge about the biological diversity of project area habitats and species occurrence. DOE cannot select a preferred alternative based upon the site specific information it currently has available. DOE does not have sufficient information from the North Carolina site to evaluate project impacts.

5 Interestingly, the document emphasizes its reliance upon Federal and State listed species for determination of project impacts on area natural resources and comparison of these impacts among the proposed sites for selection of the preferred alternative. Because of the lack of information about endangered species occurrence in the proposed North Carolina site, the selection method is fatally flawed.

In addition, the Wildlife Society believes there is little to suggest that North Carolina will be able to ensure present water quality in project area drainages which are important to fish and wildlife and to area residents. Waste water treatment plants have a dismal record of compliance with water quality standards throughout the state. A recent Division of Environmental Managemment report states that "approximately 28% of dischargers are not in compliance with their final permit limits. Forty-six percent of 342 municipal plants are not meeting limits while 25% of 2,053 non-municipal plants are not meeting final limits." As a result of the State's inability to regulate discharges the quality of the waters is already seriously compromised, with serious consequences for fish, wildlife and the citizens of the state. The future is not promising, as the same report noted that due to staff limitations "many plants go uninspected for years". How can DEM be expected to regulate the discharges of new plants in the project area when the agency cannot effectively handle its current responsibilities.

6 Terrestrial wildlife resources will also be impacted by the project, althought DOE seems again, to have ignored this information. Person and Granville counties provide important outdoor recreational opportunity for residents of the rapidly urbanizing Research Triangle area. Hunting, fishing, birding and hiking can all be pursued in the area. Throughout the state, wild turkeys are the most prized game bird. Person county in 1987 had the second highest turkey harvest

reported in the piedmont and the third highest in the state. During 1987 the first ever Boone and Crocket white-tailed deer was reported for North Carolina, and that deer was harvested in Granville County. DOE seems to have also ignored this information provided by the state, and certainly of interest to North Carolina sportsmen.

7 Placement of the project would also displace the North Carolina National Guard from lands the Guard currently uses for training; among the sites the Guard would likely be transferred to is the Sandhills Gameland, where numerous federally listed endangered species are KNOWN to occur. These impacts are not addressed by the DEIS.

8 The Wildlife Society recommends that all North Carolinians take a very critical view of DOE'S report because we believe the impacts of the project on the quality of life in the area will be substantial and largely negative. Ask them about those things DOE has chosen to omit from their report!

LETTER 709

SUPERCONDUCTING SUPER COLLIDER PUBLIC HEARING - October 3, 1988
William V. Bell, Chairman, Durham County Board of Commissioners

While I am a member of the North Carolina Commission on the SSC, I am speaking today as Chairman of the Durham County Board of Commissioners. To update the Department of Energy on the position of the Durham County Commissioners, our Board has taken no official action since March 14, 1988, when we voted to withhold support for the Superconducting Super Collider project in view of the inadequacy of information on which to base an opinion at that time. Our position today, nearly seven months later, is unchanged. We are unable to offer our unqualified support due to several concerns which can not be addressed by the responses of the SSC project specialists nor by the draft Environmental Impact Statement.

1 First, although we as County Commissioners have no role in determining the project location, we appreciate the residents' frustration caused by the uncertainties of project siting. Since the exact location of the ring will be determined by the DOE only after selecting the preferred state, many residents have been living and will continue to live with the possibility of forced relocation, with no specific information regarding the amount of compensation for those who must be relocated and the effect on property resale values for those who are not forced to relocate. This uncertainty, while perhaps unavoidable, was a major issue for the thirty speakers who spoke in opposition to the SSC at the County's own February 23, 1988 public hearing. We are encouraged by the designation of a "region of flexibility" and trust that, should North Carolina be selected, the ring would be positioned so as to minimize the impact on existing property owners.

2 As Board members, we <u>are</u> responsible for addressing other concerns raised by the SSC. To begin with potential fiscal impacts, the draft EIS projects an estimated annual loss of tax revenue of $53,000 by Durham County from "fee simple" acquisitions alone. A greater financial concern raised by the EIS is the projected need for an additional 154 full-time public service employees in our county in 1992, the peak year of construction; in current dollars, those positions would represent total salary and benefit costs of over $4 million to be split among City government, County government, and the school systems. In addition to salary costs, the taxpayers would be obligated to fund capital costs such as additional public school classrooms and law enforcement and fire protection facilities and equipment. The EIS does not provide enough detail to calculate costs to each unit of government, but the most efficient means of raising the $4 million for new employees--on the County-wide tax base--would require an increase of more than 6 cents on the current 65 cent tax rate.

We are aware that SSC employment and spinoff development would contribute in some measure to the County's economic base, but we are equally aware that growth "does not pay for itself." If North Carolina is selected, direct aid would be critical in order for Durham County to provide SSC-related public services without levying substantial property tax increases. The State, according to the SSC Project Director, proposes to provide at least $15 million in direct aid to Durham, Granville, and Person counties, but the appropriation and distribution of those funds would be subject to the uncertainties of the legislative process.

County Commissioners also share responsibility for establishing local land use regulations. Since the campus, expansion areas, and service areas of the SSC are proposed to lie in northeastern Durham County, the Board would expect the SSC to conform to existing zoning regulations, site plan/special use permit provisions, water quality basin standards, and erosion/sedimentation control regulations. Until the site is selected and site plans are made available to and reviewed by officials in each county, we Commissioners can not be comfortable that the Department of Energy will meet our stringent regulations.

3 Regarding land use regulation, Durham County took a particularly strong position among North Carolina local governments on the issue of watershed protection in 1985, when the Board adopted a Critical Watershed Ordinance. In August 1987, the County backed up this regulatory action with a County-funded comprehensive watershed management study for two major water supply reservoirs which serve Durham County, the Lake Michie and Little River reservoirs. We understand that a State-contracted study concluded that the SSC could be built on the North Carolina site without harming the region's watersheds, and that State funds have been approved to prepare more detailed studies for controlling runoff in all phases of the project. However, this spring, Durham County commissioned as an addition to its existing $200,000 watershed study contract an analysis of the impacts of the SSC on Durham County's watersheds. We are awaiting our consultant's report and will not take a position in support of the SSC until the watershed protection concern is addressed to our satisfaction.

Finally, let me assure you that Durham County residents and elected officials appreciate the public airing of these issues.

Durham County entered the SSC public forum late in the game, because the ring was moved into Durham County after the proposal was initiated. In January 1988, when it was announced that North Carolina would be on the preferred list of sites, State officials offered to give the Board a presentation on the project. The Board held a public hearing in Durham on February 23, 1988 which began with a brief presentation by the Governor and included responses by State SSC project officials to questions asked by the Commissioners and the public. As I have mentioned, 30 people spoke at the meeting in opposition to the SSC; 1 person spoke in support of the project, 3 persons raised issues to be considered without taking a position, and 54 more people who were unable to speak due to time constraints signed a list
4 indicating their opposition to the SSC. It was at the next regularly scheduled Board meeting on March 14, 1988 that the Board voted to withhold its support for the SSC based on inadequate information on the many issues which had been raised.

The County Manager, on the Board's instruction, relayed twenty-one specific concerns in a letter to the Executive Director of the SSC Site Task Force at the Department of Energy, dated March 14, 1988. On July 28, 1988, the County received a detailed response prepared by the State's SSC Project Director and Scientific Writer; we are still awaiting a response from the Department of Energy. We appreciate the effort behind the State's response, and have reviewed it and begun a thorough review of the draft Environmental Impact Statement, received by the County on September 1, 1988. Our assessment at this time, however, is that many of our questions can not be answered until an exact North Carolina site is selected, site plans are available for close review, and provisions--and funds--are in place to compensate property owners and local governments for accomodating the SSC.

If North Carolina is selected by the Department of Energy as the preferred site of the SSC, the Durham County Board of Commissioners will conduct further public hearings on the impact of this decision upon Durham County, fully review and comment on the final Environmental Impact Statement, and make recommendations to the North Carolina Commission on the SSC for minimizing the impact on affected property owners and local governments.

Thank you.

LETTER 710

George Heinzman
Rt 1 Box 604
Oxford N.C.
27565

Inadequacy of Land Acquisition Plans

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the inadequacy of the land acquisition plans as demonstrated by the maps provided in the Draft EIS.

On pages A-5A through A-5Y of Appendix A of the Draft EIS, RTK presents property acquisition maps for North Carolina's proposed siting of the Super Collider. These maps clearly demonstrate the inadequacy of the Governor's Office to provide correct and complete information to RTK to be used in the development of this Draft EIS. I will use several transparencies to illustrate these inadequacies.

1

This transparency [TRANSPARENCY MP-1] is from page A-5R. Looking at this transparency one might believe that the green line represents a road. Actually, it shows the location of the abandoned Norfolk and Western Railroad tracks. Also, it appears that the red lines would represent farm roads, or at least some undeveloped area. Actually, there are several extensive subdivisions here as this overlay shows [FLIP OVERLAY].

2

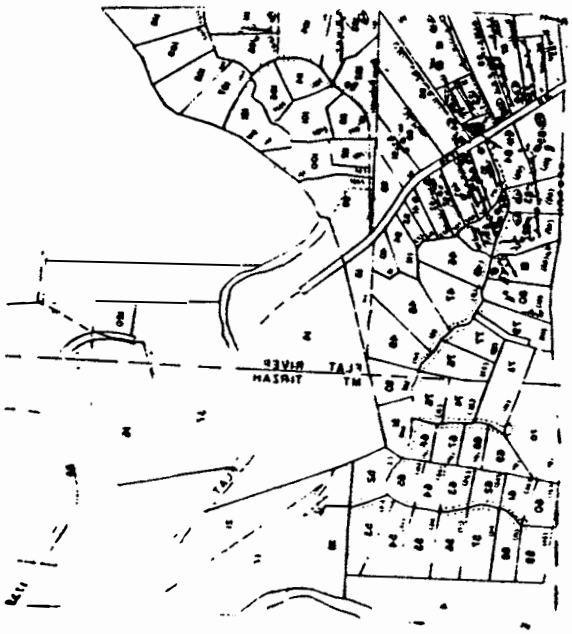
This transparency [TRANSPARENCY MP-2] is from page A-5U. Note the highlighted portion that implies maps for this area are not available. Actually, C.A.T.C.H. has been working with the missing tax map--Person County tax map A-51--since last March; here is the actual tax map.

3

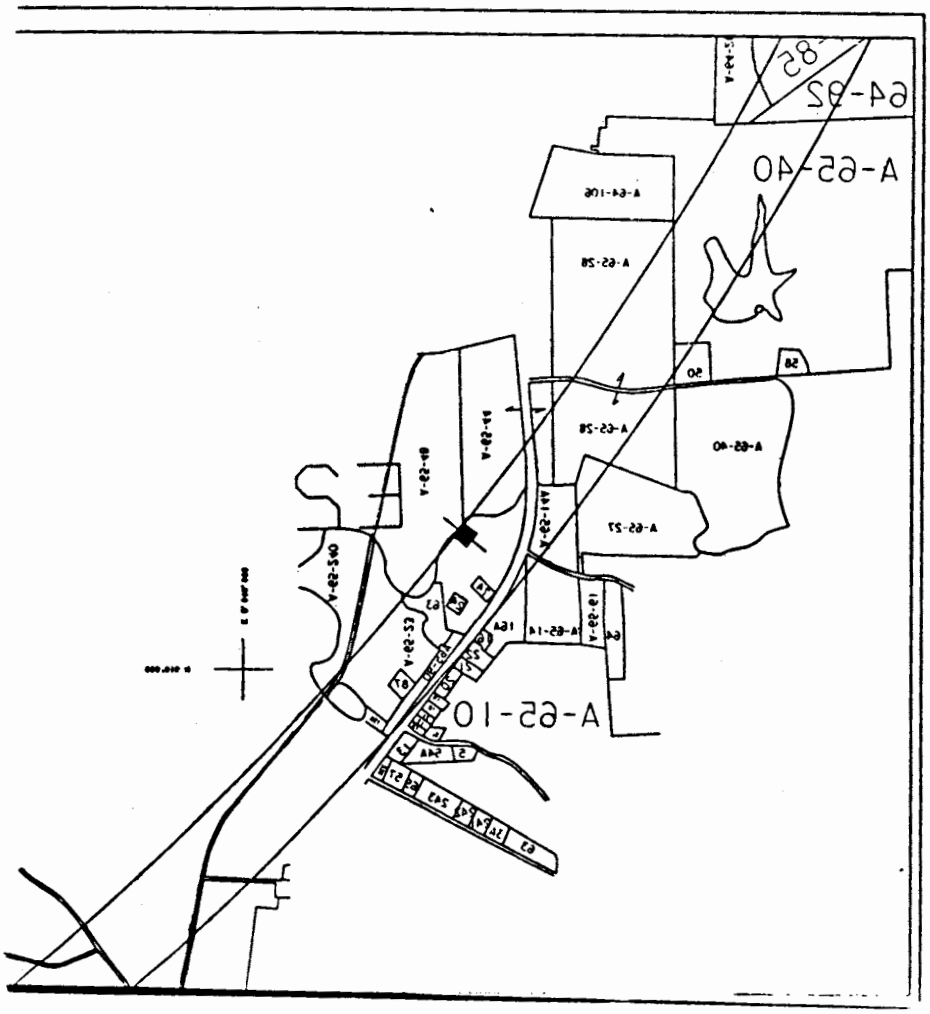
Similarly, this transparency from page A-5S [TRANSPARENCY MP-3] mentions the unavailability of parcel data at this time, yet C.A.T.C.H. also has been working with the missing Person County tax map A-52. The missing information here is the most revealing, because this is the section where there is a new

stretch of U.S. 501. The green line represents old 501, a two-lane road which is now called Roby Barton Road. The red line, running directly on top of the
3 proposed tunnel location, is the location of the four-lane, divided highway U.S. 501, which was constructed about ten years ago. This final transparency [TRANSPARENCY MP-4] represents page A-5T. It shows the rest of the re-located section of U.S. 501 that is proposed to run directly on top of the tunnel.

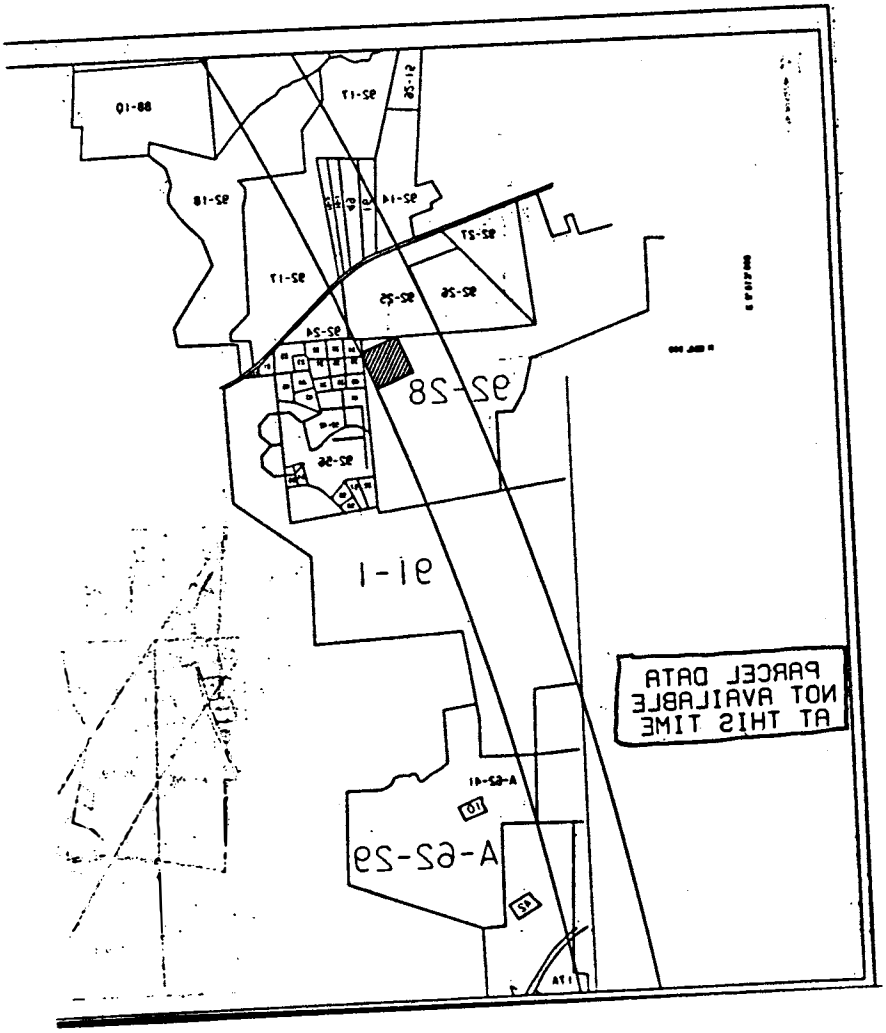
North Carolina's land acquisition plans are incomplete and inaccurate. It
4 is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.



LETTER 710 (CONTINUED)



LETTER 710 (CONTINUED)



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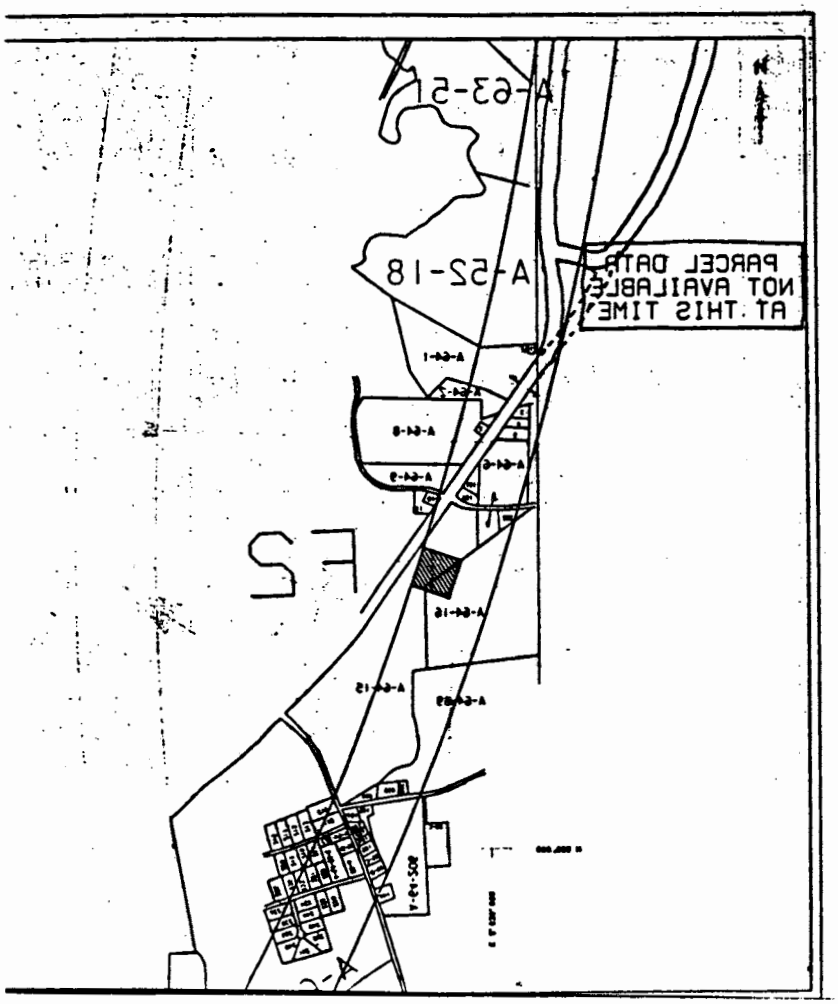
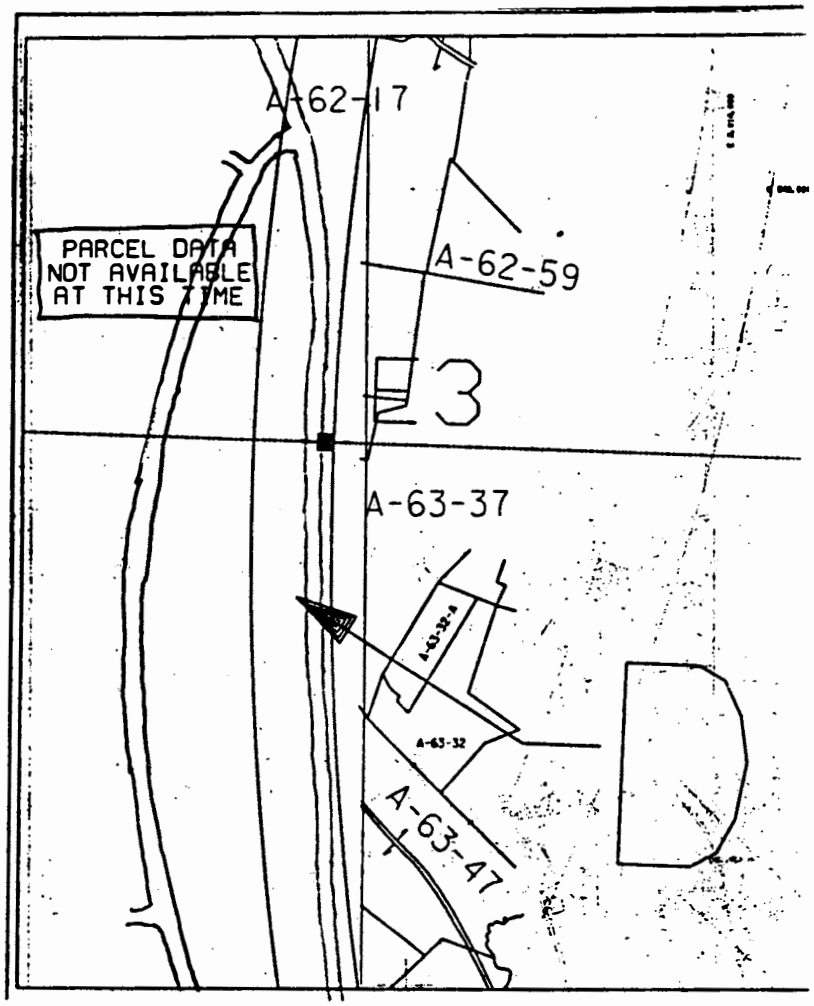


LETTER 710 (CONTINUED)



LETTER 711

#20

Audrey Smith
R1 B156-C
STEM NC 27581

Number of Relocations

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the number of relocations.

In the North Carolina proposal, it was indicated there would be 106 relocations. In the BQL response by the State and in the EIS (p. 3-31), they increased their estimate to 111 relocations, including 5 businesses.

However, typical of the poor quality of data supplied by the State in both the original proposal and in their BQL response, the number of relocations is underestimated by at least 75 percent. In actuality, there are at least 189 relocations in North Carolina, including 3 businesses, 2 churches, and 4 cemeteries. This means that North Carolina is second only to Michigan in the total number of relocations. A listing of these relocations is attached to this submission.

1 Why the discrepancy between this list and the figures supplied by the State? This question is easily answered. The State located potential relocations by sitting in an office using old tax maps. In an updated listing of potential relocations in Durham County for the SSC dated August 15, 1988, which was sent to the Durham County Commissioners, they state (and I quote):

> These properties were identified from tax records in Durham, NC during the summer of 1987. For the reasons cited above there is still some uncertainty in the final placement of the SSC, and thus no ground surveys have been conducted to verify this list.

C.A.T.C.H. has verified its listing of ~~189~~ 184 relocations by doing an on-site inspection of each potential relocation. In fact, we have spoken to almost every one of the businesses and families to be relocated. This verification process indicated that many of the potential relocations on the State list were

not relocations after all, especially in Granville County. However, a very large number of relocations were missed altogether on the State list. The State missed all renters, all new dwellings, and several existing residences. There are many renters in this area and in several instances there are multiple rental units on the same property. In fact, one property owner has at least seven families renting dwellings on his property.

Why didn't the DOE require verification of these lists? This question is more difficult, but a good guess is that they wanted to make every site look as good as possible. Of course, if the Department of Energy really cared to verify the actual number of relocations they could have done so during the Task Force site visit to North Carolina in late June. For that site visit, C.A.T.C.H. supplied DOE officials with a map of the complete North Carolina siting along with a five page, written tour of the entire proposed Collider
2 site. This tour indicated all roads by both highway number and the more familiar local names of roads. Each of the 189 relocations along this route was clearly indicated by one of these signs [HOLD UP SIGN], which gave the name of the family, business, church, or cemetery to be relocated along with a relocation number.

However, DOE refused to tour the entire site and see these relocations firsthand for themselves. Why? Because DOE from the start has refused to accept any information other than that supplied by supporters of the Collider. This has resulted in the acceptance of unverified, incomplete, and inaccurate information for a number of different requirements--including the actual number of relocations in North Carolina.

1

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 711 (CONTINUED)

Audrey Smith
R1 B156C
Stem NC
27581

List of Families to be Relocated in North Carolina
by the Superconducting Super Collider

Durham County

No.	Map	Sec	Lot	Owner [Renter]
1.	901	2	19	George Phillips
2.	901	2	19A	Roy S. Berry
3.	901	2	19F	John B. Wilson
4.	901	2	21	Jackie W. Day
5.	901	2	25	Joy H. Roberts
6.	901	2	26	Junior Aiken
7.	901	2	27	Vernon S. Bowen
8.	901	2	28	Jack Currie
9.	901	2	29	Marvin Bostic
10.	916	1	1	Laura S. Mack
11.	916	1	1A	Bernard Smith
12.	916	1	1B	
13.	916	1	2	R. Bowen [Wayne Mangum]
14.	916	1	2	Rufus Bowen
15.	916	1	3	Ernest Mangum
16.	916	1	3	Artelia Jones [renter]
17.	916	1	4	Nannie Briggs
18.	916	1	6	R. Bowen [Mark Stone]
19.	916	1	9	R. Bowen [Joe Darcey]
20.	916	1	10	Elliot Parker
21.	916	1	11	Bryant Durham
22.	916	1	11	Billy Parrish
23.	916	1	18	Red Mt. Baptist Church
24.	916	1	19	I.H.Terry,III[D.Harris]
25.	916	1	19	I.H.Terry,III[C. Bass]
26.	916	1	19A	Red Mt. Baptist Church
27.	918	1	4	New Red Mt.Bapt. Church
28.	918	1	5A	New Red Mt.Bapt. Church
29.	918A	1	16	Bryant Roberts
30.	918A	1	18	Jim Hill
31.	918A	1	20	John B. Mininger
32.	918A	4	4	Hydraulics Ltd.
33.	918A	4	5	Michael Mueller
34.	918A	4	6	Thomas Johnson
35.	918B	1	1	Kerry Hedges
36.	918B	1	2	Larry Little
37.	918B	1	5	Roland Hughey
38.	919	1	15C	Curtis Daye
39.	920	1	9C	Lunsford [J.B. Hopkins]
40.	920	1	9D	Claude Glenn
41.	920	1	10	Washington Guy
42.	922	1	1	Lucious E. Glenn
43.	939	1	1	John H. Whitfield
44.	939	1	2A	Terry W. Roberts
45.	942	1	1	J.G.Copley [D. Cates]
46.	942	1	1	J.G.Copley [G. Weary]

Durham County (Cont.)

No.	Map	Sec	Lot	Owner [Renter]
47.	942	1	1	Julius G.Copley
48.	942	1	1	J.G.Copley [P. Simpson]
49.	942	1	1	J.G.Copley [Tom Jacobs]
50.	942	1	1	J.G.Copley [renter]
51.	942	1	2	Jeffrey C. Clayton
52.	942	1	3	Phillip B. Latta
53.	942	1	3	P.B.Latta [Jolly Perry]
54.	942	1	3A	I.Allen heirs(O.Downey)
55.	942	1	3B	Howard Ellis
56.	942	1	3C	Wayne T. Howerton, Sr.
57.	942	1	5	Coy T. Berry [J. Davis]
58.	942	1	5	Coy T. Berry [Gonzalez]
59.	942	1	5	Coy Berry [Paulo Gomez]
60.	942	1	5A	Robt.L.Hill [Dale West]
61.	942	1	6	Wm. McFarland [renters]
62.	942	1	8	B.D. Hill, Jr.
63.	942	1	8A	Noah T. Dunn, Jr.
64.	942	1	8C	Lane E. Ellis
65.	942	1	8D	Kenneth W. Lockamy
66.	942	1	8F	Curtis O. Ingebretson
67.	942	1	11A	Sidney R. Clayton
68.	942	1	11A	S.R. Clayton [mother]
69.	942	1	12	J.G.Copley [F. Bowling]
70.	942	1	16	Willis J. Bowling
71.	942	1	16	??
72.	942	1	17	J.Williford[Pete Will.]
73.	942	1	17A	Jimmie L. Williford
74.	942	1	18	Steven R. Copley
75.	942	1	19	Robie W. Cates
76.	943	1	1A	Edgar P. Parrish
77.	943	1	1B	Pervis J. Jacobs
78.	943	1	1B	Jacobs Garage
79.	943	1	1B	Pervis Jacobs, Jr.
80.	943	1	2	Willie L. Blackwell
81.	943	1	3	Jean Ellis
82.	943	1	3	J.Ellis[Ronnie Elliott]
83.	943	1	3	J.Ellis [Wayne Jacobs]
84.	943	1	4	John A. Hoffman, Jr.
85.	943	1	4A	John Jacobs
86.	943	1	4A	J. Jacobs [renter]
87.	943	1	4C	Ralph Snipes
88.	943	1	4D	Joseph Burton
89.	943	1	6	H. Thacker [D. Lockamy]
90.	944	2	6	Henry Thacker [renter]
91.	944	2	13	Sidney W. Ellis
92.	944	2	14	Phillip L. Ellis

Durham County (Cont.)

No.	Map	Sec	Lot	Owner [Renter]
93.	944	2	15	James E. Ellis
94.	944	2	16	Laura D. Ellis
95.	961	1	2	William O.Davis [renter]
96.	961	1	2A	Alco Carrington
97.	961	1	2B	Lois B. Davis
98.	961	1	2C	Albert Carrington
99.	961	1	2F	Ronald W. Davis
100.	961	1	3	Copley Cem. (113 graves)
101.	961	1	4	C.S. Hester [D. Parker]
102.	961	1	4	C.S. Hester [renter]
103.	961	1	6	Donnel Carrington
104.	961	1	7	D.Carrington [M.Hester]
105.	961	2	1	C.S. Hester [Eubanks]
106.	961	2	1	Vaughan Cem. (23 graves)

Granville County

No.	Owner [Renter]
107.	[Chester A. Thorpe]
108.	M. Thorpe and W. Reed
109.	Ernest T. Majors
110.	Don Shoenberger
111.	Clifton & Hattie Stewart
112.	Esther Lawson
113.	[James Thorpe]
114.	[Bruce Wilkerson]
115.	Lee Wilkerson
116.	??
117.	[Frank Oakley]
118.	[Willie D. Brooks]
119.	Sam and Terry K. Mason
120.	Belzora H. Burwell
121.	Mikels
122.	Norma Gossett
123.	??
124.	??
125.	Grover Lane
126.	Anita Gray
127.	Steve Miller
128.	Nathan & Bonnie Johnson
129.	Tyson Carpenter
130.	??
131.	Jack T. Poole, Jr.
132.	[renter]
133.	K.D. & Pauline Gentry
134.	Phillip Duke
135.	William Evans
136.	Donald Tilley
137.	Lane & Cheryl Wheeler

Person County (Cont.)

No.	Owner [Renter]
138.	Estelle & Alicia Tilley
139.	Billy Mangum
140.	John Perotti
141.	Charles A. Gantt
142.	??
143.	[Darrell Greenway]
144.	W.A. Howerton
145.	??

Person County

No.	Map	Lot	Owner
146.	A-70	33	Huel M. Gentry
147.	A-93	8A	Donnel Satterfield
148.	A-93	8B	Lee A. Wilkerson
149.	A-93	8D	Faulkner
150.	A-93	12	Annie S. Walker
151.	A-93	22	Silvelyer Allen
152.	A-93	22	Theophelus Bradsher
153.	A-93	23	Elma Bradsher
154.	A-93	24	Hughes
155.	A-93	30	Johnnie Lawson
156.	A-93	41	Willie & Goldie Palmer
157.	A-93	46	Robert Allen
158.	A-93	54	Daniel Palmer
159.	A-93	57	[Ruth Belle Williams]
160.	A-93	60	Allen & Dorothy Smith
161.	A-93	61	Doris Lawson Corbett
162.	A-93	65	Willie Clyde Day
163.	A-93	66	Leo Wilkerson
164.	A-93	67	Dock & Gloria Ragland
165.	A-93	68	Robert & Rachel Pipes
166.	A-93	69	Leroy & Ruth Ramsey
167.	A-93	70	Sylvia Johnson
168.	A-93	71	Reginald Womack
169.	A-93	74	James & Marion Jeffers
170.	A-93	75	B.A. Drumwright
171.	A-93	77	Larry Lunsford
172.	A-93	78	Lloyd Carrington
173.	A-93	85	Thomas Miles
174.	A-104	3	[Eugene Harris]
175.	A-104	3A	Webb's Chapel (Grill)
176.	A-104	4B	??
177.	A-104	5	[Addia Green]
178.	A-104	7	[Breedie Green]
179.	A-104	15	Addie G. Padilla
180.	A-104	16	Evelyn Hughes Bullock
181.	A-104	28	Utley [Chandler]

LETTER 711 (CONTINUED)

Another SSC Relocation

Family

NO COLLIDER

IIA.1- 1229

LETTER 712

#77

Bob Swan 13110 QUARTERHORSE RUN
ROUGEMONT, N.C. 27572

Restrictive Covenants in the Red Mountain Subdivision

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the restrictive covenants attached to the properties in the Red Mountain Subdivision in Rougemont.

The Red Mountain Subdivision is one of four new subdivisions in the Rougemont area, none of which appeared in the North Carolina SSC Proposal. This subdivision was supposed to consist of 112 homes and now would be in its final stages of completion were it not for the announcement of the proposed Super Collider last January. Since that time, only 2 homes have been built in the development, at least 6 homes under construction or in the advanced stages of planning have been put on hold, several property additions and enhancements have been delayed, the third and final phase of subdivision has been postponed, and almost no real estate has changed hands. One home that had been completed before shortly the Collider announcement sat vacant for seven months; it was recently occupied, but only because the builder was forced to negotiate a lease/purchase agreement--providing some income to the builder but allowing the potential buyer to back out of the deal if the Collider were to come here.

1

You see, if the Collider comes to North Carolina it would take 32 homes out of the middle of the development. Another 40 homes would be located in the stratified fee estate area and would be devalued by the SSC. Thirteen homes would be located inside the ring and would not receive any reimbursement because they are quote "not affected." The other 37 lots would have been in the third phase which was never subdivided because of the Collider.

What does not affected mean? It means nothing, because every lot in the subdivision will be affected as one of the two common wells will be taken and the remainder of the development will not be completed because of the Collider. This means the property assessments to support the clubhouse, swimming pool, horse barn and riding trail, and other common areas will have to be increased by at least one-third to meet the monthly common area expenditures.

What does all this mean to DOE? It means they will have to pay monthly assessments on each of these 32 fee simple properties. You see, there are restrictive covenants on each of these properties that go with the deeds. In addition to the monthly assessments, DOE must provide a 20 foot right-of-way on the outer edge of those properties on the boundary of the development for the commonly-owned horse trail. Perhaps more significantly, each structure built on these properties falls under the control of an Architectural Committee of the Red Mountain Homeowners' Association with requirements for minimum square footage, setback, and various other restrictions. Finally, it is important that the DOE realize that all roads in this subdivision are privately owned and therefore the State or DOE will have to reimburse each property owner for the purchase of these roads.

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 713

Clarence Lemons
Rt 1 Box 756
Oxford, N.C. 27565

I am here today to ask that careful consideration be given to locating the SSC other than N.C.

The DEIS in my opinion does not go into enough detail regarding the area involved.
The number of wells that have the potential of being affected are way underestimated. (185 relocations)
I do not believe that damage from blasting and/or vibrations from tunneling have been addressed in enough detail.
Little information was presented on impact from road damage to secondary roads that are not constructed for heavy traffic.
My concerns over the influx of people into area has not been answered. Granville county with a July unemployment rate of 3.1% and according to one realtor 2-3 housing rentals in the

LETTER 713 (CONTINUED)

Butner and Creedmoor area and
none in Oxford will this drive
up rent to people living on fixed
incomes. I have reservations
about the ability of law enforce-
ment, fire + Emergency services
to handle the influx. Not from
lack of ability but from lack of
personel and the impact statement
does not address this concern
I do not believe that the
present administration of N.C.
fully appreciates the impact of
having to relocate, or the loss
of lands and the stress this
puts ~~them~~ people under, the Impact
statement does not address this
issure. 14,000 acres from private
owership will have a great
impact on tax structure and
a statement that funds will be
available is inadequate.
Visual impact on an area
that a lot of people enjoy
and a way of life that people

LETTER 713 (CONTINUED)

enjoy will be taken away
gone forever.
I do not think proper
consideration has been
given to the impact on
the lives of the families,
churches, businesses that are
to be affected by S.S.C.
My family lives in Granville
because we are native Granvillian
and we like trees, quietness
and country atmosphere.

I have recently returned from
a driving trip to Phoenix Az.
and on this trip I rode by
acres and acres of land where
S.S.C. could be placed without
disturbing anyone. I suspect
the Federal Government already
owns lands that could be used.
This might help spread the
population of the U.S. rather
than concentrating it more in
already populated areas

Jerry Reed a popular country and Western recording artist has a song called "She got The Gold Mine, I got The Shaft" about a divorce settlement in which his ex wife got everything. With the S.S.C. I have not figured out who will get the Gold Mine but I know who is getting the Shaft! The people living on and around The S.S.C.

LETTER 714

#11 1st earned a B.S. in Chemistry

Visual Impacts

The Draft Environmental Impact Statement is filled with ~~numerous omissions~~ erroneous statements, ~~factual errors, misrepresentations~~, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of Visual Impacts of the SSC not discussed in the draft EIS.

1 The impacts of F1-F10 have not been adequately addressed, since the height and mass of the cooling towers have not been specified. Where there are trees now, there are no guarantees these buffers would, or even could, be maintained during construction. Plant tree? Take a number of years to grow. unless plant 20 ft. tree.

Appendix 16 of the draft EIS, page 13, states that visual impacts at J1-J6 are not expected since no facilities are planned at this time, but that mitigation of impacts due to future plans for these areas should be incorporated into the final project design. This is not acceptable. Also described in this appendix are beam absorbers (L1 and L2) which would include buildings and cooling towers. The impacts of these facilities are not assessed

2 since they are not yet designed. Again, this is unacceptable. Since the visual impacts of these potential facilities, plus the visual impacts of the campus and near and far clusters have not been given any attention and the visual effects of several areas as discussed in the draft EIS are unfairly minimized, this section of the EIS is not acceptable and the DOE is requested either to address these impacts before a site is selected or disqualify this site from further consideration.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

DEIS data does not agree with actual figures that anyone in the area can realize if they only bother to look.

on my mother's property there are no trees to buffer the houses & buildings & it is not taken, to buffer the (noise & visual) impacts of construction. and operation thereafter.

Kay Lemons
Rt. 9, Box 756,
Oxford, N.C. 27565
919-693-3910

LETTER 715

Presented for Barry Brooks
(919) 471-2946
Billyea Barwell
Ft. Bragg 28-3
Oxford N.C. 225-65
Tele 693-4538

31.

General Air Quality

The draft environmental impact statement (EIS) is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of air pollution and air quality.

1 The EIS does not, ~~I believe~~, do an adequate job of addressing the topic of air pollution emissions associated with the construction and operation of the SSC. The explanations of how the summary emission totals were determined were poor. Referencing AP-42 without showing calculational procedures and all assumptions and input variables used to obtain the estimated emission totals is simply not sufficient and is not good science. The credibility of the emission totals is lessened by the use of old data. References to the U.S. EPA National Emissions Data System (NEDS) indicate the use of outdated information. Much of the data on emissions in the NEDS system is of a 1980, 1982, or at best 1985 vintage. It is not at all of a 1988 vintage as one might assume by looking purely at the reference.

2 Criteria pollutant emission totals shown in the draft EIS are not complete because they do not include all potential sources. Sources not included were residential heating from the influx of several thousand people predicted in the draft EIS to be required for the project, increased power plant emissions from increased electricity generation for SSC operation and consumer growth, mobile source emissions from population growth directly occurring to staff the SSC, and emissions from additional consumer support services specified in the draft EIS to be required for the project.

Projecting emission impacts can't just stop at the absolute impacts connected with SSC construction and operation. You must also consider emissions from sources that only occur because of the existence of the SSC. These potentially significant emission levels would not occur in the absence of the SSC.

3 The draft EIS continually seems to make light of the air emissions coming from the SSC. Granted, the SSC construction and operation will not generate emissions on the order of a large industrial source such as a refinery or steel mill, but they are not insignificant. These emissions are even more important considering the nonattainment status for ozone and carbon monoxide recently proposed by EPA for Durham County and the nonattainment status for ozone in Granville County.

During construction of the SSC, the following unacceptable air quality situations are projected to occur.

4

- Average annual NO_x (nitrogen oxide) ambient concentrations will be 54 percent over background levels.
- The SSC will be responsible for one-third of projected 24-hour SO_2 (sulfur dioxide) concentrations.
- The 24-hour particulate matter concentration attributable to the SSC will be six times higher than background levels.
- The SSC will be responsible for 52 percent of projected average annual particulate matter concentrations.

- The SSC will contribute greatly to the area exceeding the national ambient air quality standard for PM_{10}.

- Operation emissions of 299 tons/yr for carbon monoxide, nitrous oxide 24 tons/yr for hydrocarbons, and 32 tons/yr for NO_x will only increase areawide problems with nonattainment for ozone and carbon monoxide.

The problem with the EIS emissions is that again, it likely underestimates all criteria pollutant emissions because it does not examine all pollutant sources. For example, the draft EIS only included vehicle miles traveled or VMT and corresponding emissions for VMT from construction traffic and SSC staff operational traffic. What about all the VMT from the construction personnel outside of the actual SSC site? What about the VMT from the 3,000 or so people thought to be moving into the area to staff the
5 project? There will also be a host of other emission sources that will be built, opened, or expanded that are required to support the influx of people. This growth in emissions doesn't seem to have been covered at all in the draft EIS. North Carolina already has the second-highest number of days with a high air pollution potential of all the seven SSC contenders. The projected emissions and those not currently included in the draft EIS will only worsen this situation. These conditions and the fact that the SSC will either solely or in part greatly contribute to the exceedance of several national ambient air quality standards, makes it clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the SSC.

LETTER 716

October 3, 1988

Public Hearing on the Superconducting Super Collider

Draft Environmental Impact Statement

MEMBERS OF THE PUBLIC HEARING COMMITTEE:

I have 4 areas of concern. Each will be highlighted briefly.

WATER SUPPLY: Two major inaccuracies should be corrected:

(1) One of the 2 sources of cooling water is misidentified, and

1 (2) the assessment of impact on Durham's water supply does not take into account completion of its new water supply.

These inaccuracies overstate the impact on local water supply.

SEWAGE TREATMENT: The means of sewage disposal discussed in the DEIS is not in accord with information supplied to DOE. The

2 State suggests a more cost-effective and environmentally sound approach involving use of land application systems for domestic waste and surface discharge for cooling water.

3 SURFACE IMPACTS OF CONSTRUCTION: The DEIS proposal is based on use of cut-and-cover techniques for construction rather than use of a tunnel boring machine. Tunneling and underground excavation has been proposed specifically to reduce environmental impact and feasibility should be taken into account to make a fair comparison of potential impacts.

Finally,

4 SPOILS DISPOSAL: Possible alternates to surface disposal of tunneling spaces should be considered as a possible mitigative measure. The State has identified 17 suitable and adequate disposal sites.

Harry L. Eberly
Executive Vice President
Memorex Telex Corporation
Raleigh, North Carolina

Talking Points for Public Hearing on the SSC Draft Environmental Impact Statement

1. **Water Supply.** Two major inaccuracies in Volume I, Chapter 3, should be corrected: (1) one of the two major sources for SSC cooling water is misidentified, and (2) the assessment of impact on Durham's water supply does not take into account the completion of the city's new Little River Reservoir, which has doubled Durham's water supply.

   In Volume I, Chapter 3 (p. 3-42), the description of the proposed North Carolina site states incorrectly that "water supply for the various facilities is proposed from existing resources including Lake Butner, *Lake Michie*, and wells in the area." The actual proposed cooling water sources for the SSC are Lake Butner and *Mayo Reservoir*, not Lake Michie. Similarly, Table 3-3 incorrectly identifies the water supply to the SSC far cluster as Lake Michie (p. 3-28); this should be changed to Mayo Reservoir. Also, the summary table for water supply (p. 3-66) incorrectly states that "SSC direct and indirect water requirements impact the Durham water supply until its expansion is complete." In fact, SSC *direct* water requirements do *not* impact the Durham water supply, and the impact of indirect water requirements is greatly reduced, because the "expansion" referred to (the Little River Reservoir) has already been completed. (In addition, Durham expects to construct another reservoir, on the Flat River, which would supply an additional 18 million gal/day by 1998.)

5 For this reason, Tables 1-1 and 3-7 and the discussion in Chapter 5 (pp. 5.1.2-27-28) overstate the SSC's impact on local water supply. The tables state that the project would "use a large increment of excess capacity." This appears to be based on a statement in Appendix 7 of the DEIS (p. 60) that in the peak year of construction (1992), population growth related to the SSC could use up to 11% of the available excess water from Lake Michie. The DEIS states that this could be a problem *if* the Little River Reservoir is not up to capacity by then *and if* non-SSC-related population growth uses up all the currently available excess.

   There are three main points to be made here: (1) the Little River Reservoir is already up to capacity, so the estimated SSC-related population growth would use up to 5.5% of the excess capacity, not 11%; (2) no information is presented in the DEIS to suggest that non-SSC-related population growth might use up all of the excess capacity of these two reservoirs by 1992; and (3) the DEIS probably overestimates the SSC-related population increase in Durham County during SSC construction, thus overestimating the increased indirect water demand in Durham County. (According to an economic impact study by Dr. John Connaughton, of UNC-Charlotte, the DEIS greatly underestimates Wake County's probable contribution to the construction work force, thus overestimating in-migration of construction labor to Durham County.) Taking these factors into consideration, it would be more accurate to say that the project would use a significant but small increment of excess capacity.

2. **Sewage Treatment.** The means of sewage disposal from the SSC's far cluster facilities discussed in the EIS is not in accord with the most recent information supplied to DOE by the State. Volume I, Chapter 3 (p. 3-42) states that "sewage treatment would be supported by existing municipal systems." Appendix 7 (p. 59) states that "the far cluster wastewater could be divided and sent to both the Durham-Eno River facility and the Oxford-South facility," but suggests that because the Oxford facility's capacity would not be sufficient, a new package treatment plant should be built on a Roanoke River tributary. In its July 28 submission to the Site Task Force, the State has proposed that only the near cluster be served by an existing municipal system (the Butner Waste Water Treatment Plant). For

6

treatment of wastewater from the far cluster, the State suggests a more cost-effective and more environmentally sound approach involving use of land application systems for domestic waste and surface discharge for cooling water. The State does *not* recommend use of the Eno or Oxford facilities or construction of a new treatment plant on a Roanoke tributary.

3. **Surface Impacts of Construction.** The DEIS analysis is based on the use of cut-and-cover techniques for construction of the High Energy Booster tunnel, rather than use of a tunnel boring machine (p. 3-16 and p. 5.1.1.1-1). Only Michigan and Tennessee are identified in the DEIS as having proposed tunneling for the HEB; however, tunneling for the HEB also is proposed for the North Carolina site. The analysis of environmental impacts should be based on construction of the HEB tunnel by tunneling, rather than by cut-and-cover techniques, at sites where it is proposed and technically feasible.

7 The DEIS also states that "from three to six of the experimental halls might be constructed by cut-and-cover excavation at the...North Carolina site" (p. 5.1.1.1-1); the next sentence notes that North Carolina has proposed underground excavation for construction of experimental halls, but states that "if site studies do not show sufficient thickness of unweathered rock, cut-and-cover techniques may be considered." The State has provided information to show that the thickness of unweathered rock *is* in fact sufficient for underground excavation of all experimental halls. The analysis of environmental impacts should be based on construction of the experimental halls by underground excavation, rather than by cut-and-cover techniques, at sites where it is proposed and technically feasible.

Tunneling and underground excavation have been proposed specifically in order to reduce environmental impacts of construction, and their feasibility at certain sites should be taken into account in a fair comparison of potential impacts, particularly on water quality and wetlands.

4. **Spoils Disposal.** Possible alternatives to surface disposal of tunneling spoils should be acknowledged and considered as a possible mitigative measure in Volume I. The State has identified 17 possible spoils disposal sites, totalling 315 acres; however, local aggregates producers also have expressed interest in the crushed rock, as mentioned in Appendix 10.

8

LETTER 717

Joe Hamm
3:10
802 Goodwin Rd.
Durham, NC 27712

Legal Challenges

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. You will be hearing this statement and evidence to prove it more than 70 times during this hearing. The North Carolina proposal and the Draft EIS contain numerous errors and misrepresentations. Errors like unaccounted for railroads and gas pipelines. Misrepresentations like a 4-lane divided highway that runs on top of the proposed tunnel
1 location for more than a mile, but is misrepresented on the maps. Misrepresentations like outdated and no longer valid letters of endorsement and the withholding of town council and county commission resolutions against the Collider. There are errors--or outright lies--about the number of relocations and affected wells, resulting in 70 percent more relocations of families than announced and 75 times more affected domestic wells than the Governor and his staff have told you about.

However, I will leave these topics to others. Instead, I wish to address the potential legal challenges that Citizens Against the Collider Here will pursue if North Carolina is selected as either the preferred site or as an alternate site for the Super Collider. There are at least five legal challenges possible.

2 The first involves the Draft EIS and the conduct of these hearings. More than 45 persons above the planned number of single day speakers requested speaking time at least one week prior to today. However, DOE began refusing callers last Monday morning (September 26, 1988), telling them all time slots had been filled and they could not reserve a time to speak. Subsequently, DOE extended the speaking times after pressure from one of our State Representatives, but eventually denied the privilege of advance registration to speak to

at least 16 persons. Only a letter from our attorney persuaded DOE to extend the hearing to a second day as required by the published rules. However, only a morning session was added (even though there were enough speakers above the first date cutoff to schedule a full second day, afternoon and evening, of speakers). The Tuesday morning session denies the opportunity to come and speak at this Hearing to persons who have to work for a living, unlike those here on the State or some corporate payroll. And we have been told that DOE will refuse to allow others who signed up but cannot come to have their spouse or someone else read their statement

3 There are other problems with the Draft EIS that are in conflict with published EPA guidelines. The Draft failed to incorporate issues clearly identified during the Scoping session (such as area droughts, electricity and water problems, and significant local opposition), it is not written in "plain language," the impact statements in the summary document are not drawn from the appendices in many instances, and the general public in North Carolina was not adequately informed about the Hearing as there were no advance published notices in the local newspapers or local area posted notices.

4 A second legal challenge concerns the failure of the DOE to fairly address concerns in North Carolina. As an example, C.A.T.C.H. requested to speak with the Site Task Force during their visit in early June and were initially informed by Brian Quirk, SSC Public Information Officer, that we would get that opportunity. Then we were informed that DOE could not meet with us as they could only address issues in the State's proposal. However, this did not stop the DOE from meeting with another group about a potential medical application of the Collider, an issue never addressed in the North Carolina proposal.

5 Third, and perhaps most significantly, we would challenge the selection of North Carolina since the decision would be made using known faulty data. In a letter to me from Wilmot Hess dated August 23, 1988, he ~~states~~ indicated the SSC Site Task Force site visit to North Carolina in June provided them (quote) "...with

an opportunity to confirm information provided to us by the proposers...." Since we sent you a map of the entire proposed Collider site and had every one of the more than 180 relocations clearly marked with a sign in the front yard, this must mean that you either verified that the State's number of relocations was entirely too low or that you failed to meet your NEPA obligation to verify this information. This is just one example of the incorrect information provided to DOE by the Governor's Office.

Finally, there are at least two areas in which State-level legal challenges can be initiated. We have been informed by a legal source at the State level that (quote) "A good lawyer should be able to keep this thing tied up in court for at least two years."

If DOE must build this facility, it should be placed somewhere where it is wanted--and needed. A recent poll of households clearly indicated that it is not wanted in these three counties. Both State Senators and all six State Representatives who serve these three counties plus the Speaker of the House, Commissioner of Agriculture, Attorney General, and Labor Commissioner have expressed opposition to this project. Since even the Governor's own feasibility and economic impact studies demonstrated this project is not economically advantageous in North Carolina and since the North Carolina proposal is not binding on our State Legislature (contrary to the requirements of the ISP) and we have one of the most powerful Legislatures in the country, the chance of this project ever being funded with State monies is quite slim.

6

Wake up DOE. This project is not needed or wanted here. And it will be clear by tomorrow that the North Carolina site cannot be demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Well, for one, am not surprised that the Governor is not here. He is the only public official in North Carolina who has refused to speak with us, even though we sent a representative to Fermilab at his request. The Governor also has established a "do nothing" public relations stunt Commission which, at its last meeting, had one representative state he wanted to protect the state against the property owners. This will not meet again until after the proposed site is selected.

LETTER 718

Statement

of

Joseph E. Harwood, Chairman
Environmental Concerns Committee
N.C. Citizens for Business and Industry

before
the
Department of Energy's
Public Hearing of the Draft Environmental Impact Statement

on the

Superconducting Super Collider

Butner, N.C.

October 3, 1988

LETTER 718 (CONTINUED)

NORTH CAROLINA CITIZENS
FOR BUSINESS AND INDUSTRY
225 Hillsborough Street, P.O. Box 2508, Raleigh,
North Carolina 27602, Telephone 919/828-0758

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1

My name is Joe Harwood and I am presently serving as chairman of the Environmental Concerns Committee of the North Carolina Citizens for Business and Industry (NCCBI). The NCCBI organization represents over 1300 businesses and manufacturing firms within the state of North Carolina. I have come here today on behalf of the Environmental Concerns Committee to voice our continued support of the states efforts to have the DOE Superconducting Super Collider (SSC) Project sited in North Carolina.

In January and February of this year, several selected committee members reviewed technical and environmental aspects which would be associated with the construction and operation of the SSC at the proposed North Carolina site. At that time, the committee concluded the SSC project would pose no health or safety risks to the general public and have minimal impacts to land, air and water resources in and around the project boundaries.

Recently, the committee has taken the opportunity to review and evaluate the draft Environmental Impact Statement for the SSC as it pertains to the proposed North Carolina site. In this review, we considered both known and potential environmental impacts detailed in the DEIS relative to land resources, air quality and surface and groundwater supplies.

Based on our review, the committee position again is one of support and encouragement to the state in having the SSC sited, constructed and operated in North Carolina. In addition, the Environmental Concerns Committee continues to pledge and offer its technical support to the state in their efforts to have this very important technical project sited in North Carolina.

Thank you for the opportunity to comment on this project.

J. E. Harwood
October 3, 1988

LETTER 719

Victor Krynicki
27 Finish Line Road
Bahama NC 27503

Watershed Restrictions in Durham County

The Draft Environmental Impact Statement is filled with numerous omissions, ~~factual~~ errors, and misrepresentations ~~of~~ facts which are detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of watershed restrictions in Durham County.

Durham County has developed a comprehensive Watershed Protection Plan, especially for northern Durham County. The proposed location of the SSC in northern Durham County is located exclusively in the County's Water Quality Basin area[1]. The proposed Super Collider's Near Cluster (Area I), Future Expansion Area (Area C), and over 95 percent of the Buffer Area and Buried Beam Zone (Area I) are located in areas where there are generalized soil limitations for development, with possible well contamination and erosion from any construction. The rest of the Beam Zone and all of the proposed Campus Area (Area A) are located in an area of slow drainage and high erosion potential[2].

1 Much of the Super Collider that is proposed to be located in Durham County is in violation of these watershed restrictions because it involves construction in the Water Quality Basin Area of the county. This includes all of the Campus area (Area A), the service areas at sites F1 and F10, any construction in the Expansion Area (Area C), any construction in the near cluster (Area G), and any construction in the Buried Beam Zone Access Areas (the J areas) or the Buffer Area and Buried Beam Zone (Area I) within Durham County.

These restrictions include prohibitions against above-ground storage tanks, construction within 50 feet of the Flat River, and restrictions on the allowable amount of impervious surfaces. Yet, there are two proposed Service Areas in Durham County (F1 and F10). The design for each of these Service Areas includes 13 above-ground tanks for the storage of helium gas, liquid nitrogen, and liquid helium--all in violation of Durham County watershed restrictions. There may be other storage tanks in the Campus and Expansion areas as well.

The proposed Buried Beam Zone Access Area at J2 would straddle the Flat River. The DOE has yet to specify what would be built on this 40 acre site, but it is important for the DOE to realize that no structure of any kind can be built within 50 feet of the Flat River in the Water Quality Basin Area. 2

Also, with sewer supplied by a treatment plant, the maximum amount of impervious surfaces allowed in the Water Quality Basin area is 30 percent, although up to 40 percent is allowable with a special use permit. However, the preliminary environmental impact study conducted by Weston Associates for the State of North Carolina estimates the Campus Area will consist of between 80 and 90 percent impervious surfaces. These restrictions also would prohibit or restrict construction in the Future Expansion Area, the Service Areas, the Near Cluster, and the Buried Beam Zone Acces areas. 3

Volume I of the Draft EIS does not discuss these Water Quality Basin restrictions of the Durham County watershed. Appendix 5C, page 91, does list these restrictions, but there is no discussion of how these restrictions could be mitigated. This must mean that the Department of Energy would plan to openly violate these watershed restrictions in Durham County. 4

In conclusion, construction of the Super Collider as proposed in Durham County would be in clear violation of several restrictions of the Durham County Water Quality Basin Area. However, ways of handling ~~proposed mitigations to~~ these violations are not discussed in the Draft EIS. Should DOE select the proposed siting in North Carolina, this would be a clear indication to the residents of North Carolina, especially the residents of Durham County, that the DOE does not intend to protect the watershed and the SSC has the potential for serious environmental damage. 5

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

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[1] "Durham: Past, Present, Future." Summary Report. Durham: Department of Planning and Community Development. February, 1983.
[2] "Durham County General Development Plan, 2005." Durham County Department of Planning, 1986.

LETTER 720

106 Nantucket Drive
Washington N.C. 27889

WELL DAMAGE FROM CONSTRUCTION ACTIVITIES SSC EIS 10-3-88

Evelyn Winslow

The draft environmental impact statement (EIS) is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of potential well damage from SSC construction activities.

The draft EIS does not effectively address potential damage that may occur to citizens' wells as a result of SSC construction activities The amount of surface and subsurface disturbances that will occur during construction will be great. The potential for rock strata and groundwater disruption will be significant. The tunneling activities alone for construction of the ring may produce immeasurable impacts on the surrounding rock and groundwater, affecting nearby wells.

1 The magnitude of this impact may be tremendous, given the number of wells in the affected area. There are many more than the nine wells the State of North Carolina told you were in existence within 1000 feet of the site. This number is off by more than an order of magnitude. If you extend the zone of examination out to 2000 feet, the order of magnitude on the number of wells may jump two-fold.

2

No attempt has been made to estimate what all the tunneling and other construction activities will do to existing well water quality or quantity. It is not inconceivable that both waterquality and quantity could be drastically altered. To illustrate this point, one only has to look at the State's record in preparing its SSC proposal to DOE. As part of its proposal, North Carolina conducted several geological test drillings. At the site of one of these supposedly simple, straight forward drilling sites, a neighboring person's well went bad. Water quality degraded significantly within days after geological testing ceased at the drill site.

3

There had never been any problems with that family's well for 21 years prior to that time. Water quality became so bad that a sophisticated and expensive water treatment system was required to make the water usable and drinkable again.

2 The water developed an oily smell and taste and a brownish color which stained fabrics and ruined clothes. Both husband and wife complained of kidney problems which they associate with drinking water from this well. These problems have diminished since the installation of water purification equipment. However, these people are concerned about the long term effects that drinking that water may have upon their health.

LETTER 720 (CONTINUED)

This well damage occurred in June, 1987. The problem was 4
reported to the N. C. state officials who investigated the matter. They decided that although there was no proof that the damage resulted from the State's drilling activities, no predrilling investigation had been done. So, Dr. Bill Dunn proposed to the N. C. Super Collider Commission that the state drill the family a new well. The Commission decided to table the matter. So, after 16 months, this family has not been compensated and this matter has not been settled.

The state's test well is located 3/4 mile north of state road 1300. The landowner's well is 100 yards northeast of that site.

5
While proving that the State's drilling activities caused this person's well to go bad ~~may not~~ be possible, the circumstantial evidence is pretty clear. Given the distance and direction of the family's well from the drilling site, the overall geology of the area. and the nearness to the surface of groundwater in the area, it is highly probable that the activities caused the problem with the well. In this case, the State was only drilling a well boring of a few inches in diameter. What are the impacts going to be from a project the size and magnitude of the SSC? How is the construction of an underground ring 10 feet in diameter and 53 miles long going to affect groundwater
3 flows and water quality at possibly hundreds of adjacent well sites? Right now, I doubt that anyone knows and the EIS does not reflect an adequate investigation of this situation.

6
Once construction activities are in full swing, ~~DOE~~ the State may find itself having to purchase more fee simple properties than it ever imagined, because of well damage problems. The number of relocations
4 required could dramatically escalate. I don't think that this potentially enormous problem has been considered in anyone's calculations.

Until these questions and others are reasonably answered, it is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the SSC.

Evelyn Windley
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Slatestone Hills
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946-6556
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LETTER 721

our farm is inside the circle

Noise and Vibration

Dear Winfield
106 PANTICOUGH DRIVE
WASHINGTON, N.C.
27889

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of noise and vibration around the Collider site in North Carolina.

As with the issues of wells and relocations, the State has vastly underestimated the number of human receptors around the proposed siting for the Super Collider in North Carolina. Only one area of residential concentration is indicated (p. 5.1.4-9), even though the towns of Stem and Rougemont are
1 either completely within or adjacent to the Buffer and Buried Beam Zone areas. In addition, only four residences are indicated within the fee simple areas for the near and far clusters, campus area, injector area, and future expansion areas even though there are over 170 residences to be purchased in fee simple in these areas. Such ~~crucus~~ misrepresentation of the data by the State of North Carolina should be an affront to the intelligence of the DOE. PEOPLE FARMERS! Lucky circle

Besides misrepresenting the number of noise receptors, the State also failed to indicate two sources with a high potential for providing vibrations to the detriment of tunnel operations. First, North Carolina is the only site that proposes a tunnel location with a four-lane, divided highway running directly over it for at least a full mile. This highway in this location does
2 not appear on the State-provided maps, as these maps are outdated. There is a section of U.S. 501 about two miles northwest of Timberlake that was relocated about one-half mile to the east several years ago when the road was changed from a two-lane to a four-lane highway. This new stretch of four-lane highway, which has extensive truck traffic, runs directly on top of the proposed location for the tunnel. However, the State maps, including the parcel map on

page A-57, do not show this highway. Instead these maps indicated U.S. 501 as being in its old lo ation, which is now known as Roby Barton Road. If during their site visit in late June DOE had accepted C.A.T.C.H.'s invitation to our barbecue, which was attended by more than 800 paying anti-Collider residents, they could have seen this highway for themselves since the Homestead Steakhouse is located just west of Roby Barton Road, which is the old U.S. 501 which is west of the new U.S. 501.

All of the SQL sites except Colorado have one or more railroads crossing the collider ring. The North Carolina proposal indicates only one such railroad, but there are actually two. The Norfolk and Western Railroad, which

3 the State indicates on page 7-3 of its proposal as being abandoned northwest of the ring, actually is not abandoned until south of Timberlake--well inside the ring. The present terminus is a logging operation about one mile south of Timberlake. In addition, there is a second source of railroad vibration, also unique to North Carolina. The CSX Railroad tracks run directly on top of the proposed tunnel location in the southeast quadrant for more than 1 mile.

Although the State has provided some vibration and noise level data, if

4 these data are no better than other data that can be more easily verified (such as number of human receptors and sources of vibration), how can these data be trusted. There is no way the DOE can select the North Carolina site since the data have been proven to be inaccurate and unverifiable.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 722

#82

Helen Thomas

Opposition by State Elected Officials

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of opposition by the elected state officials serving these three counties.

Both of the State Senators and each of the six State Representatives serving the three affected counties have now expressed opposition to the Super Collider as proposed in North Carolina. These include some very powerful legislators. This is important because we are the only state without a gubernatorial veto and have one of the nation's most powerful legislatures.

Senator Kenneth Royall, Jr. is chair of the Ways and Means Committee and vice-chair of the Appropriations and Base Budget committees. Senator Royall has indicated he cannot support the Collider as long as it remains in Durham County.

Representative Billy Watkins is chair of the Appropriations Expansion Budget Committee and a powerful member of the Appropriations Base Budget Committee. Rep. Watkins was the first area legislator to state his opposition to the Collider.

1 Representative George Miller, chair of the Finance Committee, is noted for his expertise on fiscal matters. He opposes the way the Governor has managed the project and opposes such a large state expenditure. Re. Miller has stated (quote): "We were told that there was sufficient available undeveloped land that acquisition of private property would be at a minimum. Now we learn that hundreds of homes will be affected and many people displaced. We cannot allow this to happen."

Representatives H.M. "Mickey" Michaux, Jr. and Jimmy Crawford are members of both the Appropriations Base Budget and Expansion Budget committees. Rep. Michaux has stated (quote) "I do not intend to support this matter when it comes before the General Assembly." Rep. Crawford has indicated he has concerns about the placement of the Collider and its impacts on people.

Sen. Ralph Hunt is vice-chair of the Local Government and Regional Affairs 1 Committee and a member of the Appropriations and Base Budget committees. He has stated (quote) "I am with you (the people)" against the Collider. Rep. Sharon

Thompson is a member of the Finance Committee and has been a strong supporter of the opposition to the Collider. Rep. John Church is vice-chair of the Finance Committee and has indicated he has serious concerns about the Collider as proposed.

Each of these state senators and representatives has been asked whether the Department of Energy has ever contacted them to get their opinions about the project. Each has indicated they have not.

Senators Royall and Hunt and Representatives Watkins and Miller were among those originally asked to back this project. They were informed by the Governor that this project would be mostly underground, would take very little private land, would not cost very much, and would only displace "about 12 people." After these elected officials determined they had been misled--that more than 8000 acres would be taken fee simple (91 percent private lands) with another 8,000 acres taken in stratified fee estate, that it would cost more than 620 million state tax dollars, and that it would displace over 185 families and more than 500 people--then these elected officials withdrew their support from the project.

In addition, Speaker of the House Liston Ramsey has indicated that North Carolina cannot afford this project. Attorney General Lacy Thornburg has stated that spending money for the Collider bid is (quote) "...like pouring money down a rat hole." Commissioner of Agriculture Jim Graham has stated his opposition to this project, primarily because of the extensive negative effects the Collider would have on area farmers. VOL. II - Appendices 5C - page 91 says "Much of the area throughout the site is designated as prime farmland." Commissioner of Labor John Brooks has voted against spending any more state money on this project.

The North Carolina Legislature has a history of not supporting legislation that is opposed by legislators in the affected districts. Therefore, we strongly suggest that you talk to these state officials before deciding to place the Collider in North Carolina where there is a great potential that the Legislature will not provide the necessary funding, even for initial land acquisition.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 723

Jeff Clayton #65

RESPONSE TO THE ENVIRONMENTAL IMPACT STATEMENT FOR THE SUPER CONDUCTING SUPER COLLIDER: SPIN-OFF JOBS.

The Draft Enviromental Impact Statement is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of "spin-off jobs." Both the Environmental Impact Statement for the Super Conducting Super Collider as well as the North Carolina State proposal suggests that construction of the SSC would result in numerous "spin-off" jobs being created. However, as noted in several ODE and North Carolina State documents, the SSC is a basic research facility. It is not a production industry requiring a constant flow of production supplies and product shipping industries. The SSC's primary function is research. As such, there will be little need for such "spin-offs" as parts and supply industries or shipping industries. Indeed, the SSC produces no directly marketable product and therefore requires no production supplies or product shipping. Although certain supplies and services will be needed by the SSC, it is noteworthy that the Governor's SSC Task Force Report dated 1986 stated that "a significant amount of ... goods and services required by the SSC will come from outside firms." In this context, "outside firms" referred companies to outside the state of North Carolina. Thus, opportunities for SSC support and supply services will be limited in this state. Indeed, the majority of the spin-off jobs would likely be in service-related industries to accommodate the SSC employees.

1

Seemingly, spin-off jobs would have the greatest positive impact in a state where the unemployment rate is moderate to high (i.e., there are many available workers seeking work) and the influx of population caused by the SSC would be minimal. In North Carolina, however, the reverse circumstances are true. In the Triangle Area alone the unemployment rate has been 3% or less

2

over the last twelve-month period resulting in a relatively small portion of the population seeking work. Also as noted by the DEIS, North Carolina would experience the largest in-migration of workers and their families should the SSC come to this state. Further, as noted by the DEIS spouses of these workers would seek employment in the local job market. Therefore, it is likely that these spouses would compete against current residents of North Carolina for whatever spin-off jobs are created by the SSC.

Another factor that detracts from the SSC spin-off effect is the number of public sector service-related jobs created to support the in-migration of workers and their families. As noted by the DEIS, North Carolina would experience the largest impact on the school system of any state to support the SSC in-migration than would be required in any other state. Similarly, it is expected that more police, fire protection personnel, and other public sector service-related jobs would be required to support this in-migration. Therefore, many of these spin-off jobs would place an additional burden on local governments to provide the infrastructure needed to support this in-migration. This in-migration would result at a time also when the SSC would result in removal of much private land from the tax roles for the SSC project. Hence, many of the SSC related spin-off jobs would place an additional burden on area tax payers as a function of the SSC being sited in this state. Although the state has pledged $15 million to local counties to offset the impact, the data reported in the DEIS suggest that this amount of money would not be sufficient to accommodate the increase of the financial strain on local government.

3

In view of these considerations, it appears that the SSC related spin-off jobs would have a far less positive impact in this state than they would if the SSC were to be sited in another state where the SSC in-migration is minimal and there are many local resideats seeking employment. Thus, the North Carolina site has not been demonstrated to be the best host site for the Super Collider.

4

LETTER 724

*6a

Wm. Thomas
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Roxboro, NC 27573

Zoning Restrictions in Durham County

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of land use restrictions in Durham County.

The Draft EIS says there are (quote) "minor local changes [needed for the SSC] from existing (zoning regulations)" (p. 3-53) in its discussion of the North Carolina site. Yet, if North Carolina is selected as the preferred site for the Super Collider, it would require complete land use re-zoning for all of the Campus area (Area A), the service areas at sites F1 and F10, and any construction in the Expansion Area (Area C). Also, complete re-zoning would be necessary to accommodate any construction in the near cluster (Area G) or the K areas of the Buffer Area and Buried Beam Zone (Area I) within Durham County. All of these lands currently are zoned residential or rural development and are located in the Water Quality Basin area of northern Durham County. Reclassification and re-zoning of any of these lands to Industrial is not permissible under the regulations of the watershed restrictions.

1

However, since Appendix 5C of the Draft EIS simply lists these restrictions with no discussion, this must mean that the Department of Energy would plan to openly violate these zoning restrictions in Durham County.

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 725

Good afternoon -- My name is Gerald Kelley, Assistant Planning Director for Durham City-Durham County Planning Department.

You heard earlier today from Mr. William Bell, Chairman of the Durham County Board of Commissioners, address the issues of fiscal impacts, watershed protection, and satisfying land use regulations in Durham County if North Carolina is selected as the preferred site of the SCC.

Today I'm speaking on behalf of the administration of the City of Durham on the topics of future water supply, wastewater treatment, and roads as identified in the Draft Environmental Impact Statement for the SSC.

In Appendix 1, p. 52, the report indicates the construction of the east end connector and the northeast loop between I-85 and U.S. #501 as well as other roads in the vicinity of the project.
1 However, in Appendix 14, p. 54, there is no mention of the east end connector. The east end connector should be included as a transportation project between U.S. #70 and the East-West (Dean) Expressway to provide a direct route from the SSC campus to Research Triangle Park and the Raleigh-Durham Airport.

In Appendix 10, p. 7 the State of North Carolina proposes that sewerage from the far cluster, service area 5 and the emergency service building could be pumped to the City of Durham
2 Eno Treatment Plant. If this is the only alternative, the Durham City Council would need to either amend their Urban Growth Boundary or grant an exception to that policy. Furthermore, the Durham County Board of Commissioners would need to amend their

critical watershed protection ordinance to allow pumping through a geographical area of Durham County designated "critical watershed" before reaching Eno Treatment Plant.

Finally, in a letter dated March 14, 1988, from Mr. A. T. Rolan, Director of Water Resources, to Dr. Wilmot Hess, Chairman of the Site Task Force, Mr. Rolan raised a major concern if Durham can develop a future water supply on the Flat River
3 from four alternative ~~uses~~ sites under consideration if the SSC is constructed in its proposed location. The City of Durham need answers to questions asked by Mr. Rolan to ascertain the long range water supply implications for the City of Durham. I anticipate this information will be supplied in Volume II, Comment Resolution Document of the final EIS.

Thank you for the opportunity to share these thoughts, and I hope the final EIS will clarify the issues raised by the City of Durham if North Carolina is selected as the designated site for the SSC.

Gerald E. Kelley
Asst. Dir. City/County Planning Agency
for City of Durham + County of Durham
212 Corcoran Ave.
Durham N.C. 27701
919-683-4137

10/3/88

LETTER 726

Statement

of

James R. Hendricks, Jr.
Duke Power Company
Charlotte, North Carolina

before the
Department of Energy's
Public Hearing on the Draft Environmental Impact Statement

for the

Superconducting Super Collider

Butner, N.C.

October 3, 1988

Mr. Moderator, I am James R. Hendricks, Jr. representing Duke Power Company which is headquartered in Charlotte, N.C. and serves a portion of the site area under consideration for the Superconducting Super Collider (SSC). At Duke Power Company I hold the position of Principal Engineer with responsibility for environmental matters associated with Power Plant Siting.

At the previous Department of Energy's Public Scoping meeting for the SSC held on February 9, 1988, Duke Power Company pledged its commitment to provide all or part of the electric power that would be required for the North Carolina site SSC facilities. Duke also stated, based on its experience in siting, constructing and operating large power plant facilities, that all appropriate environmental studies and programs relative to the SSC have been identified and, if properly implemented, will result in an environmentally acceptable facility.

1 Recently, Duke Power Company has reviewed and evaluated applicable portions of the draft environmental impact statement for the project and we wish to reaffirm our previous commitments and evaluations of the SSC as well as comment on water quality and water use aspects of the proposed facility. In terms of water quality, our review of the DEIS as it pertains to the proposed North Carolina site suggests there will be minimal impacts to surface and groundwater quality in and around the project area. In addition, based on our knowledge and understanding concerning current and planned water supplies for the SSC facility, water use will not exceed existing or future water supply capacities of the area as indicated in Volume I, Chapter 3 of the DEIS.

In summary, Duke Power Company strongly encourages and pledges its support to the state in their efforts to have the SSC sited in North Carolina.

LETTER 727

By:
ROBERT A. PASIPANKI
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NORTH CAROLINA PUBLIC HEARING
DEPARTMENT OF ENERGY SSC DRAFT ENVIRONMENTAL IMPACT STATEMENT
OCTOBER 3, 1988

WATER SOURCES

THE DRAFT ENVIRONMENTAL IMPACT STATEMENT CONTAINS MISREPRESENTATIONS, OMISSIONS, FACTUAL ERRORS, AND FACTS DETRIMENTAL TO THE SITING OF THE SUPER COLLIDER IN NORTH CAROLINA. I WISH TO ADDRESS THE TOPIC OF WATER SOURCES.

THE N.C. PROPOSAL (PAGE 1-5) STATES "NO ENVIRONMENTAL FACTORS HAVE BEEN IDENTIFIED THAT WOULD PRECLUDE CONSTRUCTION OR SIGNIFICANTLY LIMIT THE LOCATION OF THE SSC ON THE PROPOSED SITE." WE DISAGREE. THE PROPOSED SSC SITE IS AT THE HEADWATERS OF THREE MAJOR DRAINAGE BASINS COMPRISING OVER 20,000 SQUARE MILES. THE DRAINAGE BASINS ENCOMPASS FIVE RIVERS; ROANOKE RIVER, NEUSE RIVER, TAR RIVER, FLAT RIVER, AND LITTLE RIVER. THE HEADWATERS DRAIN INTO THE WATERSHEDS OF THE MAYO RESERVOIR, LAKE MICHIE, LITTLE RIVER RESERVOIR, LAKE BUTNER, LAKE ROGERS, LAKE
1 DEVIN, AND THE FALLS OF THE NEUSE RESERVOIR.

THE CITY OF DURHAM RECOGNIZES THE SENSITIVITY OF THESE WATERSHED HEADWATERS IN ITS STUDY "DURHAM PAST PRESENT AND FUTURE" (DPPF) STATING THAT ACTIONS IN THIS AREA "CAN ADVERSELY AFFECT THE WATER QUALITY OF DOWNSTREAM CITIES SUCH AS RALEIGH, SANFORD, AND FAYETTEVILLE" AS WELL AS DURHAM. THE "DURHAM COUNTY GENERAL DEVELOPMENT PLAN 2005, 1986 UPDATE" (2005) CALLS FOR REGULATION OF DEVELOPMENT IN THE WATERSHED TO PROTECT LAKE MICHIE, LITTLE RIVER, JORDAN LAKE, AND FALLS OF THE NEUSE RESERVOIR ALSO. IN THE SOUTH FLAT RIVER AREA (SSC CAMPUS AREA)

THE COUNTY DISCOURAGES ALL CONSTRUCTION, BECAUSE, INDEED, IF THE SSC IS BUILT THE PROPOSED FLAT RIVER RESERVOIR LIKELY CANNOT. WITH THE LOSS OF THE FLAT RIVER RESERVOIR SITE, IT IS POSSIBLE THAT DURHAM WOULD REACH ITS MAXIMUM GROWTH POTENTIAL IN ONLY A DOZEN YEARS BECAUSE OF SSC ENCROACHMENT. YET THE STATE OF NORTH CAROLINA DISREGARDS THESE CONCERNS IN ITS ATTEMPT TO WIN THE SSC.

DURHAM COUNTY PASSED THE CRITICAL WATERSHED ORDINANCE IN 1985 TO PRESERVE THE DRINKING WATER IN THE WATERSHEDS OF THE LITTLE RIVER, FLAT RIVER, ENO RIVER, FALLS LAKE, AND JORDAN LAKE. TO PROTECT THE QUALITY AND QUANTITY OF ITS GROUND WATER SOURCES, DURHAM COUNTY HAS CHOSEN TO DISCOURAGE INDUSTRIES WHICH REQUIRE LARGE QUANTITIES OF TREATED WATER, AND TO ENFORCE STRICT REGULATION OF THIS TYPE DEVELOPMENT. THE STATE'S SSC PROPOSAL HAS, ALSO, CHOSEN TO IGNORE THE CRITICAL WATERSHED ORDINANCE.

VOLUME 8-1 OF THE N.C. SSC PROPOSAL STATES THAT EACH OF THE FOUR WATER BODIES, LAKE BUTNER, MAYO RESERVOIR, LAKE MICHIE, AND KERR RESERVOIR, HAS SUFFICIENT CAPACITY FOR WATER NEEDS OF THE SSC. IF THIS IS TRUE, WHY ARE THERE PLEAS AND RESTRICTIONS IMPOSED BY LOCAL GOVERNMENTS FOR WATER CONSERVATION EVERY SUMMER?

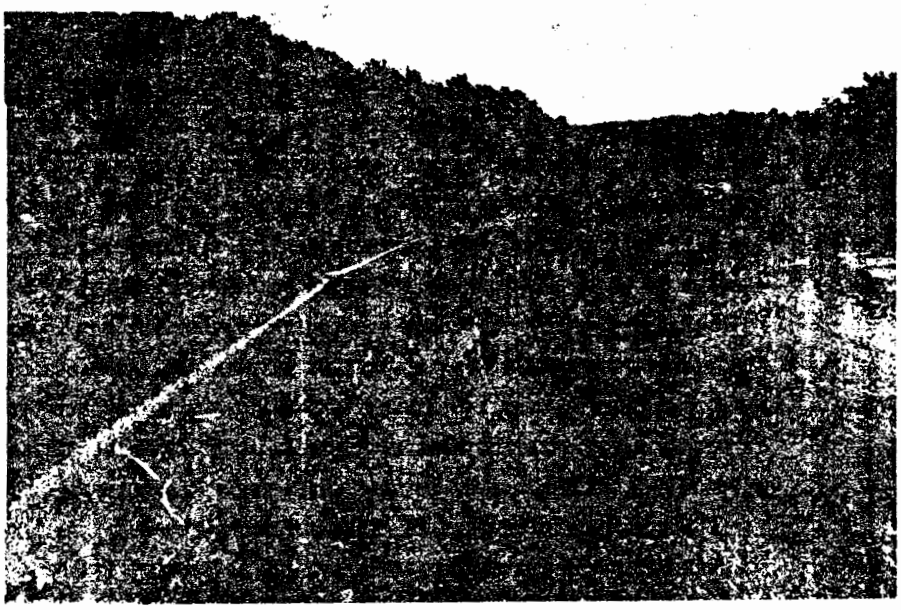
(PICTURES) NOTE THAT LAKE MICHIE IS STRAINED NOW DURING THE ANNUAL DRY PERIOD THAT NORMALLY EXISTS BETWEEN APRIL AND OCTOBER
2 WHEN DEMAND IS HIGHEST AND REPLENISHING RAINFALL IS LOWEST. YET IN VOLUME 8-38 THE STATE SAYS LAKE MICHIE ALONE COULD SUPPLY THE 360,000 GALLONS PER DAY OF POTABLE WATER THE SSC REQUIRES.

LAKE BUTNER IS OFFERED AS A PRIMARY SOURCE OF COOLING AND POTABLE WATER FOR THE SSC GUARANTEEING THE 2200 GPM REQUIRED. YET LAKE BUTNER HAS SERVED IN THE PAST AS A BACKUP FOR OTHER

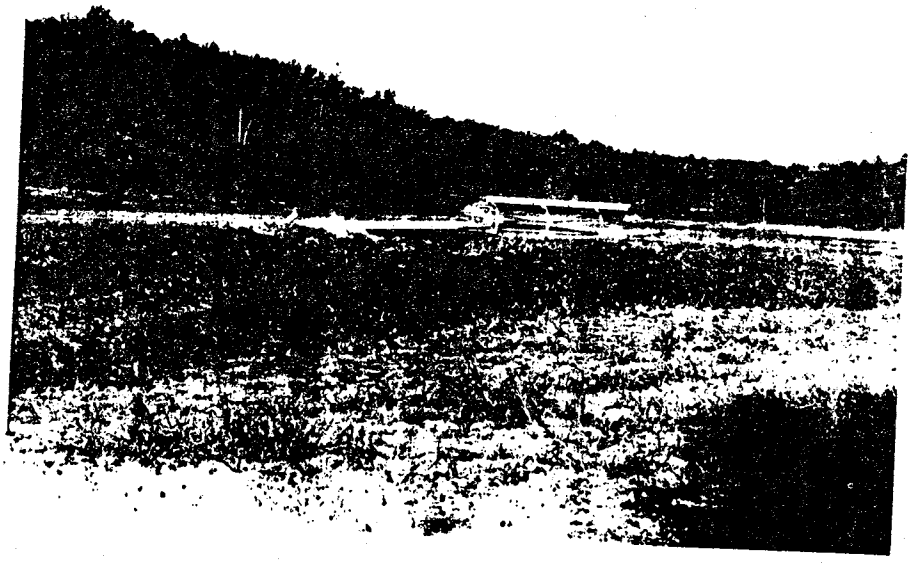
COMMUNITIES DURING SUMMER DROUGHT PERIODS. THE STATE, HOWEVER, CHOOSES TO DISREGARD THESE REALITIES WHEN IT STATES IN VOLUME 1-3 OF ITS SSC PROPOSAL "ABUNDANT SURFACE WATER IS AVAILABLE WHICH CAN EASILY SUPPLY THE COOLING AND DRINKING WATER NEEDS OF THE SSC".

THE DEIS VOLUME I, CHAPTER 5.2.3 AND VOLUME IV, APPENDIX 7, AMONG OTHER SECTIONS, EXPRESSES CONCERN ABOUT SSC WATER REQUIREMENTS EXCEEDING EXISTING WATER CAPACITY IN NORTH CAROLINA. DURING SUMMER IN SEVERAL AREA COMMUNITIES, WATER REQUIREMENTS ALREADY EXCEED CAPACITY WITHOUT THE IMPACT OF AN SSC.

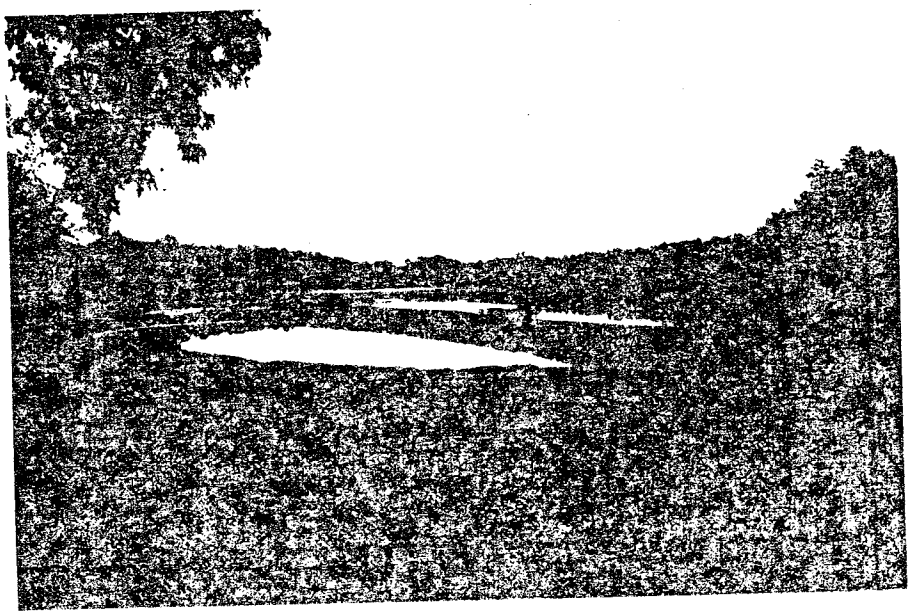
IT IS CLEAR THAT NORTH CAROLINA HAS NOT BEEN DEMONSTRATED TO BE AND ENVIRONMENTALLY SOUND HOST FOR THE SUPERCONDUCTING SUPER COLLIDER.



LETTER 727 (CONTINUED)



LETTER 727 (CONTINUED)



LETTER 728

Jeff Schaner

HEALTH & SAFETY

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations and facts detrimental to the siting of the Superconducting Super Collider in North Carolina. I wish to address the topic of Health and Safety.

North Carolina proposes that the tunnel can be constructed without a concrete liner for structural support or as a safety shield to prevent migration of tritium and sodium-22 into the surrounding soils and water. This proposal is based on the subsurface geology of the site and it has been touted as a real advantage because of the significant reduction in construction costs. However, I am convinced that beam losses in an unshielded tunnel will result in significant contamination of the groundwater. Geological reports confirm that "brecciated zones cross the ring; joints are present in all units with shallow to steep dips" (DEIS, Volume I, Chapter 4, Table 4-1, page 3). At the proposed North Carolina site drinking water is sourced from relatively shallow wells which are either above or below the average tunnel depth of 175 feet and groundwater is free to migrate both vertically and horizontally in this environment. With the exception of Colorado, the calculated effects of a single beam loss upon a well located 150 ft from the tunnel are at least an order of magnitude worse than other sites (DEIS, Volume IV, Appendix 12, Table 12.2.3-6, page 34). The calculated dose equivalent is 0.50 mrem/yr (12.5% of 4 mrem EPA limit).

1

Commissioning and operation of the SSC will result in system malfunctions leading to beam loss despite all reasonable efforts to minimize such losses. The State of North Carolina has grossly underestimated the number of wells in close proximity to the ring; a situation which only exacerbates the above. 2

Secondly, release of airborne radioactivity as a result of SSC operations will present a potential threat to local residents living near the discharge points around the ring. The potential for exposure is greatest in the vicinity of the interaction halls where air activation is expected to be at a maximum. The annual release of airborne radioactivity at the North Carolina site will amount to 6.49 Ci/yr (major isotopes: ^{11}C, ^{13}N and ^{41}Ar) [DEIS, Volume IV, Appendix 10, Table 10.1.3-11, page 87]. Yet at Fermilab, to which the SSC has been likened time and again, during the period January 1987 to May 1987, 54 Ci of airborne radioactivity was released while operating in a colliding beam mode (Fermilab Site Environmental Report for Calendar Year 1987, Table 1, page 8). If these facilities are so alike in so many ways why are they so disparate in this case? Although a number of programs have been used to calculate airborne exposure at site boundaries these are not a substitute for continuous monitoring of a large number of residents in the vicinity of the ring. Such a commitment by the DOE and State of North Carolina would be necessary to quantify actual exposure. 3

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

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Jeff Schaner

TABLE 12.2.3-6

ANNUAL DOSE EQUIVALENT FROM CONTAMINATED GROUNDWATER

	CO	TL	NI	NC	TN
			Sr-90		
Conc. in well water (pCi/ml)	0.042	0.0051	0.0013	0.060	0.0012
Annual dose equivalent for one day intake (arem)	0.00126	0.000153	0.000039	0.0018	0.000036
Annual dose equivalent for continuous intake (arem)	0.341	0.041	0.010	0.048	0.0098
			H-3		
Conc. in well water (pCi/ml)	0.24	0.076	0.027	0.35	0.043
Annual dose equivalent for one day intake (arem)	0.000048	0.0000152	0.0000054	0.00007	0.0000088
Annual dose equivalent for continuous intake (arem)	0.011	0.0034	0.0012	0.016	0.00019
			TOTAL		
Conc. in well water (pCi/ml)	—	—	—	—	—
Annual dose equivalent for one day intake (arem)	0.0013	0.00017	0.000044	0.0019	0.000045
Annual dose equivalent for continuous intake (arem)	0.35	0.044	0.011	0.06 ~~0.50~~	0.0098

4

order of magnitude too high.

LETTER 729

Statement re: Draft Environmental Impact Statement
Superconducting Super Collider
Public Hearing 10/3/88

by Ellen Reckhow, Candidate for Durham County Commissioner

My name is Ellen Reckhow and I am a Democratic candidate for Durham County Commissioner. I am running for public office because I am committed to responsible, planned growth for Durham County. In evaluating the impact of the SSC, we must consider the impact on: County public services and net tax revenues, infrastructure, and growth and development policies. I raised these issues at the Scoping Meeting in Butner and the Public Hearing before the Durham County Commissioners last February.

1

The discussion in the Draft EIS of the County public service requirements and the net fiscal impact is incomplete and misleading. The EIS shows a negative net fiscal impact in the first three years ranging from $.6 million to $1.5 million and, then, a positive impact in subsequent years of $2.1 million to $3.7 million. These results may be faulty, as I will explain.

2

First, in evaluating the new public capital facility needs associated with the SSC, the EIS uses a standard multiplier based on experience with defense installations in other parts of the country, which may not be applicable to Durham County. Second, no analysis of the location and capacity of our existing capital facilities was performed. Given the fact that the schools in northern Durham County

are overcrowded and other urban services are not presently provided in that semi-rural area, a more precise estimate of capital needs might have yielded substantially different results.

3 Third, the EIS estimates that Durham County will need approximately 150 new public sector employees to service the SSC and associated growth. The salaries and operating costs associated with these new employees, however, are not plugged into the simple impact analysis in the EIS. If these operating costs were included, the expected positive net tax revenues would probably be entirely wiped out.

4 The lack of specific information in the EIS regarding local public service costs is particularly troublesome, because we are not getting any better information from the State of North Carolina. A recent economic impact analysis by the Center for Business and Economic Research at UNC Charlotte, commissioned by the State of North Carolina, did not address local government costs because these costs are "difficult to accurately measure". In fact, sophisticated fiscal impact analyses are performed regularly for large projects all across this country. An extensive fiscal impact analysis was done for the GM Saturn Plant in Maury County, Tennessee.

The State of North Carolina has wavered on the amount of impact monies to provide the affected counties. Without more accurate information, we are only playing a guessing game.

Local governments need to project the service requirements and costs associated with new development so that the required infrastructure can be adequately planned for and financed. Local public officials should be fully briefed on the potential public service requirements associated with the SSC to protect the existing residents of their communities from unexpected tax increases and bond issues.

5

Since these fiscal impact concerns and my other concerns regarding - disruption of the Rougemont community; dislocation and disruption caused by construction of 25 miles of new 4-lane highways in our watershed areas; potential negative impacts on the water quality of our drinking water reservoirs from the SSC and associated development; and the tremendous usage of water and electrical power - have not been adequately adressed in the EIS, I cannot support the location of this project in Durham County.

LETTER 730

#32

Lynn Van Scoyoc
802 Goodwin Road
Durham, NC 27712

Visual Impacts

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of Visual Impacts of the SSC as discussed in the draft EIS.

The discussion of visual impacts of the SSC in North Carolina in Appendix 16 of the draft EIS begins with the statement (quote) "The character of the site is consistently small town, rural residential, and agricultural. The industrial character of the SSC facilities would be incongruous in this setting." I couldn't agree more.

The impacts of F1 on the Red Mountain subdivision are classified in Volume I as noticeable, visually subordinate, while the effects on 3 State Routes and the Flat River are classified as visually dominant. Although Appendix 16, page 35 reads (quote), "The industrial scale and appearance of the structures would be in glaring contrast to the small-scale rural residential character of the environs.", Volume I concludes that all these impacts can be partially mitigated with proper landscaping and choice of appropriate color and materials for construction. This conclusion is based in part on the assumption that it may be possible to see the facility through the trees when the leaves have fallen. That's a fairly safe bet on a road named Lookout Point. The remaining impacts on these areas after mitigation will more likely be distracting, if not visually dominant. The owners of the overlooking lots in Red Mountain should be compensated for the destruction of their beautiful view, but how can the people who enjoy canoeing on the Flat River be compensated? What about the impacts on those people whose homes are directly in front of this facility? They were entirely ignored in this discussion.

The impacts of F9 on the Raney Way subdivision are classified as visually

dominant, and the EIS concludes that these cannot be mitigated, since the facility will be located inside the subdivision. The owner should be given the option of selling the entire subdivision, since the value of the remaining lots will plummet.

The impact of E8 is described as negligible, but the people who live in the two houses it will be placed between and the one across the street would probably argue that point. Since this is an access area, it would have a great impact on these people during the construction period. Again, adequate compensation should be provided to these people. 2

F7 is projected to have no impact. Just ask Ballzora Burwell how she feels about having a service area located directly behind her lovely stone house. This storybook setting is irreplaceable. Her neighbors on either side will also have this service area "factory" almost in their back yards. 3

The F5 facility will require the removal of Webb's Chapel, a beautiful restored historic structure. To remove this structure from its historic context would be a crime. It would lose its meaning in any other setting. The EIS correctly classifies this action as a change of the greatest magnitude, but then classifies the impact as potentially significant only on the local level. 4

The EIS classifies the F4 area as visually dominant with unmitigable impacts. Two homes will have an up close and personal view of this facility, which will take another home and all of the roadway. It would completely ruin a small, tight-knit community of about 20 homes. Again, adequate compensation for the remaining homeowner will be necessary. 5

The impact of E4 is classified as negligible. However, it will be located on a small vacant lot between two homes, with two other homes nearby. Again, this access area will have a great impact on these people during the construction period. Another case requiring compensation of the homeowners 6

involved.

7 F3 is projected to have no impact, although it will be located next to one home, behind a second, and displace a large pond, and destroy the isolated character of the remaining homes in this small housing development. This impact will be primarily caused by the destruction of the abutting woods. Compensation of property owners is again called for.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 730 (CONTINUED)

Lynn Van Scoyoc
802 Goodwin Road
Durham, NC 27712

Poliscide Implications

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the treatment of affected property owners.

The assessment of SSC impacts on quality of life was treated consistently over all seven BGL sites, but don't expect to convince the town of Stem or the Rougemont community to accept this as reasonable. After all, this area has very little in common with Greater Chicago.

If North Carolina is designated the preferred site for the SSC, we may end up having a lot in common with the former residents of the long-gone town of Weston, Illinois, now the site of Fermilab.

The residents of Weston would all have fit into category A of the affected area, those whose property is required in fee simple for the facility. I have a special interest in this category because I belong to it. It's especially interesting to read about the treatment of category A people associated with the siting of Fermilab.

8

Unlike our category A people, the people of Weston suppported their state's campaign to obtain the accelerator lab. They believed that the lab would improve life in their town.

The State of Illinois appropriated $30 million for the purchase of the 6800 acres needed for the site, but this amount was not sufficient for "just compensation" to each property owner. The Illinois legislature refused to increase the appropriation even though this amount was to cover the relocation of part of a railway, an oil pipeline, vital high-tension electric power lines, 3 lesser high-tension distribution lines, and a village of 100 homes and its improvements -- including 4-lane paved streets, sidewalks, a water plant for

500 homes, and a sewage plant with the same capacity. Therefore, the state of Illinois designed an acquisition process specifically for the project.

This process employed the following tactics:

(1) Withholding information about what was going on and what was likely to happen; (2) rushing through negotiations as soon as appraisals were ready; (3) delaying payment of the property owners.

Older residents and widows were contacted first. These settlements tended to be quick and at low prices, influencing later agreements.

The negotiators refused to make appointments with the villagers: advance notice of a visit was avoided as a part of the strategy of keeping each villager in the dark.

Only verbal offers were made; negotiators refused to put their positions in writing.

Negotiators advised many of the villagers not to hire lawyers, threatening lower offers and lower final prices if lawyers were so much as consulted.

Volume I of the draft EIS says this about people in category A: "They have, for more than a year, been in a state of uncertainty and suspense about their future, and are concerned about whether they would get fair value for their property, among many other things."

We should be concerned because the only attention given to the protection of property owners by DOE is the requirement that each state's land acquisition process conform to the Invitation for Site Proposals and PL 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Nothing was done to help the people of Weston and nothing will be done to help us if the worst case happens.

In the best case, the SSC will be sited somewhere other than North Carolina.

In the next best case, the SSC is sited in North Carolina and our

legislature refuses to appropriate funds. Remember, in North Carolina one legislature cannot bind the spending of a future legislature; it is clearly stated in the North Carolina site proposal that the North Carolina proposal is not binding.

In the bad, but not worst, case the legislature appropriates the funds at a reasonable and realistic level.

In the worst case, the legislature funds the project at the level estimated by the governor's office. $43 million will not compensate us for all expenses associated with relocation. If this happens we will have a lot in common with the people of Weston. We might even commiserate with them if only we could find them.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

References: Poliscide, Theodore J. Lowi and Benjamin Ginsburg, Macmillan Publishing Co., Inc., 1976.

See 95% figure quoted on pg. 2 - referenced by Melody Ann Miminger in her statement.

Don't let this happen in North Carolina please

Poliscide

Theodore J. Lowi
Benjamin Ginsburg
Cornell University

Macmillan Publishing Co., Inc.
1976

Chapter 11. Public Acquisition - In Private

The state of Illinois played upon the isolation of property owners that is caused by the process of public land acquisition. Otherwise, it is doubtful that $30 million would otherwise have been sufficient to assemble the 6,800 acre accelerator site. Through the Department of Business and Economic Development (DBED) the state designed an acquisition process specifically for the Weston (now Fermilab) project. They separated appraising from negotiating, so that responsibility could be bandied back and forth between the two. A blue-ribbon acquisition committee was set up to review decisions. It tended to operate mostly as an additional buffer between the property holders and the state.

Each separate role, function, and layer in this process made more and more remote the prospect of "just compensation." Each property holder was inundated with threatening facts about his own situation and deprived of facts about the fate of his neighbors. Responsibility was hidden, the flexibility of the state was maximized, and the bargaining advantages flowed quickly from private individual to public agency. Some instances of intimidation are reported.

Pressures of acreage and time were going to cost a tremendous amount. This is why Illinois sought and got extraordinary condemnation powers to carry out the terms of the agreement - powers it had not used except during World War II. Yet, as the pressures and obligations went up, the legislature refused to increase its support accordingly. The right to take condemnation cases to court takes time and can increase purchase prices, but under "quick-take" the owner cannot legally prevent seizure and immediate possession. For this reason, quick-take has always been considered an emergency war power.

In addition to extraordinary quick-take power, the Illinois legislature granted the DBED chairman tremendous discretion in the selection of land to condemn. The legislature did not require dbed to adhere to any of the condemnation procedures followed by the Illinois General Services Administration or the highway department.

The chairman of the DBED was accountable to the governor, but he was also the governor's chief source of information on the acquisition; therefore, the governor could not really hold him to account.

The DBED adopted a two-part strategy to maintain business support and public acquiescence. First, they attempted to avoid litigation which meant a very limited and judicious use of condemnation. Second, to deflect criticism two groups were established - the blue-ribbon site acquisition committee and an appraisers' selection committee. Although no legal authority was given to

From Book - "Poliscide"

either group, it was believed that the prestige and qualifications of their members would add legitimacy to any actions the committee approved. A more favorable context for the agency's interests was created by appointing to the appraisers' selection committee people personally and professionally acquainted with the appraisers.

DBED had less than 14 months to assemble the acreage, clear the titles, remove the occupants, and turn over the tract to the Atomic Energy Commission. Therefore it adopted the approach to acquisition used successfully over the years by Commonwealth Edison: to have appraisers evaluate the property and then follow up by sending agents independent of the appraisers to negotiate the settlement. Because DBED was more tightly tied to "fair market value" it could not be so flexible as Edison about negotiating prices. The solution was to use two independent appraisals of each parcel which would be submitted to the chief appraiser who would check accuracy and use the two appraisals as a basis for setting a low and a high offer to extend to the owner.

The state's appraisers and negotiators employed three techniques of pressure to hasten the acquisition process: (1) the state withheld information about what was going on and what was likely to happen; (2) the state rushed through negotiations as soon as appraisals were ready; (3) the state delayed paying the villagers, making it difficult to act on relocation plans.

Older residents and widows were contacted first. These settlements tended to be quick and at low prices, influencing later agreements.

The negotiators refused to make appointments with the villagers; advance notice of a visit was avoided as a part of the strategy of keeping each villager in the dark.

Only verbal offers were made; negotiators refused to put their positions in writing.

Negotiators advised many of the villagers not to hire lawyers, threatening lower offers and lower final prices if lawyers were so much as consulted.

DBED received its appropriation on June 30, 1967, but the state's cash position was so poor that no disbursements for acquisition could be made before February 1968. Property values in the Weston area had been climbing so rapidly that the state could not proceed with appraisals until it was sure when it could complete transactions. Between May 1, 1968 and June 16, 1968, 61 of the 67 privately owned homes were appraised and purchased. The entire procedure was accomplished, except for six holdouts, in 6 weeks.

(Terrible) ~95%

The state paid the homeowners an average of $16,797 for the 99 similar homes in Weston (only 67 of the 99 homes were privately owned). Villagers would have had to spend $24,900 to replace their homes on equivalent lots. All but five Weston homeowners lost money because of the condemnation.

Other factors were not taken into account, such as difficulty of obtaining financing (particularly for older people), the difference in interest rates, moving expenses, and the lost time spent looking for a new home (300 hours was not unusual).

Since individual appraisals were not made, except for the last six holdouts, there was no basis for the wide variation in settlement prices which ranged between $15,800 to $19,450. The six holdouts were the only villagers who had hired attorneys.

Most villagers refused to engage lawyers for three reasons: (1) the state negotiators actively discouraged people, particularly the less educated, from talking with a lawyer. (2) The legal profession maintained a high fee structure in condemnation cases. (3) They failed to understand that the state was taking an adversary stance toward them.

The accelerator site included high-tension lines belonging to Commonwealth Edison and a major pipeline belonging to Northern Illinois Gas Company. The two utilities were the only property owners on the site that the state or the AEC bothered to help relocate.

After signing and closing, the homeowners had to wait an additional 1 to 2 months for their money. The DBED also delayed and blocked repurchase of buildings remaining on the condemned land, after the governor had promised the villagers that they would be able to buy back their homes.

Chaper 12. Enemy of the People

Farmers at the accelerator site could not replace their land in the area. The bulk of them moved 100 to 150 miles away.

Although moving expenses for farmers were high, the state refused to pay any compensation.

The state also refused to compensate farmers for their buildings, although they were impossible to move.

Business interruptions and loss of clientele were not compensated. Yet some farmers were destroyed financially because they were forced to leave clients and establish business elsewhere.

An egg farmer estimated it would take him 3 years to build a clientele similar to his Weston clientele. Grain farmers estimated that it would take them 2 to 3 years to adjust to a new farm and reach their maximum efficiency.

The state hired farmland appraisers from downstate Illinois who knew little of land values in rapidly urbanizing DuPage County. Despite the promise that each farmer would be able to show his land to the state appraiser and discuss it with him, over 40 percent of the farmers had never seen or spoken to their appraiser.

The land was appraised as farmland despite the fact that the land was taxed as residential or industrial land.

The appraisers chose land in rural southern and western Illinois as comparables, although they were not highly similar locations.

Offers made were often less than the appraised value. The old, sick, and poorly educated were approached first. Negotiators misrepresented to some farmers the number and identity of others who had signed; accepted prices were either kept secret or misrepresented. Many farmers were threatened with lower offers if they resisted and went to court.

Those who joined the farmers resistance movement were severely punished. Any history of resistance pushed final offers downward, in direct correlation with the degree of resistance.

*22

Spinoff Technology

731

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of spinoff technology to be gained from the SSC.

On page 1-1 of the Draft EIS, it states (quote) "Within the past ten years, the technology developed for high energy physics has made new products possible, including equipment made for medical diagnostics and therapy, improved computer components, and new superconducting magnet technology." However, none of these advances has come from research at Fermilab.

In the **Kiplinger Washington Letter** dated September 9, 1988, they state (and I quote):

> Big science projects are in trouble because of budget deficits. Super Collider atom smasher will be a likely victim of cutbacks....Other projects competing for funding are a manned space station, gene research and a supersonic plane. Collider isn't at the top of list.

1

I would agree with their priorities. When compared to the manned space station and other NASA projects, this SSC project pales in importance and its potential for spinoff technology. As proof, here is a catalog that lists many of the spinoff benefits we have already achieved from our NASA space program [HOLD UP CATALOG]. These spinoffs have occured in health and medicine, public safety, consumer applications, home and recreational benefits, environment and resources management, food and agriculture, manufacturing technology and industrial productivity, energy technology, construction techniques, transportation improvements, structural analysis, and computer programs.

Our space program is rich in applied spinoff technology, while spending

this much additonal money on the Super Collider, to quote our North Carolina Attorney General Lacy Thornburg, "is like pouring money down a rat hole."

It is clear that the Superconducting Super Collider has not been demonstrated to be a worthwhile expenditure of such a large amount of our Federal tax dollars.

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LETTER 732

#46 I am Virginia Hill, I live on Red Mt. Road in Rougemont, N.C. - In the relocation area

Misinformation/Withheld Data/Inaccuracies

The Draft (E I S Environmental Impact Statement) is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of misinformation, witheld information, and inaccuracies within the Draft EIS.

This task is quite problematic, given as I only have five minutes to speak. You see this Draft EIS is so poorly written, using so much unverified and inaccurate information, and omitting so many required discussions that I can but highlight a few of the more obvious problems.

First, there is the overall poor quality of the document itself. Had any reputable firm conducted this study for anyone other than the Federal government, they either would not have been paid for the work or they never would be contracted to conduct another piece of work in the future. It is supposed to communicate to the public, but constantly uses terms that are only later or never explained. For example, on page Forward-1 the acronym ROD is used. This

1 Acro-nym (acronym) is not explained until Chapter 3. The Campus and Future Expansion areas are mistakenly located partially in Person County on several of the RTK maps. There are numerous mistakes throughout, such as the discussion of Morgan Township in Durham County--which does not exist. Other examples are differing sources of water and sewage treatment depending upon the volume you're reading, claiming expansions are underway that have not been approved (and probably won't be approved), and a failure to address legitimate questions and to utilize pertinent (and actually more accurate) information supplied by other than State sources.

2 Examples of unverified information include the following. [The number of affected parcels is off by more than fifteen percent, the number of relocations is off by more than 70 percent] and [the number of wells is off by at least 6000

3

percent!] [The Norfolk and Western Railroad line crosses the ring and is abandoned south of Timberlake, not northwest of the ring as indicated. U.S. 501 is a four-lane, divided highway and runs directly on top of the proposed tunnel for more than a mile between F2 and E3--not a two-lane highway to the west of the ring as shown on the maps. This is because the old U.S. 501, now called Roby Barton Road, was replaced by a new, four-lane highway located a half mile to the east about ten years ago. The town of Rougemont, the most populous area of the proposed site, does not appear on most maps or the name is concealed by the J1 designation.] [The Eno Wastewater Treatment Plant is not (I repeat is not) currently undergoing expansion as indicated several times in the Draft EIS. Instead, it is now operating at capacity with no assurances that any expansion is possible either now or in the near future.

Some of the omitted information is much more interesting than the information that is included. [Why is there no adequate discussion of droughts as called for by the ISP (Invitation for Site Proposals)?] [Why is there no discussion of the electrical power shortages this summer by both Duke Power and Carolina Power and Light companies?] [Why is there no discussion of how DOE plans to violate the Durham County zoning and watershed regulations?] [Why are local residents not considered as a concern when it comes to environmental impacts, but the SSC scientists are?] [Why is there no discussion of the expected area growth without the SSC in North Carolina?] [Why is there no discussion of the sociological impacts?] [Why is there no discussion of the public opinion polls, petition signers, and other organized opposition to the SSC in North Carolina?] Why? Because all of these things, and a lot more, would make North Carolina appear to be the unattractive site it really is.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Thank you.

LETTER 733

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RESPONSE TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT: HEALTH HAZARDS OF HIGH VOLTAGE TRANSMISSION LINES.

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of the health hazards of high voltage transmission lines. The Super Conducting Super Collider if constructed in North Carolina would be the single largest user of electricity in this state. To provide its demands for electricity construction
1 of multiple high voltage power lines would be required to serve the SSC campus and various surface area service areas. Although the Draft Environmental Impact Statement notes that some power lines on site would be run underground, there is no indication where outside high voltage transmission lines might be located. This is a concern since recent medical reports suggest that high voltage transmission lines may provide a health hazard to the general public. A review article, which is attached to this comment, highlights some of the health hazards potentially caused by such electric transmission lines. Given the proximity of the number of small communities such as Rougemont and Stem to the SSC it is a concern that these power lines not be located adjacent to such
2 communities. Although this concern has been raised previously at local county commissioner meetings, there is no indication in the Draft Environmental Impact Statement that the placement of such power lines near population concentrations can be avoided. Further, local power companies have yet to indicate potential locations for such sites. Given the location of some of the surface area service areas, it will particularly be difficult to locate these power lines away from communities near the ring. Because of the potential health hazard of these lines to the general public, the SSC perhaps would be more safely located in another state that is more sparsely populated. Indeed, unless the
3 high voltage power lines serving the SSC can be placed at a safe distance from current residents near the SSC site, DOE should seriously consider not building the project in North Carolina. It is clear that the North Carolina site has not been demonstrated to be an environmentally adequte host site for the Super Collider.

Appendix B

SOCIETY

MEDICINE

The Garbage Health Scare

Not all infectious waste is being incinerated

Late last month a rollicking gang of small boys and girls found a cache of tiny glass bottles containing a red liquid behind an Indianapolis apartment complex and gleefully began smashing them against a wall. It later turned out that the bottles came from a nearby clinic and contained blood samples, one of them from a victim of AIDS. Last spring three Boardman Township, Ohio, youngsters discovered some syringes in a dumpster and spent an afternoon jabbing each other in the arm in a game of doctor. And recently bathers on a Long Island beach were alarmed when needles, plastic tubing and vials washed ashore with the incoming tide.

Fear about AIDS and its propensity to spread through blood and bodily fluids has made the disposal of hospital rubbish—long a concern only to public-health officials—an urgent issue. Experts call the infectious detritus of medicine "red bag" waste. In addition to contaminated needles and i.v. tubing, it includes bags of plasma, amputated parts of the body and entrails, fetuses and assorted excreted materials. It has long been clear that much of this can be highly infectious, but there is an irony. Federal law empowers the Environmental Protection Agency and the Nuclear Regulatory Commission to regulate, under the threat of stiff penalties, the storage and disposal of some 400 substances judged to be radioactive, reactive, ignitable, inflammable, corrosive or poisonous. But the putrefying effluvia produced as a byproduct of the U.S. health-care industry isn't included. "We couldn't come up with damages or data that would support calling these materials hazardous wastes," says Jacqueline Salas, chief of the EPA's regulation-development section. And some states have no laws dealing with biological refuse, so the only real authority lies in a crazy quilt of local regulations.

To make matters worse, such regulation is a daunting task. New York City's 92 hospitals generate more than 150 million pounds of waste annually, up to a quarter of which is considered infectious. A local ordinance requires that this potentially lethal material be burned in special high-temperature incinerators, usually privately operated. Other hospital waste must be burned in municipal incinerators or hauled to dumps outside the state. "There is so much . . . and so many people involved with it that hospitals have trouble with compliance," says Dan Guenzburger, attorney for the New York City Department of Sanitation. One of the biggest problems is sloppy management on hospital wards, he notes. But equally vexing is improper dumping by private haulers hired by hospitals.

Lethal waste is dangerous because it is less likely to be covered by formal regulations. Waste from clinics and private doctors' offices poses an even greater risk than the stuff that comes from hospitals. The clinic involved in the Indianapolis case dealt with 24,000 patient visits a month and all the refuse that represents. Yet it was exempt from ordinary health-department regulations. "If they broke any rule, it was a rule of thumb," says one county-health-department official. Not all locations lack stiff regulations that apply to clinics as well as hospitals. In San Francisco, institutions must incinerate or sterilize trash, then compact and label the residue before it is carted away. Lethal bacteria and viruses don't come near a dumpster or backyard. Even if they did, the germs would be dead.

Still, bathers at the nation's lakes and shores face a certain risk of medical as well as other forms of pollution. And with their incorrigible curiosity, youngsters will also be exposed. The Ohio children are being tested for AIDS infection and were vaccinated against hepatitis, another blood-borne disease. The parents of the Indianapolis youngsters have worries of their own. One of the boys cut his foot on a broken vial and two of his comrades were known to have breaks in their skin that could increase the chance of infection by the AIDS virus. It will be months, however, before blood tests can show whether anyone was infected. "You teach [children] not to run across the street and not to talk to strangers," says Pamela Ekis, the mother of one of the children involved in the Ohio needle episode. "But you don't teach them not to play with syringes."

MARY CLARE WHITE with ELIZA WILLIAMS in Chicago, PETER MCKILLOP in New York, BILL TURQUE in Detroit and bureau reports

KEN P. BUNARD—NEWSDAY

Washed up: Medical debris on the beach

Magnetic Fields and Leukemia

Nearly a decade ago the New York Public Service Commission granted utilities permission to build a 765-kilovolt power line across the state—if they would underwrite research to determine what health effects exposure to powerful electromagnetic fields might have on people living nearby. The results, which came in last week, suggest that electrical power lines per se are as safe as water pipes. The magnetic fields that surround wires that conduct electrical current may be another matter. According to the New York State Health Department report, exposure to the fields may double a child's risk of leukemia.

This conclusion was based on a survey of 230 children with cancer who were compared with 220 healthy youngsters. Factors in their backgrounds like medication, socioeconomic status and environmental exposures were analyzed. Children with leukemia were almost twice as likely to live in homes where magnetic-field exposure was highest—and none of the other factors seemed to be linked to the disease. If the study's implications are validated, up to 15 percent of cancers in children would be related to magnetic fields.

Although widespread media attention to the findings created considerable concern among parents across the country, experts viewed the results with caution. For one thing, only a small number of children are studied. For another, "retrospective" surveys that compare people who are already sick with people who are well can suggest only an association, not a one-to-one link, between environmental factors and disease. However, the first connection between smoking and lung cancer did come from just such research. As with smoking, demonstrating a direct cause-and-effect relationship between magnetic fields and leukemia will require many more studies, including follow-ups of large numbers of people over an extended period of time.

LETTER 734

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#47

CAMP BUTNER ISSUES

THE DEIS IS FILLED WITH NUMEROUS OMISSIONS, FACTUAL ERRORS AND MISREPRESENTATIONS. I WISH TO ADDRESS THE TOPIC OF CAMP BUTNER.

ON JULY 30, 1987, GOVERNOR JAMES G. MARTIN SIGNED A "MEMORANDUM OF UNDERSTANDING" TO JOSEPH DEAN, SEC. OF CRIME CONTROL AND MAJOR GENERAL CHARLES E. SCOTT, ADJUTANT GENERAL OF NORTH CAROLINA PROMISING "IF THE FEDERAL DEPARTMENT OF ENERGY LOCATES THE SUPERCONDUCTING SUPER COLLIDER IN THE AREA COMPRISING A PART OF THE FORTY-EIGHT HUNDRED (4,800) ACRE TRACT...WHICH HAS BEEN USED...AS A TRAINING FACILITY FOR THE NORTH CAROLINA NATIONAL GUARD,... I WILL SECURE
1 WITHIN THE STATE OF NORTH CAROLINA A SINGLE AREA CONSISTING OF AT LEAST 11,000 ACRES OF LAND CONDUCIVE TO THE TRAINING MISSION OF THE NORTH CAROLINA NATIONAL GUARD." HE FURTHER AGREES TO REBUILD ALL FACILITIES, INCLUDING BUILDINGS, FIRING RANGES, ROADS, AND HELICOPTER PADS ON THIS NEW TRACT.

IN THE DEIS, THE ACREAGE REQUIREMENTS FOR NORTH CAROLINA TOTAL ONLY 15,897. THE ACTUAL FIGURE SHOULD TOTAL 26,897 SINCE THE ADDITIONAL 11,000 ACRES ARE REQUIRED FOR THE SITING OF THE SSC.

THE TOTAL FOR PRIVATE LAND SHOULD BE 25,437 ACRES INSTEAD OF 14,437 BECAUSE THIS ADDITIONAL 11,000 ACRES WILL COME FROM PRIVATE LANDS.

THIS ADDITIONAL 11,000 ACRES TREMENDOUSLY AFFECTS THE NUMBER OF PARCELS OF LAND AND NUMBER OF OWNERSHIPS. THE DEIS FIGURES ARE FAR TOO LOW.

THE 111 RELOCATIONS FIGURE FROM THE DEIS IS RIDICULOUSLY LOW FOR THE 15,897 ACRES. HOW MANY OTHER PEOPLE AND BUSINESSES WOULD HAVE TO BE RELOCATED FROM THIS 11,000 ACRE TRACT SOMEWHERE ELSE IN THE STATE?

THE DEIS STATES THAT ONLY 9 WATER WELLS IN THE NORTH CAROLINA SITE WILL BE AFFECTED. BESIDES BEING UNREALISTICALLLY LOW TO BEGIN WITH, IMAGINE HOW MANY MORE WELLS WILL BE AFFECTED BY THE ADDITIONAL 11,000 ACRES.

ARE THERE ENVIRONMENTAL STUDIES FOR THAT 11,000 ACRES?

CONTRARY TO THE DEIS, THERE WOULD CERTAINLY BE MAJOR LOCAL LAND USE CHANGES FROM THE EXISTING FOR THOSE 11,000 ACRES!

SINCE OUR GOVERNOR HAS NOT TOLD THE PEOPLE OF NORTH CAROLINA WHERE THE ADDITIONAL 11,000 ACRES TRACT IS LOCATED, WE HAVE NO WAY OF KNOWING WHAT ADDITIONAL HABITAT LOSS FOR THREATENED AND ENDANGERED SPECIES THERE MIGHT BE.

HOW MANY ADDITIONAL ACRES OF PRIME FARMLAND WOULD BE LOST, ~~OR HISTORIC OR ARCHAEOLOGICAL SITES?~~

AND WOULD THERE BE JOBS CREATED FOR THOSE 11,000 ACRES LOST? WOULD IT CREATE NEW INCOME FOR THE LOCAL ECONOMY? DOES THE NATIONAL GUARD PAY STATE AND LOCAL TAXES OR WOULD

THOSE 11,000 ACRES JUST BE OFF THE LOCAL TAX ROLLS LIKE THE ORIGINAL 15,897 ACRES?

HOW CAN THIS STATE KEEP TO THE PROPOSED SCHEDULE WHEN THE NATIONAL GUARD FACILITIES AND IMPROVEMENTS MUST BE REPLACED BEFORE THE 827 ACRES OF CAMP BUTNER REQUIRED FOR THE SSC CAN BE RELEASED?

WHAT HAPPENS TO THE REMAINING 3923 ACRES OF CAMP BUTNER NOT NEEDED FOR THE SSC?

IT IS CLEAR THAT THE N.C. SITE HAS NOT BEEN DEMONSTRATED TO BE AN ENVIRONMENTALLY ADEQUATE HOST SITE OF THE SSC.

LETTER 735

#19

Amount of Private Land

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, [redacted], and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the amount of private land to be taken.

The Super Collider as proposed in North Carolina would take 14,437 acres of land from private citizens. This includes 6,817 acres in fee simple and another 7,620 acres in stratified fee (p. 3-30). Yet, when this project was first proposed to our legislative leaders our governor told them it would be mostly underground and take very little private land.

1 The Draft EIS indicates there would be 826 parcels of land needed (p. 3-31), but that the number of parcels and ownerships could vary by as much as 10 percent. Once again, our State has underestimated its figures. Based on surface land assessments (instead of the outdated tax maps used by the State), it has been determined that at least 945 parcels of land would be involved--second only to Illinois, another undesirable site for the Collider.

Not only would all of this private land be given up by private citizens, it also would be removed from the tax rolls in the three counties. This would result in higher taxes and limit future planned wise growth potential in the area.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

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LETTER 736

Dru Pendergraph

#11

HUGE SCIENCE EXPERIMENT

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of a"Hugh Science Experiment".

If the work at Fermilab has been so vital; that such discoveries have been made to astound the wisdom level of humanity; and now the need to reach deeper into that research realm confronts the mind for an SSC, such as is proposed in N. C.; I have one question to ask.. WHY HAS THERE NOT BEEN A NOBEL PRIZE AWARDED FOR THE 'ACCOMPLISHMENTS" AT FERMILAB?

I think the answer comes in the fact that the proposed SSC is no more than a huge government science experiment with the cost being paid by citizens not only in money, but in the loss of their desired lifestyles and investments in their future.

In reality, no Nobel Prize has been awarded at Fermilab for the accomplishments or advances in knowledge supposedly gained.

In the overview of the EIS; 1.1-1-1 the following can be read. "The proposed SSC would be the largest scientific instrument ever built". Being built and accomplishing the increase of knowledge are two entirely different balls of wax.

1

The same page further states: "The basic purpose of the SSC is to gain a better understanding of the fundamental structure of matter". In a world of hungry bellies, cold bodies in the winter because housing is not affordable, and minds void of the basic education to read or write, much less find work, the DOE wants to build a structure to "Gain a better understanding of the fundamental structure of matter". Why, tell me why, should we want to see the unseen, and avoid the fact of the matter of these hungry, homeless, uneducated masses which can be clearly seen with just the naked eye? We understand these needs, but we want to build an underground scientific play toy instead; what a sad commentary on the work of our country.

Again, on the same page one reads; "This machine would be capable of accelerating two beams of subatomic particles(protons) to an energy of 20 TEV(trillion electron volts). The two beams would then be made to collide, and the results of these collisions(at 40 TeV) would be studied by the scientist". Every day collisions occur on the highways of this country; resulting in injuries, some life long and others that take the lives of citizens. Why do many of these collisions take place?

Minds and bodies under the influence of drug substances travel our highways. Many of those drivers have maimed or even caused death at least once; some more than once. Yet, a way to keep these drivers off the roads to protect the innocent cannot be thought of in the great minds of this country. So, instead build an underground tunnel to watch collisions of protons just to see if anything will happen; might/might not, but let's spend some billions to find out. Think about this when you get in your automobile next time; the next collision you see could be yours.

Here we go again; on the same page "The SSC would provide the United States with the capability of maintaining its world leadership in the field of high energy physics". Instead of being number one in a huge science experiment, let the U. S. be number one in feeding it's population. If much more farm land is taken away, the majority of this country could not grow a tomatoe plant; because they don't know how. Let the U. S. be number one in teaching the basic educational skills to it's citizenship; number one in making sure shelter is available to everyone; number one in industry so quality is here and not always coming from over there causing people to look for work somewhere else when their plants close down; number one in leadership in keeping the streets safe to walk and drive on; not in what happens when a proton collides.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

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LETTER 737

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MY NAME IS LAVONNE MEADS AND I AM A RESIDENT OF GRANVILLE COUNTY. I AM SPEAKING TONIGHT OUT OF CONCERN FOR THE FUTURE OF MY COMMUNITY, MY NEIGHBORS, AND THE STATE OF NORTH CAROLINA. THE DRAFT ENVIRONMENTAL IMPACT STATEMENT IS FILLED WITH NUMEROUS OMISSIONS, FACTUAL ERRORS, AND MISREPRESENTATIONS. ALTHOUGH THERE ARE MANY ISSUES AND CONCERNS, I WILL ATTEMPT TO ADDRESS ONLY THE SUBJECT OF TOPOGRAPHY FOR THE NORTH CAROLINA SITE.

1 THE DRAFT EIS STATES THAT THE TOPOGRAPHY OF THE PROPOSED SITE FOR THE SUPER COLLIDER IN NORTH CAROLINA IS "... LOW (50-100 FOOT HIGH) ROLLING HILLS" (P. 4-2.) HOWEVER, THE PROPOSAL CLEARLY SHOWS THAT THE TUNNEL AND BURIED BEAM ZONE AREAS RANGE IN ELEVATION FROM A LOW OF 375 FEET IN THE STEM QUADRANGLY TO A HIGH OF 725 FEET IN THE ROXBORO QUADRANGLE (N.C. SSC PROPOSAL, PP. 3-11 TO 3-17.) THIS IS A RANGE OF 350 FEET. IN FACT, ON EVERY QUADRANGLE MAP THERE IS A VARIATION OF AT LEAST 120 FEET FROM THE LOWEST TO THE HIGHEST POINT UNDER WHICH THE TUNNEL TRAVERSES IN THAT QUADRANGLE.

ALSO, AT A POINT ON RED MOUNTAIN IN DURHAM COUNTY, LESS THAN 500 FEET NORTH OF THE NEAR CLUSTER TOWARDS ITS WESTERN END, THERE IS A GEOLOGICAL SURVEY MARKER INDICATING THIS POINT IS THE HIGHEST POINT BETWEEN THE NORTH CAROLINA COAST AND ITS APPALACHIAN MOUNTAINS.

2 SUCH INACCURATE STATEMENTS ABOUT 50-100 FOOT HILLS ARE TYPICAL OF THE POOR QUALITY OF THE WORK DONE BY RTK ON THIS ENVIRONMENTAL IMPACT STATEMENT. IN FACT, THIS IS TYPICAL OF THE EFFORTS UNDERTAKEN AT ALL LEVELS OF GOVERNMENT DURING THE ENTIRE SITING PROCESS. THE DEIS MAKES REFERENCES TO "PUBLIC PARTICIPATION," OUTLINING THE STEPS REQUIRED BY LAW AND FULFILLED BY THE DEPARTMENT OF ENERGY THROUGHOUT THIS PROCESS. I SUBMIT TO YOU THAT THE PROCESS MAY HAVE FULFILLED THE LETTER OF THE LAW, BUT CERTAINLY NOT THE INTENT!

NORTH CAROLINA'S PROPOSAL WAS DEVELOPED BY STATE OFFICIALS IN SECRET, WITH NO INVOLVEMENT BY EITHER LOCAL ELECTED OFFICIALS OR LOCAL CITIZENS. THERE WERE NO PUBLIC MEETINGS HELD PRIOR TO THE SUBMISSION OF A PROPOSAL THAT WOULD GIVE AWAY OUR PRECIOUS NATURAL RESOURCES. THE PEOPLE MOST DIRECTLY AFFECTED WERE TOTALLY IGNORED. AFFECTED LANDOWNERS WERE NOT ADIVSED PROPERLY AND WERE NOT SUPPLIED WITH ADEQUATE INFORMATION IN A TIMELY FASHION. LOCAL OFFICIALS WERE ASKED TO ENDORSE A PROJECT WITHOUT ANY DETAILS AVAILABLE TO THEM. BECAUSE STATE OFFICIALS FAILED TO CONSIDER LOCAL VIEWS, MANY SUBSTANTIAL ISSUES WERE NOT ADDRESSED AND ERRORS WERE NOT CORRECTED. THE PROPOSAL CLAIMED THAT "NO ORGANIZED LOCAL OPPOSITION...EXISTS OR IS ANTICIPATED." YOU SHOULD KNOW, HOWEVER, THAT AS SOON AS PEOPLE BECAME AWARE, OPPOSITION DEVELOPED IN EARNEST.

TO FURTHER UNDERMINE PUBLIC TRUST, THE LEGISLATION AUTHORIZING THE ACQUISITION OF LAND FOR THE SSC INCLUDED A PROVISION THAT THE NORTH CAROLINA ENVIRONMENTAL POLICY ACT OF 1971 WOULD NOT APPLY TO ACTION TAKEN IN CONJUNCTION WITH THE SSC. BY DELETING THE N.C. PROPOSAL FROM SEPA, THE ELIMINATION OF IMPORTANT PUBLIC PARTICIPATION WAS ENSURED. MANY ENVIRONMENTAL ISSUES WERE NOT EXPLORED OR ADDRESSED BEFORE SUBMISSION, THEREBY CREATING THE APPEARANCE OF A STATE UNCONCERNED ABOUT ENVIRONMENTAL CONSEQUENCES. CONSEQUENTLY, WE HAVE IN THIS DEIS A DOCUMENT FILLED WITH ERRORS - WITH TOPOGRAPHY AS ONLY ONE OF MANY. IT IS CLEAR THAT THE NORTH CAROLINA SITE HAS NOT BEEN DEMONSTRATED TO BE AN ENVIRONMENTALLY ADEQUATE HOST SITE FOR THE SUPERCONDUCTING SUPER COLLIDER.

THANK YOU.

LETTER 738

#25

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Seismic Risk

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of seismic risk in the area of North Carolina proposed for the SSC.

According to the Draft EIS, North Carolina, along with Arizona, has the highest earthquake risk among the seven "best qualified" states (p. 4-4). However, even this risk has been severely underestimated. There was an article in the Science and Medicine section of the Durham Morning Herald on Tuesday, March 8, 1988, entitled "Next Major Earthquake Could Come in Unprepared East." Written by James Gleick of the N.Y. Time Service, this article states (quote):

> The next catastrophic American earthquake could well strike not in California but in the densely populated, highly industrialized and poorly prepared eastern United States, many geologists now believe.

1

These geologists base this prediction not on present seismic activity, but on a re-examination of previous Eastern earthquakes. An earthquake of magnitude 6.5 to 7.0 on the Richter scale struck Charleston, South Carolina in 1886, rattling buildings as far away as St. Louis, Chicago, and New York. The area for the proposed siting of the SSC in North Carolina is within the high intensity area for that earthquake. The article further states (quote):

> ...geological and historical evidence shows that Eastern earthquakes can be as severe as California's and can damage a much wider area. An earthquake of a given size typically devastates an area 100 times greater in the East than it does in the West....'The potential for damage is much higher than in California.'

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 739

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NORTH CAROLINA PUBLIC HEARING
DEPARTMENT OF ENERGY SSC DRAFT ENVIRONMENTAL IMPACT STATEMENT
OCTOBER 3, 1988

SEWAGE TREATMENT

1 THE DRAFT ENVIRONMENTAL IMPACT STATMENT CONTAINS MISREPRESENTATIONS, OMISSIONS, FACTUAL ERRORS, AND FACTS DETRIMENTAL TO THE SITING OF THE SUPER COLLIDER IN NORTH CAROLINA. I WISH TO ADDRESS THE TOPIC OF SEWAGE TREATMENT.

THE NORTH CAROLINA SSC PROPOSAL HAS OFFERED THE USE OF TWO EXISTING WASTE WATER TREATMENT PLANTS, THE STATE-OWNED BUTNER WASTE WATER TREATMENT PLANT, AND THE ENO WASTE WATER TREATMENT PLANT, OWNED BY THE CITY OF DURHAM. MAJOR QUESTIONS REMAIN UNANSWERED ABOUT THE ABILITY OF BOTH THESE PLANTS TO SATISFACTORILY MEET THE NEEDS OF THE PROPOSED SSC WITHOUT VIOLATING EXISTING ENVIRONMENTAL PROTECTION LAWS.

2 THE N.C. SSC PROPOSAL (PAGE 8-1) STATES THAT RENOVATIONS ARE BEING MADE AT THE BUTNER WASTE WATER TREATMENT PLANT. THESE RENOVATIONS ARE CERTAINLY NECESSARY, BECAUSE THIS STATE OWNED FACILITY HAS REPEATEDLY FAILED TO MEET STATE AND FEDERAL STANDARDS FOR SEVERAL YEARS AND HAS EVEN BEEN FINED BY THE GOVERNMENT.

IN FACT THE PLANT IS CURRENTLY UNDER A GRANVILLE COUNTY SUPERIOR COURT ORDER TO MEET POLLUTANT STANDARDS INCLUDING THE CLOSING OF A "BYPASS" LINE THAT ALLOWS EXCESS WASTE WATER TO BE DISCHARGED INTO THE KNAP OF THE REEDS CREEK WITHOUT TREATMENT. FOR YEARS, INFLOW OF STORM WATER HAS CONSTANTLY OVERLOADED THE SYSTEM CAUSING RELEASE OF RAW SEWAGE INTO THE CREEK FLOWING INTO

FALLS LAKE RESERVOIR WHICH PROVIDES DRINKING WATER FOR RALEIGH, YET THE STATE HAS FAILED TO TAKE ANY ACTION UNTIL NOW. EVEN NOW THAT THE STATE IS INCREASING THE CAPACITY OF THE PLANT, THE SOURCE OF THE PROBLEM HAS NOT BEEN CORRECTED AND MONEY FOR THE SAME HAS NOT EVEN BEEN APPROPRIATED TO OUR KNOWLEDGE.

IN THE N.C. SSC PROPOSAL (PAGE 8-39) THE STATE SAYS THAT WASTE WATER CAN BE PIPED TO THE DURHAM ENO WASTE WATER TREATMENT PLANT WITH A 10 MEGA GALLON PER DAY CAPACITY. WE DISAGREE. THE ENO PLANT'S CURRENT FUTURE CAPACITY IS ALREADY FULLY COMMITTED TO THE NEEDS OF THE LARGE TREYBURN DEVELOPMENT, OTHER NORTHERN DURHAM COUNTY DEVELOPMENT, AND THE NEEDS OF EXISTING DEVELOPED AREAS WITH FAILING SEPTIC SYSTEMS. A RECENT STUDY ESTIMATES ONLY A 50% POSSIBILITY THAT THE ENO PLANT CAN BE FURTHER EXPANDED BECAUSE OF THE ENO RIVER'S LIMITED CAPACITY TO ABSORB TREATED EFFLUENT, ESPECIALLY DURING THE DRY SUMMER MONTHS WHEN ITS FLOW APPROACHES ZERO. THE FACILITIES THAT THE STATE PROMISES MAY NOT BE FEASIBLE.

REGARDING THE ENO WASTE WATER TREATMENT PLANT, THE CITY OF DURHAM HAS, ALSO, ONLY RECENTLY BECOME AWARE THAT THE STATE'S S3C TASK FORCE ACTED UNILATERALLY, WITHOUT CONSULTING CITY GOVERNMENT, IN MAKING THE PLANT'S FACILITIES AVAILABLE IN ITS SSC PROPOSAL.

SINCE THE STATE DID NOT CONSULT WITH DURHAM CITY GOVERNMENT PRIOR TO OFFERING THE ENO PLANT'S TREATMENT FACILITIES, WHAT BINDING CLAIMS COULD THE DEPARTMENT OF ENERGY HAVE ON THE USE OF THOSE FACILITIES, SHOULD NORTH CAROLINA'S PROPOSED SSC SITE BE CHOSEN? ALSO, IS THE STATE'S OFFERING OF THE ENO WASTE WATER TREATMENT PLANT NOT A CONFLICT OF INTEREST, SINCE THAT PLANT IS CURRENTLY NEARING CAPACITY, AND, ~~IT IS~~ IS IT THE STATE WHO WOULD DETERMINE WHETHER FURTHER EXPANSION IS FEASIBLE?

3 IT IS CLEAR THAT NORTH CAROLINA HAS NOT BEEN DEMONSTRATED TO BE AN ENVIRONMENTALLY SOUND HOST SITE FOR THE SUPERCONDUCTING SUPER COLLIDER.

LETTER 740

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TRAFFIC

1 The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the sitting of the Super Collider in North Carolina. I wish to address the topic of traffic.

2 The N. C. proposed SSC is approximately 15 miles North of Durham in Person, Granville, and Durham Counties. The main road of travel between the Research Triangle Park, Durham, Roxboro and into the areas of Virginia is Highway 501-57. It is heavily traveled by workers every day and much of the tractor-trailer traffic between these areas use the same highway. The traffic is very heavy already. Also, two new rock quaries and a concrete plant are being built in the same area as the proposed SSC. The construction traffic from these new facilities will greatly increase with large truck traffic. If the SSC comes to the area, more traffic will result. Not only on this main road, but the side roads off this highway are highly traveled routes.

4 According to table 3-7 of the EIS, 25 miles of 4 land highway and 12 miles of 2 lane highway would have to be built to accommodate the SSC. This will only cause more traffic congestion; which will also result in more accidents along these highways. Ten miles of road would be updated in N.C. as well; again more traffic congestion during construction.

5 Page 3-64 of the EIS claims that in the N. C. proposal traffic will be routed away from areas of highest risk accident; but study will show that construction vehicles use the quickest routes of travel to make the best use of travel time between haulings. Suggesting one route, and taking that route are two different things.

6 The same page refers to traffic disruption during road construction could be reduced or avoided by construction scheduling, detours, flagmen and construction of bypass roads. When is the last time anyone can

recall traveling in road construction and not being delayed; even on a major interstate. If bypass roads are built, more funds will be needed and delays would still occur.

7 The EIS speaks of the use of public transportation to ease the traffic congestion of workers, yet in table 4-29 of the EIS it clearly states that there is no public transportation system for the N. C. site. Also, on page 4-90 under Section E; the programs for ride-sharing, carpool/vanpool and park and ride systems do not extend out to the proposed site areas.

8 According to table 5.1.8-9 of the EIS, disruption of the existing traffic patterns would occur in the proposed N.C. site. Such disruption can only result in the accident rate to increase due to the sub-conscious driving patterns of the majority of motorists not prepared for changes in their normal flow of traffic motoring. Page 5.4-2 states that the increase of injury accidents per year in the proposed N. C. site would be 6; but this does not take into consideration accidents involving property damage nor fatalities.

3 It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 741

#14

My name is Howard Parrott and I'm a resident of Granville Co.
I wish to address the topic of Wetlands

WETLANDS

Executive order 11990 requires all Federal agencies to consider Wetland protection in decision making.

North Carolina has 258 acres of wetlands in fee simple areas, that would be affected by the SSC placement in North Carolina. The E.I.S. mitigating measures to protect these wetlands are stated on page 5.1.5-36. "Sedimetation and erosion control measures are considered standard practice and restoration of or replacement of lost habitat may be considered". It goes on to say, "Wetlands acquired in fee simple estate
1 by the DOE can be protected by incorporating management practices and planning policies to afford maximum protection for sensitive habitat." May I remind you that the N.C. site is the only site with wetlands in the campus, injector, and expansion areas. (p.3-68.)

So, my concern is ~~I would like to know~~ how these wetlands can be protected ~~for more~~ which management practices will preserve them ~~on some~~ which planning policies ~~to~~ will afford maximum protection in these unique areas.

It is much more likely, I fear, ~~that my subconscious is more likely to come to pass~~ that these wetlands will be gone forever if the SSC comes to North Carolina.] So it is clear that the North Carolina site has not been demonstrated to be an environmentally
2 adequate host site for the Superconducting Super Collider.

LETTER 742

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Good Evening — I'm [illegible] Massey. I'm [illegible] and have lived in Person County for over 15 yr.

Wells in Person County

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the number of domestic wells in Person County.

In Volume IV, Appendix 7 of the Draft EIS, it states on page 131 that in North Carolina "...review of state well records and visual field surveys by state personnel indicates that there are approximately nine domestic wells within a 1,000-ft band along the tunnel alignment or within the campus, buffer and buried beam zone, and far cluster areas." It further provides Figure 7-19 to show the location of these nine wells.

This statement points out two very glaring inadequacies. First, it demonstrates that state well records are totally useless; county well records would have been a better source of information, but even these records are very incomplete. Second, and perhaps more importantly, the failure of the so-called "visual surveys by state personnel" to detect more than nine wells indicates either an outright lie by the State or total incompetence of state staff.

1

To prove this point, C.A.T.C.H. undertook an on-site survey in Person County of all wells meeting the above criteria--within 1000 feet of the center of the proposed tunnel alignment or in the Person County portion of the far cluster area. I will be presenting the results of this survey.

The Person County portion of the Collider contains the western half of the Far Cluster plus the western arc of the Collider ring, the latter area being an area proposed to be purchased only in stratified fee estate. Thus, Person County contains less than 19 percent of the total acreage proposed for the Collider. Yet, more than 200 active wells have been located in Person County alone when our State is saying there are only 9 wells in all three counties.

Attached to this report is a listing of these wells by tax map and property number, with well depths where we could determine them. Let me illustrate how even incompetent staff should have been able to realize that 9

wells was so ridiculous a low figure. This overhead [OVERHEAD PW-1] shows a portion of the far cluster. It represents a composite of pages A-5X and A-5Y out of the Draft EIS. The ring is shown in black, 1000 feet from the tunnel is shown in green, and wells are indicated by red dots. There are a total of 37 wells in this one area alone. Most of these wells are in the front yards of these houses and are easily distinguished by a mushroomed-capped type structure. A six-year old child could count more than 20 wells in this neighborhood alone.

As a second example, here is a transparency of page A-5S [OVERHEAD PW-2]. This area, near Service Area F2 lies either along or in close proximity to U.S. 501, a four-lane, divided highway which is an area that is quite easily accessible. There are 33 wells shown on this map.

As a third and final example, here is a transparency of page 5-R [OVERHEAD PW-3]. Note that there are ~~24~~ 49 wells on this map, 24 wells in this one area alone--an area that appears to have no development [Point to Harris Mill Road]. In actuality, this is a subdivision of more than 77 lots which has been here for more than five years.

If this number of wells in Person County is projected to included the remaining 81 percent of the proposed tunnel location, this implies there are more than ~~800~~ 1050 domestic wells in North Carolina to be affected by the Collider--not counting those in the Campus and Buffer and Beam Beam Zone areas. This is ~~two and one half~~ three times more wells than in the next most undesirable site.

How could the Governor's Office be so incompetent? I will leave that for you to decide. Suffice it to say that these data clearly illustrate the inadequacy of the data provided to RTK by the State of North Carolina, and thus the inadequacy of the entire Draft EIS to be useful as viable information in the site selection process. Thus, the DOE has not met its NEPA obligation of conducting a thorough and adequate environmental impact statement.

2

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 742

List of Potentially Affected Wells in Person County

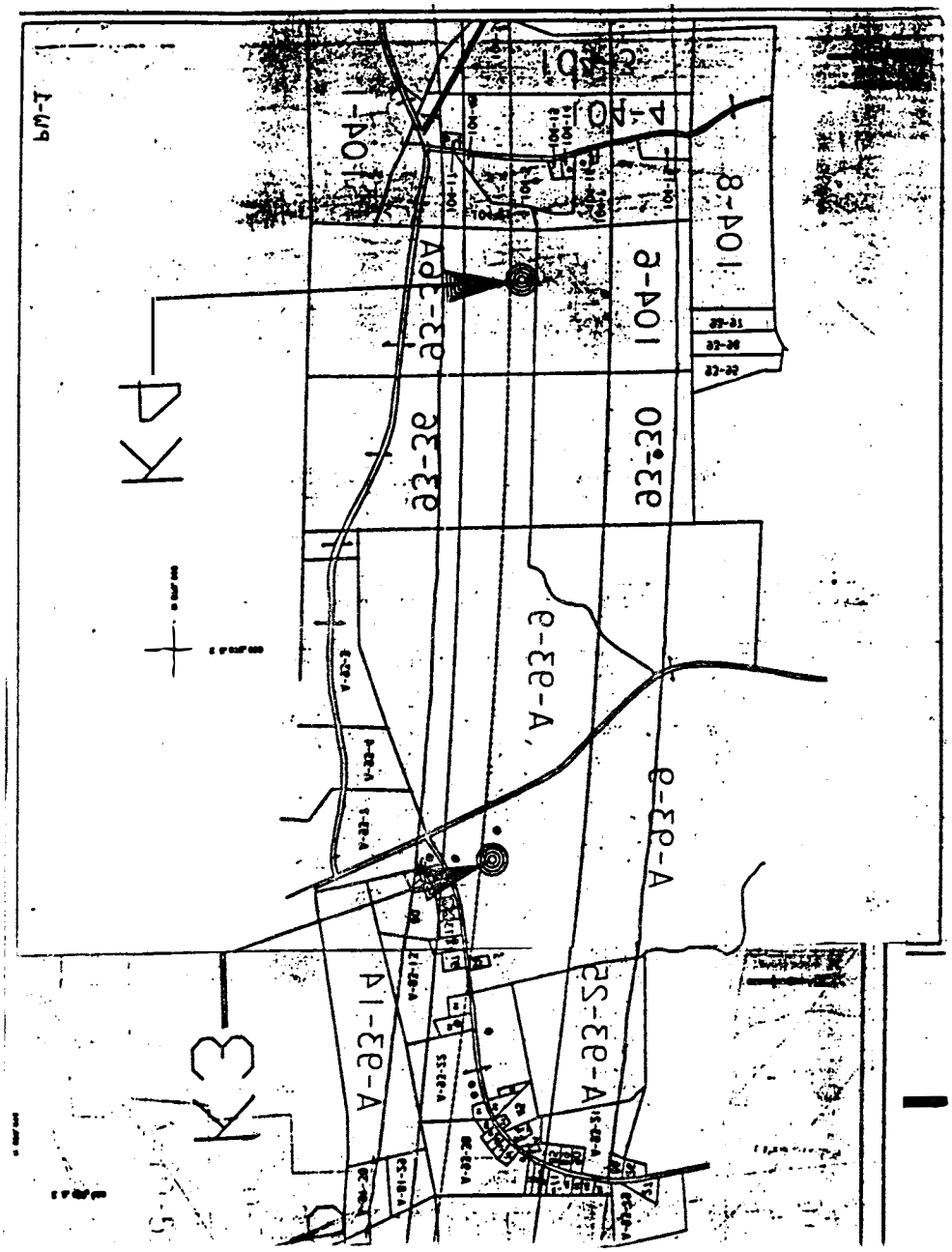
(NOTE: A well is considered to be potentially affected if it is located within 1,000 feet of the proposed centerline for the tunnel; in the campus, ejector, or future expansion areas; or in the buffer and buried beam zone areas. This is defined on page 131 in Volume IV, Appendix 7 of the Draft EIS.)

No.	Map	Lot	Owner	Depth
1	A-104	3	Montague [Harris]	
2	A-104	3A	Grill	
3	A-104	4B		
4	A-104	4B		
5	A-104	5	Green, U. [Green, A.]	
6	A-104	6	Utley [Chandler]	
7	A-104	6	Utley [Chandler]	
8	A-104	7	Hughes [Green, B.]	
9	A-104	14	Padilla	
10	A-104	16	Bullock	
11	A-93	8A	Saterfield	
12	A-93	8B	Wilkerson, M.	
13	A-93	8D	Faulkner	
14	A-93	12	Walker	
15	A-93	22	Allen, S.	
16	A-93	22	Allen, T.	
17	A-93	23	Bradsher	
18	A-93	24	Hughes	
19	A-93	30	Lawson	
20	A-93	41	Palmer, W.	
21	A-93	46	Allen, R.	
22	A-93	54	Palmer, D.	
23	A-93	56	Seva	
24	A-93	57	Ransom [Williams]	
25	A-93	60	Smith	
26	A-93	61	Corbett	
27	A-93	65	Day	
28	A-93	66	Wilkerson, L.	
29	A-93	67	Ragland	
30	A-93	68	Pipes	
31	A-93	69	Ramsey	
32	A-93	70	Johnson	
33	A-93	71	Womack	
34	A-93	74	Jeffers	
35	A-93	75	Drumwright	
36	A-93	77	Lunsford	
37	A-93	78	Carrington	
38	A-93	85	Miles	
39	A-70	19		
40	A-70	32	Talley	
41	A-70	33	McKinney	
42	A-70	33A	Gentry, F.	
43	A-70	33B		
44	A-70	34	McKinney, B.	
45	A-70	37	Allensville Grange	
46	A-70	38	Gentry, M.	
47	A-70	39	Chandler	
48	A-70	40	Gentry, C.	
49	A-70	46	Gentry, T.	
50	A-70	46	Gentry, T. [renter]	
51	A-70	52	Allen [renter]	
52	A-70	52	Allen	
53	A-70	55	Crumpton	
54	A-70	59	McKinney, A.	
55	A-70	64		
56	A-70	70	McCann	
57	A-70	72	Culley	
58	A-70	73	Gentry, F.	80
59	A-70	83	Gentry, J	
60	A-70	84	Solomon	
61	A-70	87	Gentry, F.	
62	A-70	89	Long	
63	A-70	96	Clayton	
64	A-70	98	White	
65	A-70	100	Gentry, H.	
66	77	7B		
67	77	11	Sullivan [renter]	
68	87	2	Davis	
69	87	2	Davis	
70	87	5		
71	87	5	Oakley, O.	
72	87	5B	Parth	150
73	87	6	Jones	40
74	87	7		
75	87	25	Bowen	
76	87	32	Oakley, M.	
77	88	18	Swanson	
78	88	18	Swanson	
79	88	18	Swanson	
80	88	21	Lowery	
81	88	22	Parham	
82	93	6-1	Snipes, O.	
83	93	6A	Lowery	
84	93	6A	Lowery	
85	93	6C	Landis	
86	93	10	Bradsher	
87	93	16	Snipes	
88	93	17		
89	93	25	Lower	
90	93	26	Garrett	
91	93	27		
92	93	29		
93	92	12	Moody	90
94	92	13	Martin	40
95	92	16-1	Duncan	
96	92	32	Dancey	

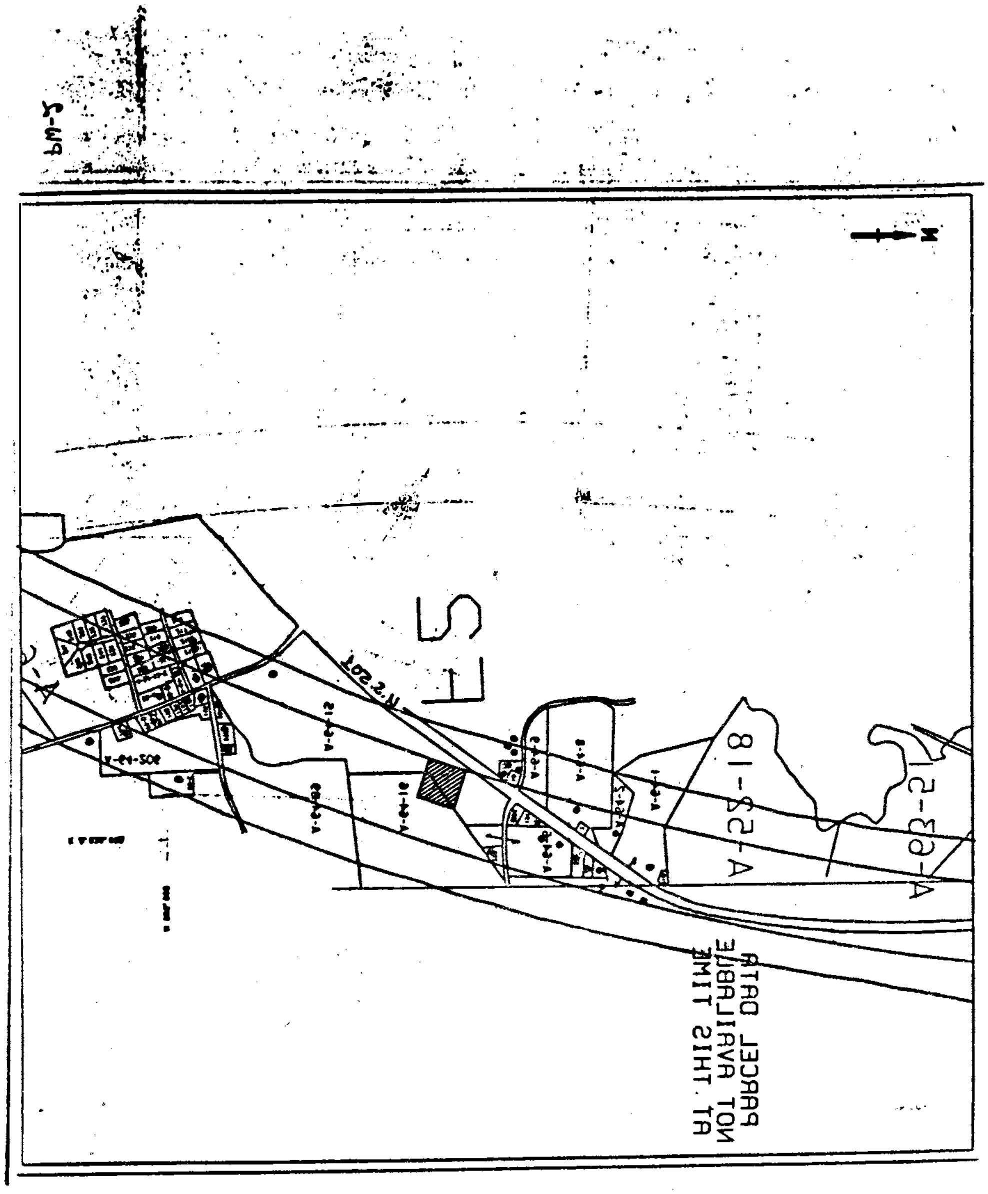
LETTER 742 (CONTINUED)

No.	Map	Lot	Owner	Depth
97	92	33	Huffham	134
98	92	34	Smith	175
99	92	36	McKinney	
100	92	41	Overstreet	130
101	92	42	Overstreet	40
102	91	1		
103	A-62	31	Early Child. Dev.	130
104	A-62	32	Garrett, N.	30
105	A-62	42	Cates	250
106	A-62	44	Day	
107	A-62	66	Davis	
108	A-51	2	Barton	85
109	A-51	7	Antioch Church Pars.	
110	A-51	8	Wilkerson	
111	A-51	56	Farmer	
112	A-51	56	Farmer	
113	A-51	57A	Davis	
114	A-63	37	Rogers	
115	A-63	47	Whitfield [Gentry]	
116	A-63	48	Whitfield [Smith]	
117	A-50	18A	Taylor	125
118	A-50	19	Rogers	65
119	A-50	20	Garrett, E.	
120	A-64	1	Burton, B.	
121	A-64	1A	Burton	
122	A-64	2	Burton	
123	A-64	3	Briggs	80
124	A-64	4	Maney	
125	A-64	5	Mundy	
126	A-64	6	Meadows	
127	A-64	6	Meadows	
128	A-64	8	Webb	
129	A-64	11	Dunn	90
130	A-64	11	Dunn	75
131	A-64	11	Dunn	90
132	A-64	13		
133	A-64	15A	Webb, T.	
134	A-64	85A	Humphries	127
135	A-64	85B	Bradsher	100
136	A-64	87	Holden	
137	A-64	89A	Briggs [renter]	
138	A-64	89B	Oakley	150
139	A-64	89C		
140	A-64	89E	Howerton	83
141	A-64	144		102
142	A-64	146	Pettigrew	
143	A-64	144A	Briggs [renter]	102
144	A-64	189	Reeves	80
145	A-64	191	Irby	
146	A-64	196	Truehart	
147	A-64	198		
148	A-64	211	Cash	85
149	A-64	212	Loft	
150	A-64	213		125
151	A-64	215	Broach	100
152	A-64	216	Small	280
153	A-64	222		
154	A-65	??	Chambers	160
155	A-65	??	Fornwalt	200
156	A-65	11	Garrett	82
157	A-65	13		
158	A-65	14A	Stewart [renter]	
159	A-65	15		
160	A-65	16		
161	A-65	16A		
162	A-65	17	Chambers [renter]	85
163	A-65	18	Tilley	109
164	A-65	19		
165	A-65	20	Black	
166	A-65	21		
167	A-65	22		179
168	A-65	22		100
169	A-65	23	Parker [renter]	
170	A-65	24	Miller [renter]	72
171	A-65	25	Miller	110
172	A-65	28	Andrews	
173	A-65	40A	Blaylock	120
174	A-65	50	Blackard	155
175	A-65	54A		
176	A-65	57	Gates	57
177	A-65	59	Stewart	
178	A-65	72	Foster	280
179	A-65	74	Cramer	125
180	A-65	87	Parker	
181	A-76	12	Wethington, C.	280
182	A-76	41		
183	A-76	42	Johnston	240
184	A-76	44	Draughon	
185	A-76	45	Jeffery	155
186	A-76	46		
187	A-76	80	Porter	200
188	A-76	81	Anderson	180
189	A-76	85	Bowles	110
190	A-76	86	Hux	300
191	A-76	87	Cash	125
192	A-76	88	Rich	212
193	A-76	88	Rich	232
194	A-76	89	Moser	225
195	A-76	91	Tolley	
196	A-76	92	St. Antoine	220
197	A-76	96	Haines	145
198	A-76	102	Dickerson	110
199	A-76	111	Ray	375
200	A-76	118		
201	A-76	122	Wheeler	120
202	A-76	123	Wethington, W.	160
203	A-76	124	Wall	120

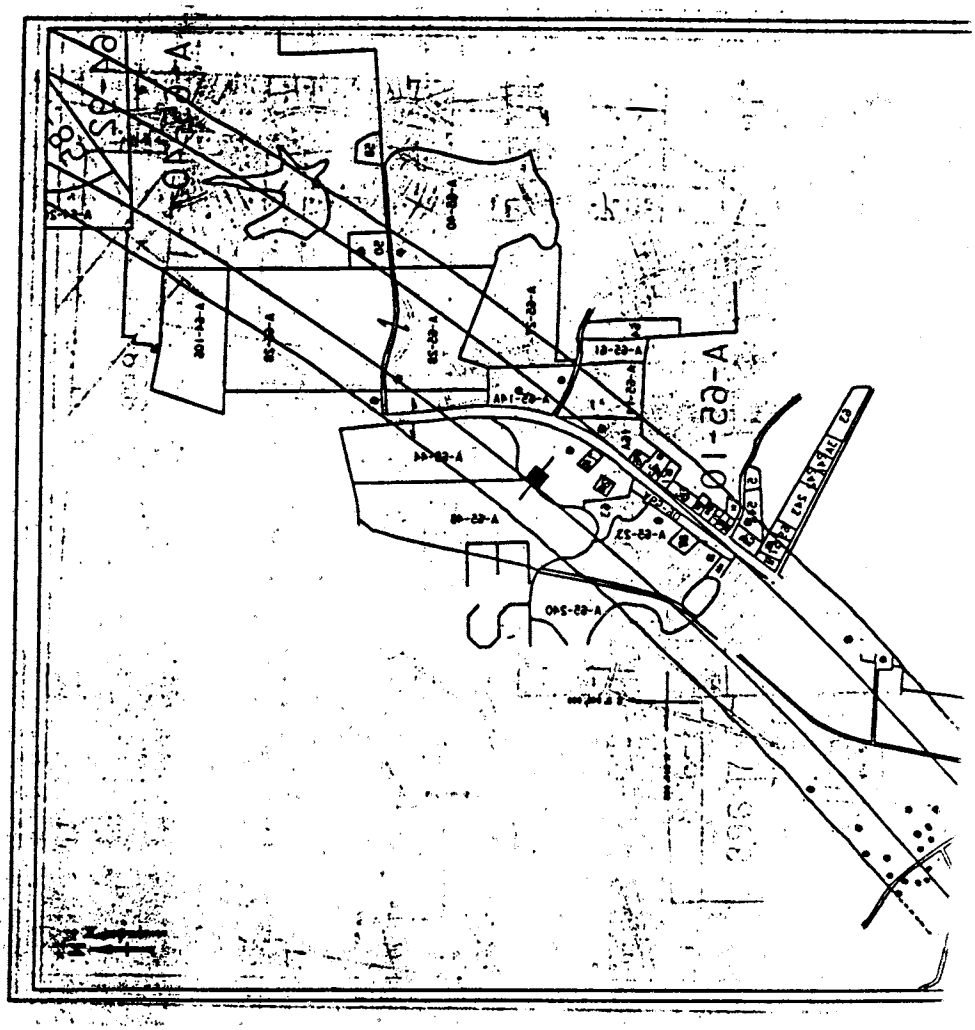
LETTER 742 (CONTINUED)



LETTER 742 (CONTINUED)



LETTER 742 (CONTINUED)



LETTER 743

Mary Lyda #17

RESPONSE TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT: COST OF PROJECT AND LACK OF INTERNATIONAL COST SHARING.

The Department of Energy Super Conducting Super Collider as described in the Draft Enviromental Impact Statement and other published DOE documents is a project that is projected to cost $4.4 billion to construct. This cost estimate has been made in terms of 1986 dollars. However considering such factors such as construction time, inflation, the size of the project, and cost overruns, this project could conceivably cost $10 or $12 billion to construct. Given the current Federal budget deficit which exceeds $140 billion, it is difficult to see how the U.S. Government would be able to afford this project if it were to finance it in its entirety. Although several attempts have been made to solicit international collaboration and financial support of the project, no foreign country has as of yet committed financial backing for the SSC. Even the Draft Environmental Impact Statement indicates that foreign nations thus far have been unwilling to commit financial resources to this project (p. 3-22). However, the SSC as proposed would allow for foreign scientists to participate in active research programs at the SSC. If this is the case, it seems unreasonable to ask the American taxpayer to shoulder the entirety of the financial burden since scientists from other countries would benefit by the project as well. Until and unless foreign countries are willing to support this project, it would seem that the most prudent and fiscally reasonable course of action would be not to build the SSC in this or any other state. Therefore, I cannot support constructing the Super Conducting Super Collider here in North Carolina at this time.

1

LETTER 744

Ann Louise Barrick
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Stem, NC 27581

IMPACT OF SSC FORCED RELOCATION ON THE ELDERLY

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in N.C.. I wish to address the topic of the impact on elderly individuals being forced to relocate.

In the DEIS, Vol.I, Chapter 3, pg.62, under the heading "Possible Mitigations to Further Reduce Adverse Impacts", noise impact and health of the workers in Arizona are the only human factors considered! In DEIS Vol.IV, Appendex 14, pg. 203, Quality of Life/ Social Well Being are discussed briefly but without suggestions for changes that address these areas of concern. The elderly are not even mentioned as being adversely affected by the proposed relocations. In Granville County alone, they comprise 14% of those currently on the relocation list (which is an understatement of the actual relocations). What about the psychological impact of the SSC on the elderly?

1

Forced relocation means separation from familiar surroundings, familiar objects, and familiar people. Older persons are less able than the young to cope with the stress of this type of forced environmental change (Eisdorfer & Wilke, 1977). They are already dealing with the stresses related to life transitions and aging, have fewer available resources and supports, and are less open to change.

Advancing age, itself, is accompanied by numerous losses- income, job, friends, health. Contacts with friends and neighbors become of increasing importance as a stable group of friends operates as a buffer against these losses. It can aid the elderly individual in maintaining feelings of autonomy and self-worth. The simultaneous loss of friendships and

People with strong family & neighborhood supports seem to recover better from injury than those without such supports (Rice, 198

environmental change associated with forced relocation can be devastating! It can result in crisis, emotional upset, and confusion. In the elderly, forced relocation has been associated with the grief felt with the loss of a loved one or the loss of parts of your body (Parker, 1972). It has resulted in hightened dissatisfaction, loneliness, ~~and~~ maladjustment + physical illness. (Heller, 1982). It has even, in some circumstances, been associated with increased mortality. During one public meeting with our county commissioners, I winessed three people in tears. One elderly woman begged one of our county commissioners not to support this project, saying to him: "I will lose my home, my friends, my church. Please, don't do this to our community." Strong emotions- strongly felt by an aging person who doesn't have the years to rebuild a sense of community, who may meet new friends but the depth of these friendships may not be so great. What plans are in the DEIS to mitigate these possible adverse affects?

The elderly are less mobile than the young and move far less frequently. In addition, research on personality changes with age indicate that individuals become more cautious and more introverted as they age. They aren't as able to return to the old community to visit old friends and maintain old ties. They aren't as likely to venture out into a new community to make new friends. Therefore, this forced relocation is more stressful for them.

Researchers have found some factors that may ameliorate the stress of forced relocation. These include: 1. movement to housing in close proximity of the old neighborhood; 2. movement to a "higher quality" environment, 3. participation in decision-making regarding the move. What are the chances for any of these factors? The DEIS Vol. IV, Appendex 14, pg. 203 clearly states that those relocated may have difficulty replacing their property with property even of equal satisfaction. Those currently

in rural areas, it goes on to state, might experience changes in the rural character of the area- in other words crowding. Will these people be able to find a new home in the old area? If this hearing is an example of an attempt to give individuals an opportunity to participate in the decision-making process, it is hardly geared to the needs of the elderly. For example, in order to speak today, a person had to read the DEIS to discover they either had to make a long distance phone call (which might tax a limited income) or write to request a time. No two people could request a time to speak in the same letter or the same phone call. These are barriers to the already cautious elderly. The actual decision making process associated with the SSC has added further stress to the lives of those to be relocated. Initially, we were told that the decision would be made in July, now we hope to know by Nov. In N.C. there has been considerable confusion about who will be forced to relocate. The state acknowledges this confusion and uncertainty in Table 3-5, Vol.I, pg.30 by indicating that the number of actual relocations may vary by as much as 70%. I personally know of an elderly woman who was told that her house was to be purchased by the state, but in actual fact, it's her pasture that will be purchased. She has been worrying about relocation needlessly for several months. The DEIS is based on information filled with such inaccuracies.

It is clear that the N.C. site has not been demonstrated to be an environmentally adequate host site for the SSC.

References will be provided upon request.

LETTER 745

Chester Johnson, Jr
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NORTH CAROLINA PUBLIC HEARING
DEPARTMENT OF ENERGY SSC DRAFT ENVIRONMENTAL IMPACT STATEMENT
OCTOBER 3, 1988

WATER SUPPLY

1 THE DRAFT ENVIRONMENTAL IMPACT STATEMENT CONTAINS MISREPRESENTATIONS, OMISSIONS, FACTUAL ERRORS, AND FACTS DETRIMENTAL TO THE SITING OF THE SUPER COLLIDER IN NORTH CAROLINA. I WISH TO ADDRESS THE TOPIC OF WATER SUPPLY.

THE NORTH CAROLINA SSC PROPOSAL SEEMS TO STATE THAT THE SSC WOULD BE PLACED IN A RURAL ENVIRONMENT. DURHAM COUNTY AND THE RESEARCH TRIANGLE PARK IS A HIGHLY DEVELOPED AND RAPIDLY GROWING AREA. THE SSC WOULD HAVE A GREAT IMPACT ON THE WATER SUPPLY OF AN AREA FAR WIDER THAN ITS IMMEDIATE LOCATION. BY THE YEAR 2000 THE POPULATION OF DURHAM COUNTY IS EXPECTED TO INCREASE TO 250,000 WITHOUT CONSIDERING THE SSC IMPACT. THE INCREASE WOULD LIKELY BE GREATER WITH THE SSC.

2 THE DEPARTMENT OF ENERGY DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS), (VOLUME IV, APPENDIX 7, PAGE 60) STATES "FOR ALL BUT THE CITY OF DURHAM WATER SUPPLY, THE IMPACTS FROM WATER USE INCREASE SHOULD BE NEGLIGIBLE...THE EXPECTED DOMESTIC WATER USE CAUSED BY SSC CONSTRUCTION AND CONSTRUCTION-RELATED PERSONNEL WOULD REACH A PEAK IN 1992, AND THIS COULD CAUSE A PROBLEM IF CURRENT AVAILABLE EXCESS HAS BEEN CONSUMED BY NON-SSC-RELATED POPULATION INCREASES...THIS COULD CAUSE A POTENTIALLY MEASURABLE IMPACT THAT WOULD BE UNMITIGABLE AND SIGNIFICANT." PARAGRAPH 2. OPERATIONS STATES "THE DOMESTIC (SSC) WATER USE PROJECTED FOR DURHAM COUNTY BEGINNING IN 1996 IS 420 TO 550 ACRE-FT/YR, OR UP

TO ABOUT 10% OF THE CURRENTLY AVAILABLE EXCESS WATER OF LAKE MICHIE. THE AVAILABLE EXCESS SHOULD BE SUBSTANTIALLY GREATER AT THAT TIME WITH THE LITTLE RIVER RESERVOIR COMPLETED, BUT THIS WOULD BE DEPENDENT UPON THE STORAGE AMOUNT AND THE NONPROJECT WATER USE INCREASES."

HOWEVER, WITHOUT CONSIDERING THE POTENTIAL IMPACT OF THE SSC ON ITS RECENTLY EXPANDED WATER SUPPLY, CITY OF DURHAM OFFICIALS ESTIMATE THAT, AT ITS CURRENT FORECASTED RATE OF GROWTH, WATER DEMAND WILL EXCEED ITS CURRENT SAFE YIELD CAPACITY OF 44 MILLION GALLONS PER DAY BY THE YEAR 2000. SOONER IF THE IMPACT OF THE SSC WERE CONSIDERED. THE CITY, HOWEVER, DID NOT HAVE AN OPPORTUNITY TO CALCULATE THE POTENTIAL EFFECTS OF THE SSC ON ITS WATER SUPPLY, BECAUSE THE STATE'S SSC TASK FORCE DID NOT CONSULT WITH THEM PRIOR TO OFFERING LAKE MICHIE'S WATER SUPPLY IN ITS PROPOSAL.

WE THEREFORE FIND THAT IT IS MISLEADING AND UNTRUE WHERE THE N.C. SSC PROPOSAL STATES IN VOLUME 1-3 "ABUNDANT SURFACE WATER IS AVAILABLE WHICH CAN EASILY SUPPLY THE COOLING AND DRINKING WATER NEEDS OF THE SSC." AT WHOSE EXPENSE - THE CITIZENS OF NORTH CAROLINA?

IT IS CLEAR THAT NORTH CAROLINA HAS NOT BEEN DEMONSTRATED TO BE AN ENVIRONMENTALLY SOUND HOST SITE FOR THE SUPERCONDUCTING SUPER COLLIDER.

LETTER 746

My name is Burley Adcock, and I am a Democratic nominee for Granville County Commissioner. The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Superconducting Super Collider in North Carolina. I wish to address the topic of domestic wells in Granville County and also to make a statement concerning the tax base.

In Volume IV, Appendix 7, page 131, of the Draft E.I.S., it is stated that "review of state well records and visual field surveys by state personnel indicates that there are approximately nine domestic wells within a 1,000-ft. band along the tunnel alignment or within the campus, buffer and buried beam zone, and far cluster areas."

I have handed you a copy of Figure 9-17 which is found on page 132 of Appendix 7. The black dots within circles are state identified wells. The red dots represent domestic wells that we have identified in Granville, and our list is not complete. Figure 9-17 shows that the state has identified three
1 wells in Granville County. One of these three wells is located at E-6, which is on a farm owned by Mrs. Lelia Blackwell Williams. There is not, and never has been, a well on this farm. The water source is a very productive spring.

In the Granville County portion of the far cluster, we have identified nine wells either dug or drilled. In the 1,000 foot tunnel corridor, there have been forty-two wells identified. We have found one hundred ten domestic wells in the near cluster and buried beam zone. That makes a total of one hundred sixty-one domestic wells found in the far cluster, 1,000 foot corridor, near cluster, and buried beam zone. A list of these wells and locations will be turned

in with my written statement. Most of these wells are identified by name; however, some in the buried beam zone have been counted by visual survey from the road.

How could our state personnel have been so incompetent in identifying these wells? The state well records that were used must have been extremely out of date, and the state personnel who did the visual survey must have been blind. If it were not such a serious matter, the mistakes that have been made would be hilarious.

Appendix 7, page 131, also states that "the impact to water users can be partially mitigated if replacement wells or hookups to alternative water supply sources of equal or better quality are provided to affected well owners." We have already had a well damaged in Granville County - a well that is located within the 1,000 foot band tunnel alignment.

Charles Crumpler is one of the many owners not identified by the state as living within the thousand foot corridor even though he has lived in the same house over twenty years, and this house is easily recognizable on the state maps. For six months the state tried to pretend Mr. Crumpler and his well didn't exist. Why did it take the state so long to investigate? Now the state officials are suggesting that his damaged well may be due to his old pump. If replacing a pump would have solved the problem, why did Mr. Crumpler have an expensive filtering system installed?

Why did the state secretly cement the nearby well site SC-18A in which a radioactive probe was lost before dye tests could be made to determine whether the well was a danger to any wells in the community? The state officials claim that they are concerned about the welfare of the citizens of these

three counties. I am saying to you that "replacement wells or hookups to alternative water supply sources of equal or better quality" are a lot of empty words. The state has no intentions of accepting any responsibility now or in the future. This has already be revealed in the Crumpler well case.

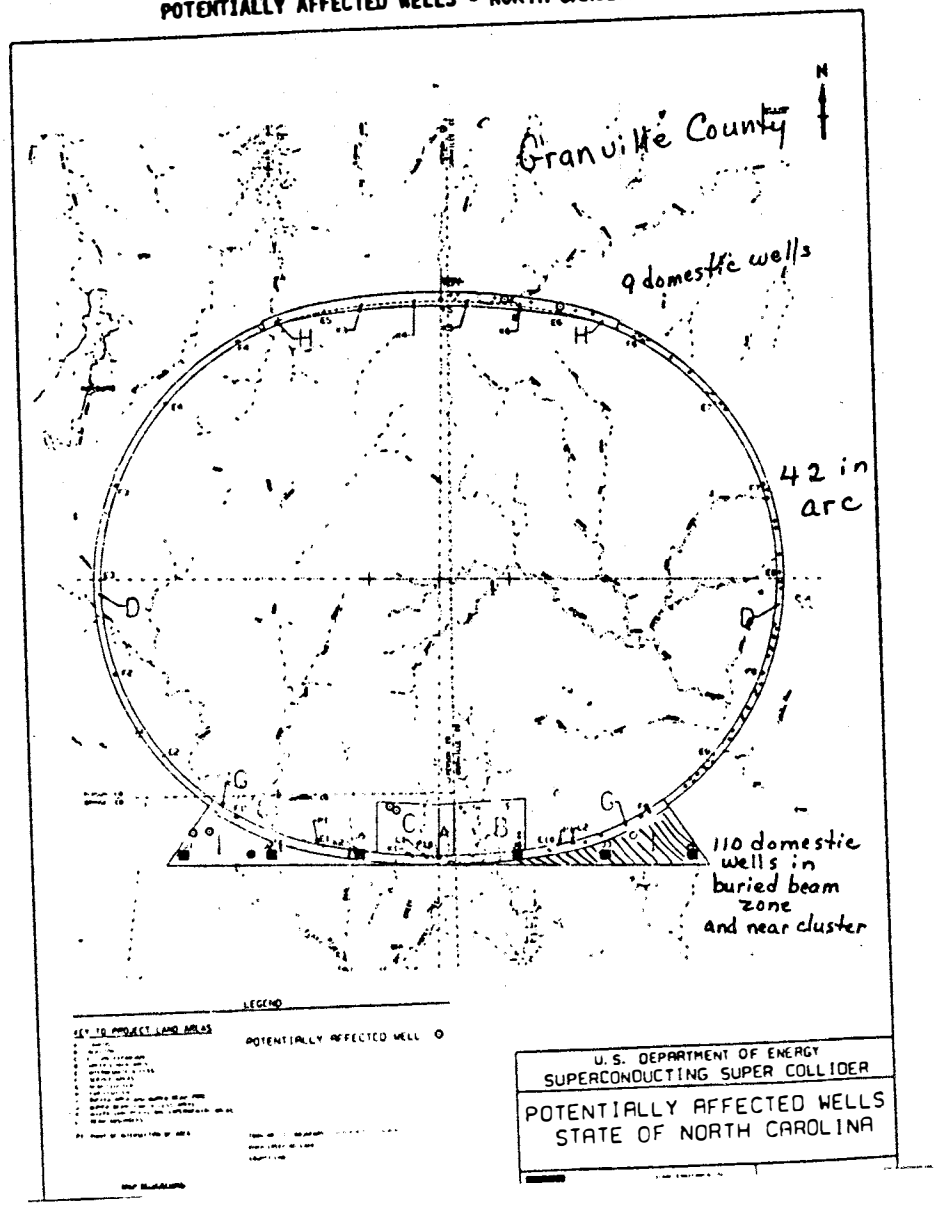
I am also very concerned about the loss of tax base in Granville County if the SSC is located here. We cannot afford the decrease in revenue to our county government at a time when additional services would be required. There is no way, even with our part of the twenty-five million dollars the state has promised, that Granville County can build the additional schools and furnish the additional services needed by the in-migration of so many workers without over-burdening our taxpayers.

2

It is clear to me that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Figure 7-19

POTENTIALLY AFFECTED WELLS - NORTH CAROLINA SITE



WELLS LOCATED WITHIN

FAR CLUSTER, 1,000 FT. CORRIDOR,

NEAR CLUSTER, AND BURIED BEAM ZONE

1. Masuria Thorpe - far cluster - drilled well - 240 ft. deep
2. Chester Thorpe - far cluster - drilled well - 85 ft. deep
3. Louise Allen - far cluster - drilled well - 142 ft. deep
4. Don Shoenberger - far cluster - drilled well - 120 ft. deep
5. Clifton Stewart - far cluster - drilled well - 180 ft. deep
6. James S. Thorpe - far cluster - drilled well
7. Lee Williamson - far cluster - dug well
8. William D. Brooks - far cluster-dug well - 60 ft. deep
9. Sam Mason - far cluster - dug well - 35 ft. deep
10. Alma Smith - near F-6 - drilled well - 145 ft. deep
11. Linwood Harris - near F-6- drilled well - 240 ft. deep
12. Fred Hargrove - near F-6 - drilled well - 120 ft. deep
13. Jimmy Thorpe - near F-6 - drilled well - 121 ft. deep
14. Mozelle Bumpass - between F-6 and E-7 - dug well
15. John Malloy - between F-6 and E-7 - drilled well
16. Fannie Strickland - near E-7 - dug well - approx. 50 ft. deep
17. Fannie Strickland - near E-7 - drilled well - 110-130 ft. deep
18. James Inscoe - near E-7 - drilled well- approx. 70 ft. deep
19. Mann homeplace owned by John Knox - near E-7 - dug well
20. Bellzora Burwell - near F-7 - drilled well 150 ft. deep
21. Mike Stovall - near F-7 - drilled well -
22. Ben Hughes - near F-7 - drilled well - 300 ft. deep
23. Charles Crumpler - between F-7 and E-8 - drilled well -
24. Tenant house owned by Charles Watkins - between F-7 and E-8- Drilled well
25. Danny Williams - near E-8 - drilled well - 150-160 ft. deep

26. Lionel Burnette - near E-8 - drilled well
27. Robert Burchette - near E-8 - drilled well - 86 ft. deep
28. Robert Burchette - two rental houses near E-8 - dug well -32 ft. deep
29. Plummer Hayes - near E-8 - drilled well 158 ft. deep
30. Carl Parrott - between E-8 and F-8 - drilled well - 140 ft. deep
31. David T. Smith - between E-8 and F-8 - drilled well - 65-70 ft. deep
32. Ernest Clayton - between E-8 and F-8 - drilled well - 110 ft. deep
33. Wade Milton - near F-8 - drilled well
34. Wade Milton - tenant house near F-8 - drilled well
35. Wade Milton - tenant house near F-8 - drilled well
36. Brodie Jones, Jr. - near F-8 - drilled well - 140 ft. deep
37. Elizabeth Jones - near F-8 - drilled well - 125 ft. deep
38. Brindell Wilkins - tenant house near F-8 - dug well
39. C. W. Watkins - between F-8 and E-9 - drilled well
40. Clyde Averett - between F-8 and E-9 - drilled well - 122 ft.deep
41. Clyde Averett - between F-8 and E-9 - dug well - 40 ft. deep
42. Edna King - near E-9 - drilled well - 160-200 ft. deep
43. Edna King - rental mobile home - drilled well - 100 ft. deep
44. House - Deer Run - near E-9 - drilled well
45. House - Deer Run - near E-9 - drilled well
46. House - Deer Run - near E-9 - drilled well
47. House - Deer Run - near E-9 - drilled well
48. Sam Long - tenant house owned by Marvin Honeycutt - between E-9 and F-9 - drilled well
49. Marvin Honeycutt - between E-9 and F-9 - dug well
50. Marvin Honeycutt - between E-9 and F-9 - drilled well
51. Tenant house owned by Thelma Blakney - between E-9 and F-9 - dug well
52. Norman Gossett - Near Cluster - drilled well
53. Billy Mangum - Near Cluster - drilled well - 185 ft. deep

54. John Perotti - Near Cluster - drilled well - 125 ft. deep
55. Charlie Gantt - Near Cluster - drilled well - 165 ft. deep
56. Charlie Gantt - Near Cluster - drilled well - 165 ft. deep
57. W. A. Howerton - Near Cluster - drilled well - 125 ft. deep
58. W. A. Howerton - Near Cluster - drilled well - 125 ft. deep
59. K. D. Gentry - J3 - drilled well - 180 ft. deep
60. Lane Wheeler - J3 - drilled well
61. Estelle Tilley - J3 - drilled well
62. Donald Tilley - J3 - drilled well
63. William Evans - J3 - drilled well
64. Philip Duke - J3 - drilled well
65. Jack Poole, Jr. - J4 - drilled well
66. Grover Lane - J4 - Drilled well
67. Anita Gray - J4 - drilled well
68. Steve Miller - J4 - drilled well
69. Nathan Johnson - J4 - drilled well
70. Tyson Carpenter - Buried beam zone - drilled well
71. Beasley - Buried beam zone - drilled well
72. Beasley - Buried beam zone - drilled well
73. Charles Blalock - Buried beam zone - drilled well - 125 ft. deep
74. Willie Riley - Buried beam zone - drilled well-106 ft. deep
75. Wilfred Paro - Buried beam zone - drilled well - 160 ft. deep
76. J. R. Griffin - Buried beam zone - drilled well - 144 ft. deep
77. J. R. Griffin - Buried beam zone - drilled well - 66 ft. deep
78. J. R. Griffin - Buried beam zone - dug well - 40 ft. deep
79. Mark Griffin - Buried beam zone - drilled well - 128 ft. deep
80. Mark Griffin - Buried beam zone - drilled well - 70-75 ft. deep
81. Josephine Bullock - Buried beam zone - drilled well over 100 ft. deep
82. Josephine Bullock - Buried beam zone - dug well - 60 ft. deep

83. Earl Duke - Buried beam zone - drilled well
84. Ruritan Club - Buried beam zone - drilled well
85. Boyd Jones - Buried beam zone - drilled well
86. Barry Buchanan - Buried beam zone - drilled well
87. Alton Eakes - Buried beam zone - drilled well
88. O. Black - Buried beam zone - drilled well
89. Wallace Riley - Buried beam zone - drilled well
90. Tom Weaver - Buried beam zone - drilled well
91. Charles White - Buried beam zone - drilled well
92. Edward Jackson - Buried beam zone - drilled well
93. Dan Weldon - Buried beam zone - drilled well
94. John E. Wilkins - Buried beam zone - drilled well
95. E. B. Wilkins - Buried beam zone - drilled well
96. T. R. Wilkins - Buried beam zone - drilled well
97. H. P. Wilkins - Buried beam zone - drilled well
98. __ Smith - Buried beam zone - drilled well
99. R. L. Breedlove - Buried beam zone - drilled well
100. R. L. Emory - Buried beam zone - drilled well
101. A. B. Cleaver - Buried beam zone - drilled well
102. Tally Ho Baptist Church - Buried beam zone - drilled well
103. Tally Ho Church (Black) - Buried beam zone - drilled well
104. White frame house at intersection of Sanders and Belltown Roads - Buried beam zone - dug well
105. Brick house at intersection of sanders and Belltown roads - Buried beam zone - drilled well
106. Brick house at end of dirt Tally Ho Road - Buried beam zone - drilled well
107. Old Cotton Homeplace - Buried beam zone - drilled well
108. Brick house on Belltown Road - Buried beam zone - drilled well
109. Brick house on Belltown road - Buried beam zone - drilled well
110. Brick house on Belltown Road - Buried beam zone - drilled well

111. Brick house on Belltown Road - Buried beam zone - drilled well

112. Brick house on Belltown Road - Buried beam zone - drilled well

113. Blue house on Belltown Road - Buried beam zone - drilled well

114- 126. Trailers at Deerfield Park each have a well

127. Trailer on Belltown Road - Buried beam zone - drilled well

128.- 132. Mobile homes near intersection of Tally-Ho and Belltown Roads - Buried beam zone - drilled wells

133- 136. Houses on Little Mountain Road - Buried beam zone - drilled wells

137. House on extension of Little Mt. road - Buried beam zone - drilled well

138. House on Range Road - Buried beam zone - drilled well

139-140. Mobile homes on Cemetery Road - Buried beam zone - drilled wells

141. Brick house on unpaved Tally Ho Road - Buried beam zone - drilled well

142. Brown siding house - unpaved Tally Ho Road - Buried beam zone - drilled well

143. House across from John Wilkins - Buried beam zone - drilled well

144. House across from E. B. Wilkins - Buried beam zone - dug well

145. Mobile home on unpaved Tally Ho Road - Buried beam zone - drilled well

146. Two mobile homes on Wilkins Road - Buried beam zone - drilled well

147. Burned house - Sanders Road - Buried beam zone - drilled well

148. White 2-story house - Sanders Road - Buried beam zone - dug well

149. Blue house - Sanders Road - Buried beam zone - drilled well

1500. Gray house on Sanders Road - Buried beam zone - drilled well

151. Gray house on Sanders Road - Buried beam zone - drilled well

152. House with swimming pool - Sanders Road - Buried beam zone - drilled well

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LETTER 746 (CONTINUED)

153. Brick house next to gray house on Sanders Road - Buried beam zone - drilled well

154. White house on right of Wilkins Road at intersection - Buried beam zone - drilled well

155. House next to old Cotton Homeplace - Buried beam zone - drilled well

156. Well -no house - intersection of Sanders Road and West Thollie Green Road- Buried beam zone - drilled well

157 - 161. Mobile homes on West Thollie Green Road - Buried beam zone - drilled wells

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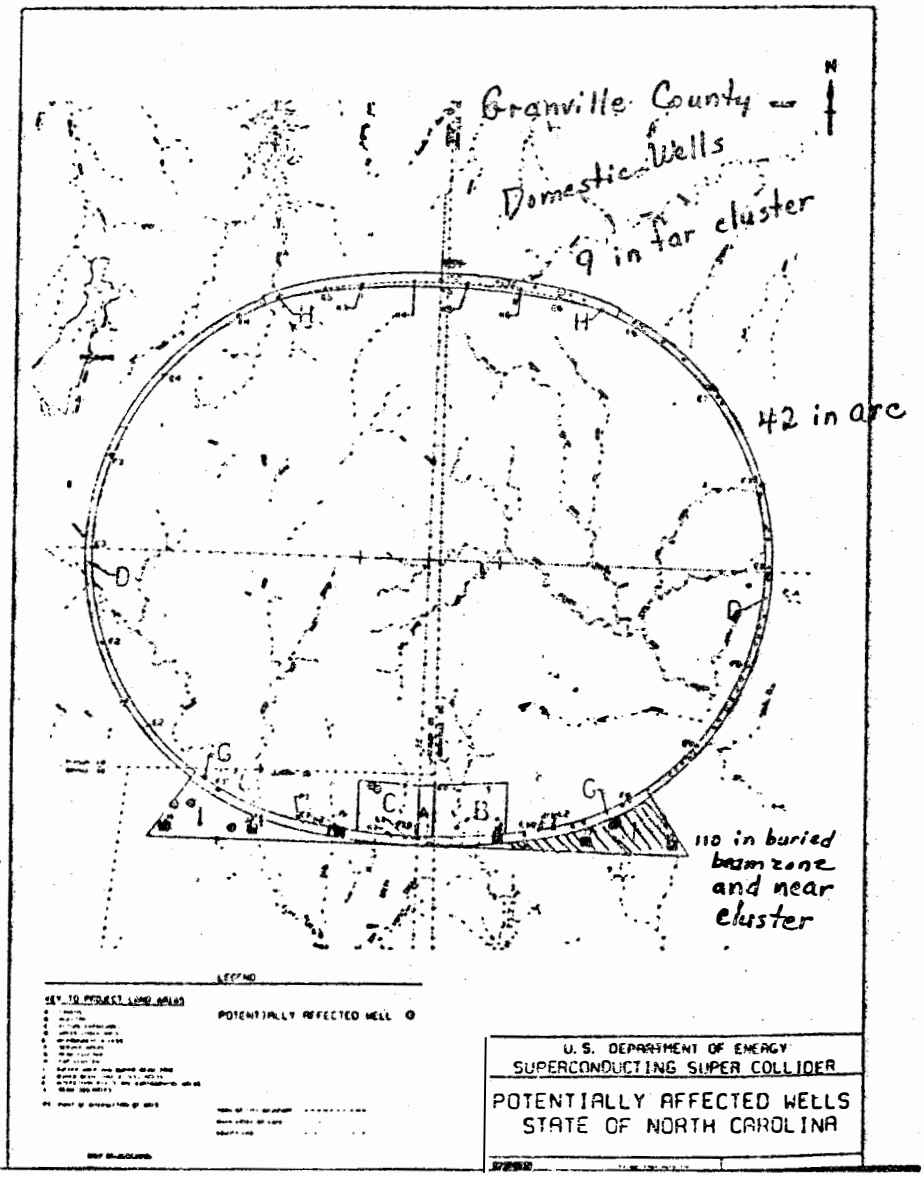
Figure 7-19

POTENTIALLY AFFECTED WELLS - NORTH CAROLINA SITE



LETTER 747

STATEMENT OF WILLIAM E. GRAHAM, JR.
CHAIRMAN, GREATER RALEIGH CHAMBER OF COMMERCE
OCTOBER 3, 1988

My name is William E. Graham, Jr., and I live in Raleigh, North Carolina. I am Vice Chairman of Carolina Power & Light Company, one of the electric utilities that would serve the super collider project should it be located at the site now under consideration.

I am currently serving as Chairman of the Greater Raleigh Chamber of Commerce, and it is in that capacity that I appear tonight.

1 The Greater Raleigh Chamber of Commerce enthusiastically supports the location of the super collider in North Carolina at the site now under consideration. It is our opinion that the favorable impacts on this area would far outweigh any stresses that might be experienced during the construction period. This position is supported by the findings of the Draft Environmental Impact Statement and, in particular, by the findings in the study prepared by The Center for Business and Economic Research at UNC at Charlotte.

2 The potential impacts during construction, as projected by the Draft EIS and those projected by Dr. Connaughton in the UNCC Study, differ appreciably. The draft statement projects that over half of the construction workers would live in Durham

County. Whereas, Dr. Connaughton finds that Wake County, largely because of the size and strength of its present work force and construction companies, would furnish about two-thirds of the 3,800 to 4,000 construction force at its peak.

The conclusions of Dr. Connaughton appear more reasonable. It is logical that to determine where workers will come from, you look closely at where they are now. We are aware of the large construction forces now in Wake County and agree that they would likely form a majority of the construction force needed for the super collider.

A second question would be whether they would continue to live where they presently live or move to the site of their work. Past patterns suggest that they would commute and not relocate.

Two years ago, my Company completed the largest construction project in this State's history--the Harris Nuclear Project located 20 miles south of Raleigh in Southern Wake County. At the peak of construction, over 6,000 workers were employed at the site. Most of them commuted daily from their permanent homes. In fact, a survey conducted in 1982 showed that 37 percent lived more than 50 miles from the plant site, and almost 10 percent lived more than 100 miles from their work. As the work progressed, even more of the work force came from further distances. At no time during the eight years of construction was there appreciable movement of workers in order to be closer to the work site.

It is our suggestion that the draft statement be revised to more closely reflect the findings of the UNCC Study.

LETTER 748

Shawn Meninger DOE

10-3-88 DEIS Hearing Butner, N.C.

Construction and Operation Damage Fund Volume 1, Chapter Five

1 The DEIS is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the SSC in North Carolina. I wish to address the problem of damages resulting from the construction and operation of the SSC if it is sited in North Carolina.

2 The DOE is aware that the construction and operation of the SSC can have adverse impacts on the environment and some suggestions are proposed to mitigate damage. Yet no proposals are made to compensate private property owners when damages actually occur. Accidents will occur. Damages will result. Accidents have already occurred.

3 During a subsurface survey conducted by North Carolina as part of its original SSC Proposal a test boring known as 18A was drilled. At the bottom of this boring a probe containing a small amount of radioactive Cesium was lost irretrievably. The private testng company responsible notified the Neuclear Regulatory Commission, isolated the probe with a drill proof shield ,cemented the bore hole and topped it with a warning cap. All this was apparently proper.

However, the initial secrecy and refusal to take responsibility for this accident was improper and showed a lack of foresight and concern for possible damages. In fact some damage may have occurred. Water from a nearby well owned by Mr. and Mrs. Crumpler became contaminated at approximately the time the bore hole was drilled. Initial attempts by the Crumplers to discover the cause of their problem apparently met with inattention by the government. The NRC wasn't happy about releasing information. When the subsurface testing was conducted, there was a lack of notfication of the public and property owners, so that many times landowners did not know what was occurring. No predrilling water samples from nearby wells were taken.

4

When the possibility of what could have happened was pieced together, over a year had elapsed. The Crumplers had borne the expense of a filtration system. Fortunately testing confirmed absence of radioactive contamination. But it was impossible to rule out contamination of the well caused by the actual drilling without an investigation costing more than the expense of a new well. It is agreed that the water is contaminated, but as of this time no one has agreed on the solution to the problem or any compensation.

This example illustrates the need for procedures to identify and compensate for damages caused by the construction and operation ofthe SSC:

1. Preconstruction surveys must be undertaken

2. A Damage Fund must be established and funded by the federal and/or the state government to pay damages caused by the SSC regardless whether the damages were caused by actions of the governments or any private contractors. The agrieved property owner should not have the burden of proving who was responsible for the damages he sustained.

3. A claim procedure must be established. The cost of an independent, unbiased investigation should be underwritten by the Damage Fund. A property owner should not have to bear the expense of a technical investigation costing thousands of dollars to prove his claim.

5

4. Disputes should be subject to non-binding arbitration.

The lack of a structure to answer the problem of damages makes it clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the SSC.

Will DOE address these issues?
How?

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LETTER 749

JOHN MINNAGER DOE

10-3-88 Butner, N.C. DEIS Hearing

Drought and Precipitation Volume 4, Appendix 5c

1 The DEIS is filled with numerous omissions, factual errors, and facts detrimental to the siting of the SSC in North Carolina. I wish to address the topic of drought and precipitation as it appplies to the water supply requirements of the SSC and the surrounding area.

The statistics and the conclusions stated in the DEIS are what might be expected given the bias of the North Carolina administration. The State science department submitted data designed to present a picture of North Carolina as the best location to site the SSC. The data was not gathered or submitted in an objective form but in the form of a sales pitch.

2 Further the DEIS was compiled by DOE scientists who ignored the scientific method by not recognizing or caring that the N.C. SSC Proposal was likely to be biased. Indeed the DOE is itself biased. It is to the advantage of the DOE to qualify as many sites as feasible to maintain a broad base of support for the SSC. The DOE failed to conduct its own on site investigation to objectively confirm or disprove the data submitted to it. The result is an Environmental Impact Study that seems to be more of a biased feasibility study that subordinates environmental issues to the ultimate objective of building the SSC. WHY?

The North Carolina legislature waived the N.C. statute requiring an Environmental Impact Study on the promise that the DOE would fulfill this requirement. Since this has not occurred there may be grounds for legal action. There does not appear to be enough time to complete an objective EIS before the final site is chosen. To complete an EIS later would be closing the barn door after the horse is out.

Specificly, Table 5.5.3-2 on page 38 was compiled in 1968, twenty years ago. Current data is different. The precipitation section 5.5.3.3 states mean monthly rainfall but gives no statistics for individual months. No high/low ranges are given or frequency of those ranges are given. No account is taken of cyclical periods of drought. More up to date data could have been obtained from
3 th local library. Why is the study incomplete?

The initial statement of this section that the seasonal rainfall in North Carolina does not produce any dry seasons could only have been written by someone who did not trouble themselves with an on site investigation. Documentation was previously submitted to the DOE showing lack of precipitation and lack of surface water capacity during months of peak demand. This was apparently ignored. WHY?

Section 5.5.2.1,C. admits that projected use demands on
4 reservoirs was incomplete. Actually the data available indicates

that the full capacities of the Durham water supply sources will be used at the same time the SSC will be draining the greatest volume from Lake Butner. Around the years 2000 to 2010 Durham may be competing with the SSC for the Lake Butner reserves. This will be especially true if the SSC prohibits construction of the Upper Flat River reservoir. The problem that the SSC may preempt the Upper Flat River reservoir was ignored even though the question was submitted as a concern to be addressed in the EIS.
Why was the question ignored?

Table 5.5.2-1 addresses flow rates of streams in the SSC area. The extremely low minimum flow rates are not discussed as they apply to the poor recovery rates of area surface water supplies during periods of peak demand. The bottom line is that the recovery rate of water supplies is lowest during periods of peak dmand. Further the flow rate of feeder streams for Lake Butner dosn't appear to have been addressed at all. Why?
What are the flow rates of the Lake Butner Feeder Streams

Finally the DEIS states in section 5.1.2-27 of Vol. 1, that the SSC use requirement of lake Butner "is not considered a significant impact." Yet Vol. 1, Chapt. 3, page 51 states that a "large increment of excess capacity" of surface water will be required. Section 3.7.3, page 66 states "SSC direct and indirect water requirements impact the Durham water supply until its expansion is complete." Indeed the expansion may never be complete if the SSC precludes further expansion.
What is the truth?

The only truly solid statement concerning water in the DEIS is,

LETTER 749 (CONTINUED)

"The continued reliability of the surface water resources, especially under drought conditions, is a significant water resources issue in the area." Appendix 5-c, page 28.

6 It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the SSC.

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John Mininger

LETTER 750

M. A. MININGER

DOE

10-3-88 Butner, N.C. DEIS Hearing

Property Value Compensation Appendix 4

1 The DEIS is filled with numerous omissions, misrepresentations, and facts detrimental to the siting of the SSC in North Carolina. The DOE requires states to adhere to Public Law 91-646 and DOE relocation rules when compensating property owners for land to be acquired for the SSC. Yet those very laws fail to ensure just compensation.

Governor Martin pledged "Top Dollar" to affected property owners. This sounds good, but it is a vague generality. The Governor himself qualified it by admitting " Top Dollar" must fall within the constraints of the law.

2 Then the Governor created a Property Commission as an example of his social concern to address the plight of the affected property owners. Affected landowners wished to sit on the commission but were denied. Conflict of interest was the excuse. However, the Governor appointed his own SSC project director William Dunn chairman of that committee. Here the conflict of interest was intentionally ignored. Further the Governor filled the commission wherever possible with SSC supporters.

The danger of use of the Property Commission to increase the illusion that North Carolina is the best site for the SSC was

apparent. Yet to their credit most of the commissioners have refused to allow themselves to be used as puppets. The potentially affected landowners have chosen to work through this commission. However, the Property Commission has no legal power. Its influence is only advisory. Hopefully its influence is not illusory.

In addition the Governor has refused to meet with the affected people even though he has been invited to meetings which would not be used for political purposes. He appears to be so involved with the common good he has no time for the people.

The affected property owners in North Carolina will not allow to happen to them what happened to the land owners at Fermilab. To that end we have proposed our own compensation requests. Included herein is the complete proposal. Basically it calls for:

no condemnation of land unless federal funds are appropriated for SSC construction

full replacement cost of lands and structures without regard for depreciation

relocation and closing costs

lump sum compensation for personal expense necessitated by

relocation

Stratified Fee property owners right to choose Fee Simple acquisiton

Proper compensation for surrounding property owners whose lands are affected by the SSC

and compensation for loss of income and profit for farmers and business owners.

Some might say the affected people are looking to become rich. We reply simply pay us nothing and let us alone.

Indeed the replacement cost we ask is what everyone's homeowners insurance policy provides. The loss of profits compensation is exactly what business owners insurance provides. We are asking mainly what the Governor, legislators, commissioners, and DOE officials already provide for themselves in their personal insurance.

Yet the federal and state governments fail to provide guarantees of this basic just compensation. It is clear that the North Carolina site has not been demonstrated to be an enviornmentally adequate host site for the SSC.

Why won't DOE guarantee the same compensation homeowner's policies provide?

SSC PROPERTY COMMISSION PROPOSAL

Whereas the individual citizens of North Carolina who are property owners, farmers and other business owners, and tenants who would be affected by the proposed location of the Superconducting Super Collider (SSC) in North Carolina were neither advised nor consulted by the State prior to the offering of their land to the Federal government, and

Whereas the individual private lands of these citizens were offered without their consent, and

Whereas these lands are not required as a result of a national or state emergency, and

Whereas the State of North Carolina purports that the location of the SSC in North Carolina should be beneficial and a boon to the State and its citizens,

Therefore the location of the SSC in North Carolina should not result in any uncompensated economic or physical effects or hardships on the individually affected citizens, and

The State of North Carolina should provide the affected citizens Just Compensation guaranteed by the constitution in payment of all losses and damage and disruption of their lives caused by the location of the SSC in North Carolina according to the following provisions:

3

I. The State of North Carolina should not be authorized to ~~purchase~~ CONDEMN any private property for the SSC until SSC construction funds are appropriated by the Federal government. If the SSC project is abandoned, individual private property owners should have first right of refusal to repurchase their individual properties at the State's original purchase price.

ADD Property Owners should have right to ask state to buy their property immediately

II. Compensation for FEE SIMPLE property acquisition should include each of the following:

A. Cost to replace lands of equal size, uality, and terrain in comparable locations and neighborhoods, and within the same school district if possible and desired.

B. Cost to replace or rebuild all structures in their exact form with no reduction for depreciation.

C. Cost of all closing costs and attorneys fees, complete cost of mortgage interest rate differential and points, and actual moving expenses.

D. Additional costs to the affected individuals including time required to locate and acquire replacement property and move thereto, oversee the planning, building, and/or modification of structures, travel expenditures, and maintenance of normal lifestyle. This compensation should be computed at 30 percent of the replacement cost of land and structures.

E. To allow time to rebuild structures, a minimum of 9 months should be given by the State between settlement on compensation costs and property eviction, or additional compensation should be provided to cover all losses connected with the acquisition and maintenance of temporary living quarters.

III. Compensation for STRATIFIED FEE acquisition should include the option of the affected property owner to select one of the following three options:

A. The same compensation as provided for Fee Simple acquisition as specified in Section II. above, OR

B. Compensation for fair market value of the property with the right to continue residence under restricted use as allowed for the lifetime of the current property owner(s), OR

C. Such compensation for Stratified Fee acquisition as the State proposes.

IV. Other property owners affected by the construction or modification of highways or access routes for the SSC as provided in the North Carolina proposal, or located in neighborhoods dissected by the SSC or materially altered by the SSC should have the option of selecting Fee Simple property acquisition as presented in Section II. above.

V. Affected tenant dwellers should receive compensation as specified in the State of North Carolina relocation proposal plus compensation for time and expense required to locate and move to a comparable dwelling while maintaining a normal lifestyle. This compensation should be set at a sum equivalent to one year of current rental payments.

VI. Farmers and other business owners should receive compensation for interruption of business activity, loss of business income, and additional business expenditures required to move and maintain a business at a temporary and/or new permanent location until loss caused by relocation ceases.

VII. The State of North Carolina should undertake preconstruction surveys of all potentially affected properties, including conditions of structures and complete well and surface water analyses, and provide a copy of the survey to each potentially affected property owner.

VIII. The State of North Carolina should create a Damage Fund and apparatus to pay all damage claims arising from the location, construction, and operation of the SSC in North Carolina. Payment should be made for all costs for independent investigation and verification of damages regardless of ultimate liability. Claimants should not bear the expense of proving their own claims.

Disputes should be heard before a non-binding arbitration panel with a right of appeal to the courts.

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LETTER 751

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RESPONSE TO THE DEPARTMENT OF ENERGY DRAFT ENVIRONMENTAL IMPACT STATEMENT: READING LEVEL

The Department of Energy (DOE) prepared a Draft Environmental Impact Statement for the Super Conducting Super Collider (SSC). In this draft Environment Impact Statement (DEIS) it is stated that "the DOE invites interested persons and organizations to review this DEIS and provide comments on the content of the document." The DEIS further states the comments may be provided in either written form or in oral form at public hearings to be held in each of the final seven SSC sites. However, having read this document I wonder if the DOE is generally interested in public response to the DEIS. Aside from being as large as a major metropolitan phone book, the DEIS document is highly technical and quite difficult to read. For example, in reading through this document one encounters statements such as:

1 1. "Unusual plant communities particularly the cedar glades with their compliment of endemic and remnant species, are present." (p. 5.1.5-7).

2. The Cumberland Plateau escarpment, east of the proposed ring is a significant raptor migration corridor." (p. 5.1.5-8).

3. Riparian habitat associated with larger ephemeral drainages and stock ponds are present in the project area but none would be significantly impacted as a result of construction of surface facilities for operations of the SSC facility." (p. 5.1.5-13).

4. Palustrine stream wetlands predominate with lesser concentration of lacustrine and riverine types present in the region." (p. 5.1.5-14).

5. Western coals produce a fly ash that is typically high in calcium, which makes the ash pozzolanic and beneficial field material for concrete, but the coals are also high in alkalis that have a deleterious effect on concrete." (p. 5.6-8 and 5.6-11).

1 Anna Edwards Raleigh, NC

6. "The helium cryogenic system would be charged with 57 Mft (std) of helium." (p. 5.6-2).

In addition to such statements as these, the document is filled with numerous highly technical terms that make it at least difficult to read, and at worst often incomprehensible. Specifically, in reading through the document one encounters such terms as allelopathy, alluvial fan, anadromous, biomass, biota, chalcedony, collimator, cryogenic, cryostat, dipol, ecotype, evapotransperition, geodetic, hydrophyte, klystron, lithology, microbial, mycorrhiza, pedogenesis, pi-meson, quadrapol, riparion, solifluction, tectonic, viewshed, and xeric just to name a few. Although the document contains a glossary for such terms, one often is not enlightened by referring to the glossary for clarification of a term. For example, quadrapol is defined as a system composed of two dipols of equal but oppositely directed moment. Similarly, mycorrhiza is defined as a mycelium found in the root tubercules of angiosperms which are supposed to assist in nutrition of the plant and to sustain a symbiotic relation to it. Adding to this verbal spider web are an excessive number of abbreviations that are used liberally throughout the document. All these factors make the DEIS a highly technical, difficult to read, document that is written at a reading level far above the average citizen. (Section 1506.8) This violates the NEPA Guidelines which states documents should be written in understandable language

The highly technical nature of this document raises such questions as, Does the DOE indeed want responses from the general public regarding the DEIS? Does the DOE even care if the general public understands this document? Is the DOE at all responsive to the public's sentiments to this project? Or is this DEIS just another sign, that the DOE is simply "going through the motions" in their efforts to inform the public. If the lack of sensitivity to the general public shown by this document is any sign of what is to come with the construction of SSC, I cannot support siting this project in this State.

Wanda Edwards Rangel

LETTER 752

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ELECTRICAL SHORTAGES

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of electrical shortages and other electrical issues.

During the summer of 1988 electrical service was interrupted to residential customers of Carolina Light & Power four times. their figure — Duke Power also had to interrupt service several times. Both CP&L and Duke Power nonetheless have agreed to provide [redacted] electrical power for the SSC, yet according to Vol IV, Appendix 14, page 135 of the Draft Environmental Impact Statement, "reserves for CP&L and Duke together are projected to fall short in 1996 by 13 MW of the excess capacity needed to meet the SSC operational load."

13 MEGA WATTS SHORT!!

The operational load of the SSC is 200 MW; by comparison, the capacity of Sherm Harris Nuclear plant is 900 MW. The SSC would consume during its operational life almost 1/4th the total output of this controversial plant. But service was cut to residential customers this summer because CP&L's 20% minimum reserve margin and Duke's 25% peak reserve margin were not enough to meet the conditions.

In Appendix 14, page 136 there are charts showing both utilities' projected reserve margins for the year 1996, the year the SSC would go into operation if it were built according to schedule, however unlikely that seems given the history of the SSC so far. CP&L's total power resources for 1988 are listed as 10,092 MW here, but total system capacity is given as 9,600 MW in Vol IV, Appendix 5, page 135 and also as 9,600 MW in Table 4-30, Vol I, Chapter 4, page 92. CP&L itself uses

the 9,600 MW figure. Assuming that CP&L magically produces the additional 492 MW for the purposes of this DEIS, the projected power resources for 1996 of 11,337 MW will still be a full 1,245 MW more power than it has today or equivalent to 1 1/3 more Harris plants. However, on three separate pages in the DEIS (Vol.IV, Appendix 14, pages 137 & 139; Vol. IV, Appendix 5c, page 135;) the statement is made that CP&L is not currently committed to constructing additional generating capacity beyond that already installed!

The current capacity of Duke is 15,600 MW, but the planned resources are given in Appendix 14, page 136 as 19,437 MW or an additional 3,837 MW by 1996. Page 137 indicates that 1,100 MW will be provided by the return to service in 1995 of older coal-fired units that have been rehabilitated. In addition, Duke expects 1,000 MW of pump storage capacity to be available from the Bad Creek Plant in 1991-2 (if they can get the roof to stop leaking). So where does the additional 1,737 MW indicated come from? That's 2 more Shearon Harris plants!!

Page 139 of Appendix 14 speculates that needs would be met by returning units to service after upgrade, life extension programs, reactivation of mothballed units, and conservation and load management programs. If our utilities needed only to do these things to produce the equivilant power of 3 and 1/3 Shearon Harris plants, why haven't they done it already!! CP&L doesn't even have any mothballed units! And that means that the residential user is going to have to quit squandering his average 1000 watts each month!!

2 Interestingly, the Draft Environmental Impact Statement itself devotes only 1 page (Volume I, page 4-91) to Electricity. Paragraph 4.9.2.2 states that "more detailed information and references are

presented in Appendix 5, Section 5.5.11.2. The "more detailed" information fills only 2 pages, and only 3 sentences are devoted to planned future upgrades!

In Volume I, Chapter 1, Table 1-1, page 1-5 of the DEIS, only 4 miles of new powerline is listed as required to provide service to the 2 SSC substations, and this through an "undisturbed area of timber production, light agricultural and rural development" according to Vol I, Chapter 3, p 3-24, or as stated in 5.1.10-15 "the site is substantially forested, sparsely settled...". Of course this is the same table that lists the number of water wells lost as 9, so we can estimate the reliability of the information!!

3

The 4 miles of new transmission line required is very specific, but, in the same volume, table 3-4, page 3-29 lists the Estimated Acreage Requirements for the proposed Electrical Transmission as 22 or 482 acres for easements, and a footnote to that figure says it depends on which electric utility company provides the power. How can they be so sure about one requirement and not the other? (Of course that is the same table that says Lake Michie will provide the water to the far cluster!) On the very next page in Table 3-4, the Total Proposed Acreage for the North Carolina site is given as 15,897. Why isn't there a range given here too of 15,897 to 16,379 depending on which electric utility company provides the power?

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

LETTER 753

RESPONSE TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT: REPUTATION OF DOE

The draft Environmental Impact Statement is filled with numerous omissions, factual errors, and misrepresentations. I wish to address the topic of t reputation of the Department of Energy. As is well known by now, North Carolina has reached the final competition for DOE's prized science project, the Superconducting Super Collider. Since we are one of seven states left that are competing for this project, it is important to investigate what type of neighbor DOE would be if they were to bring their project to our state. Questions such as how well DOE protects the public and how concerned they are about the environment are important questions to address. In searching for answers to these questions I was alarmed at how easily I found negative commentary on DOE's performance at other project sites. Attached to this statement are a number of reports regarding how poorly DOE manages a number of its project sites and how they seem to disregard the welfare of the general public. For instance, one report notes that at the Hanford Washington Radioactive Waste Repository radioactive waste has already contaminated the nearby Columbia River. Further, this report notes that the costs for cleaning up radioactive sludge at the Hanford site are estimated to be $9 billion. According to Senator John Glenn, who has for years investigated DOE practices, "the Department of Energy and its predecessors have been counting their missions... with an attitude of neglect bordering on contempt for environmental protection." (see attachment) More recently, both radioactive and nonradioactive toxic waste has been found in the ground water near the Brookhaven National Laboratory. (see attached newspaper article) In fact, many wells at the Brookhaven site "are contaminated above those levels" recommended for safe human consumption. Similar poor management of nuclear and toxic waste has been reported in other states including Tennessee, Texas, Nevada, Utah, and Mississippi. And just three days ago, the newspaper carried a report that two congressional committees disclosed on Friday that the Savannah River Nuclear Plant in South Carolina "has had numerous reactor accidents that have been kept secret from the public for as long as 31 years... Some of the accidents could have threatened public health or, had they gone uncontrolled, even destroyed the reactors, creating a disaster. The incident... raises anew questions about the willingness of the Energy Department to correct long-standing managerial and structural problems at the aging plant..." So how do I feel when I hear that DOE may bring a project capable of producing low level nuclear waste to our state? Well I feel about as open to the idea as I would if I heard Al Capone were going to open up an ice cream shop in my neighborhood. Because, you see, like Mr. Capone, DOE got its reputation the old fashioned way — they earned it. And like Mr. Capone, DOE is not welcome in this state for any reason. Please take your Superconducting Super Collider and put it somewhere else — far, far away. We don't want it in North Carolina.

1

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LETTER 753 (CONTINUED)

New York Times June 1988

Radioactive Trace Is Found In Water Near National Lab

By MATTHEW L. WALD

Radioactive material from the Brookhaven National Laboratory on Long Island has entered the drinking water of nearby homes, though not at dangerous levels, according to a draft report by the United States Department of Energy.

Investigators have also found toxic chemicals in the water, although laboratory officials assert that their center is not the source, according to the study. Suffolk County officials, however, believe that it is.

In the wells outside the 5,300-acre laboratory site at Upton, about 60 miles east of New York City, the radioactive and chemical contamination levels are still within permissible limits for drinking water, according to the study, a copy of which was obtained by The New York Times. But many wells inside the site are contaminated above those levels, and a "plume" of badly contaminated water extends half a mile and "is migrating in a southerly direction," the study found.

Deficiencies in Monitoring

The radioactive material was said to be tritium, a byproduct from a nuclear reactor. The chemicals include chloroform and trichloroethylene, known as TCE, a solvent that researchers have said may cause cancer.

In addition, the study reported, "the ground-water monitoring program has a number of deficiencies which make it difficult to characterize the nature and extent of ground-water contamination both on-site and off-site."

The problems range from too few monitoring wells to wells identified with bicycle flags with numbers written on them. The ink weathered and became illegible, the department found.

Suffolk County has also identified problems at the laboratory.

"They were very proud of their waste-treatment plant until we got a look at it," said Gregory J. Blass, a county legislator whose district includes the plant. "It turned out more than half of their facilities were not connected to it."

Water Cleaned by Aeration

According to George Proios, executive director of the Long Island Water Commission and a member of a task force formed by Mr. Blass to investigate the problem, the monitoring wells are not deep enough to give an accurate picture of the pollution. Also, he said, documentation is lacking to review past projects and determine what was done with the chemicals used.

The laboratory's director, Dr. Nicholas P. Samios, said the center had the chemical problem under control, having removed 90 to 95 percent of the chemicals by pumping the water out of the ground and aerating it.

The tritium, he said, is below dangerous levels and is naturally disappearing because it has a half-life of less than 13 years, meaning that in 13 years half its radiation, it diminishes by half in that period.

In addition, he said, more wells have been drilled and other problems have been addressed since the Department of Energy inspection in spring 1987. The study draft is dated Jan. 18, 1988; a final version has not yet been issued.

According to Dr. Samios, most of the pollution is the result of dumping that has been discontinued at the 40-year-old laboratory. He said the Energy Department recently told the center that it would get $19 million in the next fiscal year to cut clay caps on its dumps to protect them from rain, which helps spread contaminants.

No Threat to Health Expected

Dr. Samios added that the contamination was not a threat to health and that the laboratory was doing everything possible to control the problem.

"We have 3,000 employees of this lab who live in the neighborhood," he said. "We're certainly concerned about our own employees, and our own employees are concerned. We try to comply with all the rules."

The study that describes the problem is one of a series being done by the Department of Energy at its centers around the country to determine which require cleanup most urgently. Some samples were taken as long ago as 1948.

A full cleanup of department centers that make nuclear weapons and do research could cost $175 billion or more, according to recent studies by the General Accounting Office. Amid growing national pressure to clean up the centers, Congress is moving to bring them under the Federal laws that cover industrial plants.

At present the Department of Justice is blocking the Environmental Protection Agency from suing the Department of Energy and the Department of Defense to enforce Federal pollution laws.

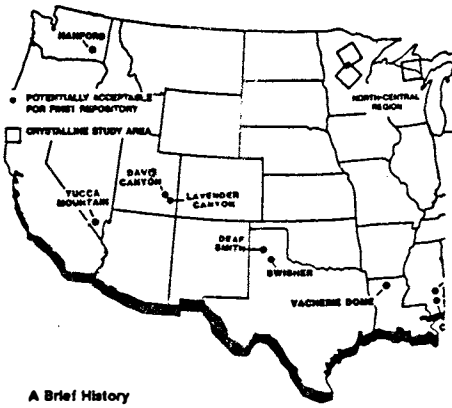
Last Thursday, a subcommittee of the House Committee on Energy and Commerce approved five bills that would extend the environmental agency's jurisdiction over the Department of Energy.

In an interview the chairman of the subcommittee, Representative Thomas A. Luken, Democrat of Ohio, said the department was "hiding behind a shield of immunity, and it's resulted in cesspools of nuclear waste and all kinds of waste."

2

"NOT IN OUR BACKYARDS": A FACT SHEET

WHAT IS DOE's TRACK RECORD IN THE WESTERN STATES?



Louisiana's promise to accept the Strategic Petroleum Reserve, both President Carter and Reagan promised that it would not have to accept a nuclear waste repository. In the words of a telegram sent by Ronald Reagan to the Governor of Louisiana:

"As President, I will see to it that the federal government lives up to all the obligations which it has undertaken, specifically ... that the government will not consider any nuclear waste repository in Louisiana if that state objects. (6/4/80)

Millions of dollars were spent by DOE on investigating a potential repository site in Louisiana even after this agreement was made, which seems to be typical of the wasteful and contradictory approach DOE has taken in siting decisions.

3

A Brief History

Shortly after the bombings of Hiroshima and Nagasaki, President Truman asked Congress to create an organization to oversee the application of nuclear technology. Congress created the Atomic Energy Commission (AEC), an independent 5 man commission. AEC was given full ownership of all domestic uranium and other materials necessary in bomb production.

In 1954 the Atomic Energy Act was passed to allow universities and private businesses to contract with the AEC to do nuclear research, production and testing. AEC's major facilities included:

Plutonium: Oak Ridge, TN and Hanford, WA.
Research: Argonne Labs, Chicago and Brookhaven Labs, New York.
Testing: Los Alamos, NM and Las Vegas, NV.

By the early 1970's, continuing safety problems and accidents had made it clear that the AEC could not continue as both a proponent of nuclear technology and a regulator of licensing, safety and standards. In 1974, the AEC was divided into the Nuclear Regulatory Commission (NRC), the Energy Research and Development Administration (ERDA) and the Federal Energy Administration (FEA). In 1977, the US Department of Energy (DOE) was established as a cabinet level department consolidating the major federal energy functions.

Major programs administered by DOE include:

- Energy research
- Fossil energy
- Nuclear energy
- Conservation and renewable energy
- Environmental protection, safety and emergency preparedness
- Defense nuclear weapons
- Civilian radioactive waste management

Nuclear Waste Policy Act

On December 21, 1982 Congress passed the Nuclear Waste Policy Act. In its rush to get home for Christmas, the Senate ratified 20 amendments to the bill in 20 minutes. Utility companies had lobbied Congress hard for a number of years to take the problem of disposal or storage of nuclear fuel off their hands. The Act included the creation of a Nuclear Waste Fund supported by a 1 mill per kilowatt hour fee on nuclear power generated electricity. (DOE has collected $2.3 billion from the utility companies for the program to date.)

The process originally envisioned by DOE to identify sites which might be suitable repositories for high level nuclear waste involved four important steps to protect communities from arbitrary selection. First, there was to be a National Survey of all states to identify areas for consideration for further investigation. This was to be followed by Regional Studies (multi-state), Area Studies (up to 1000 square miles) and Location Studies (tens of square miles).

This process was abandoned after the President signed the Nuclear Waste Policy Act into law in January of 1983. Instead of surveying all states, the DOE simply continued investigating the nine sites they already had the most information on. DOE argued that a radio ad eliminate some of the protections in the Act in order to speed up the process of selecting a site. [illegible]

The Western Repository Site Investigations

Texas

Several years ago, prior to the passage of the Nuclear Waste Policy Act, the DOE hired local contractors to approach landowners to allow drilling on private land. The contractors didn't say they worked for DOE and were examining the area for a nuclear waste repository. Instead they implied they were looking for oil. When traces was discovered, landowners revoked permission for exploration and ran DOE off their land.

In the years that have passed since this event, DOE has not improved its relationship with landowners who are affected by the site investigation, nor have they won the admiration of the state. Steve Freshman, Director of Texas Nuclear Waste Projects in the Governor's Office stated in October, 1985:

"We are finding many things we think the DOE is [illegible] responsibly, some of [illegible]. So now we've asked us to do a much larger program, and are doing a scientific investigation just as they are. I am not impressed with their planning and reviews so far."

Deaf Smith County, which is one of the two counties directly affected by DOE siting decisions, is one of the ten richest agricultural counties in the nation. It is number one in Texas in cattle production. Richardson Seed Company produces 85% of the grain sorghum seed for the world. Deaf Smith County sits on top of the Ogallala Aquifer, which supplies drinking and irrigation water to 7 midwestern states. If DOE puts a repository in Texas, it will have to drill through the Ogallala Aquifer and salt beds below. Farmers fear contamination of the Aquifer by brine salt and radioactivity.

After seven years of study, DOE neglected to note the following characteristics in its draft Environmental Assessment of Deaf Smith County:

- It did not note the existence of 30 deep wells in the area which are potential pathways for radionuclides escape into the environment. One well is the home of Vegas Sale drinking water supply.
- They described the area in such a way that someone not familiar with the county would think it is a wasteland. Area agricultural impacts were not considered.
- Fractures and faults in the area were ever looked. These are potential pathways which could flood the repository.
- Transportation information was inadequate and incomplete.

Washington

The federal government already owns the land under investigation for a repository in Washington. The Hanford site was used during WWII to produce plutonium for bombs. It continues to reprocess spent fuel for plutonium to be used in nuclear bombs today. Military wastes are liquid and are disposed of in surface "cribs", which are similar to septic tanks with leach fields. The plant at Hanford operated with much secrecy, but it is now known that radioactive Tritium already contaminated the nearby Columbia River. Estimated costs for cleaning up the 149 leaking tanks holding radioactive sludge at the Hanford site is $9 billion.

In the draft Environmental Assessment DOE published in 1985, the following important features of the area were not adequately discussed:

- The basalt rock body where DOE would store nuclear wastes is highly fractured, subject to "rock bursting" (which would kill miners) and future earthquakes.
- The probability of an existing earthquake fault on the site was brushed aside.
- Groundwater representations were not thoroughly studied, but the DOE report tends to believe they can be predicted with certainty.
- How existing defense wastes will be transferred and how they will affect the repository was not considered.
- [illegible]

Nevada

The federal government also owns the land being studied for a repository in Nevada. The site is on Yucca Mountain, 100 miles northwest of Las Vegas and adjacent to the national Nuclear Weapons Test Site. Most of the people living in the two small towns near Yucca Mountain are employed by DOE in nuclear weapons testing and related projects, but the majority of people in the state derive their income directly and indirectly from tourism. Many citizens fear that if there were one accident or if the aquifer below the site (which is believed to underlie the entire state) were contaminated, it would kill the tourism business.

In its response to the DOE draft Environmental Assessment, the state of Nevada commented on the following problems:

* No forecast was made of future water needs in Nevada.
* Groundwater travel times in the area were faster than the maximum allowed under the federal regulations.
* The area lies in a moderate to major earthquake zone, which was not adequately addressed.
* The site is adjacent to a nuclear weapons test area that could affect the repository.
* The rock formation is highly fractured, not solid as stated by DOE, and could allow water into the repository.

Utah

Davis Canyon and Lavender Canyon are the sites DOE has studied for the repository sites in Utah. Both sites are within 3 miles of Canyonlands National Park; Davis Canyon is less than a mile from the Park. Citizens fear that construction of a large industrial facility with the accompanying noise, lighting and other visual intrusions will destroy the natural beauty of the Park. When the state government surveyed visitors to the park, 69% said they would not return if there were a repository nearby.

Criticisms of DOE's draft Environmental Assessment include:

* There was no analysis of the impacts of a repository on the National Park. Park [illegible] Laws do not allow the construction of large industrial facilities.
* [illegible] standards were used to [illegible] effects. (For example, the noise level standards were for city dwellers, not for [illegible] at a National Park.)
* DOE ignored fracture information revealed from their own borehole testing.
* Groundwater testing was inadequate; the sites are only 11 miles from the Colorado River which provides California with drinking and irrigation water.
* DOE assumed the rock body is homogeneous (which it's not) and based all its computer modeling on this assumption.

Mississippi

Governor Finch invited DOE to Mississippi in 1976 when the agency promised that a nuclear waste repository would "bring $50 billion into the local economy and be a magnet for other industries." As in Texas, when DOE set about to study privately owned land, they did not tell landowners their intentions, but hired a local business to "do land surveys".

In 1981, citizens downstream from the proposed site held a rally attended by 5000 people. After this event, politicians began to speak out against the repository. But citizens soon discovered that the politicians were playing both sides of the fence: in a speech made to the Mississippi Manufacturers Association, a member of the Governor's Nuclear Waste Policy Council was again promising jobs and money from the repository.

In 1982, Mississippi held a referendum that established a moratorium on DOE's exploratory activities in that state. Mississippi contends that a state's rights allows it to have such a law. When DOE resumed after the moratorium, citizens denied them access to their lands and poured concrete into the monitoring wells.

Criticisms of DOE's draft Environmental Assessment include:

* DOE stated that the town of Richton is 2 miles from the salt dome (proposed site) when in fact 1/3 of the town is directly over the dome.
* DOE fired its contractor, LETCO, for doing poor quality area characterization studies, yet it will base the suitability of the Richton Dome site on data from LETCO.
* The report claims the average rainfall is 13". Last year it was in fact 80".
* The report claims that 10% of the local population in the affected area is black. In reality, the population is over 40% black.

DOE and CEA Public Education Campaigns

DOE has requested Congressional approval of a $769 million budget for their repository projects for 1986-87 expenses. $79 million of this is for public education and preliminary site investigation at the 12 eastern second repository sites. Preliminary investigation indicates that the objective of DOE's education campaign will be to "help people deal with their fears" of radioactivity. Apparently, DOE is developing training programs which will target specific influential groups in communities near the proposed sites, and develop community leaders who will make DOE's program more acceptable to the rest of the public.

The U.S. Committee on Energy Awareness (CEA) is a private membership organization supported by the utilities, some unions with nuclear ties, and private industry. It spends $20 million per year on public education supporting nuclear power. It targets states which plan referendums on nuclear issues (its media campaign led to the defeat of a recent Missouri initiative) and which are undergoing scrutiny for a nuclear repository ($2 million was budgeted for Mississippi; a $3.8 million pro-nuclear budget was planned for Texas but scrapped when evidence showed it would fan opposition).

"NOT IN OUR BACKYARDS: A FACT SHEET, "What is DOE's Track Record in the Western States" is the first in a series of pamphlets on the nuclear waste repository issue. Extra copies are 25¢; bulk orders of 10 or more are 15¢.

The CEA has followed a particular pattern in each of the six states selected for the first round repository program:

* CEA (or its contractor, [illegible] and Associates) develops local Citizen Study Groups. People in the community who will be targeted to join such groups include members of the local chamber of commerce and others who are concerned about economic growth.
* CEA hires a local advertising firm to do public relations, including lobbying, in each repository sited state.
* Extensive telephone polls have been conducted by CEA in many of the first round states.
* Energy America is sponsored by CEA. Nuclear experts are brought into the affected communities to speak to civic groups and the local media.
* CEA sponsors major network advertising. Here in western North Carolina we are currently enjoying their "Pro-America" campaign, promoting nuclear and coal energy generation.
* Citizen's Alert is a publication and network which is CEA's national effort to get citizens to write to their Congressmen on federal legislation.

How Citizens and States in the Western States Have Responded to DOE

The pattern of citizen and state response in every western state was similar:

1. State governments opposed the siting of a repository and felt they could "win" the argument strictly on the basis of bad geologic features.

2. Politicians sat on the fence or were two-faced, publically opposing the repository to get votes and (behind closed doors) supporting the repository to get campaign contributions or other favors from the nuclear industry. The promise of jobs and economic growth versus the public's opposition to siting immobilized most politicians.

3. Citizens initially believed that the issue could be won with geological arguments. When they discovered horsetrading and ambivalence among their legislators, many citizens formed groups to fight the repository on their own.

Tactics used by citizens to assure accountability from DOE and local politicians included:

1. Citizens in two states were so offended by DOE's incompetence and manipulation that they got their state governments to block DOE from further testing. In Mississippi, citizens passed a moratorium to keep DOE out. In Utah the Governor told DOE he would have them arrested if they used state highways to bring their equipment into the state.

2. Citizens in Mississippi carried tape recorders to major conventions where politicians might be talking about economic development to document efforts to entice DOE's repository into the state. Tapes were then shared with local media.

3. Farmers in Texas have formed a Trust, so that if their area is chosen as a repository site, the DOE will have to deal with the Trust as a whole rather than with individuals. Part of the advantage of the Trust is that affected areas near the sites as well as on the site are included.

4. Citizens in Utah developed a national campaign by contacting visitors to Canyonlands National Park and asking them to write letters to Congress and circulate petitions back home.

5. Citizens in all the western states organized petition drives, developed educational materials for themselves and the media, approached local and statewide organizations for resolutions, wrote letters to editors and to politicians and networked with citizens at the other western sites for mutual benefit.

6. As a result of citizen concerns and the poor quality of decisions made to date by DOE, the following states have filed lawsuits against DOE: Nevada, Washington, Mississippi, Texas and Utah. Second round repository states that have filed against DOE are: Minnesota, Vermont, and Wisconsin. The state of Tennessee filed against DOE because of its actions in proposing an MRS there.

Western North Carolina Alliance Position

* We oppose the [illegible] of a Crystalline Repository Project in Western North Carolina
* We oppose the construction of a Monitored Retrievable Storage Facility
* We advocate [illegible] on-site and storage until a safe, permanent disposal method is developed.

For more information, write or call
Western North Carolina Alliance
Route 1, Box 304
Zirconia, NC 28790
704-693-1702

The Western North Carolina Alliance is a non-profit community organization with over 400 members in 12 western NC counties. The Alliance is dedicated to the principal that citizens should have a voice in the outcome of resource decisions that affect their communities. Membership is $15/year and includes a quarterly newsletter, ACCENT. All memberships and donations are tax deductible.

INTRODUCTION

This is actually a story within a story. At one level it is about the enormous radioactive and toxic chemical drainfield being created on the banks of the Columbia River by Hanford. At another level, it offers an intimate glimpse of the attitude held by the individuals to whom the American people have entrusted Hanford's management.

Future investigations may reveal that at the heart of this subject lies a kind of fraud, for there is evidence suggesting that government officials should have long been aware that continuation of Hanford's waste-dumping practices pose far greater risk to the Columbia River than they've admitted. Reviews already completed indicate that at Hanford and similar facilities, management of U.S. nuclear weapons construction programs has been characterized by a potentially deadly combination of incompetence and indifference. Tennessee and Ohio have already sued the federal government for damages resulting from nuclear weapons construction, and similar litigation in Washington State may not be far away. Meanwhile, several Congressional leaders are demanding a new accountability on the part of those who supply the nation's nuclear arsenal.

4

In April of 1985 Ohio's Senator John Glenn asked the General Accounting Office--the investigative arm of the U.S. Congress--to begin a study of the U.S. Department of Energy's management of the nation's nuclear weapons facilities. Senator Glenn's request was based on the alarming conditions he discovered at the Fernald plant in his own state.

On September 25, 1986 Senator Glenn released the fourth in the series of special GAO reports compiled at his request. He announced that the report "surveys the extent of soil and groundwater contamination at nine DOE facilities located at seven sites around the nation. And the facts revealed in this report are both shocking and revealing." The Senator then proceeded to summarize evidence that staggering contamination is being inflicted on America by its own nuclear weapons production--contamination that is occurring without a single enemy nuclear weapon ever being fired in anger against the United States.

"What these figures show," said Senator Glenn, "is that the Department of Energy and its predecessors have been carrying out their mission to produce nuclear weapons with an attitude of neglect bordering on contempt for environmental protection. What they've said, in effect, is 'we're going to build bombs--and the environment be damned.'"

Senator Glenn concluded his remarks by expressing frustration that legislation he has introduced that would end DOE's self-regulation at nuclear weapons facilities like Hanford is being ignored. Said the Senator: "Unfortunately, my bill has gone nowhere. It's still bottled up in Committee, while these DOE facilities continue to poison our soil and groundwater. Frankly, I don't know what the problem is.

"But there's one thing I do know. I know we better wake up in this country; we better wake up before it's too late and we find ourselves with an environmental disaster that makes the Chernobyl accident look tame. If I sound angry, it's because I am. If I sound worried, it's because we should all be worried. And if what I've said sounds frightening, it's because I believe it's absolutely crucial that someone shake the Congress and the Admin-istration out of their lethargy and into some meaningful action on this issue."

Less than two months later, on November 18, 1986, Rep. Mike Synar of Oklahoma released still another GAO report blasting the energy department for its management of Hanford. That report, compiled by the House Government Operations Subcommittee on the Environment, Energy and Natural Resources, concludes that a dangerous guessing game exists at Hanford; DOE's research has been so haphazard as to make it impossible to know how much of the facility's wastes are entering the groundwater, thereby threatening the Columbia River. The report also suggests that Hanford's managers have for five years consciously ignored the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. Hanford has admitted to having 337 waste sites subject to the law, but GAO said the true number may exceed 750. At the same time, the GAO found that Hanford waste practices are violating portions of the 1976 Resource Conservation and Recovery Act which DOE's own managers appear to acknowledge must be obeyed.

Rep. Synar said the GAO report supports his own view that "DOE has an abysmal track record in managing its waste" and that the record is not improving despite promises from DOE Secretary John Herrington that the weapons agency would start obeying the nation's environmental laws. In addition, Synar seemed to raise the possibility that key DOE officials had either perjured themselves or didn't know what they were talking about in testimony given to Congress last summer about Hanford's hazardous waste dumping practices. Since the two officials were Mary Walker, DOE's Assistant Secretary for Environment, Safety and Health, and Ron Gerton, Hanford's director of the same post, Synar's criticism underscores the growing opinion that DOE decision-making is mired in deceit, incompetence, or both.

Historically, the Department of Energy and its predecessor the Atomic Energy Commission, have argued that the Atomic Energy Act exempts the government from having to obey human health and environmental protection laws in the construction of nuclear arms. The latest GAO report on Hanford says that the Congress must now decide whether to continue tolerating this position, a position that allows activities that amount to outlaw practices at the nation's nuclear weapons facilities.

Inevitably, this will be one of the most difficult issues Congress has ever had to face; the foreign policy implications are immense. At the bottom of the GAO's recommendation is a gut-wrenching question: is it possible for a constitutional nation to own nuclear weapons without sacrificing the very principles of lawfulness that make its orderly existence possible? In a sensitive 1981 report titled "Some Political Aspects of Special Nuclear Materials [bomb material] Production" DOE analyst A.T. Peaslee, Jr. in effect warned the Reagan Administration that obeying human health and environmental protection laws would lead to the "effective curtailment" of nuclear weapons production in America.

Such reasoning implies a bleak definition of national security, one that suggests that the terms of nuclear protection may be far more punitive than the American people ever knew. This report by Tim Connor offers a detailed look at how those terms appear to be operating at Hanford.

--Larry Shook

LETTER 753 (CONTINUED)

5

DURHAM MORNING HERALD SATURDAY OCTOBER 1, 1988

S.C. Nuclear Plant Kept Mishaps Secret

By KEITH SCHNEIDER
N.Y. Times service

WASHINGTON — The Savannah River Plant in South Carolina has had numerous reactor accidents that have been kept secret from the public for as long as 31 years, two congressional committees disclosed Friday.

The plant is an enormous government complex that produces fuel for the nation's nuclear weapons

The Energy Department responded to the disclosure by saying it had been unaware of the accidents, which occurred at all five of Savannah River's reactors, until inspectors began investigating an unexplained power surge at one of them last August.

It is unclear whether the department's predecessor agency, the Atomic Energy Commission, knew of the accidents, which included the melting of fuel and one episode that resulted in extensive radioactive contamination.

"It wasn't known by headquarters safety people," said Will Callicott, a spokesman for the department. The operator of the plant, the Delaware-based E.I. du Pont de Nemours & Co., had no comment when asked whether it had notified anyone in the government of the accidents or the existence of a memorandum, obtained by the congressional committees, that brought them to light.

Physicists interviewed Friday called the accidents among the most severe documented at an American nuclear plant. The 19-page memorandum, written by a plant supervisor to his superiors at Du Pont, did not say whether there had been any injuries or how many workers might have been exposed to dangerous levels of radiation.

But nuclear experts said some of the accidents could have threatened public health or, had they gone uncontrolled, even destroyed the reactors, creating a disaster.

The incident in August and the memo raise anew questions about the willingness of the Energy Department to correct long-standing managerial and structural problems at the aging plant, which, with the shutdown of a production reactor in Hanford, Wash., two years ago, is the nation's only source of plutonium and tritium, the two key radioactive elements used to manufacture nuclear warheads.

Last year a panel of investigators from the National Academy of Sciences criticized the Energy Department for failing to apply or even clearly specify safety requirements at Hanford and Savannah River.

Hanford and Savannah River, near Aiken, S.C., operated for years in secret and were essentially self-regulated. While the government maintained regional offices at each plant, it left to the operators the responsibility for maintaining safe operations. Last year the Energy Department began an on-site inspection program in an effort to improve operations.

By contrast, the Nuclear Regulatory Commission has long imposed stringent regulations on operations at civilian nuclear reactors.

The memo, and several more recent ones written by Energy Department inspectors, describe a striking complacency at the Savannah River Plant.

LETTER 754

October 3, 1988
9:55 p.m.

Gentlemen:

I cannot but question the accuracy of the Draft Environmental Impact Statement as far as the statistical information provided by the State of N. C. It is full of misleading and inaccurate information.

A few examples:

1 The number of relocations being 111 is erroneous. There have to be more than 111. For example, I don't think the State knows that we even exist. At the meeting in February here in Butner, I spoke at the DOE hearing. At that time our new home on Red Mountain was well under construction. We are now moved in. We have yet to be notified by the State that our home sits on the collider ring. I am sure there are others they do not know about.

2 Loss of water wells - 9. I can count more than 9 wells just driving through the area. In addition, the community well in the Red Mountain subdivision currently serves 15 households. According to an article in the March 1988 issue of Insight, N. C. has more domestic wells than any other state in the nation, 820,000 and 5,100 community wells, 4th highest among the states.

3 As far as water supply usage, it is noted in the draft that the surface water supply usage will be a large fraction of excess capacity. I question what is considered an excess capacity. For the last two years the area has experienced water shortages due to the droughts alone.

R. Paul Wilms, Director of the Division of Environmental Management for N.C. said, "The Decisions made over the next 3 to 5 years will determine the ability of this state to grow economically and socially and still preserve environmental quality." He is hopeful that we still have 3 to 5 years to make those decisions, that the time hasn't slipped past us."

4

How can decisions of this magnitude be made when the N.C. General Assembly passed Senate Bill 755 that states "the N.C. Environmental Policy Act of 1971, Article 1, of Chapter 113A of the General Statutes, shall not apply to this act or to any action taken pursuant to this act." This is in reference to providing a site for the SSC. It exempts the SSC project from the state environmental regulations. It is hard to comprehend how the State could provide current data for an Environmental Impact Study when they eliminated the requirement for having such a study.

5

Also in the draft is a section on the National Pollutant Discharge Elimination System. (pg. 6-2) In the March 1988 Insight article it is noted that "N. C. has the somewhat dubious distinction of having the most federal wastewater discharge permits of any state in the Southeast, including the boom-state of Florida," for sewage treatment plants that dump their wastewater in the state's waterways. NPDES permits are issued to industries and sewage-treatment plants (private or governmental) which discharge wastes into the state's surface water. "As of January 1988, 3,518 facilities had NPDES permits. Additionally, 577 other facilities have requested new or renewal permits which have not yet been processed, thus creating the biggest backlog of any other state in the Southeast."

6

Inspections cannot be made regularly. Major municipal treatment plants are checked yearly for compliance. Some smaller dischargers go 5 years between inspections. "The inspections and reports indicate that about 40% of the municipal treatment plants and 21% of all other N.C. dischargers currently do not meet the standards of their permits." I didn't see that bit of information mention in the report. The draft lists 26 potential new point source discharge areas all of which will be discharged into surface water areas.

7 Lastly, in the report under Descriptions of Known Resource Impacts at the Proposed Sites, (pg. 5.1.9-2 & 3) appears a statement which refers to predicted numbers of affected projected locations of cultural and historical resources. It says "Intensive surveys have not been undertaken in the proposed N. C. SSC site area." I think this statement could be said about all of the information provided by the State.

Bonnie J. Hughey

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Rougemont, North Caroline 27572
(919) 471-9588
684-2641

Bonnie Hughes

8/14/87
attachment B

GENERAL ASSEMBLY OF NORTH CAROLINA
1987 SESSION
RATIFIED BILL

CHAPTER 855
SENATE BILL 755

AN ACT TO PROVIDE A SITE TO THE UNITED STATES DEPARTMENT OF ENERGY FOR A SUPERCONDUCTING SUPER COLLIDER.

The General Assembly of North Carolina enacts:

Section 1. Purpose. The General Assembly finds that the acquisition, dedication, and use of the real property authorized to be acquired by this act for the establishment of a superconducting super collider in North Carolina will lead to the educational, scientific, and economic development of the State and its people and hereby declares such acquisition, dedication, and use to serve a public purpose and to be for the benefit of the people of the State.

Sec. 2. Acquisition by the State. The Department of Administration may acquire for a superconducting super collider in fee simple or in any lesser interest including negative easements, in the name of and on behalf of the State of North Carolina, by donation, purchase, or condemnation pursuant to the provisions of G.S. 146-24 and 146-24.1:

(1) these lands together with any improvements thereon, in Durham, Granville, and Person Counties, determined to be necessary for a site on which to locate and construct a superconducting super collider in accordance with specifications of the Secretary of the United States Department of Energy for the superconducting super collider;
(2) easements for roads and access to various points to and around the site;
(3) easements for the purpose of bringing utilities onto the site and for the distribution of utilities to service areas around the site;
(4) temporary easements to facilitate construction, including easements for temporary roads; and
(5) off-site locations for the disposition of materials and spoils excavated from the site, and rights-of-way for access to such areas.

The specific location of the real property to be acquired shall be determined by the Governor and the Council of State.

Sec. 3. Acquisition by the United States; reimbursement of expenses. The United States, by condemnation or other judicial proceedings, may acquire title to any tract or parcel of land together with any improvements thereon, in Durham, Granville, and Person Counties, determined to be necessary for a site on which to locate and construct a superconducting super collider in accordance with specifications of the Secretary of the United States Department of Energy for the superconducting super collider.

The State of North Carolina is authorized to reimburse the United States for any and all awards of just compensation that may be made in any such condemnation or judicial proceedings.

Sec. 4. Right of entry. The Department of Administration, the United States Department of Energy, and their agents and contractors, shall have the right to enter upon any lands to make surveys, borings, examinations, and appraisals as may be necessary or required by the United States Department of Energy or the Department of Administration in connection with the selection and acquisition of a site for a superconducting super collider and for easements and other property interests necessary for the purposes of this act. Entry pursuant to this act shall not be a trespass or taking of property. The Department of Administration shall make reimbursement for any damages to such property resulting from activities authorized by this section. Any property owner shall be entitled to bring a civil action in Superior Court of the county in which the real property is located to recover for any such damages for which he has not been reimbursed.

Sec. 5. Agreements with the United States; use of appropriated or donated funds. Notwithstanding the provisions of G.S. 146-36, and with the concurrence of the Council of State, the Governor may enter into any contract, conveyance, or other agreement to acquire for and to convey to the United States of America land or any interest in land, and to do such other acts and things as may be necessary to implement the provisions of this act. In carrying out the provisions of this act, the Department of Administration may use funds which have been or may be appropriated for the acquisition of the site for the superconducting super collider or which may otherwise be authorized or which may have been received from gifts, devises, donations, bequests, or other sources for such purposes.

Sec. 6. Jurisdiction. The Governor and Council of State are authorized to grant concurrent jurisdiction on behalf of the State of North Carolina to the United States of America in those lands in which an interest is held by the United States of America pursuant to this act. The State of North Carolina shall continue to exercise jurisdiction in all lands covered by this act.

Sec. 7. Unused land to State. In the event that the superconducting super collider is not built on land conveyed to the United States by the State for that purpose, or that the scope of the project is so reduced that a portion of the land is not required, title to the property or to an appropriate portion thereof shall revert to the State of North Carolina upon the release of the property by the United States. In the event that the superconducting super collider is not built on land condemned by the United States for that purpose, or that the scope of the project is so reduced that a portion of the land is not required, title to the property or to an appropriate portion thereof shall vest in the State of North Carolina upon the release of the property by the United States.

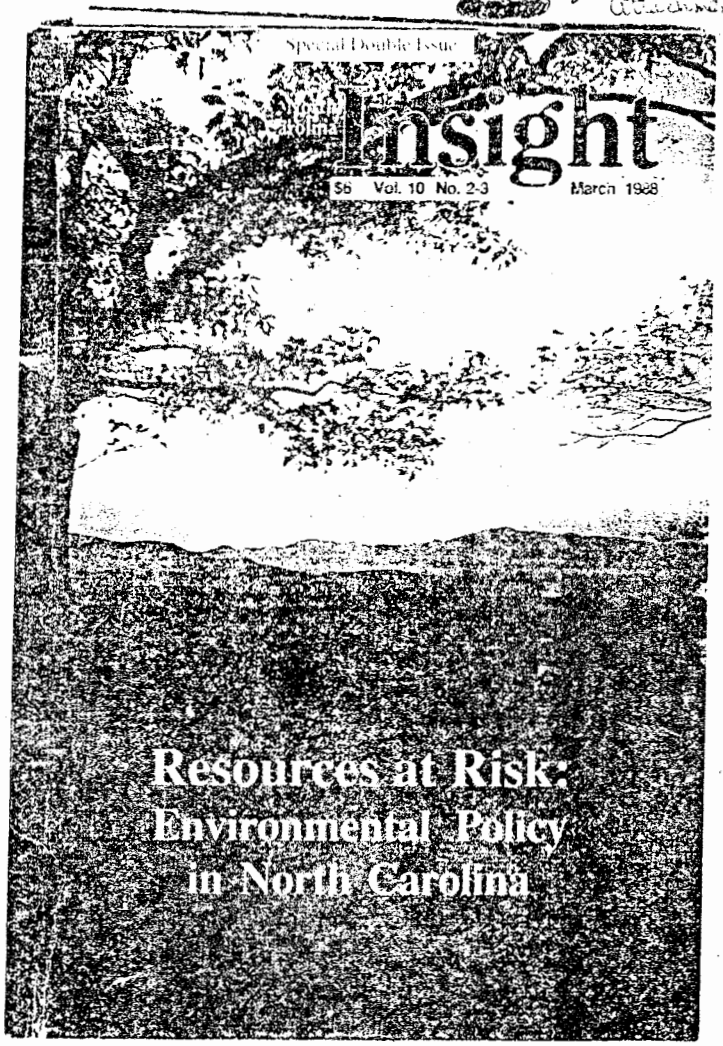
Sec. 8. The North Carolina Environmental Policy Act of 1971, Article 1 of Chapter 113A of the General Statutes, shall not apply to this act or to any action taken pursuant to this act.

Senate Bill 753

225-775 O - 88 (Book 4) - 12

LETTER 754 (CONTINUED)

Bonnie Hughey Attachment A



LETTER 754 (CONTINUED)

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A nonprofit, non-partisan organization, the Center was formed in 1977 by a diverse group of private citizens "for the purpose of gathering, analyzing and disseminating information concerning North Carolina's institutions of government." It is guided by a self-elected Board of Directors and has individual and corporate members across the state.

Center projects include the issuance of special reports on major policy questions; the publication of a quarterly magazine called *North Carolina Insight*; the production of a symposium or seminar each year; and the regular participation of members of the staff and the Board in public affairs programs around the state. An effort is made in the various projects undertaken by the Center to synthesize the integrity of scholarly research with the readability of good journalism. Each Center publication represents an effort to amplify conflicting views on the subject under study and to reach conclusions based on sound rationalization of these competing ideas. Whenever possible, Center publications advance recommendations for changes in governmental policies and practices that would seem, based on our research, to hold promise for the improvement of government service to the people of North Carolina.

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Cover: Carol Majors

LETTER 754 (CONTINUED)

Clean Water— A Threatened Resource?

by Frank Tursi and Bill Finger

Water quality and water supply problems have reached the 17 river basins and 820,000 wells in North Carolina (no state has more wells). Fish kills, oxygen-depleted water, and other evidence point to a lethal mixture of pollutants in the state's surface waters. Meanwhile, underground storage tanks and other pollution sources endanger the state's groundwater system. As the population grows, water supply needs increase along with sources of pollution. How can North Carolina manage the dual challenge of protecting water quality and ensuring an adequate water supply?

The blue crabs spilled out of the plastic bucket onto the big wooden table. They scurried in all directions, trying to outrun the gloved hand that approached. One male stood his ground and raised his claws defiantly. Bill Mayo grabbed the crab and held it out for inspection. Almost a quarter of the crab's shell was gone, as if it had just been eaten away. Its organs were visible through the hole.

"I ain't seen nothing like it," said Mayo, who's been a commercial crabber on the Pamlico River for most of his 50 odd years. "I've been working the water all my life and I didn't think nothing could eat through a crab's shell." But this year, and last summer they started seeing holes in crabs in the Pamlico River in Beaufort County.

Four years ago, a mysterious fish disease leaving ugly red sores on its victims began killing millions of menhaden, causing fishermen to begin to notice that things weren't right on the river. Once common sea grasses were disappearing, and the oysters were vanishing. So were the striped bass.

"Something's wrong out there," Mayo said one day in late summer as she unloaded this day's meager catch at a crab packing house on the south side of the river. "I don't know what it is but something ain't right."

The Pamlico is being slowly poisoned by a lethal cocktail of industrial, urban, and agricultural wastes. Into the river flow the by-products of modern society—herbicides and insecticides, phosphorus and nitrogen, heavy metals such as lead and mercury, and toxins. They are robbing the Pamlico of its life forces.[1]

Two hundred and seventy miles inland, lush Piedmont farmland straddles the line between Guilford and Randolph counties. In the 1940s, a dam on the Deep River was envisioned to flood this farm country, as both a flood control project and as a source of water for the post-war Greensboro population. Never built when land was cheap and "wastewater" was not yet in the dictionary, the project remains on the drawing board today. Wastewater problems in the Deep River, which flows by High Point and would be captured by Randleman Dam, have delayed the project. A 1984 editorial in the *Greensboro News & Record* mentioned that pollution in the Deep River could make the Randleman reservoir "a giant cesspool."[2]

While the dam would be built in Randolph County, much of the reservoir would back up into Guilford. When federal money appeared to be available, the Randolph County commissioners, including stock car racer Richard Petty, objected, but the Guilford County commissioners favored it. By the time all the local officials signed on, the dam was no longer needed to control floods, and hence the federal funding was lost. The Randleman Dam reservoir, in short, has hardly gotten past the checkered flag.

If the Randleman Dam project moves no further than it has in the last 40 years, the Guilford officials may have to turn to the Dan River basin. "This alternative would involve a transfer of water from a river basin outside the Greensboro area," says David H. Moreau, director of the Water Resources Research Institute, part of the University of North Carolina system. This process is called an "inter-basin transfer."

With a few notable exceptions, North Carolinians have always been able to count on a clean, abundant supply of water. Fish kills and water shortages have not plagued this state. The horrors of Boston Harbor, the Chesapeake Bay, and oil spills on the Monongahela River in Pittsburgh have always been someone else's problems. But with the dying fish and scores of other signals of declining quality, together with droughts in 1986 and 1987, North Carolinians cannot take bountiful, clean water for granted any longer.

In the last decade, the state's population has grown rapidly, about 1.5 percent a year, to 6.3 million people, the 10th most populous state. More people mean more demand for water, and shortages have begun to appear regularly in some parts of the state. With these new residents come new businesses and industries, new housing subdivisions and condominiums. Growth may be good for the state's economy, but it may be overpowering its rivers and streams. Likewise, groundwater is no longer invulnerable to the abuses that pour into the streams and rivers. More than half of the state's residents depend on underground aquifers for their drinking water. But now, leaks from underground storage tanks, seepage from sanitary landfills and septic tanks, and pesticides from farm runoff threaten the state's groundwater supplies.

The number of industrial, municipal, and private sewage-treatment plants that dump their wastewater into the state's waterways is growing rapidly. North Carolina now has the somewhat dubious distinction of having the most federal wastewater dis-

Frank Tursi, a reporter and editor for the Winston-Salem Journal since 1978, currently covers environmental issues. Bill Finger has been editor of North Carolina Insight since 1979.

IIA.1- 13660

LETTER 754 (CONTINUED)

IIA.1 - 1361

charge permits of any state in the Southeast, including the boom-state of Florida. The cumulative number of such permits in North Carolina jumped from 1,500 in 1980 to 3,159 in 1986, an 111 percent increase.

The N.C. Division of Environmental Management (DEM) has the job of processing these permits and inspecting the facilities for compliance. The engineers are working nights and weekends just to keep up with the 100 or so new requests for permits that come in each month. The inspectors cannot possibly get to all the permit sites, some of which go years without an inspection. "We've still got over 600 requests for discharge permit on backlog," says George T. Everett, deputy director of DEM. "We can't catch up at the rate we're going." Meanwhile, the added wastes are damaging rivers and streams. Some can no longer absorb large amounts of additional wastes and still spawn fish or remain sources of drinking water. Other rivers and streams are approaching that point (see side bar on page 66).

The state's water system is divided into two parts—the overland system of streams, rivers, basins, lakes, estuaries, and reservoirs known as *surface water*; and the underground system of waters known as *groundwater*. Separate legal and administrative systems regulate and monitor surface water and groundwater. In addition, the systems regulating water *quality* are different from those that affect water *supply*. The state agency that sets most of the rules and regulations for water is the N.C. Environmental Management Commission (EMC), composed of 17 citizen appointees meeting monthly.

Water may be to the 1990s what energy was to the '70s: an abundant, undervalued resource taken for granted, but with the potential for great economic disruption if mismanaged. How much time does the state have to change its rules and the public to change its habits?

"The decisions made over the next three to five years will determine the ability of this state to grow economically and socially and still preserve environmental quality," says R. Paul Wilms, director of the Division of Environmental Management, the primary staffing office for the EMC. "I am hopeful that we still have three to five years to make those decisions, that the time hasn't slipped past us."

The Federal Carrot and Stick—The Clean Water Act

North Carolina has 37,000 miles of streams and rivers and millions of acres of reservoirs and lakes. Forty years ago, nobody gave all that water much thought. Like most states, North Carolina didn't make a serious effort to curb water pollution until after World War II. In 1950, there were about 250 communities with more than 2,500 people. About two-thirds either weren't treating their sewage at all or had very minimal treatment. The city of Raleigh was dumping raw sewage into the Neuse River.

> North Carolina now has the somewhat dubious distinction of having the most federal wastewater discharge permits of any state in the Southeast, including the boom-state of Florida.

In response to such actions, the 1951 General Assembly directed the State Stream Sanitation Committee, the forerunner of the Environmental Management Commission, to begin the state's first comprehensive water-pollution program. The committee classified waters as to their "best uses," surveyed the extent of the pollution, and started pollution-control programs.

The "best-use" classification system begun in the 1950s has been refined over the years. Today, all surface fresh water is classified into two general categories: water supplies (6,280 miles) and fish-able/swimmable (30,999 miles). There are sub-classifications in each category and new classes such as "nutrient sensitive" and "outstanding resource waters."

The federal government got into the act in 1956 by making technical and financial assistance available to local governments for water pollution controls. The federal role expanded in 1965 when

Jim Wolf, The Pittsburgh Press

Volunteer fireman helps people near Pittsburgh, Pennsylvania, fill containers with drinking water. When an Ashland Oil Co. storage tank burst and sent one million gallons of diesel fuel into the Ohio River, towns had to import water for their needs.

Congress established minimum criteria for state water-quality standards. Congress took the next step in 1972 with the passage of the Federal Water Pollution Control Act. Amendments to the act in 1977 gave it the popular name, the Clean Water Act.

The law mandated a clean-up of the nation's waters and included a range of regulatory management features. Local governments found the measures to swallow because of the lofty financial incentives that came with them. The carrots for stiff new regulations were grants for municipal sewage treatment plants. The federal money covered up to 75 percent of eligible costs.

Two sections of the 1972 act had the most impact on regulating water quality. Section 402 required that all so-called "point sources" of pollution have a permit with the ponderous title of National Pollutant Discharge Elimination System, or NPDES. *Point sources of pollution* are places where industries and sewage-treatment plants (private or governmental) discharge wastes into the state's surface waters. The NPDES permit sets limits on each pollutant that these facilities can discharge into rivers and streams. Second, Section 404 required a permit from the U.S. Army Corps of Engineers prior to the discharge of dredged or fill materials into U.S. waters, including wetlands.

In addition, the act recognized that "*nonpoint sources*"—runoff from agricultural fields, animal pens, parking lots, and streets, for example—were major contributors of pollution. To control those, the act called for "areawide waste-treatment management planning" which could include stricter land-use measures and programs to reduce pollutants carried by soil erosion and stormwater runoff.

Along with all this came more than the usual government red tape and the grumbling of local officials who resented the federal muscle. Even so, local officials couldn't very well ignore all those federal dollars that were building sewer systems and treatment plants and keeping water and sewer bills so low. So the Clean Water Act became the nucleus around which states built their water-pollution programs.

Federal money, though, has been cut back severely since the grant days of the mid-1970s and will be phased out totally after 1990.[4] "The federal hooker in this thing has always been the money," says Moreau of the Water Resources Research Institute. Under the Clean Water Act, the Environmental Protection Agency (EPA) has the responsibility of monitoring water pollution, and it can delegate the NPDES permit system to individual states. The states generally want to administer their own permit system, to control the program in-state. Local governments, meanwhile, had another kind of incentive to meet the wastewater treatment regulations.

Since 1973, under the Clean Water Act, nearly $700 million in federal dollars have gone into public wastewater-treatment plants in North Carolina. To get that money, communities had to develop plans on wastewater treatment. When the federal money ends, local communities will no longer have to develop such plans, since state law does not require them. "The only way the feds have been able to get them to do this stuff is by hanging those big bucks out there," says Moreau. "How comes the question of

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what to do in place of that."

The carrot and stick approach has worked on the *water supply* side as well. Federal funds have helped build water supply projects while the Section 404 dredge-and-fill permit generally has applied to dam construction for water supply projects. As with water quality, the ballgame is changing for water supply. "The federal government, pushed by the budget deficit crisis, is rapidly withdrawing from its previous role of assisting with water supply projects," says John Morris, director of the N.C. Division of Water Resources. "There are no more Corps reservoir projects on the planning horizon for North Carolina."

With such changes in the wind, the need for more state and local initiatives are critical. "We've never had a comprehensive water-supply planning program on the state level," says Moreau. "What are we offering in place of the federal planning requirement?" asks Moreau. "Nothing."

North Carolina's woes are not alone. A survey of 700 communities in the Southeast by Moreau's institute found very few do adequate planning for water supply and quality.[7] The Commission on the Future of the South, a project of the Southern Growth Policies Board, found the same thing. The commission recommended in 1986 that states adopt strategic statewide management plans by 1992 that would provide strong protection for water quality and ensure adequate water supply.[8] Florida has moved closest toward reaching this goal.

Permits for Point Pollution—A System Overwhelmed

In 1975, the EPA delegated the responsibility to North Carolina for administering the NPDES permits. The state has built a water-quality program that includes monitoring for problems, inspections for compliance, and, starting in February 1987, limits on the amount of toxins that can be dumped into the water. Meanwhile, the state has gradually become more involved in regulating groundwater.

The Water Quality Section in the Division of Environmental Management has the job of issuing permits, inspecting the facilities once they're operating, and checking the monthly *self-monitoring* reports that each permit holder is required to file. Until recently elevated to deputy director of the division, George Everett directed the water quality staff. With the current staff and budget, the section can administer 2,500 permits, says Everett. As of January 1988, 3518 facilities had NPDES permits in North Carolina, more than any other state in the Southeast. In addition, 577 other facilities have requested new or renewal permits which have not yet been processed. No other state in the Southeast has as big a backlog.

> Water may be to the 1990s what energy was to the '70s: an abundant, undervalued resource taken for granted, but with the potential for great economic disruption if mismanaged.

In 1982, the state issued 341 NPDES permits. Four years later, in 1986, 945 permits were granted. Last August, a typical month, the state issued 84 permits and got 88 new requests. And these numbers only refer to the initial permit request (see Table 1).

Inspectors can't possibly visit each plant regularly. Major municipal treatment plants are checked yearly for compliance, Everett says. Some smaller dischargers go five years between inspections. More than half of the 266 public water supplies that rely on surface waters now are downstream from at least one discharge point. Since inspections are so rare, the water quality staff has to rely on the monthly reports filed by the dischargers themselves. The inspections and reports indicate that about 40 percent of the municipal treatment plants and 21 percent of all other N.C. dischargers currently *do not* meet the standards of their permits.[9]

"Plant inspection is a real problem," says Lisa Finaldi, executive director of the Clean Water Fund of North Carolina, a nonprofit research and advocacy organization based in Raleigh. "The state could go beyond a self-monitoring system and inspect more plants more frequently but not without more funding for more inspectors."

State Rep. Joe Hackney (D-Orange) goes further. "The NPDES program does not work," he says. "In our state, we depend largely on self-monitoring. You can't protect the water quality relying on self-monitoring." Hackney has sponsored much of the legislation promoted by environmental groups in recent years.

Regular monitoring becomes particularly important, Finaldi says, when it comes to so-called *package-treatment plants*. These are small, private plants that treat mostly domestic wastewater from residential subdivisions or condominiums, each dumping 5,000 to 1 million gallons a day into streams and rivers. Some of that discharge meets standards and some doesn't, depending on how well the plants are operated and maintained.

There are about 1,500 such plants in North Carolina, and they represent the bulk of the new NPDES permits being issued.[10] On the Yadkin River, for instance, five such plants are discharging about two miles upstream from Winston-Salem's freshwater intake. Wake County has about 40 of them. In all, package plants make up about one of every seven NPDES permits (14 percent), so many that state inspectors check each one only about once in five years.

"I'm disturbed by the poor record of the reliable operation of these plants," says Finaldi. "For example, in New Hanover and Pender counties, there has been a history of poorly maintained and operated package plants. Sludge is being discharged into creeks, and some plants are providing no chlorination for extended periods of time."

State officials do not view package-treatment plants with such alarm. First, these facilities work well if they are properly operated and maintained, explains Wilms. "They do have to file monthly reports. It's very difficult, despite what people say about the fox watching the henhouse, to falsify these reports," he adds. Wilms thinks these small plants have a compliance record that is at least as good as municipal plants.

But Everett isn't so sure. "Probably not," he says. "Our problem is that we don't get to them enough to tell you."

That should change. The General Assembly last year allowed the Division of Environmental Management to raise its fees for an NPDES permit from a maximum of $1,500 for a five-year permit to $7,500. The increase will raise an additional $1.7 million which could be used to hire about 45 people.[11] The results should be more frequent inspections, better monitoring, and more careful permitting. If it's nice, Everett's not afraid to ask the legislature for more. Some states, says Everett, charge $900,000 for a five-year permit—*more than 100 times* what North Carolina can charge even under the new enabling legislation.

The Nonpoint Sources—The Toughest Challenge?

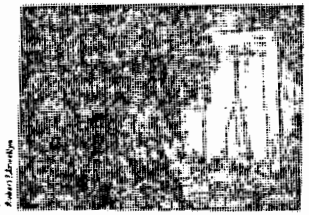
As problematic as the permit system is, the bulk of surface water pollution in North Carolina comes not from wastewater discharges directly into the waterways but from nonpoint sources. That includes runoff from farmland, feedlots, and cleared land; residue from car exhausts washed off highways into drainage ditches; failing septic systems; and stormwater runoff. The data on the "best-use" of water systems show the damage done by nonpoint sources.

All surface waters have a best-use classification (drinking, swimming, etc.). With increased pollution, a stretch of water can move down to a lower level "best-use" category. When this happens, the water does "not support its best use." In 1987, 71 percent of the rivers and streams that *did not support their best uses* were being polluted by nonpoint sources (for lakes/reservoirs, it was 50 percent; for sounds/estuaries, it was 65 percent).[12]

"What we don't have a good handle on yet in this state are the unregulated and certainly more ubiquitous and probably more important inputs from nonpoint sources," says Wilms.

Herbicides, insecticides, and heavy metals flow into the water system from nonpoint sources. The most important pollutants may be the organic nutrients phosphorous and nitrogen, which are the basis of many fertilizers and are also in animal wastes. They wash off of fields and feedlots, and even backyard lawns, with each rain and eventually settle in the water. A certain amount of the nutrients keep a river, stream, or lake healthy and productive. But too much will lead to excessive plant and algae growth, called algae blooms, which can deplete water of its dissolved oxygen and can contribute to fish kills.

Coastal rivers and sounds are especially susceptible to excessive nutrient loading. The Pamlico River is a case study. The river is little more than a



Robert Llewellyn

Go underneath the river bed;
To burn the river down;
This is where they walked,
swam;
Hunted, danced, sang;
Take a picture here;
Take a souvenir. Cuyahoga.
—From "Cuyahoga," by R.E.M.

settling pond for the Tar River, which drains from 15 crowded and Piedmont counties, mostly in prime farmland. Corn requires heavy doses of nitrogen-based fertilizer, which runs off in the Tar River and ends up in the Pamlico. State officials estimate that 78 percent of the nitrogen that enters the Pamlico each year comes from non-point sources.[13]

When nonpoint and point sources of pollution combine, the lethal cocktail goes to work. In the Pamlico River, the nonpoint nitrogen runs with phosphorus entering the river from sewage-treatment plants and from Texasgulf Chemicals Company. Texasgulf operates a massive phosphate mine and fertilizer plant on the river and legally dumps about 5,000 pounds of phosphorus a day into the river.[14] The result of all of this is algae blooms, now common on the river, and episodes of oxygen-depleted or "dead" water, as the fishermen call it. Dead water used to occur only on the hottest days of the summer and in the deepest part of the river. But now fish kills happen year-round at all depths.

Another source of pollution, the phosphate used in detergents, also contributes to the fish kills. In 1987, after several years of strident debate, the legislature passed a ban on phosphate detergents.[15] Some environmentalists feel the bill was watered down in the legislative process, but the new law does apply to the two major sources, household and commercial laundry detergents. The Environmental Management Commission has also adopted regulations to reduce the phosphate load at wastewater discharge plants.

Rep. Hackney, who spearheaded the phosphate-ban bill, thinks the state's programs to control non-point sources have "made great strides. The money is not wasted," he says. "It has a long-term payback."

In administrative and legal systems, nonpoint pollution falls into three groups—agriculture, land development, and coastal development. These types of pollution flow together, if looking at it from the water's point of view. But separate agencies are in charge of each program.

Agriculture. In 1984, the state began encouraging landowners to control sedimentation and runoff through such means as crop rotation, conservation tillage, and animal-waste systems—called "best management practices" or BMPs. The state offers technical assistance and will help pay for the programs. Since the cost sharing began, almost 2,500 landowners have signed three-year agreements to use BMPs on some 200,000 acres. State officials believe the program has saved about 570,000 tons of soil a year. Estimating the extent to which this soil retention reduced nonpoint pollution is difficult, however.

The N.C. Division of Water and Soil Conservation, which coordinates the program, began working in 23 coastal counties. In 1987, the program was expanded to 23 more counties, many in the west. Called the Agriculture Cost Share Program for Non-Point Source Pollution, it also covers "nutrient sensitive" areas. The Environmental Management Commission has designated as nutrient sensitive areas Jordan Lake and Falls Lake in the Raleigh-Durham-Chapel Hill Triangle, the Chowan River (which separates four counties in the northeast before spilling into the Albemarle Sound), and just this January, the entire Neuse River area from below Falls Lake all the way to New Bern. This classification requires more stringent pollutant levels in NPDES permits and various land-use controls.

A three-year old federal law also should help with the nonpoint pollution. The conservation compliance provisions of the federal Food Security Act of 1985 require that farms with highly erodable land prepare a conservation plan by 1990.[16] Plans have to be in effect by 1995. Landowners who don't comply with this and two other provisions already in effect (the "sodbuster" and "swampbuster" sections) will not be eligible for price supports, crop insurance, disaster relief, and other federal programs.

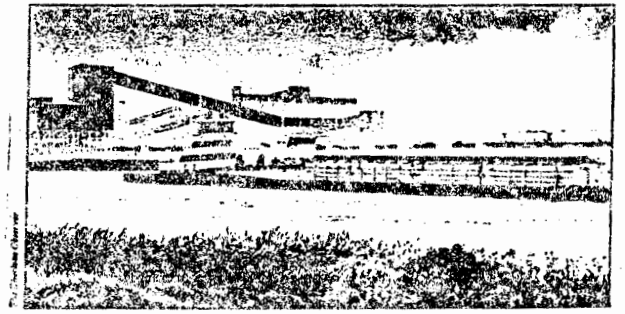
Water pollution from agriculture highlights the conflicts that can occur with state economic development goals. As poultry farms have sprung up across North Carolina, for example, most economic development specialists have applauded this diversification of the state's agricultural base. (Chicken now ranks number one nationwide in poultry production, which has also moved ahead of tobacco as the state's number one agricultural product.)[17] "But poultry manure is a serious non-point pollution problem," says George Everett. "Few farmers have enough land to absorb all the chicken droppings as fertilizer in their fields. It has to go somewhere."

Land Development in General. Engineers know that when concrete replaces trees and other vegetation, more pollutants can run into the surface water faster. Development allows water to flow across the land and pavement and into the surface water rather than seeping into the vegetation and the groundwater. With disturbances of natural vegetation, water carries red clay, sand, and other sediments that settle to the bottom of streams and ponds.

The N.C. Sedimentation Control Commission sets standards regarding how sediment must be managed on any development project disturbing more than one acre. Developers must construct retaining ponds or use other means to mitigate the damage caused by excessive sedimentation. Agricultural and forestry lands are exempt from the standards. The monitoring and enforcement of the sedimentation regulations are considered a land-management, not a water-quality, function. Hence, the Land/Quality Section within the Division of Land Use Resources has responsibility for this program (see article on page 94 for more).

Coastal Development. Nonpoint pollution is such in the coastal area have special problems due to both the fragile ecosystem involved and the special governmental systems established by the Coastal Area Management Act (CAMA). "Large-scale land clearing, draining, and agriculture has a much more significant impact on coastal water quality than does urban development," says Davis Owens, director of the Division of Coastal Management. The draining of coastal wetlands for peat mining and other uses

A barge pushes a load of phosphate from Texasgulf Chemicals Company near Aurora to the coast for shipment worldwide.



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has been particularly controversial. This has altered the drainage patterns in many eastern counties, thus contributing to a reduced salinity and a decline in shellfish in many estuaries, including the Pamlico. (For more, see the coastal article on page 70.)

Of growing significance in the coastal area, however, is the impact of development patterns. Until 1985, the state had no comprehensive regulations designed to control stormwater runoff in coastal areas. The concern about stormwater runoff increased because of rapid developments along the shoreline and adjacent to shellfish waters. Like agricultural nonpoint runoffs, rain water washing across developments carry bacteria and other pollutants into the surface water system. Condominiums, shopping centers, and other high-density or commercial projects were causing the runoffs to increase sharply, contributing to the fish kill and contaminating drinking water supplies.

The Coastal Resources Commission, created by CAMA, regulates development in 20 coastal counties through a permit system and otherwise acts which focus on land development rather than water quality. A land-use density regulation would have addressed the stormwater issue directly because higher-density developments create a greater stormwater problem. The coastal commission was tackling the stormwater issue in the context of its long history of addressing water quality issues through land regulations. It had already prepared draft regulations when NRCD Secretary Thomas Rhodes asked the commission to stop working on them. "Secretary Rhodes preferred that the EMC do it because they had greater jurisdiction," says Karen Gottovi, a member of the Coastal Resources Commission.

In 1986, the Environmental Management Commission adopted interim stormwater runoff regulations.[10] The regulations required developers of more than one acre within 575 feet of shellfish waters to limit density or to hold up to 4.5 inches of rain (from a 24-hour storm) on the development site. Later in 1986, the EMC proposed permanent regulations which would expand the stormwater runoff requirements to the entire 20-county area covered under CAMA but reduce the amount of rainfall that had to be contained to 1.5 inches. At four public hearings on the proposal, coastal residents and environmental groups strongly objected to what they viewed as a weakening of the standards. Developers objected somewhat to expanding them to all 20 counties but viewed the 1.5-inch standard as less costly.

On Oct. 8, 1987, the EMC adopted the proposed rules. But N.C. Attorney General Lacy Thornburg found that a closed and secret gathering on the night of October 7 of the 10 EMC members appointed by Gov. James G. Martin had a chilling effect on the full EMC meeting the next day. In responding to a question raised by a member of the EMC, Thornburg advised the EMC to consider the October action to be null and void in order to avoid litigation challenging the regulations.[11] The Governor in turn advised the EMC to vote on the stormwater regulations again. On Nov. 12, 1987, the EMC did so and passed the final regulations again, basically the same ones as had been proposed—the 20-county, 1.5-inch rules.[12]

Some observers wondered why the rules could not retain the 4.5-inch standard adjacent to shellfish waters and adopt the 1.5-inch level for the rest of the 20 coastal counties. This combination would have ensured low-density development around shellfish waters. Mary Joan Pugh, NRCD assistant secretary for natural resources, says, however, "It is not the EMC's job to determine development densities or the pattern of land-use [but] to set standards that protect the quality of the environment, in this case, water."

The Water Under the Ground

Stormwater runoff, other nonpoint pollution sources, wastewater discharge, NPDES permits—all affect the quality of the state's system of surface waters. The federal Clean Water Act and most state laws have emphasized this system. But the quality of groundwater in North Carolina is gaining attention, as the dangers to this resource increase.

Statewide, 55 percent of North Carolinians depend on wells for drinking water; in rural areas, the figure is 85 percent. Tobacco has 820,000 domestic wells, more than any other state, and 5,100 community wells, fourth highest among the states.[13] But it doesn't have good laws to protect them, agree experts such as Moreau and Wilms. In 1983, groundwater aquifers were classified under the state's water quality statutes.[14] This is a cumbersome way to protect an extremely valuable water supply, says Wilms.

"We need a groundwater protection act in this state, and that's one of the things I'm going to be pressing for," says Wilms. "It will be a significant piece of legislation and a significant debate."

Currently, an elaborate system of test wells around the state checks on groundwater supply and quality. All of the water in the state's eight principal

underground aquifers is classified as drinking water. So far, no major groundwater supplies have been lost to pollution. Two, though, may soon be reclassified as so polluted that they will never be potable again. One area is near a chemical plant in Buncombe County, and the other is under a landfill in New Hanover County. If this happens, people living in these areas would not be allowed to use their wells water, as they currently do.

"We know we're just seeing the fringe through a lot of isolated, small cases," says Perry Nelson, head of the Groundwater Section in Wilms's division. Each year, Nelson's staff investigates about 200 reports of groundwater pollution. Last August there were about 300 cases still active. About 75 percent of the incidents, says Nelson, are caused by leaks in underground storage tanks. There are some 100,000 such tanks in the state, and 35 percent of them may be leaking, the division estimates.

Both legislators and environmentalists have been concerned about these storage tanks. In 1985, the legislature gave the Environmental Management Commission the authority to govern the location, construction, installation, monitoring, leak detection, repair, and operations of underground tanks used for the storage of oil and hazardous substances.[15] But the bill did *not* include funding to clean up existing leaks.

The 1985 action prompted a Legislative Study Committee on Underground Storage Tanks. It reported to the 1987 General Assembly, recommending a $1 million appropriation to the EMC to begin investigating and cleaning up leaking underground storage tanks. But the legislature did not act on this recommendation. Meanwhile, oil distribution companies were realizing that aging storage tanks could begin to leak, which would cause them problems with liability insurance. A bill addressing the insurance problem (HB 1304) passed the House and could be taken up in the N.C. Senate in the "short" 1988 session. The 1987 legislature also authorized another study committee on the issue.

The liability issue, viewed together with existing statutes regarding oil leaks, has complicated the legislative discussions over HB 1304. Rep. Hackney believes the EMC already has the authority to force oil companies to clean up any leaks. "We have strict liability for petroleum spills," says Hackney. Dan Oakley, special deputy attorney general, supports this view. "The Oil Pollution and Hazardous

Table 1. NPDES Permits, 1977-1988 (Selected Years)
Number and Type of Permit, As Percent of Total Issued

Type of Wastewater Discharger	1977 #	1977 % of Total	1980 #	1980 % of Total	1983 #	1983 % of Total	1986 #	1986 % of Total	Cumulative Total of Permits in Effect[2] (Jan. 1988) #	Cumulative Total of Permits in Effect[2] (Jan. 1988) % of Total
Municipalities	157	26%	59	30%	31	7%	49	5%	308	9%
Non-Municipal										
Major Industrial	53	6%	21	11%	52	11%	18	2%	98	3%
Minor Industrial	404	68%	119	60%	375	82%	616	65%	2,612	74%
Package Treatment Plants[1]	NA	NA	NA	NA	NA	NA	260	28%	500	14%
Total Issued	594	100%	199	100%	458	100%	943	100%	3,518	100%
Cumulative Total of Permits in Effect	700	100%	1,500	100%	2,439	100%	3,159	100%		

FOOTNOTES

[1] Permits do not include package-treatment plants, since most were not kept during 1983 or previous years. In the above data for 1977, 1980, and 1983, NPDES permits for package-treatment plants are included in the "Minor Industrial" category.

[2] These numbers are estimates because the data was not broken down into these categories for 1977, 1980, and 1983.

Source: Water Quality Section, N.C. Division of Environmental Management

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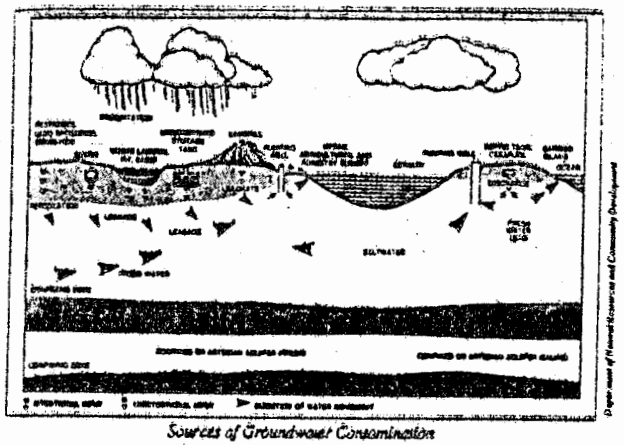


Department of Natural Resources and Community Development

Sources of Groundwater Contamination

Substances Control Act is a strict liability statute," says Oakley.[24]

The bill that passed the House in 1987 would weaken that liability. "The oil companies would put up the money for a clean-up fund if we do away with some of their liability," says Hackney. "The bill shifts the liability to the fund and away from the owner of each individual company—if the company chooses to use the fund. And consumers would be the source of the money for the fund. But the main point for those who supported [House Bill] 1304," he continues, "is that it's more important to get a pot of money to get the cleanups going in the near term than to rely on any separate state appropriation or executive action. The way to get action is to create some sort of fund where the money is readily available to clean them up. I support getting HB 1304 on through the legislature."

Sanitary landfills present another huge problem. Rainwater percolates down through a landfill and into the water table. This liquid filtering into the groundwater is called leachate; the chemicals in the leachate vary according to what's dumped in the landfill. The state recently began requiring liners to prevent leachate from getting into the groundwater.[25] Only one of the 150 sanitary landfills currently operating with a state permit uses a special liner, the one in New Hanover County. (For more on liners, see article on solid wastes, page 40.)

Water Supply—
Drought and Growth Ups the Ante

North Carolinians have generally enjoyed an adequate supply of water, thanks to a dispersed population and a generous amount of rain which feeds our rivers and aquifers. But as the state grows, water shortages are becoming more evident in several areas, particularly in areas of high growth where water supply is naturally limited. Greensboro and Hillsborough, for example, are in the upstream ends of river basins where streams are small. In the coastal plain, Kinston, Jacksonville, and New Bern have depended heavily on groundwater for decades. Now the pressure level in the aquifer is dropping, creating concerns about the long-range water supply. There's rapid growth on the Outer Banks, where the principal water supply is a shallow aquifer of limited capacity. And throughout the state, many reservoirs are now too small to handle emergency drought conditions.

The drought of 1986 highlighted the need for more comprehensive planning. About 50 public water supply systems activated water conservation programs, including voluntary or mandatory water restrictions. But many had no plans for droughts, and others with plans never used them. Some faced serious threats of running out of water.

"The key to resolving water supply problems is timely, knowledgeable, and cooperative action by local governments, with appropriate assistance from state government," says John Morris. "The state's responsibility is to provide a framework of laws and policies within which water supply problems can be solved, to provide plans or studies of river basins or regions that can guide the more detailed local government plans, to offer technical and financial assistance, and to assure the protection of water quality and fish habitat."

Within this general mission, hard questions will emerge as future water shortages increase. In most cases, the questions inevitably focus on limits of local governments working together—e.g., one municipality buying water from another. Perhaps the most controversial water-supply issue though is transferring water from one river basin to another.

"Inter-basin transfer," as the process is known, has a long history in western states, where water supplies vary to a great extent. Because of the relative abundance of water throughout North Carolina, river-basin transfers have not yet been widely considered. Small scale transfers have been used in North Carolina, increasingly during droughts. But large-scale transfers have been a highly emotional issue. People living in a certain area feel they have a right to their own water.

Virginia Beach, Va., in the Pasquotank River basin, wants to withdraw 60 million gallons of water a day from Lake Gaston, which straddles the state line in the Roanoke River basin. The Army Corps of Engineers issued a permit for the pipeline in 1984, but the state of North Carolina sued, claiming that the pipeline would violate various federal laws. If the federal courts rule in favor of an inter-basin transfer to Virginia, asks Morris, how could North Carolina defend its position against such transfers? Within the state, pressure is building to transfer water from rural river basins to urban areas. Greensboro, for example, could solve its water-supply problem by transferring water from the Dan River (Roanoke River basin) to the Cape Fear basin.[26]

In the late 1970s, Speaker of the House Carl Stewart (D-Gaston) found out how strong feelings can be on the inter-basin transfer issue. In speeches, he called for a study of whether the state should consider inter-basin transfers or establishing a state water authority. In the 1979 legislative session, he pushed through a measure to establish a $80,000 Legislative Study Commission on Alternatives for Water Management. But the commission ran into opposition from citizens against inter-basin transfers and from interagency turf considerations over who would conduct a statewide assessment of water supplies. The commission met only eight times, returned about $45,000 of its appropriation unspent, and made its position crystal clear on the controversy. "This commission does not recommend inter-basin transfers of water as a means of solving the general water management problems of the state of North Carolina," it concluded.[27] The study commission thus buried any consideration in the early 1980s of the inter-basin transfer issue.

In 1980, Stewart ran for lieutenant governor and lost. "I don't think there's any doubt that my willingness to consider the possibility of inter-basin transfers in the context of future planning of water resources cost me votes in a number of counties," said Stewart in a recent interview. "I don't think we've made significant progress in water resource planning in the last decade. It's the kind of issue," concluded Stewart, "that will be a dominant issue as we approach the turn of the century simply because in reality some inter-basin incursion is almost inevitable."

Three of four reports of groundwater pollution stem from leaking underground storage tanks such as these.

Department of Natural Resources and Community Development

LETTER 754 (CONTINUED)

Managing a Threatened Resource

An overwhelming array of problems confront the 18 different state agencies and scores of local offices that have some responsibility for water management (see Table 1 on page 12 for more on these agencies). Many of the short-term problems mentioned above, such as the backlog in permit applications, are rapidly becoming so great that they may require new kinds of intergovernmental arrangements to manage the long-term solutions.

As the federal money—and the requirement for planning—phase out, the state management role becomes paramount. Any community of more than 5,000 to 10,000 people needs a water management plan that can be systematically updated, says Moreau. Such plans should be required as a condition for receiving a state grant for a sewage-treatment facility, he adds. In 1987, the legislature appropriated $21.5 million for the 1987-89 biennium for wastewater and water-supply facilities. The money will be distributed primarily through low-interest loans from a revolving loan account, which will be coordinated by the Office of State Budget and Management. The state action did not require local water planning.[28]

From 1973 to 1986, nearly $700 million in federal grants went to N.C. municipalities for new or expanded wastewater-treatment facilities, plus $412 million from state clean water bonds. But the state bonds are gone and the federal money is declining. Some communities will now have to pay as much as 60 percent of the cost of building or upgrading treatment plants, as opposed to the 12.5 percent maximum local contribution required during the height of the federal involvement. And after 1995, the percentage could go even higher.

About $1 billion will be needed to make municipal sewage-treatment plants meet their permit standards. The 1987 reauthorization of the federal Clean Water Act in 1987 requires that all municipal treatment plants comply with state standards by July 1988.[29] Under the Clean Water Act, the Environmental Protection Agency has the power to monitor water-quality standards established at the state level, according to stream conditions. If a state does not run its NPDES system properly, the EPA can assume control of the permit process. This July, a municipality not in compliance with its permit faces stiff penalties, unless it can convince a judge to grant an extension.

Between the pressures of drought and the demands of finding money to replace aging wastewater-treatment facilities, municipalities have a hard question to answer. N.C. municipalities currently cover only 70 percent of the cost of wastewater treatment through fees, according to the Water Resources Research Institute.[30] Can municipalities continue to keep the cost of water and sewer services at a price well below cost? Moreau and others believe the legislature should force municipalities to raise water and sewer bills.

"As you put more and more pressure on a constant resource base, it takes more and more intensive management to maintain that quality," says Moreau. "There's sample money out there to pay for reasonable rates for water and sewer service. Local elected officials have no incentive to raise the rates. It's not a popular thing to do." Without such a legislative requirement, explains Moreau, the legislature will remain under pressure by local governments to help pay for the cost of new wastewater-treatment facilities.

Some recent efforts have been made to link water quality and water supply regulations. For example, the Department of Natural Resources and Community Development has begun a watershed protection program tied to the best-use classification system. A local government might want the state to assign a higher best-use classification to a watershed area; such action would require more stringent requirements on point-source polluters. To get NRCD to assign a higher best-use classification, the local government must have a watershed protection plan that controls nonpoint sources. Such a plan often involves density regulations. "Already 40 communities have requested an upgrade in classification and thus have shown a willingness to enact watershed protection measures," says NRCD Assistant Secretary Pugh.

How can the agencies responsible for water supply and quality manage both day-to-day challenges and plan for the future? The task is fraught with technical, interagency, financial, and practical issues. The logical agencies to address such questions are the Environmental Management Commission and the Division of Environmental Management and Water Resources. The most urgent issues for consideration, as discussed above, are:

- how—and how fast—communities can develop water management plans;
- how the state can adequately manage a backlogged NPDES permit system;
- whether a new state law is needed to protect groundwater;

—continued on page 68

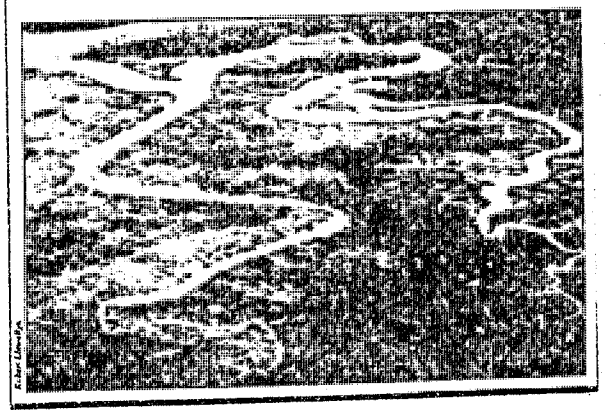
How Much Can the Rivers Take?

Twenty-nine plants dump their waste along a small section of Jackson Creek outside of Cherokee in western North Carolina. In rural Henderson County, 175 facilities discharge into rivers and streams. "At what point do we start having to turn down permits because there's too many on a reach of stream which can't take it anymore?" asks George T. Everett, deputy director of the Division of Environmental Management. "It's just coming up now. It's going to be a big issue that we face, and somebody's going to have to make a big policy decision."

Everett is talking about "*assimilative capacity*," a cumbersome name for what soon may be a river's biggest and most valued asset. To put it simply, assimilative capacity refers to the amount of waste a stretch of water can absorb. Remember that rivers and streams move water. It is different from the kind that garbage trucks haul away. Most of it is treated trash. As more and more plants discharge their wastes into the state's waters, those waters become less and less able to absorb, or assimilate, any more. What capacity they have left becomes very valuable.

"We rarely think of assimilative capacity of rivers as a resource, but it's a significant resource," says R. Paul Wilms, head of the Division of Environmental Management. "We are seeing the complete exhaustion of rivers' ability to assimilate additional waste. It's gone. That's a relatively new problem that we're facing."

The problem is peaking in the lower portion of the Cape Fear River basin. Four large companies, the city of Wilmington, and numerous small dischargers use the river for their waste. Everett and Wilms doubt the Cape Fear can take much more. Everett estimates that the river could probably handle a small company that would



Robert Chase/Jr.

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LETTER 754 (CONTINUED)

discharge a few thousand gallons of wastewater a day. A large company, with multi-million gallon discharges, would be another matter, he says. What happens, then, when Interstate 40 is completed to Wilmington and large companies want to come to town?

Computers, using elaborate models, figure how much waste a section of water can hold before an NPDES permit is issued, and the state engineers use the results when assigning pollutant limits. Under the theory that everyone is entitled to equal slices of the pie, *the elaborate analysis is done every time a new permit is issued.* That takes the state time, contributing to a severe backlog of permit requests (see main article, page 57, for more). The result is tougher pollutant limits on everyone to make up for the additional waste load. That means more money because all the facilities have to upgrade their treatment of their water discharged when their permit expires. The lower Cape Fear is as close to the threshold, however, that accommodating the wastes of another large company may result in pollutant limits too strict and too expensive for the existing permit holders.

"The continual re-allocation of available assimilative capacity equally among all users manifests itself in ever more stringent permit levels," says Wilms. "Is that really an equitable and effective way to protect water quality? The facilities are never in compliance with final limits. And it's always more expensive."

A better way of assigning waste loads, says Wilms, might be to assign waste capacity on a first-come, first-serve basis in certain overtaxed river basins. Then let capitalism take over. As an example, say the computer figure that the lower Cape Fear can absorb 100 pounds of waste. The state could assign it all to the city of Wilmington for its sewage-treatment plant. If one of the large companies wants 10 pounds of capacity for its waste, it would have to strike a deal with the city. Either the city's plant could treat the company's waste or the city could sell 10 pounds to the company and use the money to recoup the costs of meeting the tighter permit limits that would follow.

Under this system, the waste loads would have a dollar value. Hence, planners would have an economic basis for making decisions on the water's use. Is it, for instance, worth more as a place to move waste or as a drinking supply?

"We would let the market drive those values," says Wilms. "The market does that very well. It would provide decision-makers with a better basis to make decisions than what they have right now, which is essentially nothing in terms of economic value. You can then assess the value of a pounded water supply, like B. Everett Jordan Lake."

In 1983, 100 million gallons of water in Jordan Lake were set aside for future drinking water needs. Wilms wonders, though, if that water isn't worth more downstream. It could be used to increase the flow of the Cape Fear River so that the river could absorb more waste and thus accommodate more growth—maybe that big company that wants to move to Wilmington when I-40 gets there.

"Right now, those decisions are made by default," says Wilms. "We built the Jordan Lake impoundment, and part of its capacity is for drinking supplies. We assume that's its highest value. That may be true today, but that may not be its highest value 30 years from now."

Such a policy, he thinks, also would cut the time it takes to process permits and cut into the backlog because there would usually be no need for the time-consuming analysis for neighboring facilities each time a permit is issued.

"I'm hoping that we get to that point," says Wilms. "I'm going to propose that we do that in many waterbasins to reduce backlog."

—*Frank Tursi*

Stream Watch

If you want to see how a broad-based volunteer program can help government work more efficiently, look no further than "Stream Watch." More than 110 local stream watch groups have "adopted" a segment of stream or river, like a parent might do with a troubled teenager. Groups do everything from technical monitoring of pollutants in the stream to keeping the creekside cleared of trash. Some stream watch groups are affiliated with environmental organizations, such as the 22 groups joined with the Haw River Assembly. Others are as small as a single person who sends water samples to the state laboratory for regular checks. The Z. Smith Reynolds Foundation has made small grants available to stream watch programs.

Both citizen groups and government officials have high praise for the program. As the 1987 NRCD report on the "State of the Environment" said: "The Stream Watch Program is becoming an important way for citizens to play an active role in managing and protecting the state's valuable water resources." Thousands of miles of streams could still use protector advocates. For more information, contact Jim Mead, director of N.C. Stream Watch, Division of Water Resources, P.O. Box 27687, Raleigh, N.C. 27611-7687, (919) 733-4064.

- whether the new stormwater regulations will protect shellfish waters effectively or have an impact on land-use patterns, and whether they should be extended statewide;
- whether current N.C. law is adequate to resolve competition among public water supply systems, including questions of inter-basin transfers, and competition among industrial and agricultural users;
- whether the state should set minimum water and sewer rates; and
- what action should be taken in areas where rapid growth or increases in water use are threatening to outstrip available groundwater supplies.

On each of these issues, more research and a broader consensus among policymakers, environmentalists, municipal officials, and developers are needed. Only state-level leadership can build a consensus broad enough to support meaningful actions regarding such issues. Is it too late to save the state's water?

"I hope it's not too late, and I have to believe it's not," says Wilms. "But it soon will be. We will have lost our ability to overcome what we've done to the land. We'll just have to wait and see. You and I won't see it. But our grandchildren will. I'd like them to look back and say, 'They at least tried.' I hope they don't look back and say, 'Why didn't those people do something?'"—*FT*

FOOTNOTES

[1] A detailed account of the river's problems appeared in the *Winston-Salem Journal*, April 5-9, 1987, pp. 1A-7.

[2] "Cry the Polluted River," *Greensboro News & Record*, Feb. 19, 1984, p. 1A.

[3] Within the Division of Environmental Management plays the central staffing function for the EMC, the Division of Water Resources and the Division of Land Resources provide staff assistance to the EMC on water supply and water management and on coastal policy issues, respectively.

[4] 15 NCAC 2B .0214 and 2B .0216, respectively.

[5] 33 U.S.C. 1251 et seq. For historical background on the state's water-pollution control program and its antecedents of the Clean Water Act, see David Morrow, "Water Management: A Tenuous State/Local Partnership," *North Carolina Insight*, June 1986, pp. 60-6.

[6] Construction grants for water and sewer facilities ranked fifth among the largest uses in federal aid to North Carolina in the sweeping budget cuts sought after President Reagan came to office. For more, see, Jim Boyer et al., *Federal Budget Cuts in North Carolina*, FOG Center for Public Policy Research, April 1982, p. ii.

[7] Raymond J. Burby, David R. Morrow, and Edward J. Kaiser, "Planning Water and Sewer Extension in Urban Growth Areas—Current Practices and Policy Alternatives," Water Resources Research Institute, September 1987, p. 33.

[8] Education, Environment, and Culture: The Quality of Life in the South, 1986 Conversations on the Future of North Carolina," Southern Growth Policies Board, Cross-Cutting Issue No. 5, 1987, p. 10.

[9] *North Carolina—State of the Environment Report, 1987*, N.C. Department of Natural Resources and Community Development, April 1987, pp. 2-4, and data from the Division of Environmental Management.

[10] *State of the Environment Report*, p. 6.

[11] Chapter 167 of the 1987 Session Laws, sections 1-3. When the House initially SE Carolina was considering the fee increases during the 1987 legislative session, George Lowery said that the state needs $5 million for the permit granting and inspection process, rather than an $8.9 budget.

[12] *State of the Environment Report*, p. 5.

[13] "Surface Water Quality Concerns in the Tar-Pamlico River Basin," Water Quality Section, N.C. Division of Environmental Management, final draft, April 1987. The report is an excellent technical overview of the problems plaguing the Pamlico River.

[14] Ibid.

[15] Chapter 111 and Chapter 617 of the 1987 Session Laws, now codified at G.S. 143-214.4.

[18] 16 U.S.C. 3801, *et seq.*

[19] Bill Finger, "Making the Transition to a Mixed Economy," *North Carolina Insight*, April 1986; see especially pp. 1-14.

[20] 15 NCAC 2B .0217; 15 NCAC 2H .0406 and .0608.

[21] Letter from Chief Deputy Attorney General Andrew A. Vanore Jr. to EMC member Anthony R. Combs, dated Oct. 15, 1987.

[22] 15 NCAC 2H .1201 to .1804.

[23] *State of the Environment Report*, pp. 10-13.

[24] G.S. 143-214.1.

[25] Chapter 551 of the 1985 Session Laws (SB 851), codified within G.S. 143-214.1(b)(2) and 143-215.3(a).

[26] G.S. 143-215.73 *et seq.*

[27] In February 1987, says Assistant Attorney General Nancy Scott, "A policy decision was made to protect groundwater up to the drinking water standard," which was "another way to use open existing rules. It is a difference in how the (groundwater classification) is accomplished." That policy decision requires either liners or impermeable clay liners in sanitary landfills. Officials at the Department of Human Resources and at the Attorney General's Office agree that the policy is an interpretation, but it may be incorporated into the N.C. Administrative Code in 1988. To avoid a possible violation of the N.C. Administrative Procedure Act, the Center recommends including the policy in the Code.

[28] For more on the legal issues involved, see G.S. 151A-289 and 162A-7, which require that "counties and cities acting jointly or through joint agencies" and water and sewer authorities get permission from the Environmental Management Commission before diverting water from one stream or river to another. The commission is directed to consider seven criteria in evaluating whether to approve a proposed diversion.

[29] *Alternatives for Water Management*, Report of the Legislative Study Commission to the North Carolina General Assembly," Feb. 28, 1980, p. 12.

[30] Chapter 796 (SB 110) of the 1987 Session Laws, now codified as G.S. Chapter 159G, "North Carolina Clean Water Development Loan and Grant Act of 1987."

[31] 33 U.S.C. 1311(b). The new amendments to the act force additional emissions on a "water-quality based" approach to regulating sources of pollution, as contrast to the old "technology-based" approach. Currently, dischargers (e.g., municipalities, textile mills, petroleum refineries) are required to meet uniform national standards of performance in removing pollutants from the wastewater; these standards are based on the best treatment technology. The new water-quality approach, instead, examines the receiving waters to determine the type and amount of pollution which can be accommodated without impairing the designated uses of the waters.

[32] David E. Norris and Dale Whittington, "Financing Water Supplies and Wastewater Services in North Carolina in the 1980s," Water Resources Research Institute, Report No. 212, February 1984, p. 14.

Beside the grand history of the glaciers and their own, the mountain streams sing the history of every avalanche or earthquake or snow, all easily recognized by the human ear, and every word evoked by the falling leaf and drinking deer, beside a thousand other facts so small and spoken by the stream in so low a voice the human ear cannot hear them. Thus every event is written and spoken. The wing scars the sky, making a path inevitably as the deer in the snow, and the winds all tell it though we hear it not.

—*John Muir from "Trails of Wonder"*

Protecting the Land and Developing the Land—How Can We Do Both?

by Larry Spohn

Land-use issues in the past have been viewed geographically, as coastal, Piedmont, or mountain concerns. As growth accelerates in the urban Piedmont and in resort areas in the mountains and on the coast, ways to balance that growth with environmental protections need state-level attention. In the early 1970s, North Carolina was a national leader in state-level actions regarding land use. But ironically, as development has increased in the 1980s, the pendulum of land-use control has swung away from statewide standards to more emphasis on local control. Should state-level actions re-establish the balance between local and state control of the land, and at the same time rectify the imbalance between the development boom and environmental concerns?

LETTER 754 (CONTINUED)

For William McNeil, the choice between prosperity and preservation is anything but abstract. Standing in his High Point office, McNeil points to drawings of a 900-acre commercial development project planned for the land corridor leading to the Greensboro-High Point-Winston-Salem Regional Airport. Director of Planning and Development for the city of High Point, McNeil is encouraging such developments, even though the site lies in the watershed of High Point's primary water supply, the Deep River.

McNeil likes to show visitors sketches of the Piedmont Centre development, especially the greenways and buffers required by the city in the overall development area as well as in each individual project. Down the road from this project is the site for a proposed 112-acre planned regional shopping center. "We buffer it internally and on its edges," he says. "We require a master stormwater control plan that will ensure the runoff is gathered and treated in an environmentally sound way." This generally means channeling the stormwater into holding and settling ponds, says McNeil, who is immediate past president of the 580-member state chapter of the American Planning Association.

McNeil supports development in the city's watershed because of the role the city has to regulate certain kinds of development. "We think we can do it and still protect the resource by weeding out poor developments and working with the environmentally responsible developers," he says. "People ask, 'Shouldn't there be a permanent greenbelt between High Point and Greensboro?' My answer is that the green will be built into each development project."

A morning's drive from the High Point watershed, into winding mountains, lies what may be the most extensive greenway in America. But it may not be that way for long. In September 1987, 52 years after it was begun, the Blue Ridge Parkway was finally completed and dedicated. Parkway officials and patrons have cause to worry, however, about its next half century. The clutter of mountain tide development threatens the roadside overlooks and the peaceful drives bordered by split-rail fences. Few protections exist against continual encroachment of the nation's premier scenic roadway.

"Naturally, the federal government can't be expected to buy all the land within view of the parkway," says Parkway Superintendent Gary Everhardt. Only some kind of land-use regulations can help stem the tide, he says. Historically, mountain residents have resisted such restrictions, especially when imposed by politicians way down in Raleigh. But in 1983, a 10-story condominium appeared like a bolt of lightning atop Sugar Top Mountain in Avery County. Nothing like it had ever been done. With that, even mountain folks sentered their opposition. Responding to the statewide cry for action, the legislature passed the Mountain Ridge Protection Act, which restricts the height of buildings on mountains and ges.[1] The act passed, say many observers, only because the authority to enforce it remained with the individual mountain counties.[2]

"I hope the Ridge Act is a signal of softening mountain opposition to land-use regulation," says Everhardt. "Innovative proposals are needed to establish a corridor of controlled, quality development along the 470-mile parkway in North Carolina and Virginia. The Ridge Act indicates that potential support exists for such innovative actions."

The 1983 Ridge Act came nine years after mountain officials successfully opposed the creation of a state law which would have mandated region-wide land-use regulations. Called the Mountain Area Management Act, it was to be the sister legislation to the Coastal Area Management Act (CAMA for short), adopted by the legislature in 1974.[3] With its requirements for land-use plans and development permits in a 20-county coastal area, CAMA has at its 14-year life received praise from outside the state but been controversial in eastern North Carolina. Under CAMA, the 20 counties must develop a land-use plan every five years, but they do not have to pass zoning or other regulations to enforce the plan.

"The process of developing land-use plans has been very helpful on the coast, in terms of forcing people to think about environmental issues," says Karen Gottovi, who has chaired the New Hanover County Commissioners and currently is on the Coastal Resources Commission. "But we need the next step, to make it mandatory for the counties to pass the ordinances that would enforce their plans."

Even on the coast, development of fragile coastal lands continues to slip through the regulatory cracks. Many governmental observers and local residents fear that CAMA is not enough to protect the entire coastal environment. Take wetlands, for example. "Even though CAMA and the federal Clean Water Act have done a tremendous job in terms of protecting regularly flooded wetlands, they haven't been able to adequately protect the freshwater, forested wetland system," says Linda K. "Mike" Gantt, field supervisor for the U.S. Fish and Wildlife Service. Under the Clean Water Act, the U.S. Army Corps of Engineers administers the permit application system for altering wetlands. Federal regulations, working in conjunction with CAMA, explain which activities on a wetland require a permit.[4]

In the case of the Beau Rivage development near Wilmington, says Gantt, "the developer removed peat from the wetland and put it on high ground. Basically, they drained and dredged it without needing a permit. Where's the opportunity even to make a comment?" Normally, when a permit is filed to modify wetlands, the U.S. Fish and Wildlife Service provides a legal report to the Corps of Engineers on how the proposed work would affect fish and wildlife. Gantt's efforts to get state agencies to intervene in the Beau Rivage situation undermining and water pollution permit regulations were unsuccessful.

The public on the coast is only now coming to appreciate the critical importance of wetlands, she contends. "But what about the inland wetlands, those riparian strips along the rivers and streams? They are not being preserved, but they are very important wildlife corridors, useful in filtering pollutants coming off the land, for stormwater retention and for recharging groundwater" (for more on wetlands, see page 73).

As a member of the policy committee for the federally funded, five-year National Albemarle-Pamlico Estuarine Study, Gantt has the responsibility for looking at the big picture. "North Carolina has one of the most excellent coastal management laws on the books," she says, "but what we really need is a *state law* that protects freshwater wetlands, on the coast and inland. People still don't get it: *What happens on the land upstream affects these sounds.*"

Traditionally, to discuss land use issues in North Carolina, analysts, reporters, legislators, and others turn to the traditional coastal, Piedmont, and mountain regions.[5] Certainly, the unique features of the Albemarle-Pamlico Estuary differ significantly from Sugar Top Mountain and Piedmont watersheds. Hence, the purposes of land-use regulations vary, from protecting fertile shellfish waters to retaining scenic mountain views to maintaining water quality in the Piedmont. But an increasing number of people are arriving at the same conclusion that Mike Gantt has reached. Despite these differences within the state, *land use is a statewide issue, and tools are needed to treat it that way.*

> "We abuse land because we regard it as a commodity belonging to us. When we begin to see land as a community to which we belong, we may begin to use it with love and respect."
>
> —*Aldo Leopold*

In designing development permits, only a few cities with the most environmentally sensitive planners, places like High Point, have added such stipulations as greenways and buffers. In the mountains, separate groups of county commissioners have the power to decide how much development can be located a stone's throw from the Blue Ridge Parkway and other scenic areas. And under CAMA, reconciling the coastal development boom with the fragile ecosystem is at best a joint effort between state and local officials, through county land-use plans and state-mandated regulations.

The boomtown conditions in the state's cities and resort areas dramatize the dilemmas of development and the environment, of growth and conservation. "Checks and balances and consistent land-use regulations are needed," says Anne Taylor, of the Department of Natural Resources and Community Development's Office of Planning and Assessment. "In spite of the state's raw natural beauty and rural tradition, even the most basic conservation ethic appears to be lacking on a widespread basis."

Typically, citizens want to protect the environment against unrestrained development only when the threat is "in my own backyard," says Taylor.

Larry Spohn, a freelance writer living near Greensboro, has covered environmental issues for the Greensboro News & Record.

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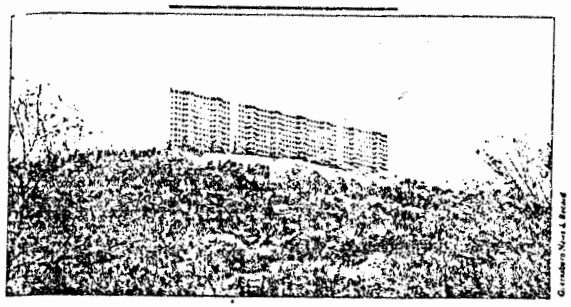

Mountain-top condo project sparked the debate which led to the 1983 Mountain Ridge Protection Act.

There will be a backlash against such development, she adds, when "enough people have had it hit their backyard." The theme even has spawned an acronym: NIMBY (Not In My Backyard). Without state leadership setting reasonable, achievable objectives and minimum land-use standards, says Taylor, "North Carolina cannot avoid the environmental degradation and the deterioration of quality of life so associated with unbridled development in other beach states."

Balancing a Backyard Land-Use Ethic

In the mid-1970s, North Carolina was on the cutting edge of land-use issues in the country. In 1974, the General Assembly passed CAMA after field hearings and legislative compromise overcame much local opposition to mandatory land-use planning. "The rising tide of environmentalism at the time and prompting from the scientific community" helped boost the CAMA legislation, says Dr. Arthur Cooper, a strong advocate of resource management during the Scott (1969-73) and Holshouser (1973-77) administrations and now a professor at N.C. State University. Through the leadership of then-Rep. Willis Whichard (now a N.C. Supreme Court justice) and Sen. William Staton (who left the Senate but has returned), the CAMA legislation incorporated the deeply rooted instincts for local control of the land into a state-level administrative and regulatory structure (for more on CAMA and coastal issues in general, see page 70). The upbeat environmental mood of 1973-74 legislative sessions also produced a Land Policy Act[6] and a Sedimentation Pollution Control Act.[7]

The impetus for state-level regulatory authority was short-lived, however. In the 1983 *N.C. 2000* report, the land-use recommendations emphasized expanding the capacity of *local government* regarding control of development, not of state-level regulations. "Most decision-making powers affecting land use in North Carolina have traditionally been exercised at the local level, and this should continue to be the case," explained the report. This is difficult, it said, as fast-paced development requires complex technical decisions and a deliberate decision process at the local level. "The coastal counties now have this capacity within the framework of the Coastal Area Management Act," the report concluded.[8] It described CAMA as a way to assist local governments rather than emphasizing its state-level regulatory authority, as many advocates of CAMA do.

What is remarkable is how quickly the direction of state-level leadership moved from the bipartisan effort towards greater state-level involvement in land-use regulations (which peaked in 1973-74 with CAMA and other legislation) to an emphasis on enhancing local control. By the mid-1980s, legislative and administrative efforts generally emphasized enabling statutes and incentives for local governments to take over such regulatory programs as sedimentation permits, watershed ordinances, county-wide zoning, and other regulatory mechanisms.

> "I hear an awful lot of talk about controlled development, but I don't really see anybody doing anything about it."
>
> —*Bill Holman*
> *Sierra Club and Conservation Council of North Carolina*

Mary Joan Pugh, assistant secretary at the Department of Natural Resources and Community Development, believes the current governmental approach to land-use issues is proper. "Traditionally, North Carolina has given the authority for land-use regulation to local governments," she says. "Only when the problem becomes multi-jurisdictional such as coastal management or ridge protection does the state step in. When the state does step in, it has defined its role as providing leadership and general guidelines to be implemented at the local level. I don't think this partnership is evidence of poor land-use management. But we're often reactive instead of pro-active. We often wait until we're in a quagmire before acting."

Bill Holman, the leading environmental lobbyist in the state, says that land-use provisions increasingly stem from local—not state—actions. "All the watershed protection that's happening is due to the initiative of *local* governments," says Holman. "The state should have a role in that. The state is not providing leadership in land-use planning, so many local governments are taking the initiative to regulate land and plan for themselves."

Whether viewed as a proper state-local partnership or a lack of state leadership, the shift from the state level to local leadership has evolved during a period when major national investors were moving into North Carolina, building industrial parks, condominiums, multi-purpose residential and commercial parks, and other developments. From 1967 to 1977, the cropland and forest land in the state shrunk by 1.9 million acres; one study estimates that by the year 2000, another 2.5 million acres could shift to non-agricultural uses.[9] On the coast, the figures are more dramatic. Of the state's original 2.2 million acres of potential wetlands, only about 695,000 remain unaltered. Since the early 1970s, an estimated 4,300 acres of coastal marshes alone have been altered.[10]

Holman and other environmentalists, armed with a decade of experience by the late 1980s, have begun to speak out more strongly than ever about such trends. Last year, for example, the North Carolina Wildlife Federation and Trout Unlimited released an analysis of the state's Sediment and Erosion Control Program, begun in 1973 under the Sedimentation Pollution Control Act. The program regulates developments of projects of more than one acre, exempting agricultural and forest lands. The report concluded that the law provides insufficient authority, fines, bonding requirements, and legal staff to deal with non-complying developers.[11] "The report confirms our belief that the current law is not taken seriously by development interests and needs major improvements," says Michael F. Corriveau, executive vice president of the North Carolina Wildlife Federation.

Holman puts it in stronger terms. "I hear an awful lot of talk about controlled development, but I don't really see anybody doing anything about it," says Holman, who lobbies for the Conservation Council of North Carolina, the Sierra Club, and the N.C. Chapter of the American Planning Association. "The attraction of the state, and the failure to conserve and protect the land encum North Carolina is dying the death of a thousand cuts."

Many of the pro-environmental efforts, both from outside advocacy groups and from officials working within governmental systems, have focused on the impact of land uses on other parts of the environment—water quality, wildlife, and beachfront development. One of the sad facts about the environmental consciousness of the last two decades is that the land itself has had no clear advocate, says Lawrence S. Earley, associate editor of *Wildlife in North Carolina*, a monthly magazine

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published by the N.C. Wildlife Resources Commission. Moreover, developers have found ways of exploiting loopholes in land-use controls that do exist, says Earley.

"In the wetlands, they clear them and drain them, since the law only prohibits filling," says Earley. "In the mountains, developers use the number exemption to get around the sedimentation control act. Once they've got the trees cut, then they go in with bulldozers."

Picture the prosperity vs. preservation equation as a scale of balance. Currently, because of the development boom and the structure of land-use regulations, the scale is tilted towards development—leaving the environmental side dangling in the air. To bring balance to the scale, five changes in the current system of land-use regulation could be considered: 1) statewide land-use standards; 2) watershed protection districts; 3) statewide enabling legislation for development impact fees; 4) residential zoning districts to protect unique land resources or features; and 5) improved land-use information and analysis.

Statewide Land-Use Standards

Current state law regarding land use emphasizes enabling legislation to allow local governments to adopt zoning and subdivision ordinances, establish planning boards and local erosion control ordinances, and even to utilize such powers in an extraterritorial jurisdiction along their borders. The joint Winston-Salem/Forsyth County planning department, for example, has a "Comprehensive Plan" for the year 2000, emphasizing growth management concepts. The same department has a plan to protect the Salem Lake Watershed, including shoreline acquisition, and helped develop a unique Agricultural Preservation Plan, considered a model for the Southeast.[12]

The enabling laws in North Carolina "provide most of the tools to accommodate growth and plan for the future," concedes Holman. "What's been missing is the political will to accept the zoning and other ordinances necessary to protect the resource." Local control should prevail, says Holman, but the state can no longer abdicate its primary responsibility for land stewardship. "We need some form of basic, minimum standard requirements for every county or local government in the state. A good example of a statewide standard that affects what local governments can do is the statewide building code."

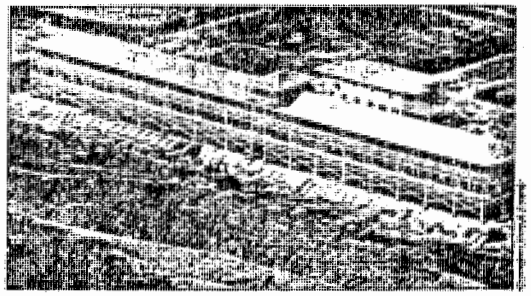
Local planners, county commissioners, and city councils determine the requirements for the items listed below. No statewide standards exist for:

- a zoning ordinance and citizen planning and zoning commissions;
- a comprehensive transportation plans as a part of land use;
- a master plans for orderly installation of water and sewer services;
- a watershed protection ordinances, if applicable;
- a capital facilities plans (which might include drainage, water and sewer, and roads);
- a wetlands protection;
- a stormwater regulations; and
- a surveys of historical, cultural, and natural resources needing protection.

Currently, 93 of the state's 100 counties have planning or zoning boards, but only 50 have county-wide zoning. Similarly, 80 have land-use plans but only 55 have any subdivision regulations, and only 23 have a capital facility plan.[13] The Division of Community Assistance in DRCD, with 20 field staff working out of seven regional offices, advises local governments on zoning, land-use plans, and other such regulations. "Over the past few years, the emphasis of land-use controls has shifted more to the local level in terms of local officials recognizing the importance of regulations for management purposes," says Bob Chandler, director of the Division of Community Assistance. "That's because of the developments that's occurring across the state—the spillover effects from these urban areas."

Despite the growing interest among local officials, the efforts remain uneven. And the underlying is strictly advisory. An out-of-state developer recently learned that he could purchase a vast tract in

> Currently, 93 of the state's 100 counties have planning or zoning boards, but only 50 have county-wide zoning.



Even with the Coastal Area Management Act, beach erosion problems plague many beach structures, such as the Sea Vista Motel on Topsail Island.

Moore County, and because there is no statewide or local zoning requirements, could "do pretty much whatever he pleased," says Anne Taylor. "He was shocked. His ecosystem was about over-regulation, but the lack of any regulation is what shocked him."

Planning experts in Florida and Maryland, which have new state laws to manage growth, say North Carolina could take heed. "Nobody's got the growth rates of Florida," says David R. Godschalk, professor of City and Regional Planning at the University of North Carolina at Chapel Hill. "It's off the chart. But that's not to say we don't need to do something here." As a consultant to the Southern Growth Policies Board's recent study, "Guiding Growth in the South: A Decade Later," Godschalk has reviewed growth patterns and legislative tools throughout the South.[14]

Godschalk praises CAMA and the Ridge Law as partial approaches, "but they're going to have to do other things." In North Carolina, a Mountain Area Management Act (MAMA) and a Piedmont Area Planning Act (PAPA) have been proposed as complements to CAMA at times, but Godschalk says Florida's statewide approach offers more equity and uniformity.

John DeGrove, director of the Joint Center for Environmental and Urban Problems at Florida Atlantic University, says North Carolina's time may not be far off. "Your coastal legislation has worked reasonably well and has been a model," he says. "But what about the rest of the state? Comprehensive, required, statewide planning for localities would be a giant step forward for North Carolina, and the time is now. Take it from us, there is no stalling around."

In Florida, where growth rates are nearly three times the national average, the negative effects of growth began to outweigh the positive ones. "First, there was the concern over environmental problems, but later, it was just so clear to everyone that the quality of life had vanished," says DeGrove. "Growth didn't pay for itself; we had 460 cities and counties each going their own way." After a series of stop-gap measures since the mid-1950s, the Florida legislature "got serious," says DeGrove, and passed in 1985 the State Comprehensive Plan and the Growth Management Act.[15] This act contains, for example, a triggering mechanism where developments beyond a certain size would require state assessment and approval.

Mel Levin, director of the Community Planning Department at the University of Maryland and president of the American Institute of Certified Planners, believes there are many similarities between Maryland and North Carolina as well. Like North Carolina, "Counties are very strong in this state."

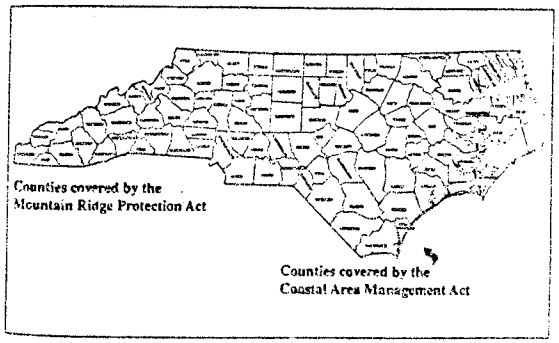
says Levin. Yet such local controls were not enough to protect the ecologically distressed Chesapeake Bay from Baltimore residents. "It was close enough to continue as a recreation-spot and a home-spot" for people working in Baltimore, explains Levin. "The development pressure has been enormous, and the ills of the Bay are the result," he adds.

Maryland has recently passed stringent regulations on coastal shore development. It mandated, for instance, low-density development in undeveloped areas adjacent to fragile shellfish waters. (In North Carolina, regulators are trying to affect the density of such developments *indirectly* through water-quality regulations; for more, see section on stormwater regulations on page 61.) "The jury is still out on the impact," says Levin. "The question here is whether the barn door has been planned after the horse was long gone. What about up river? I would think people in your state might be asking some of the same questions."

Land owners and developers initially resist such regulations, says Levin, "but once they see the benefits, there tends to be genuine enthusiasm for statewide standards. They provide stable rules of the game for everyone, and they are very important in resolving boundary problems that surround a resource, such as this bay area. You have the same resources in North Carolina: the swamps, rivers, and watersheds which are affected by what you do on the land."[16]

Even where statewide standards do exist, additional actions by local officials are often necessary to make these standards work to their best use. The Mining Act of 1971, for example, established a permit program for all mining operators who disturb more than one acre.[17] While North Carolina is not a major mining state, like West Virginia or Louisiana, there are significant numbers of rock quarries, sand pits, and peat mines, all of which fall under this act. The permit system covers land reclamation as well. A permit alone, however, may not be enough to ensure that the potential mining site is used in a way that is compatible with the surrounding area. Local zoning supersedes the mining permit, but not all counties are zoned. "Local officials have a tool available for appropriate ways to develop mineral resources, and they need to use it," explains Charles Gardner, chief of the Land Quality Section, Division of Land Resources in NRCD.

In the absence of a statewide system of minimum standards, one way to address growth issues is through a state performance standard for developers which would supersede the requirements of local ordinances. Developers could be required to certify that they have adhered to a basic checklist of standards, such as road construction, drainage, and erosion control, as well as any applicable local building and zoning ordinances. Such an instrument could be required and enforced through local building permits or procedures for house sales and closings.



Watershed Protection Districts

Creeks, streams, and rivers do not respect political boundaries. In a rural state with abundant water supplies, drinking-water-supply watersheds rarely overlap political districts. But now all that has changed. Suburban sprawl, population growth, and pressures on water supplies have forced planners and small local government officials to join environmentalists in calling for some form of state-mandated and monitored watershed protection.

The most obvious need for such a district—and perhaps the most difficult situation in which to begin—is the Falls of the Neuse watershed area, covering parts of Durham, Wake, and other counties. A dramatic 5,300 acre "new town" development, called Treyburn, is planned in northern Durham county, in the Falls watershed. Under the Florida comprehensive growth management law, a development the size of Treyburn would require state approval. In North Carolina, state officials have only minimal and indirect ways of addressing the watershed protection issue.

During the Hunt administration (1977-85), NRCD established the Falls-Jordan Steering Committee to function in an advisory capacity on such questions. This committee has essentially quit operating. "We felt we had gotten as far as we could with this kind of voluntary approach," says NRCD Assistant Secretary Pugh. "We shifted gears and decided to use our water supply classification system as a way to move towards a more comprehensive approach to protecting the watersheds."

During Gov. James G. Martin's administration, NRCD began offering a higher water supply classification to those local governments that initiated watershed protection programs using state guidelines. If the local government adopts certain land-use controls, NRCD says it will adopt a tougher standard in issuing the permits required for wastewater discharges in the area. In addition, NRCD has continued to advise local governments in regulating watershed developments and has offered local planning departments technical assistance on engineering and other questions. But still, all of this is voluntary.

"We have made a lot of progress," says George Chavanne, director of planning for the city of Raleigh, "but if there's a conflict between a local development objective and the water supply protection issue, there needs to be a way to resolve that conflict. Currently, there's no way to do that. Each local government can decide for itself. There have to be some minimum standards and the state is the proper body to establish them."

During the 1987 legislative session, Raleigh Mayor Avery Upchurch asked Wake County legislators to push a proposal for mandatory regional land management in nutrient sensitive watersheds, such as the Falls of the Neuse. "It was tomahawked by Durham officials," says Upchurch. "They feared such regulations would stifle growth in their jurisdiction. Common sense dictates to me that we must put in standards that are adhered to by all. The marketplace can change, and public officials change every two to four years. We can't have these resources protected by chance."

While the 1987 bill didn't pass, it did prompt a Legislative Study Committee on Watershed Protection. The neatest sensitive watershed protection issue, says Upchurch, "is a front-runner for a program that eventually will be implemented statewide." In watershed protection districts, special guidelines and rules could be established for commercial and subdivision developments, wastewater discharges, soil erosion, sedimentation, and other issues, says Upchurch. The N.C. Division of Environmental Management is the likely agency to administer this, he adds.

Watershed protection districts, perhaps more than any other land-use regulation, show the close connection between land-use controls and water quality. After researching the issue for the Water Resources Research Institute, Raymond J. Burby recommends that the state adopt mandatory standards to protect watershed areas in the future and at the same time assume primary leadership for "water supply planning, reservoir site preservation, control of point sources of pollution, and control of nonpoint sources of pollution."[19]

Statewide Enabling Legislation for Development Impact Fees

While statewide standards can impose some uniform order on the growth spurts around the state, some types of local actions still need to be authorized by legislative action. One of these is state enabling legislation for development impact fees assessed by local governments. Such fees, a widely accepted growth financing strategy, require developers to pay up front for the impact that their projects will have on local capital expenditures and services. Currently, each N.C. municipality or county has to ask for special legislation allowing such fees in its jurisdiction.

Raleigh passed the first such ordinance in North Carolina, after getting special authorization from the

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General Assembly. The Raleigh ordinance, which uses the softer terminology of "facility fees," assesses developers on a unit basis for road and open space (greenway) costs. The objective is a five-year fund of $2.2 million for thoroughfare construction and $1.2 million for parks and greenways. For each single-family home, a developer is assessed $292 when the building permit is issued. The impact-fee schedule covers everything from hotel/motels ($307 per room) to golf courses (assessed per parking space) to hospitals (charged on square foot basis).[19]

Jim Duncan, an independent land development consultant in Austin, Texas, and an expert on impact fees, strongly recommends them in growth states like North Carolina, and enabling legislation is necessary. "It's a hassle for each community to have to go to the legislature," he says.

Initially, developers fear impact fees, explains Duncan. But such fees represent "certainty, predictability, equity, and accountability," he says. "Essentially, they let the developer off the hook for after and put every developer in the same boat. Texas was the first state to pass comprehensive impact fee legislation, and home builders drafted it."[20] These fees are an ideal "local option, growth management tool" for states like North Carolina where growth occurs in spurts, says Duncan.

Restricted Zoning Districts to Protect Unique Land Resources or Features

Local governments currently have the authority to adopt measures to protect cultural, historical, environmental features of the land, but others they do not. Sometimes no comprehensive assessment of such features has been made. In other cases, local jurisdictions may fear that a restrictive zoning regulation may not be enforceable across governmental boundaries or even in court. When a regulation has the effect of keeping a property from being used for its highest and best use in economic terms, the impact of that regulation is sometimes described as a "taking" of some value from the land.

In 1987, two U.S. Supreme Court decisions addressed the taking issue. *Nollan v. California Coastal Commission* and *First English Evangelical Lutheran Church of Glendale v. Los Angeles County*.[21] "The news media gave the impression that in both cases, the rulings were in favor of private property rights and against public regulatory action limiting the use of property," explains N.C. Special Deputy Attorney General Daniel F. McLawhorn. "But that was an incorrect impression. The issues in both cases were much more narrow than that."

The "taking" issue has been debated in North Carolina, specifically under the Coastal Area Management Act. "Marshland was regarded as worthless unless converted. That's where its economic value lay," says McLawhorn. "But the new CAMA program forbade altering those properties."

The "taking" issue arose in the 1987 legislative session when Rep. George Miller (D-Durham) introduced a bill (HB 1239) called "Cash Compensation for Downzoning." The bill took the view that a regulation—in this case downzoning—"took" some land without compensation by reducing the potential value of the property (i.e., by preventing it from being subdivided). The bill did not pass.

Ironically, the bill illustrates an effort to put the state back into the business of land use regulation, but protecting the income of property owners instead of the land itself. "Vesting property rights in the current zoning structure is foreign to the public health and safety concept," says McLawhorn. "We must restrict the ability of people to use their property if we're going to protect the greater public good—the environment as a whole."

Bill Holman adds, "It's one of the most dangerous bills I've seen in my eight years as a lobbyist." Holman believes, instead, that restrictive ordinances should be expanded. "There is a critical need for a statute establishing the identification, listing, and protection of Areas of Environmental Concern throughout the state, not just in CAMA's 20 coastal counties," says Bill Holman. The Area of Environmental Concern, or AEC designation, is one of the central mechanisms in CAMA for regulating coastal development. "Development would be tightly regulated or in some cases prohibited in such AECs," says Holman. "Among areas prime for inclusion are lands bordering the Blue Ridge Parkway, as well as other federal and state parks; wetlands, including inland bottomlands; and lands bordering scenic rivers such as the New River."

In 1976, a 26.5 mile stretch of the New River's South Fork was designated as a national Wild and Scenic River after a fierce and successful nationwide effort to save the river from being dammed for a massive 52,000-acre reservoir project for a power company. But the 1976 action said nothing about the lands that border the stretch of river, running through Ashe and Alleghany counties, near the community of Jefferson. In a recent report from Jefferson, *The News and Observer* of Raleigh said that real estate agents were turning farmlands into subdivisions with waterfront lots as narrow as 100 feet across. "We have to face reality," Paul T. Reeves, a real estate agent, told the reporter. "That land's going to be developed. If people didn't like it, we wouldn't be able to sell it."[22]

Such development on the New River and at other scenic sites is occurring, says Holman, because the state has not sought protective conservation easements nor funded land purchases for bank-site activities such as camping and picnicking under existing state legislation, called the "Natural and Scenic Rivers System."[23] A new statewide AEC designation would be particularly useful as an interim measure in protecting potential park lands or scenic riverway banks which ought to be purchased for the state park system but have not because of scarce state funds.[24]

While the state parks system may need new funds, so is there a need for a general system of acquiring special types of endangered lands—gamelands, beach access, river access, and natural areas. Currently, the state has no systematic way of deciding now to purchase such endangered lands. Such actions often depend upon the initiatives of individual legislators. "Environmentalists are not

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They paved paradise and put up a parking lot; with a pink hotel, a boutique and a swinging hot spot. Don't it always seem to go — that you don't know what you've got till it's gone? They paved paradise and put up a parking lot.

—from "Big Yellow Taxi" by Joni Mitchell

◆

Vacation homes are being developed along the New River, a national Wild and Scenic River.

ful for legislators who think that buying natural areas in their districts merits their attention, but lots of areas fall through the cracks," says Holman. In addition to needing a way of establishing priorities for acquisition, the state needs the cash. In recent years, South Carolina, Florida, and Tennessee, among other states, have increased land transfer taxes; the new funds have to be used for acquiring parklands, gamelands, and other such purposes.

Improved Land-Use Information and Analysis

The Division of Land Resources includes a section called the Land Resources Information Service. The people operating that service are the first to identify the limits of its information. "There is no land use inventory for the state of North Carolina," says Karen Skierelis, chief of the section. "We've been trying to convince the state to do that for years." Her section, created in 1974 as part of the Land Policy Act, was to develop comprehensive data, information, and analysis on land use trends. However, it has been forced to focus only on selected areas of the state which are of interest to some agency or individual willing to foot the bill.

The state pays for only three full-time positions. The section sustains its 15-person staff and $500,000 budget because "there is a need, and people are willing to pay for this service," says Tom Tribble, who directs the section's computerized Geographic Information System. There is a steady flow of contracts from local governments, federal government agencies, and private developers. The section does not have basic land information for even a fraction of the state's 100 counties.

"The basic problem is we have to input the information each time, whether it's land use, soil type, property boundaries or watershed boundaries, before we can produce the output somebody's after," Tribble explains. Currently, he says, getting the data for each project is about 85 to 90 percent of the cost of each job because there is no central data source.

"It would take about $3 million and two years to input the basic information, plus the cost of doing periodic updates," Sidercis estimates.

"They're Not Making Any More of It"

A 1987 report on the state of the environment, issued by NRCD, does not contain a section on land use, though it does speak to parts of the puzzle in various sections.[1] NRCD does have a Division of Land Resources, but its functions do not address assessing, monitoring, or regulating the complex array of land-use issues discussed here. Moreover, the Environmental Management Commission, viewed as the state's premier environmental regulatory body, concentrates almost exclusively on water and air quality issues. Land-use regulatory matters are spread about among the Mining Commission, the Coastal Resources Commission, the Soil and Water Conservation Commission, and the Sedimentation Control Commission (see table on page 36).

"You know, it's true what the farmers say about the land," says Barry Jacobs, chairman of the Orange County Planning Board. "'They're not making any more of it.' What we have to realize is that there are limits even in a largely rural state like this one, with its lingering sense of unlimited frontier. The ability to do whatever you want on the land is ending as the pressures of growth increase."

In the 1980s, the pendulum of land-use regulations has swung to the local government side. Viewed against the flurry of *state-level tools* added to land-use regulations in the early 1970s, political leaders can ponder whether the pendulum needs to swing back toward the center. Some valuable legacies have survived from the early 1970s, including CAMA and the skeleton of a Land Policy Act. But the momentum has shifted to local-control advocates.

Meanwhile, the scale of balance between developers and the environment seems to be weighted on the development side. The prosperity and preservation equation poses special problems in the rural coastal and mountain counties where jobs are scarce and unemployment is high. In these areas particularly, the attitude of NIMBY ("Not In My Backyard") takes on a double meaning—referring to keeping *dangers to the environment away* but also to keeping *environmental regulations away* for fear of losing valuable development, and hence jobs.

> "...Cause there's nothing
> like the feeling
> of knowing that I'm seeing
> those Appalachian mountains
> 'neath the Carolina sky..."
>
> —*from "Carolina Sky"*
> *by Mike Cross*

To balance the scale, the pendulum may have to swing back toward more state-level regulations of the land. Five ways that this might be done are: 1) statewide land-use standards; 2) watershed protection districts; 3) statewide enabling legislation for development impact fees; 4) restricted zoning districts to protect unique land resources or features; and 5) improved land-use information and analysis.

"People are starting to ask those basic questions about what makes this place where we live so unique," says Jacobs. "What is it that keeps me here or attracted me here? They like North Carolina. And they want this to still feel like home. But the truth is we're losing it."

FOOTNOTES

[1] N.C.G.S. 113A, Article 14.

[2] The act gave counties three options: 1) come under the provisions of the state law, 2) adopt a local ordinance, or 3) hold a county referendum to let local voters decide whether or not to come under the act at all. Despite the third option, which in effect could have voided the act, only Cherokee County chose to hold a referendum; the voters there chose overwhelmingly to come under the act. For a good summary of the choices, written at the time when they were being made, see "Message from Mountaineers," editorial from the *Winston-Salem Journal* reprinted in *The News and Observer of Raleigh*, Jan. 1, 1984, p. 50.

[3] N.C.G.S. 113A, Article 7.

[4] For the pertinent regulations, see 33 C.F.R. 320 et seq. and guidelines published by the Environmental Protection Agency at 40 C.F.R. Part 230. For more on this complex legal issue, see Dorb S. Carter Jr., "Developments in Federal Wetlands Regulation," *1987 Environmental Law Update*, North Carolina Bar Foundation, Continuing Legal Education Program, 1987, pp. DSC1-DSC9.

[5] On three successive Sundays in May 1987, the *Greensboro News & Record* featured an excellent series of articles on land use issues, divided by coastal, Piedmont, and mountains. See May 17, 1987 (coastal), May 24 (Piedmont), and May 31 (mountain) issues, p. 1A ff.

[6] N.C.G.S. 113A, Article 9.

[7] N.C.G.S. 113A, Article 4.

[8] *The Future of North Carolina—Goals and Recommendations for the Year 2000*, Report of the Commission on the Future of North Carolina, 1983, p. 195.

[9] The data on cropland and forestland acreage was gathered by the Soil Conservation Service, U.S. Department of Agriculture, through its Conservation Needs Inventory (1967 data) and National Resource Inventory (1977 data). Similar data was reported in 1983, but comparisons are not possible because of substantial changes in definitions. For more, see "Land Use and Soil Loss: A 1982 Update" by Linda K. Lee, *Journal of Soil and Water Conservation*, Vol. 9, No. 4, 1984, pp. 226-229. The projection data to the year 2000 comes from *Report of the Forsyth County Agricultural Land Preservation Study Committee*, Forsyth County Soil and Water Conservation District, Dec. 20, 1983.

[10] *Pattern and Trends and Factors Influencing Wetland Use in North and South Carolina*, U.S. Office of Technology Assessment, July 1984 (2.5 million to 695,000 figures); Margie B. Stockton and Curtis J. Richardson, "Wetland Development Trends in Coastal North Carolina from 19 Ciro 1984," *Environmental Management*, Vol. 11, No. 4 (in press).

[11] Robert B. Snyder, "The North Carolina Sediment and Erosion Control Program: An Analysis by Carolina Resource Consultants for Trout Unlimited and the North Carolina Wildlife Federation," May 1987.

[12] Begun in 1983, the Agricultural Preservation Plan allows the county to purchase development rights from willing farmers as a means of preserving prime agricultural land. The rights are held in trust, and farming continues on the land. Between 1969 and 1978, farmland in Forsyth County decreased by nearly one-third.

[13] "Scorecard of North Carolina Local Planning and Management, 1987," a summary chart prepared by Division of Community Assistance, Department of Natural Resources and Community Development, October 1987.

[14] See "Guiding Growth in the South: A Decade Later," Growth and Environmental Management center, Southern Growth Policies Board, Spring/Summer, 1987; this 32-page report summarizes growth policies in 12 southern states, with a state-by-state table of growth management priorities.

[15] Laws of Florida, Chapter 85-57.

[16] For a discussion of how local and statewide standards used in California and Oregon might apply to North Carolina, see Todd Oppenheimer, "Solutions to Sprawl," *The Independent*, Oct. 22-Nov. 4, 1987, pp. 6ff.

[17] N.C.G.S. 74-46 through 74-68. For a good summary of the mining act and land reclamation issues, see Charles H. Gardner and James D. Simons, "Mining and Reclamation of Land in North Carolina," *Popular Government*, Winter 1984, pp. 12ff.

[18] Chapter 675 of the 1987 Session Laws (Ed. 1, Sec. 2.1(47D)), which refers to the original bill addressing the watershed protection issue, HB 1203.

[19] Raymond J. Burby, "Future Drinking Water: State and Local Policies for Protecting Future Drinking Water Reservoir Sites and Watersheds in North Carolina," Water Resources Research Institute, University of North Carolina, December 1985, p. xv.

[20] City of Raleigh Facility Fee Ordinance and Facility Fee Schedule, Aug. 4, 1987. Ordinance No. 1987-297CC94. That ordinance makes a number of changes to Part 10 of the Raleigh City Code.

[21] *Nollan v. California Coastal Commission*, 107 S.Ct. 3141 (1987) and *First English Evangelical Lutheran Church of Glendale v. Los Angeles County*, 107 S.Ct. 2378 (1987).

[22] Martha Quillin, "Developers Horse in on Scenic New River," *The News and Observer of Raleigh*, Oct. 4, 1987, pp. 1A ff.

[23] N.C.G.S. 113A, Article 3.

[24] For good background on state parks, see "Picking state parks up off the bottom" by Bill Krueger, *The News and Observer of Raleigh*, Oct. 4, 1987, pp. 10ff.

[25] *North Carolina—State of the Environment Report*, 1987, N.C. Department of Natural Resources and Community Development, April 1987. The table of contents reflects the diffuse nature of level-use issues; the separate chapters cover water resources, hazardous and radioactive waste management, natural resources management and environmental protection, coastal and marine resources, air resources, forest resources, agricultural lands, mineral resources, parks, natural areas, and wildlife. This is the first such report required by statute (N.C.G.S. 143B-278.1). NRCD has previously published two such overview reports: *North Carolina's Environment, 1981 Report* (1981); and *Planning for Environmental Quality—Phase II*, which includes a section called "North Carolina Environmental Indicators" (1973).

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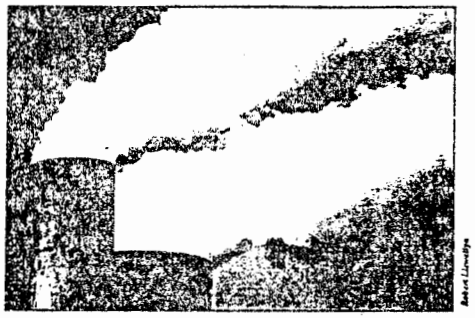

Robert Llewellyn

The Hardison Amendments: Time For A Reappraisal?

by Jack Betts

Fifteen years ago, North Carolina began tying its environmental regulations to those set forth by the federal government. In water quality, air quality, and hazardous wastes, the N.C. General Assembly said state regulations should be no more stringent than federal regulations. The theory was that the federal regulations were sufficiently tough, and that the state should not adopt tougher standards because it might deter potential new industries from locating here. But increasingly, experts say these so-called Hardison Amendments—after their sponsor, Sen. Harold Hardison—do not enhance sound environmental policy. In some past cases, the amendments have kept the state from considering or adopting strict standards, and in other cases, may have delayed the state's adoption of environmental regulations. Worse, they fear, the Hardison Amendments may hamper the state's future ability to deal with upcoming environmental problems unique to North Carolina—problems the federal regulations are not designed to address. For these reasons, it may be time to reappraise the Hardison Amendments.

It was 1973, during the U.S. Environmental Protection Agency's halcyon days of big budgets and aggressive environmental protection, and some legislative leaders were worried that a big federal government would go too far, too fast in its zeal to clean up our air and water supplies. In the closing days of the 1973 General Assembly, state Sen. Harold Hardison (D-Lenoir) saw to it that a special provision was written into the omnibus state budget bill.[1]

It seemed to make perfect sense. In plain language, Hardison's amendment to the state's water quality regulations forbade the adoption of water pollution rules that were "more restrictive than the most nearly applicable federal effluent standards." At the time, few noticed the amendment, and fewer still complained about it. After all, wasn't the EPA doing a good job already? And wouldn't tougher standards possibly harm North Carolina's quest for economic development? Who'd want to jeopardize the creation of new jobs, the expansion of industry, the building of the state's tax base?

Then came the 1975 General Assembly, and another Hardison amendment.[2] This one amended the state's air quality laws, declaring that air quality rules "shall be no more restrictive and no more stringent than required to comply with federal ambient air quality standards." That amendment also stipulated that "no air quality rules, regulations, procedures, plans, practices, air quality standards or emission control standards shall be adopted" unless the EPA had already adopted or proposed regulations, and unless the state first made a detailed economic impact statement and considered other effects of the rules.

By that time, many environmentalists were alarmed at the potential impact of the Hardison amendments on the state's environmental programs. But then-Gov. Jim Holshouser's emphasis on industrial expansion—followed by Gov. Jim Hunt's continued strong efforts to bring new jobs to the state—were main concerns of the legislature. Neither gave over objections to the amendments, which drew support from a majority of legislators. There were some questions about the amendments, but those questions weren't enough to promote a legislative rebellion.

Another Hardison-type amendment—developed by a conference committee—was adopted in 1979, this time on hazardous wastes.[3] That amendment, similar to the previous pair, mandated that the state's hazardous waste management program shall be no more comprehensive "than the hazardous waste program prescribed under the federal act," with one main exception: hazardous waste rules dealing with water tables, location near water supplies, and proximity to population centers "may be more comprehensive than the hazardous waste program prescribed under the federal act." Hardison says this clause, adopted in 1981, specifically allows certain rules to be tougher than federal rules and thus mitigates any damage. But it applies only to hazardous waste.

Shortly after the third Hardison amendment was adopted, President Reagan took office. The President implemented cuts in the growth of the EPA budget in an effort to relieve business from what he called excessive government regulation. These cuts, environmentalists say, have meant a reduced federal role in environmental regulation and diminished enforcement efforts.

Now, seven years later, the declining federal role has prompted increasing opposition to the Hardison amendments in North Carolina. If the federal environmental agency has more constraints on its budget and relaxed environmental controls on pollution, environmentalists reason, there might be a corresponding relaxation of environmental protection efforts in North Carolina. And with the Hardison amendments in place, North Carolina wouldn't be able to deal effectively with environmental problems that might be unique to the state.

In fact, a number of leading state policymakers are saying it's time for a review of the Hardison amendments, and some are saying they should be scrapped outright. Among the former are Senator Hardison himself, who has said publicly that he doesn't want to obstruct environmental regulation, and former state Rep. Sam Johnston, a leading lobbyist for the state's business and industry groups. Among the latter is Gov. James G. Martin, who argues that the amendments may be hampering economic development, and that repealing the amendments would stimulate the economy and encourage development (see p. 116 of this article for more). And Lt. Gov. Robert B. Jordan III, who supported the Hardison amendments in the Senate in 1979 and 1981, now favors repeal of the Hardison amendments "because he believes North Carolina is equipped to make its own decisions on the environment," says aide Brenda Summers.

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Repeal Efforts

Editorial opposition to the Hardison amendments spread rapidly as public confidence in EPA's enforcement efforts—particularly on the cleanup of waste dumps—plummeted. The state's major newspapers uniformly and regularly criticized the amendments, and in his 1984 campaign for the governorship, then-U.S. Rep. James G. Martin of Charlotte promised environmentalists that he would work for repeal of all three Hardison amendments (see graphic, p. 115, for more). When Martin took office in 1985, environmentalists thought they had the votes lined up to approve legislation by Rep. Joe Hackney (D-Orange) to delete the Hardison amendments.

By April 1985, the stage was set. "If this state wants to preserve its beauty and livability, it must not continue to be hamstrung by federal regulations that may be too weak to ensure that result," declared an editorial in *The News & Observer* of Raleigh in support of the Hackney bill.[5] *The Charlotte Observer* declared, "By approving [the bill], House members can begin to repair many North Carolinians' waning confidence in the state's willingness to protect the environment."[6] And the *Winston-Salem Journal* said, "Tar Heels tend to think they can manage their affairs quite well without outside guidance. That should be true in protecting the natural environment as in other matters. Legislators should affirm the principle and repeal the needless limits imposed by the Hardison amendments."[7]

But Hackney's bill was defeated in the House on April 16, 1985 on a close vote, 51-62. Despite Governor Martin's support, Republicans in the House voted nearly 4-1 against the bill. (Of the 38 Republicans, eight voted yes, 29 voted no, and one abstained, while of the 81 Democrats, 43 voted for repeal, 33 against, and five abstained or were absent.) Repeal of the Hardison amendments was dead for two years. Efforts to repeal the amendments surfaced again in 1987, when Representative Hackney filed separate bills to delete the restrictions on hazardous waste and water quality rules.[8] But the bills go nowhere, and were lying inert in the House Judiciary III Committee when the legislature adjourned. Under the adjournment resolution, the bills cannot be considered in the 1988 short session without a suspension of the rules—always difficult to achieve.

So the Hardison amendments remain on the books, even as state officials and environmentalists continue to debate what effect they have had and whether they should be repealed. Environmentalists advocate repeal. On the other hand, state environmental officials say that the amendments have not been insurmountable impediments to environmental regulation in North Carolina.

That's because the wording of the Hardison amendments—each significantly different from the others—seems at first glance to allow the state to adopt regulations tougher than federal standards if the state first goes through a hearing process and makes an economic assessment of the proposed rule.

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The Hardison Amendment on Water:

"It is the intent of the General Assembly that the effluent standards and limitations and management practices adopted hereunder shall be no more restrictive than the most nearly applicable federal effluent standards and limitations and management practices."

— G.S. 143-215(c)

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The Hardison Amendment on Air:

"... air quality rules, regulations, procedures, plans, practices, air quality standards, and emission control standards adopted by the [Environmental Management] Commission ... shall be no more restrictive and no more stringent than required to comply with federal ambient air quality standards or other applicable federal requirements ... except that no air quality rules, procedures, plans, practices, air quality standards or emission control standards shall be adopted ... unless the [Environmental Management] Commission first considers, among other things, an assessment of the economic impact of the proposed standards."

—G.S. 143-215.107(f)

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But that is not really the case. *The economic impact statement clause appears in the language of only one amendment—the Hardison amendment on air quality.* There is no corresponding clause for the water quality Hardison amendment, through the hazardous waste amendment does allow tougher rules, but only in cases involving questions of water supply and proximity to population centers.

The actual latitude given the state is the subject of considerable debate even among the state officials most conversant with the Hardison amendments. If there is no federal standard for a water effluent or an air pollutant, then the state may adopt its own standard—but only after going through the economic assessment process. That's the state's operating procedure, based on a series of interpretations by the office of the Attorney General from 1975-1979.[9] But as Paul Wilms, director of the state's Division of Environmental Management, points out, if the EPA has already adopted a standard for an air pollutant or a water effluent, then under the Hardison amendments, the state *cannot* adopt a more restrictive standard even if the state does hold hearings and makes an economic assessment. Yet Hardison himself is of the opinion that the state *can* adopt any standard it wants to, if it will first go through the hearings process.

"The fact of the matter is," says Professor Richard Andrews of UNC-Chapel Hill's Institute for Environmental Studies, "that while the law does appear to allow you to adopt stricter standards, in most cases the state won't do so because of the difficulty, the time, and the expense involved. So the Hardison amendments have this chilling effect on environmental regulation."

Adds Lark Hayes, a lawyer and director of the N.C. office of the Southern Environmental Law Center in Chapel Hill, "The different wording of each Hardison amendment has sparked a legal debate about what each one really means. The precise nature of the handcuff, and the confusion about them, has created a big problem. It's perplexing from a legal point of view."

So perplexing and confusing are the Hardison amendments that they sometimes get blamed for delays that are due to similar-sounding statutes. Consider the case of the leaking underground storage tanks, for example.

Currently, the state is drafting new regulations that are designed to identify, clean up, and control

leaking underground storage tanks, often described as one of the state's more pressing environmental problems. In the Fairmont near the town of Kernersville and the community of Colfax, leaking oil and gasoline tanks have polluted well water, and have been linked to a variety of environmental and health problems. But the state has been delayed in issuing its tank criteria because the law authorizing the state to regulate such tanks also ties the state's regulations to forthcoming federal standards—which haven't been issued.

As DEM's Wilms says, "While we have had tank criteria ready in rule form, and ready for hearings, because of this Hardison-type provision, we can't even go to public hearings because the feds haven't adopted their regulations. It may be March or April of 1988 [before the federal government acts], so we have to wait. And without that authority, we have no way of regulating underground tanks in North Carolina—and 64 percent of the ground water problems we have today are related to underground tanks." The state thus is put in the position of waiting for the federal regulations, so the state won't have to redo its work and lower its standards if the federal standards are less restrictive. This amounts to a frustrating Catch-22 for environmentalists, developers, and state officials. The state has the authority to develop tank criteria, but it also has to be sure they don't exceed federal regulations—which haven't yet been issued.

Because of this confusion and division over the Hardison amendments, Bill Holman, who represents the Conservation Council of North Carolina and the N.C. Chapter of the Sierra Club before the legislature, makes a strong case for eliminating the laws. "I have no doubts that we'd be further along in environmental regulation than we are because the main concern is a philosophical one—that in North Carolina we are too dumb to solve our own environmental problems, and we've got to rely on big brother to take care of us. This whole notion of accepting only the minimum national standard on a pollutant, or having no standard at all, is just plain wrong."

But Ernie Carl, deputy secretary of natural resources and community development, sees it differently. "They [the amendments] probably made more of a difference in the past, back when the EPA was handing down edicts left and right, declaring standards frequently. But in recent years, the EPA has become more cagey, telling states, 'You come up with the regulations.' So the Hardison amendments have become something of a fifth wheel, and I think in five years they'll have become irrelevant."

But state officials also concede there is no guarantee of that. And state officials and environmentalists can point to several cases where the Hardison amendments have had an *impact* on state policy—sometimes adversely—and to instances where the Hardison amendment may do real harm.

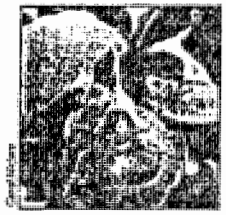
The Effects of the Hardison Amendments

Consider these examples:

■ In 1975, North Carolina had one of the nation's stronger air pollution programs. But after the 1975 General Assembly adopted the Hardison amendment on air quality, the state's standards were changed to allow slightly higher overall levels of industrial ambient air emissions, called Total Suspended Particulates. The standards had been more stringent than the EPA's, but after the Hardison amendment was adopted, North Carolina's air emissions standard was lowered to match the federal level. Lewis Martin, at the time the director of the Division of Environmental Management, was caught unaware by the 1975 Hardison amendment. "I didn't even realize what was going on until the thing was almost law," Martin told *The Charlotte Observer*. "If we had had more time, we'd have fought it." Martin said the big problem was North Carolina's flexibility in regulating the environment. "We've lost our maneuverability in this area," he said. "We're in a box—our standards will now be set by people in Washington, and if they lower their standards, we'll have to lower ours."[9]

■ Former Secretary of Natural Resources and Community Development Joe Grimsley says the Hardison amendments played a role in preventing the state from adopting a ban on biocides. In 1984, state regulators began noticing organic chemicals called biocides in the state's surface waters and effluents. Also known as organotins, biocides are chemical compounds designed to kill certain organisms. They are used in socks to kill odor-producing bacteria, for example, and in air-conditioning towers as disinfectants. The Division of Environmental Management staff, concerned about their effect on water quality and animal life, proposed to prohibit biocides in the state's waters, Grimsley said in an interview. But DEM ultimately decided not to push for a ban, and part of the reason was the Hardison amendment.

Bill Kreutzberger, a staff member in the Division of Environmental Management, said that DEM concluded that the state didn't have the authority to



"In all things of nature ... there is something of the marvelous."

—*Aristotle*

ban biocides. "A zero standard was considered to be an effluent standard," says Kreutzberger—and effluent standards where there are no federal standards are difficult to set. The state must go through a complex and time-consuming procedure, and DEM and the EMC didn't want to wait that long to act. So instead of instituting that ban, the EMC approached it a different way, and set a water classification standard that had the effect of strictly controlling biocides—but still high enough to allow biocides to continue to be used.[11] Since that standard was adopted, state officials say they have found no evidence that biocides have been a problem. But the point is that the Hardison amendments did affect the way state policy was made. "The Hardison amendments dictated the method, the option we chose to deal with biocides," notes Wilms.

■ The Hardison amendment on air quality also has been one of several factors in delaying the state in its attempts to clean up the air. Dr. Robert Harris of the UNC School of Public Health in Chapel Hill, himself a former member of the Environmental Management Commission, notes that the DEM staff is developing a proposal to control toxic air pollutants in North Carolina, but has been slowed partly because of the economic assessment that is required if the state seeks to adopt an environmental standard where the federal government has no standard. The state cannot adopt standards the federal government has not issued, according to G.S. 143-215.107(f)(ii), "unless the Environmental Management Commission first considers, among other things, an assessment of the economic impact of the proposed standards."

Yet those assessments are expensive, and NRCD has not had the money to finish the work, according to the department. And so far, the EPA has not adopted its own toxic air standards. So North Carolina is at least temporarily handcuffed, limited to controlling only the four pollutants that EPA already regulates, such as carbon monoxide and nitrogen oxide, while it waits for the money to finish its assessment and adopt its own. "My guess is that we'll suffer the effects of these harmful pollutants [toxic emissions] because of the Hardison amendments," says Harris.

Business and industry officials don't agree with this interpretation. Charles Case, a Raleigh environmental lawyer who has represented industry on environmental cases before the EMC and the courts system, observes, "The Hardison amendments do not appear to require any delay in their promulgation. The primary source of delay is the fact that the state has undertaken the complex and lengthy task of trying to develop defensible toxic limits. Such determination may well exceed the resources of any state, and it may well be that only the federal EPA has the resources to undertake such a comprehensive and difficult initiative. The department sought outside technical assistance from the N.C. Academy of Science in developing toxic regulations, which required time. If the primary concern is inconsistency with a federal program, that concern would exist regardless of the Hardison amendments because the state program would have to be consistent with the federal program in order to be approved."

■ Those emissions also hold the threat of damaging important crops to North Carolina, notes Wilms. "The state has to have the ability to be more stringent than the federal government because the EPA sets standards for nationwide applicability, not local situations. For example, the federal ozone standard is four times the level that adversely affects tobacco and corn [ranked as the second and ninth

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largest cash crops in this state, which also are leading crops in Senator Hardison's home county of Lenoir) yet North Carolina cannot have a [tougher] standard because of the Hardison amendment. Now, we don't need a standard more restrictive than the EPA's for, say, cactus. But we may well need more restrictive standards for these others," says Wilms.

If toxic pollutants harmed tobacco and corn, the example used, then the Hardison amendments will have had the reverse of the intended effect—economic damage rather than economic improvement. Studies already have shown how acid rain damages corn, wheat, and soybeans in the Piedmont region of the state. Still, the N.C. Farm Bureau opposes repeal of the Hardison amendments. The Bureau supports the Hardison amendments because, says Farm Bureau President W. B. Jenkins, "We feel that decisions on standards are best left in the hands of elected officials who are more responsive to the needs of agriculture than appointed bureaucrats and employees of state agencies who are not familiar or knowledgeable concerning agricultural practices. Many individuals who want the power to change standards in North Carolina have no idea of the necessary changes in cultural practices and the cost of these changes to farmers. These production costs must be weighed against any potential threat to damaging crops in North Carolina."

■ And there are other coming issues that the Hardison amendments could affect adversely. For instance, more county and municipal governments—including the counties of Durham, Orange, and Alamance, as well as the city of Greensboro—are considering incinerators to reduce their solid waste problems (see p. 40 for more), yet so far the EPA has issued no regulatory standards for air emissions from these incinerators—despite evidence that these emissions can be toxic. "Federal regulations are expected in 1990," says Holman, but that may be "too late." It's difficult, time-consuming, and expensive for North Carolina to adopt its own standards in the absence of federal ones. And the same goes for emissions that may be linked to the problem of acid rain or acid deposition. Acid rain is thought to be part of the reason that trees are dying not only on Mt. Mitchell and other parts of western North Carolina, but in eastern and Piedmont North Carolina as well, according to controlled experiments at N.C. State University in Raleigh. Some policymakers contend there's little that North Carolina could do about acid rain, but with the Hardison amendments in place, it's difficult even for the state to consider doing something about it.

■ Several North Carolina cities—particularly Raleigh and Charlotte—have major problems with air quality because of automobile emissions. Carbon monoxide from auto exhausts can cause blood

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The Hardison Amendment on Hazardous Wastes:

"The rules and standards concerning hazardous waste promulgated ... shall be no more stringent than those rules, regulations and standards promulgated under the federal act; provided, that in establishing acceptable water table levels, location in relation to water supplies and population centers and appropriate buffer zones, the rules and standards promulgated . . . shall be at least as comprehensive and may be more comprehensive than the hazardous waste program prescribed under the federal act."

—G.S. 130-166.21D(b)

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poisoning, and the air in these cities was listed by the EPA in August, 1987 as among the 10th worst among 65 areas nationwide that did not meet the federal carbon monoxide standard from 1984-86. And ozone, the principal pollutant in smog, is created from hydrocarbon emissions, which come from vehicle exhausts and other sources, including industrial emissions. Studies also have shown that ozone caused in North Carolina has limited visibility in the western part of the state. Yet even if the state wanted to clamp down on automotive emissions, says Conservation Council of N.C. Executive Director Russell Norburn, "it would be virtually impossible to do that under the Hardison amendments."

Adds UNC's Kerns, "If the people of North Carolina want their air to be cleaner than federal regulations permit for the dirtiest cities in America, we should be allowed to do it. I very much wish that we did not have the constraints of the Hardison amendments imposed upon us."

Arguments for the Amendments

Like the Farm Bureau, industry officials remain supportive of the Hardison amendments. For instance, Raymond H. Cates, manufacturing manager at the PPG Industries Inc. plant in Lexington, says the amendments make sense. "PPG is a good corporate citizen, and we always want to work with legislators to pass beneficial environmental laws that are not unduly restrictive," Cates told *North Carolina magazine* in 1986.[14] "But considering some of the proposals we've seen in Raleigh, I have to say thank God for the Hardison amendments. If they had been repealed, we might be saddled with some laws that would be very hard to live with."

Cates no doubt was referring to the intensive rules and regulations when he referred to "laws," because the fact is that the amendments do not preclude the legislature from adopting any law it chooses. The General Assembly has, of course, passed some laws that are more restrictive than federal regulations, such as the ban on the allow burial of radioactive waste or the anti-GSX hazardous waste facility bill adopted in the 1987 session (see p. 76 for more). As Marc Finkelstein, a spokesman for the N.C. Textile Manufacturers Association, points out, "The amendments simply give the General Assembly scrutiny over promulgation of environmental rules by the administrative agencies. I would argue that the vast majority of lawmakers appreciate this kind of oversight."

North Carolina Citizens for Business and Industry (NCCBI), which functions as a statewide chamber of commerce, remains strongly behind the Hardison amendments. Joe Norwood, a Duke Power Company executive and chairman of NCCBI's Environmental Concerns Committee, says the Hardison amendments have not hampered the state and have made good business sense. "Our basic environmental policy at NCCBI is to promote environmental legislation that is scientifically sound and economically feasible. We believe that a consideration of the costs of a program is good public policy and does not serve as a deterrent to environmental protection. In the absence of consideration of costs, environmental statutes and regulations can be imposed at great cost to business and the public without

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substantial benefit to the environment," Harwood says.

"Industry recognizes and agrees with the need for reasonable environmental controls," adds Harwood, but those controls should stem from uniform standards based on scientific studies—studies he says the EPA is better equipped to do. "Also, federally promulgated standards allow industries located in more than one state of being assured of equitable standards based on scientific data compiled in a uniform manner. For these and the other reasons stated above, we believe that the Hardison amendments have benefited the state of North Carolina."

Time for a Reappraisal

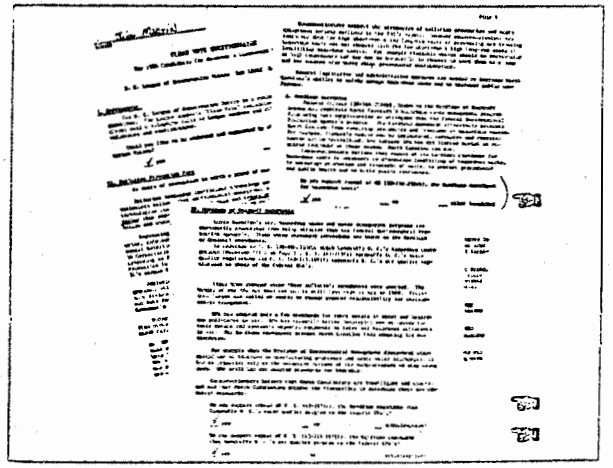
Though many business groups still support the amendments, one top business lobbyist says it may be time for a reappraisal. Former state Rep. Sam Johnson of Raleigh, perennially rated one of the legislature's top lobbyists,[13] says that legislators "felt they were a reasonable ceiling on environmental regulations" when they were first adopted. One reason, he says, is that "Multi-state industries have always argued that environmental legislation should generally be uniform throughout the nation and that it can be supplemented in local states by such measures as the Coastal Area Management Act or other regulations that would not be appropriate on a nationwide basis."

But, says Johnson, "Since these regulations have been on the books for 10 to 15 years, I would not object to a review of all of them, including an effort to see to what extent circumstances have changed."

Such a reappraisal is the recommendation of the 1983 report by the N.C. 2000 Commission, called *The Future of North Carolina*. That report observes:

> "During the 1970s, when federal environmental regulation was expanding and the federal government developed substantial expertise on which to base such regulations, the state chose to link its own regulations directly to those of the federal government by enacting laws providing that they could be neither more restrictive nor more comprehensive than those of the federal government. As the federal government now reduces its role, and deliberately leaves more and more of these responsibilities to the states, it is increasingly evident that North Carolina *must reassess* its own policies and priorities, including in some cases the possibility of formulating regulations that are tougher or broader than Washington's. It is also likely that, in addressing this issue, the state will identify approaches that are more innovative, more cost-effective, and better suited to its own environmental protection needs and its own businesses than those promulgated on a uniform nationwide basis" [emphasis added].[14]

Governor Martin filled out this environmental questionnaire during his 1984 campaign.



> The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea. ... This pollution is for the most part irrecoverable.
>
> — *Rachel Carson*

The DEM's Wilms, who serves as the state's top environmental enforcer and whose staff is credited by environmentalists for improved enforcement efforts in recent years, agrees that the state would be better served without the Hardison structure. "My concern is that the Hardison amendments—existing ones or new ones—might restrict the state's ability to move forward with a new concern," says Wilms. "For that reason, I would modify or eliminate those amendments. On the other hand, the state does need to be accountable and to determine what the impacts of a rule are. Once having done an economic impact, we find that it makes our case stronger."

Hardison himself concedes that it may be time for a reassessment—though he still views the amendments as useful. "In summary, I consider the Hardison amendments to have been practical solutions to some pretty difficult problems," says Hardison. "On the one hand, we must always demand strict environmental standards. On the other hand, we have an obligation to work with all of our citizens to insure that our environmental regulations are uniform and workable."

But, Hardison continues, "The Hardison amendments were passed at a time when we had a very aggressive Environmental Protection Agency in Washington. That situation has changed considerably in the past several years and the time may be right to review the Hardison amendments to determine if they are in fact obstructing the wise management of our natural resources. However, before I would support relaxing the amendments, I would have to be assured that such action would not create a renewal of the duplicating and overlapping local, state, and federal regulations which created unacceptable confusion and burdens on the public prior to the Hardison amendments."

Gov. Jim Martin is firm in his approach, however—he wants to repeal the amendments. "I believe the state must be able to develop and maintain regulations that protect the myriad environmental conditions unique to North Carolina. The state should not depend on the federal government, but should be the decision-maker in all matters relating to our environment."

And rather than hampering economic development, says Martin, repealing the Hardison amendments would enhance the state's efforts. "In the long run," says the Governor, "tougher environmental protection stimulates the economy and encourages development. By getting tougher on individual industries, we provide more room (in the finite world of natural resources) for newer and better industries with better technologies."

Recommendation

On balance, the N.C. Center for Public Policy Research concludes that the three Hardison amendments—G.S. 143-215(c), G.S. 143-215.107(f), and G.S. 139-166.21—have disrupted North Carolina's ability to protect its environment and to safeguard its future. They have had a negative impact upon the quality of the state's air and upon its waters by delaying and hampering rulemaking, and have had a chilling effect on effective environmental regulation.

For these reasons, the Hardison amendments should be repealed:

- Because of the 1975 Hardison amendment on air quality, ambient air standards for total suspended particulates were lowered to match those of the federal government.
- The Hardison amendment on water effluent had an effect on environmental policymaking in 1984 when the Division of Environmental Management concluded it did not have the authority to seek a ban on a certain chemical compound. The environ-

mental threat was resolved without the bar that first had been proposed, but in future cases where a bar might be necessary, the Hardison amendment could be an impediment to necessary regulations.

■ Partly because of delays in federal regulations and the Hardison amendment's structures, the state has not yet adopted standards dealing with toxic air pollutants, since the federal government has not adopted its own toxic air regulations.

■ Evidence has shown that air pollutants can damage major cash crops in North Carolina, and environmentalists fear that the Hardison amendments could delay the state in properly protecting agricultural products like tobacco and corn if air pollutants begin to damage them on a widespread basis.

■ And because of the Hardison amendments, the state may be delayed in adopting standards for municipal solid waste incinerator emissions, since federal standards are not expected for several years.

State officials, environmentalists, and industry officials have debated the merits of the Hardison amendments for years. But the record clearly shows that they have affected policy and they have affected policymaking, and in the future they could become significant impediments to environmental protection and to economic development.

For these reasons, the N.C. Center for Public Policy Research recommends that the 1988 General Assembly carefully consider the record, review the legislation introduced in 1987, and repeal the Hardison amendments. ■

FOOTNOTES

[1]Chapter 421, Section 6 of the 1979 Session Laws, now codified as G.S. 143-215(c). For more on how special provisions have affected the legislative process, see also *Sen. Gulley, Special Provisions in Budget Bills: A Pandora's Box for N.C. Citizens*, June 1986, and March 4, 1987 follow-up report, N.C. Center for Public Policy Research.

[2]Chapter 784 of the 1979 Session Laws, currently codified as G.S. 143-215.107(f), and amended by Chapter 543 of the 1979 Session Laws.

[3]Chapter 464 of the 1979 Session Laws, now codified as G.S. 130-166.21, and amended by Chapter 784 of the 1981 Session Laws. Senator Hardison says he did not sponsor the "Hardison amendment," but supported it in the Senate when it was proposed as part of a Senate committee substitute creating Chapter 704.

[4]House Bill 194, "Flexibility in Environmental Regulations," sponsored by Rep. Joe Hackney (D-Orange), 1985 General Assembly.

[5]"Undercutting the state," *The News and Observer* of Raleigh, April 15, 1985, Editorial Page.

[6]"Repeal 'Hardison' Amendments," *The Charlotte Observer*, April 13, 1985, Editorial Page.

[7]"Affirming a Principle," *Winston-Salem Journal*, April 13, 1985, Editorial Page.

[8]House Bill 1104, "Bans to Regulate Hazardous Wastes," and House Bill 1502, "Water Quality Rules Flexible," sponsored by Rep. Joe Hackney (D-Orange), 1987 General Assembly.

[9]These memorandums include the following memorandums and opinions: Memorandum from the Assistant Attorney General John R.B. Matthis, Feb. 17, 1975; Memorandum from Assistant Attorney General Don Oakley, July 14, 1975; Memorandum from Assistant Attorney General Don Oakley, July 24, 1975; Opinion of the Attorney General, Rufus L. Edmisten, Dec. 11, 1975; and Memorandum from Assistant Attorney General Don Oakley, Aug. 1, 1975.

[10]Paul Barrish, "N.C. Enters Rules On Air Pollution," *The Charlotte Observer*, Sept. 25, 1975, p. C1.

[11]15 N.C. Administrative Code 2B, effective Jan. 15, 1985.

[12]"Businesses In The News," *North Carolina magazine*, N.C. Citizens for Business and Industry, December 1986, p. 51.

[13]Adverse was one of first among the list of "Most Influential Lobbyists" for the 1985 legislative session in the biennial survey of legislators, lobbyists, and capital news correspondents conducted by the N.C. Center for Public Policy Research, and reported in *Article II: A Guide to the 1987-88 N.C. Legislature*, April 1987, p. 209.

[14]*The Future of North Carolina: Goals and Recommendations for the Year 2000*, Report of the Commission on the Future of North Carolina, published 1983, N.C. Department of Administration, pp. 156-157.

Carol Moore

LETTER 755

Questions: The State of NC (or whoever) is handing out a 1 page sheet on "potential medical benefits of the collider" which include making radio isotopes for positron emission (etc). (A) Are there plans for the SSC to produce radio-isotopes or other materials for medical (or other) use? (B) Will the SSC be used for medical treatment directly? (C) Will the SSC be used to generate specific radio-nuclides which would be (i) released or (ii) transported off-site for any purpose? (D) Does DOE have any sponsorship of or other comments on this 1-page statement?

1

2

Wells Eddleman
Wells Eddleman
811 Yancey St
Durham NC 27701
(919) 688-3016

Statement of the Potential Medical Benefits of the Super Collider

As physicians with a special interest in the diagnosis and treatment of cancer, we would like to call attention to the potential benefits of locating the Super Collider in North Carolina. The accelerator at Fermilab has long been used for neutron therapy. If the SSC is designed from the outset with medical applications in mind, the possibilities for significant therapy and research can be much greater.

Other accelerators have also been used for cancer therapy. Our group has had experience referring patients to the Cyclotron at Harvard and the Lawrence Radiation Laboratory at Berkeley in California. To have the world's largest accelerator within about 25 miles of medical centers in Durham, Chapel Hill, and Raleigh would create exciting opportunities for treatment and research.

The SSC will accelerate protons and can be made to produce neutrons by proton bombardment of selected materials. Both protons and neutrons can be highly useful in dealing with particular types of tumors. Protons can be focused very precisely for use on tumors in delicate areas of the body, and neutrons have a much greater killing power than the X-rays that are typically used in radiation therapy. Both proton and neutron therapy have demonstrated good results for specific tumors in selected situations.

3 The SSC can be a very valuable tool for both therapy and further research. The SSC offers high energy levels and good reliability. Location of the SSC in proximity to the Research Triangle area and its medical centers would put North Carolina in a unique position to lead research in these areas.

In addition, the development of the SSC in North Carolina could have many advantages for the production of radioisotopes with important clinical applications. Some of the isotopes of immediate interest could benefit positron emission tomography; others can be used with monoclonal antibodies for diagnostic imaging and for therapy. The SSC could make a significant impact on the production of medically important isotopes for use in our area and potentially for the United States.

In our estimation, the design costs associated with providing for those medical uses would be minimal if included initially. We are confident that if this facility is established it could be used to treat hundreds of patients every year.

In sum, we see very real benefits to the people of North Carolina and the southeast region through locating the SSC here. Our purposes today are twofold. The first is to inform the public of the important medical uses associated with accelerator technology, which include not only radiation therapy. Superconducting magnet technology has also made possible magnetic resonance imaging, an increasingly important diagnostic tool.

Second, we would like to urge the designers of the SSC to incorporate these concepts at the outset. The cost savings and increases in effectiveness by including medical applications from the first can be considerable. We stand ready to offer our assistance in determining how best to construct the SSC so that its medical uses can be maximized.

Coordinated by Dr. Halperin
Duke University Medical Center

LETTER 756

Durham Morning Herald

FINAL DURHAM, N. C., MONDAY, OCTOBER 3, 1988

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Super Collider Hearing Stretched To 3 Sessions

By ELAINE THOMAS
Herald staff writer

BUTNER — Today's hearing on an environmental statement involving the proposed Super-conducting Super Collider is being extended into Tuesday because so many people—at least 107—want to be heard.

The U.S. Department of Energy will hold the hearing in the Butner Sports Arena on 24th Street.

Hours today have been extended from 2 to 6:30 p.m. and from 7 to 11 p.m. Another session is scheduled Tuesday from 9 a.m. until noon.

Scheduled speakers had to notify the Energy Department seven days in advance. Each will be allotted five minutes. Limited walk-up registration to comment will be allowed at the hearing, according to Brian Quirke, department spokesman.

Hearings are being held at all seven sites under consideration. A second Energy Department team is in Arizona today. Hearings in Michigan, Texas, Colorado and Tennessee were held last week.

Each Energy Department team will be in Illinois on Oct. 8 holding concurrent hearings because such a large number of speakers registered, said Rich H. Nolan of the federal collider task force.

Quirke, Nolan and Jay Hinze, who has helped manage collider research and development programs, met with reporters Sunday to brief them on today's hearing.

See Collider/

IIA.1- 1383

LETTER 756 (CONTINUED)

This is the Energy Department's last visit to North Carolina prior to the November announcement of a preferred collider site.

The draft statement does not rank the sites but compares potential environmental effects at each of the seven. It also looks at the option of not building the collider.

The document examines potential effects on water resources, air quality, ecological resources, socioeconomics and infrastructure.

Effects at the sites vary but not dramatically, according to Nolan. "There is nothing at any of the seven sites that would absolutely preclude the SSC being built," he said.

Opponents of the collider disagree. They point out that 590 acres of "prime and important" farmland would be permanently removed in North Carolina, partly by construction of 25 miles of four-lane highway.

Jim Clark of Save the Water is scheduled to speak. He contends that the draft statement contains major defects and that a project as big as the collider would endanger the environment.

"Clearly this thing would transform and overwhelm the heart of the watershed," Clark said in a recent interview. He favors Arizona as the site if the collider is built.

"The Arizona site would involve no surface water impacts and no relocations. We would encourage the Department of Energy to select the least environmentally damaging site. In our opinion, North Carolina is probably the most environmentally damaging," he said.

Citizens Against the Collider Here plans a press conference at 1:30 p.m. just before the public hearing. The group helped write 83 of the comments to be made, based on the draft environmental statement, said Joe Haenn, president.

Haenn also said that before the comment time was extended about 15 people had tried to sign up and were, at first, refused.

"They started turning down people who called in or sent letters clearly postmarked in advance," he said.

Haenn said the group's attorney threatened legal action to invalidate the hearing if the comment time was not extended.

Haenn thinks the Energy Department will hear mostly opposition during the next two days: "90 percent that we knew of, it could be even higher."

Bernard Obie, a New Alliance Party candidate for the Durham County Board of Commissioners, issued a statement Sept. 27 asking that county officials pressure a consulting firm to release preliminary findings of a watershed study before today's meeting.

The firm, Camp Dresser & McKee, was hired by Durham County for a study of managing growth in the Little River and Lake Michie watersheds. The county commissioners voted to pay the firm additional money to evaluate effects the collider would have on the watershed.

Gerald Kelley of the city-county planning department said Friday that planners have not received a report from Camp Dresser & McKee.

He said a draft report of the entire watershed study, including the super collider portion, probably will be presented to commissioners at their Oct. 24 or Nov. 14 meeting.

Will public opinion be an important factor in selection of a collider site?

Public opinion is considered along with other factors, Nolan said. It falls within the second tier of importance of six technical criteria used in site selection. Environmental impact ranks third, following geology and tunneling and regional resources.

Participants today and Tuesday are being asked to speak on issues raised in the environmental statement and not on the pros and cons of the collider.

Although statements of support or opposition are not the focus of today's meeting, it is a public forum, and public opinion is important, Nolan said.

Some people attending probably will not have read the 4,000-page document, but the Energy Department will get the benefit of hearing from a variety of interests, Nolan said. Not only private citizens but also representatives of business, local and regional government, utility companies and environmental groups will speak.

"This is not an idle process where people have to be concerned their comment won't be heard and responded to," Nolan said. By law, every comment related to the draft statement will have to be considered in the final statement.

The final statement will be published in December, and final site selection will be announced next January.

A 45-day public review period on the draft statement began Sept. 2 and runs through Oct. 17.

Written comments can be submitted to: SSC Draft EIS Statements, Dr. Wilmot Hess, Chairman, SSC Site Task Force, Office of Energy Research, ER-33, GTN, Energy Department, Washington, D.C. 20545.

LETTER 757

Prime Farmlands

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the amount of prime farmlands in the three counties to be used for this proposed Collider.

North Carolina will permanently lose 593 acres of prime farmland if the SSC is placed in Durham, Granville and Person counties as proposed (Vol 1, p. 3-54). This is 130 more acres of prime farmland than in any of the other BQL sites. Perhaps this is one of the reasons that the Durham County Farm Bureau, Granville County Farm Bureau, and Person County Farm Bureau have each passed separate resolutions in opposition to the proposed Super Collider. Also, the Grand Master of the State Grange has written a letter in opposition to the SSC.

1 The State indicates these prime farmlands are only 1/10th of 1 percent of the total inventory of such lands in the Region of Influence. However, this Region of Influence covers 22 counties in two states and the large number of farmers who would be relocated ~~as part~~ if the SSC in North Carolina would have to move a considerable distance away from their families and friends to begin farming again. This is evidenced by the fact that the U.S. Soil Conservation Service estimates there is 0 percent (no) comparable valued soils within the three SSC counties to that being taken by the Collider.

It is clear that the North Carolina site has <u>not</u> been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Garnet Ellis
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Roxboro, N.C. 27573

LETTER 758

Vicki Horton
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Rougemont, NC
27572

DEIS No-Action Alternative

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the No-Action Alternative by DOE in North Carolina.

1. Let's talk about water. In section 5.1.2.4, you site Lake Michie, Durham's principle water supply, as a source for the additional demand for water. Just to remind ourselves of the drought of 1988, here is the cover of the July 4, 1988, cover of Time, THE BIG DRY. Here is the September 5, 1988 Durham Morning Herald photo of Lake Michie--Oh Buoy, No Water--showing the results of this area's rainfall at 7.41 inches below normal for this year. And lest we think that this was isolated fluke of nature, let's remember the summer droughts of 1987, 1986, etc., etc. etc. My neighbors, who during the summer must fill their washing machine tubs with wash water in the morning, then wait until afternoon to complete the rinse of their clothes, will be happy to know that we do not have a water problem. The excess water supply you point to in Chapter 5 just does not exist. The county of Durham has paid an additional 25,000 dollars to include the effects of the SSC as part of the overall watershed study, but the results are not expected until Thanksgiving; too late, since the preferred site will be chosen in November.

1.

2. Let's talk about development and growth in our area. You state in paragraph 5.3.2 that the Piedmont region will continue to develop slowly... We currently have the 5th largest high school in North Carolina in northern Durham County, a school with a student body of near 2000 students for the 1988-89 school year, a school with 21 mobile classrooms, classrooms in temporary facilities. That represents an increase of 10 mobile classrooms this year alone. For the first time ever, our northern elementary schools have mobile classrooms this year. Let's also consider the newly constructed Junior High School, doors opened for the first time this fall, which is already filled to capacity. This does not sound like slow development to me.

2

Money Magazine, August 1988, cites the Durham, N. C. area as 58th in a list of the 300 most desirable locations to live in the United States. This may not sound too impressive, but consider that Durham was ranked 86th in 1987....a 30 point rise in just one year. The Durham City and County Year 2005 Joint Development Plan submitted to you indicated rapid growth with problems to be expected because of this growth..q I do not see any effect of this study in the DEIS. The near unanimous concern was unplanned growth at the Wise Growth Conference held in Durham, April 16, 1988.

3

It is clear that the KC Site has not been demonstrated to be an adequate host for the Super Collider.

LETTER 759

#2 10.25 Barry Lawson
Mrs. Frances Farlow
P.O. Box 5
Bahama, N.C. 27503

United States as a World Leader

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of the United States as a world leader in high energy physics.

The Draft EIS states (and I quote) "...One of the most important purposes of the SSC...[is] that it would be the forefront high energy facility of the world and is essential for a strong and creative high energy physics program into the next century." (p. 3-22) If this is true, then why don't we build a facility that utilizes the very latest in technology, instead of one based on 20 year-old technology? The use of outdated technology is the reason why leading scientists in Europe have recommended delaying the construction of the SSC for about ten years so these new technologies can be incorporated. In the meantime, these scientists have offered complete use of the new, expanded CERN facility to our high energy physicists.

1

When Congressman Tim Valentine was asked this question, he responded that there would be (and I quote from a letter to C.A.T.C.H. dated July 26, 1988), "...an extremely high probability that the U.S. would surrender its leadership in high energy physics for the forseeable future." He also stated that (quote) "...a prolonged delay is likely to slow the pace of experimentation and discovery worldwide as well as damage the U.S. position in the forefront of particle physics."

Congressman Valentine indicates he believes the delay suggested by the European scientists is out of their own "self-interest." I ask you, <u>What self interest</u>? Both the European and American facilities have been open to visiting

scientists. Indeed, while no American has won a Nobel prize while working at Fermilab, an American working at CERN has won a Nobel prize.

So why is it so important that we go forward with outdated technology against the advice of the leading scientists outside of (and some inside) the United States? Whose self-interests would be served by the SSC? Could it be the short-sighted self interests of some U.S. high energy physicists, who do not represent the opinion of all U.S. physicists? An expenditure this large on an outdated technology could actually jeopardize forever a leading world role for U.S. high energy physicists within this country. It might eliminate or delay development and incorporation of the newer technologies in a subsequent facility.

Is the real reason why "U.S. superiority" must be maintained because there are military implications of the proposed Super Collider? We have been assured repeatedly that absolutely no military applications will be investigated at the Super Collider. Yet, if the European facilities are being shared with us and there are no military applications, why cannot the U.S. physicists use the new expanded CERN facility for the time being. This would buy time until a really new accelerator design can be developed and built as suggested by the European (and some American) scientists.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Do we need to build SSC now?

LETTER 760

Opposition by County Commissioners

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of opposition by County Commissioners in all three affected counties.

Although all three county Boards of Commissioners originally endorsed the Collider, their endorsements were made in June of 1987 before the real impacts of the project were revealed. Since that time there have been some very marked changes in the positions and compositions of these Boards.

The Durham County Board of Commissioners voted on March 14, 1988, to withdraw their support for the Super Collider. They have continued to oppose this project unless it is moved out of Durham County. Durham County Commission vice-chair Becky Heron and Commissioner Josephine Clement have stated they are "definitely against" the Collider. Commission chair Bill Bell and Commissioner
1 Al Hight have indicated they are "leaning against" the Collider. In the primary election, candidate Ellen Reckhow, who is "definitely against" the Collider, defeated incumbent Commissioner Lou McCutcheon, who was "leaning against" the Collider.

Three incumbents in Granville County, all "definitely for" the Collider, were up for re-election during the primary. There were 12 candidates in the primary election with no Republican opposition for five Commissioner seats, including two new expansion seats. All three incumbents were defeated in the election, with the present chair finishing 11th and another incumbent finishing last in the 12 person race. Of the five new Commissioners, one (Burley Adcock) is "definitely against" the Collider, Mike Warren is "leaning against," Hubert

225-775 0 - 88 (Book 4) - 13

LETTER 760 (CONTINUED)

Eddie McCoy

Cooch and ~~Darryl Moss~~ are "neutral,", and Darryl Moss is "definitely for" the Collider. These new Commissioners will take office in November.

In Person County, John Merritt, an incumbent who was "definitely against" the Collider, was re-elected. Curtis Bradsher, who is "leaning against" the Collider, was elected to fill the position of the other incumbent, who chose not to run for re-election.

Thus, the positions of these Boards of Commissioners has radically changed since their original letters of endorsement. They no longer can be said to be enthusiastically supportive of the Collider as once was indicated.

It is clear that the North Carolina site has not been demonstrated to be an environmentally adequate host site for the Superconducting Super Collider.

Mrs. Betty Lou Ellis
Route 2, Box 314
Roxboro, N.C. 27572

LETTER 761

October 3, 1988

Mr. Richard Nolan,
Superconducting Super-Collider
Site Task Force,
Butner, N. C.

Dear Mr. Nolan:
You have my permission
to use any or all of this
WKKupferle

Dear Sir:

Here is a big vote for the Super-Collider project. North Carolina should welcome this project with open arms, not only for the economic benefits to be derived, but in a single word; SURVIVAL.

The only way to cage the bogey-man of the future;The Greenhouse Effect is to rely on atomic energy for the production of electricity, and to stop the burning of fossil fuels, such as coal, peat, wood, etc.

1 Unfortunately, it isn't that easy, and the atomic energy I am referring to is not our present day fission process with its radiation, and limited supply of ingredients, but fusion in which atoms are fused together to form heavier atoms plus great amounts of energy. The ingrediants for this process are present in ordinary water, commonly known as heavy water or deuterium. This probably be the way to go, but fusion of other atoms are possible.

Well, the above scenario is how scientists will do ot, but the know-how is not presently available, and many difficult experiments lie ahead. The Super-Collider is just one of many to achieve the goal. Let's get it on track in North Carolina. This will not present dangers, but hope for the future.

Yours very truly,
Wm. K. Kupferle
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2 Teal Court,
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LETTER 762

Tom Jordan
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27572

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CHURCH & STATE

The proposed SSC in N.C. will involve some 13 churches and/or cemeteries. Some of these, as presently proposed, will have to be relocated for the use of a non-essential scientific experiment structure; in other words the super coilider. The EIS produced by the DOE states in Chapter 4.10.1 "Only limited cultural resource surveys have been conducted at the proposed sites...no native American sacred sites have yet been identified at any of the proposed SSC sites, although burials are known from archaeological sites within the vicinity of several of the project areas".

It is further stated in the EIS; "Essentially no intensive survey has been undertaken in the atual proposed NC SSC project area and data are not available to predict numbers or projected locations of cultural resources...Historic cemeteries are common in the project vicinity" (4-97-E.)

With the basis of seperation of church and state in the U.S., I maintain that the relocation of churches and/or cemeteries for such a non-essential government, "with no Guarantee of Success" project/experiment as the SSC would infringe greatly on the afore mentioned seperation.

1

We are based on a right of religious freedom of worship and that freedom should be extended into the chosen place of worship being maintained. To unearth the remains from the cemeteries in the proposed SSC project goes against one of the strongest religious beliefs in Christianity; The belief of the return of Jesus and the resurrection of the dead from their graves. The Christian rite of burial intends for the remains of the dead to be interred and remain there undisturbed until that resurrection occurance.

If the SSC were to come to N.C., as it is presently proposed, moving churches and/or cemeteries, known and unknown, for the purpose of a government experiment that offers no guarantees of success; then I would have to maintain that the seperation of church and state would be violated, since it would be a non-essential project not needed for the commmon good of the public.

Lastly, if churches and/or cemeteries are purchased for the SSC site, the monies obtained in the purchase of said structures would be government tax dollars. Therefore, new churches and/or cemeteries would be built with government funds. Such use of government funds surely would go against the grain of seperation of church and state.

For these reasons, I maintain that the SSC should not be built in the proposed N.C. site.

Thank you for hearing my thoughts.

LETTER 763

Comments
on
Draft EIS
for the
Superconducting Super Collider

Kenneth H. Reckhow
Associate Professor
Water Resources
Duke University
Durham, NC 27706
October 4, 1988

I am Dr. Kenneth H. Reckhow, an associate professor of water resources at Duke University. I teach and conduct research on water quality. I, therefore, have examined the Draft EIS to assess the adequacy of the evaluation of water quality impacts associated with construction of the SSC, with operation of the SSC, and with secondary development that results from the existence of the SSC in North Carolina.

1 While I can understand the severe time constraints that forced DOE and DOE's consultant to conduct the EIS rapidly and from a remote location, I nonetheless was quite disappointed in the lack of analysis and rigor in the sections on water quality impacts. I saw no analysis to support statements that impacts would be transitory or of little consequence. Nor was there any evidence that analysis was undertaken and was simply left in the consultant's files. I have conducted studies on the impact of land use, and changing land use, on water quality, and I know the data and analytical requirements. There is no evidence that this sort of effort has been undertaken for the EIS water quality assessment. Frankly, if students in my water quality management class submitted the water quality sections of the Draft EIS as a term project, I would have handed it back as unacceptable.

2 Perhaps it may be argued by DOE that we can study any of the areas of impact at great length, but time and resources do not permit that level of analysis. Well, another class that I teach at Duke is Decision Theory and Risk Analysis, which concerns, among other things, decision making when scientific information is uncertain and risks of poor decisions are substantial. One of the lessons of that course is that dollars and effort devoted to problem analysis, or to an EIS, should correspond with: 1) the consequences of bad decisions, and 2) the prospects for a better decision if a more thorough study is undertaken. Based on my examination of the extremely limited water quality evaluation, and the consequences of a poor choice for the site of the EIS, I suggest that DOE is not in a position to make a decision based on environmental impacts in North Carolina.

LETTER 764

Edgar White
R.6. Box 455
Oxford, NC. 27565

"Down Time" of the SSC

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the topic of projected "down time" at the proposed Superconducting Super Collider.

The following is stated in the DEIS vol. I, Chapter 3, p.3-17: "Use of collider rings for high energy physics research or accelerator and development studies (@ 250 days per year)... Use of high energy booster accelerator to generate beams for testing of detector components (independent of collider operations)."

1 .....AND.....

"SCHEDULED MAINTENANCE AND REPAIR (@ 115 DAY PER YEAR)."

Predicted down time is 1/3 of the year! Our tax money is going for a project that costs $4-9 billion dollars and will be (make quote motion with hands) "in the shop" for an estimated 115 days. How's that for efficiency?

This project may last 25-35 years, 35 times 115 days is 11.03 years. That is 4 years longer than it takes to build. Over 11 years the operation will be maintained and repaired.

It is clear that the NC Site has not been demonstrated to be an adequate host for the Super Collider.

LETTER 765

Linda Huff
Rt 2 Box 249-4A
Rougemont, NC
27572

Wells in Durham County

Among the numerous omissions, factual errors, and misrepresentations in the Draft Environmental Impact Statement, the inaccuracy of the estimate of the number of affected wells in Durham County is especially troubling, since it underestimates this number by at least 23 times.

In volume IV; Appendix 7 of the Draft EIS, it states on page 131 that in North Carolina " . . . review of state well records and visual field surveys by state personnel indicates that there are approximately nine domestic wells within a
1 1,000-ft. band along the tunnel alignment or within the campus, buffer and buried beam zone, and far cluster areas." It further provides Figure 7-19 to show the location of these nine wells.

Because this figure seemed so amazingly low, C.A.T.C.H. undertook a visual survey in Durham County of wells meeting the above criteria--within 1000 feet of the center of the proposed tunnel alignment, in the campus area,or within the Durham County portion of the buffer area and buried beam zone. I will be presenting the results of this survey--including wells in the expansion area, an area not mentioned above, but one that should have been included.

The Durham County portion of the Collider contains the western half of the near cluster and the western buffer area and buried beam zone plus the campus and expansion areas and a very small portion of the injector area. Except for most of the buffer area and buried beam zone, most of these areas are to be purchased fee simple. Within these areas more than 233 active wells have been located in Durham County alone, even though our State is saying there are only 9 wells in all three counties combined. (Attached to my report is a listing of these wells by tax map and property number.)

The following illustrations show graphically the defective nature of the State's data. Overhead DW-1 shows a portion of the near cluster and the western buffer area and buried beam dump. It is page A-50 of the Draft EIS. The ring and boundaries of the buffer area and buried beam zone are shown in black, 1000 feet from the tunnel is shown in green, and the wells are indicated by red dots. There are a total of 135 wells in this one area alone. This area includes the village of Rougemont which has no public water supply except for three community wells that supply the Red Mountain subdivision.

The next example is the Rougemont Meadows subdivision which consists of 23 new homes, each with an easily identified well in the front yard. This area is outlined in blue on this transparency and is blown up on Overhead DW-2.

Anybody, and certainly a person charged with the responsibility for situating the SSC here could have visited this street and counted these wells.

From page A-50 we take another example (Overhead DW-3). This area consists of the near cluster close to experimental area K-2 and the western half of the expansion area. It lies along Bahama-Moriah Road, a major access route through Copley's Corner. There are 36 wells on this map, 12 of which are within the 1000 foot line on either side of the tunnel.

In conclusion, I repeat, there are at least 27 times more wells in Durham County alone than the Governor's staff estimated there to be in all three counties combined. To me this is absolutely incredible. No one who had visited the site and been interested in reporting the truth could have come to the same conclusions as the Governor's staff. Are we to believe the Governor and his people because Jim Martin, like Brutus, is an honorable man? The fact is, the State's data are just not adequate, and therefore, the Draft EIS cannot be used as a dependable source of information in the site-selection process. Thus, the DOE has not met its National Environmental Policy Act obligation of conducting a thorough and adequate environmental impact statement.

2

It is clear that the North Carolina site has not been demonstrated to be an environmentally sound host site for the Superconducting Super Collider.

3

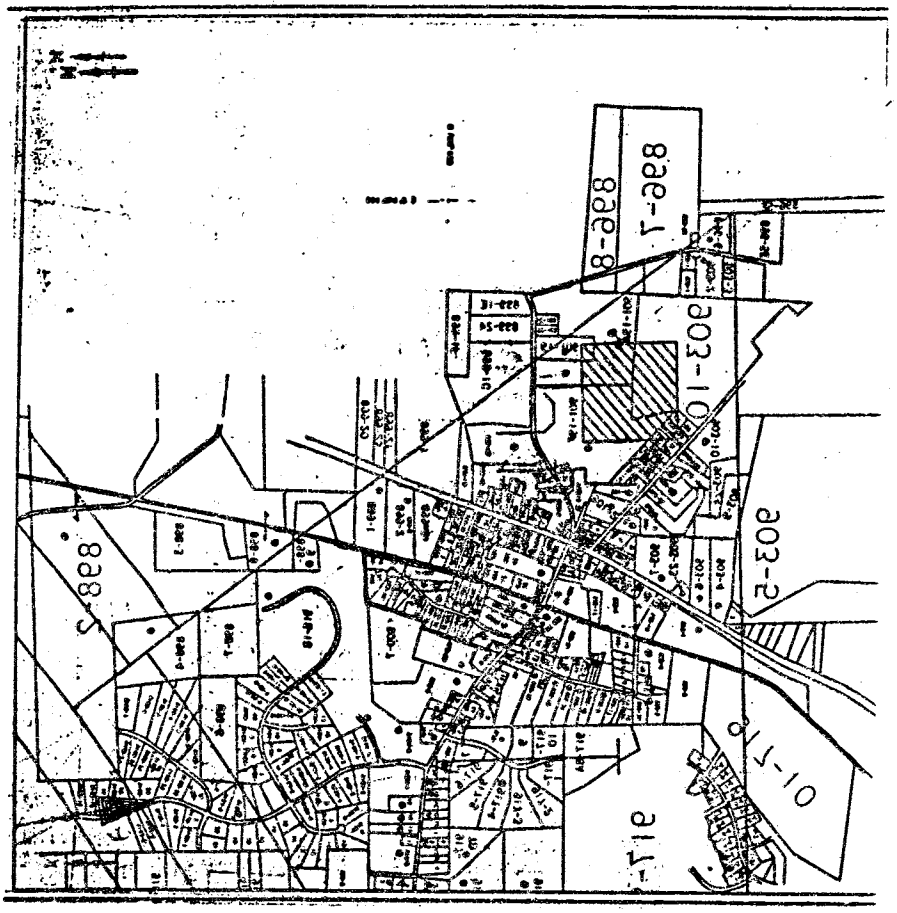
List of Wells in Durham County Affected
by the Superconducting Super Collider

No.	Map	Sec	Lot	Owner
1.	896	1	6	Florence Bailey
2.	898	1	2	Wilma S. Garrett
3.	898	1	3	
4.	898	1	4	
5.	898	1	6	Robert L. Hall, Jr.
6.	898	1	8	Dayton C. Gates
7.	898	1	9	Warren Robinson
8.	899	1	1	James R. Horton
9.	899	1	2	James R. Horton
10.	899	1	4	David Blalock
11.	899	1	8A	Luther C. Beasley, Sr.
12.	899	1	9	Lawrence B. Duncan
13.	899	1	9A	James R. Hudson, Jr.
14.	899	1	12A	Everett G. Hill
15.	899	1	13	Darnell T. Parker
16.	899	1	15	Ernest E. Powell
17.	899	1	16	Jonah Bullock
18.	899	1	16A	Berlin Parrish
19.	899	1	19	Alex D. Robinson
20.	899	1	20	Gladys R. Laws
21.	899	1	21	Talmadge G. Oakley
22.	899	1	22	Blacknall Mem. Presby.
23.	899	1	23	Calvary Orig.Free Will
24.	899	1	28	James F. Killian
25.	899	2	1B	Calvary Orig.Free Will
26.	899	2	3	Donald R. Ashley
27.	899	2	9	Kenneth D. Holland
28.	899	2	11	Darrell Ray Harris
29.	899	2	12	Lizzie P. Blalock
30.	899	2	13	Jack D. Lunsford
31.	899	2	14	Earl R. Robinson Est.
32.	899	2	15	Darrell T. Ellis
33.	899	2	17	City of Durham
34.	899	2	18	June L. Gutknecht
35.	900	1	1B	Edward Thorpe
36.	900	1	1D	Melvin Mangum
37.	900	1	2	Willie P. Rucker
38.	900	1	3	Danny R. Spivey
39.	900	1	8	Arthur M. Tilley, Jr.
40.	900	1	8A	Harold T. Bowen
41.	900	1	9	Arthur M. Tilley, Jr.
42.	900	1	10	Arthur M. Tilley, Jr.
43.	900	1	11	Linwood E. Jackson, Jr.
44.	900	1	12	Louise B. Chambers
45.	900	1	15	Mitchell Westmoreland
46.	900	1	15A	Ray W. Canada
47.	900	1	16	Rozell Johnson
48.	900	1	17	Georgia Mae Johnson
49.	900	1	17A	Edgar W. Johnson
50.	900	1	18	Thomas E. Stephens
51.	900	1	19	Jesse L. Crabtree
52.	900	1	20	Robin Pendergraph
53.	900	1	22	Bettie A. Dunn
54.	900	1	30	Donald R. Mason
55.	900	2	1A	FNO, Inc.
56.	900	2	1B	Winstead Builders,Inc.
57.	900	2	1C	Village Developers,Inc
58.	900	2	1D	Dawn G. McKay
59.	900	2	1E	Village Developers,Inc
60.	900	2	1F	Village Developers,Inc
61.	900	2	1G	John K. Hatley
62.	900	2	1H	Curtis L. Watson
63.	900	2	1J	Douglas B. Frazier, Jr
64.	900	2	1K	Douglas J. Goodwin
65.	900	2	1L	Village Developers,Inc
66.	900	2	1M	Village Developers,Inc
67.	900	2	2	James B. Clayton
68.	900	2	2A	Jeffrey A. Stevens
69.	900	2	2B	FNO, Inc.
70.	900	2	2C	Village Developers,Inc
71.	900	2	2D	Crook, Inc.
72.	900	2	2E	John W. Thompson
73.	900	2	2F	Village Developers,Inc
74.	900	2	2G	Winstead Builders, Inc.
75.	900	2	2H	Village Developers,Inc
76.	900	2	2K	Village Developers,Inc
77.	900	2	2L	Village Developers,Inc
78.	900	2	5	Mattie H. Day
79.	900	2	6A	Julia M. Garrett
80.	900	2	9	A. C. Russell, Jr.
81.	900	2	10	Juanita T. Proffitt
82.	900	2	10A	Waddell B. Thacker
83.	900	2	12	Ethel M. Clayton
84.	900	2	15	H. Langford Heirs
85.	900	2	16	Edgar W. Johnson
86.	900	2	17	Edgar W. Johnson
87.	901	1	1	J. W. Clayton
88.	901	1	2	Millard C. Thacker
89.	901	1	4	J. W. Clayton
90.	901	1	7	Branson Meth. Church
91.	901	2	1	Willie B. Blalock, Jr.
92.	901	2	2	Lizzie L. Blalock
93.	901	2	4	M. G. Chambers
94.	901	2	5	Phillip D. Childers
95.	901	2	6	D & J Investment Corp.
96.	901	2	10	Marion T. Chambers
97.	901	2	14	Ida Lawson Heirs
98.	901	2	16	Carolyn L. Chambers
99.	901	2	16	Carolyn L. Chambers
100.	901	2	17	Alfred C. Wilkins
101.	901	2	18	L. H. Bowling
102.	901	2	19	George Phillips
103.	901	2	19A	Roy S. Berry
104.	901	2	19F	John B. Wilson

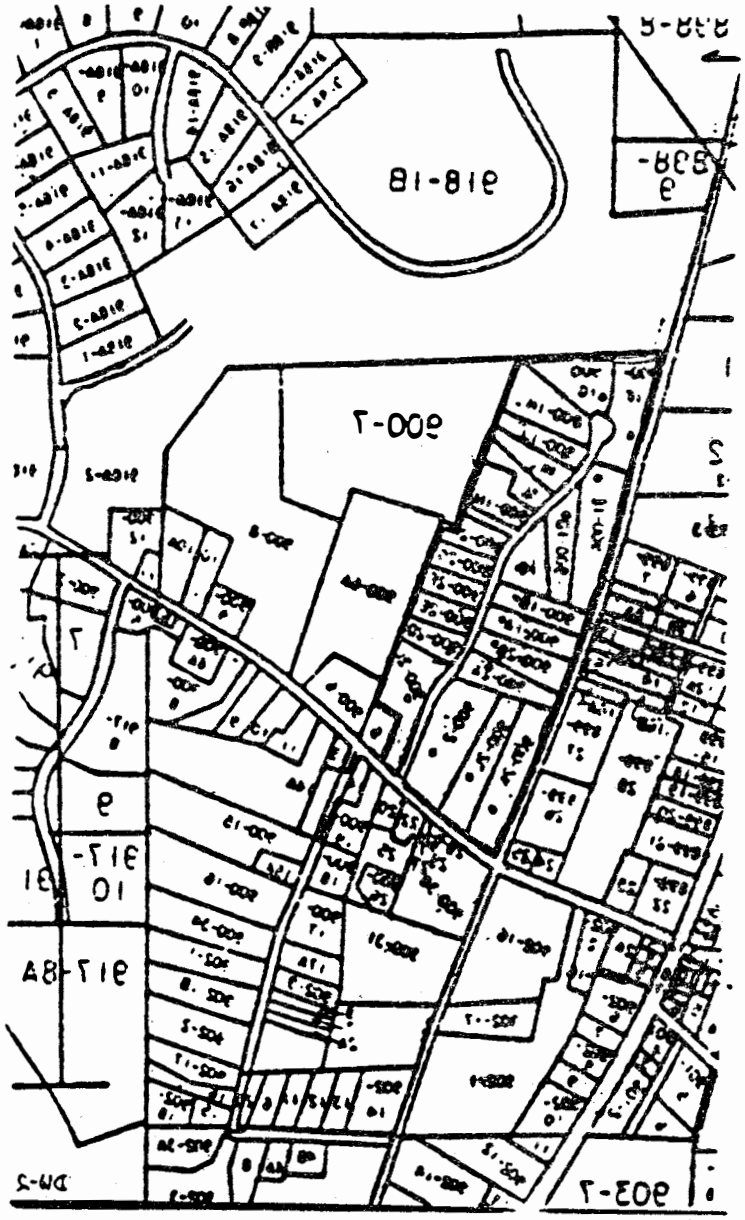
LETTER 765 (CONTINUED)

No.	Map	Sec	Lot	Owner
215.	943	1	4D	Joseph Burton
216.	943	1	6	H.G. Thacker [Lockamy]
217.	944	2	6	Henry G. Thacker
218.	944	2	6	Henry G. Thacker
219.	944	2	6	Henry G. Thacker
220.	944	2	6	Henry G. Thacker
221.	944	2	6	Henry G. Thacker
222.	944	2	6	Henry G. Thacker
223.	944	2	13	Sidney W. Ellis
224.	944	2	16	Laura D. Ellis
225.	951	1	1	Wanda F. Carrington
226.	961	1	2A	Alco Carrington
227.	961	1	2D	
228.	961	1	2F	Lois B. Davis
229.	961	1	2C	Albert Carrington
230.	961	1	4	Chas.S.Hester [Parker]
231.	961	1	4	Charles S. Hester
232.	961	1	6	Donnel Carrington
233.	961	2	1	Chas.S.Hester[Eubanks]

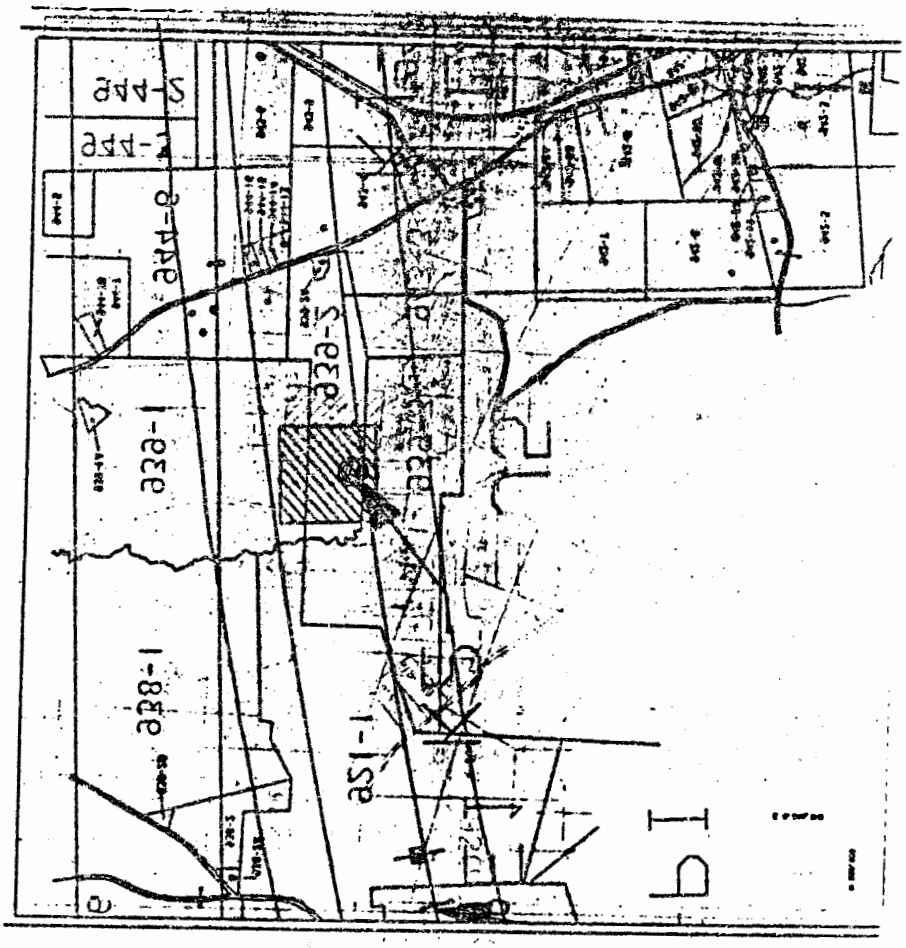
LETTER 765 (CONTINUED)



LETTER 765 (CONTINUED)



LETTER 765 (CONTINUED)



LETTER 766

DURHAM MORNING HERALD
DURHAM, NC
~~MONDAY~~ TUESDAY, OCTOBER 4, 1988

Metro

☐ Obituaries/2 ☐ Comics/4 ☐ Classified/6

Durham Morning Herald

Durham Morning Herald/Bernard Thomas

Pam Bowen speaks against Superconducting Super Collider at hearing...

Collider's Environmental Study Rapped At Hearing

By ELAINE THOMAS
Herald staff writer

BUTNER — Many speakers used the same line Monday in criticizing the proposed Superconducting Super Collider during the first day of a public hearing on an environmental study.

Then they set out to prove in their own words that a draft of the federal government's study is "filled with numerous omissions, factual errors, misrepresentations and facts detrimental to the siting of the Super Collider in North Carolina."

Eighty of 105 presentations made by speakers who registered with the U.S. Department of Energy were written by Citizens Against the Collider Here.

The final session of the hearing will be from 9 a.m. to noon today.

Speakers focused on a wide range of potential environmental effects including water and air quality concerns, noise, toxic emissions, low level radioactive waste and loss of farmlands and wildlife habitat.

About 50 people attended the afternoon session, and about 100 were there Monday night.

Gov. Jim Martin's science adviser, Earl Mac Cormac, was first speaker in the afternoon. He represented the governor, who he said could not attend.

Mac Cormac said Martin favors the collider because of its scientific value potential educational benefits and the economic growth he said it would bring the region.

Two organizations threatened to fight the project in court if the state is selected as the host site.

Save the Water Inc. will file suit against the project in U.S. District Court if the Energy Department tries to locate it near Triangle drinking water supplies said Jim Clark, the group's president.

Clark said the collider would cross and damage the Flat River, South Flat River, Mayo Creek Grassy Creek, Dial Creek and Knapp of Reeds Creek.

He also said proposed highways from the airport to the collider would cross and damage Falls Lake, vital wetlands, Ellerbee Creek, the Eno River, the Little River, the Flat River, Dial Creek and Camp Creek.

Clark said the Department of Energy's draft environmental impact statement was legally defective.

"There's no discussion of other urban growth that would follow in the watershed," he said in an interview.

CATCH has been told that "a good lawyer should be able to keep this thing tied up in court for at least two years," said Joe Haenn, president of the group.

If the state is selected CATCH will legally challenge the way the hearing was set up Haenn said.

He said the hearing was extended to a second day only after a letter was sent to the Energy Department by CATCH's attorney. Haenn suggested the second day should have been extended into the evening because so many people, who would want to speak, work during the day.

Brian Quirke, Energy Department spokesman, said extension of the hearing to this morning had nothing to do with the letter from CATCH's attorney, which he had not heard about until he arrived in the state Sunday.

"We always planned to go to a second day if necessary but tried to hold it to one," Quirke said. When it became obvious one day would not be sufficient today's session was added.

Quirke said most of the speakers at Butner are "playing by the rules" and the first day of the hearing provided "a lot of con-

IA1-1403

LETTER 766 (CONTINUED)

...While Melissa Moser listens and 3-year-old daughter, Courtney, naps on gym floor in Butner

trete comments, not merely ex
pressions of opinion."

N.C. Rep. H.M. "Mickey" Mi
chaux Jr. of Durham got
standing ovation by saying he o
poses the project.

He said he found discrepanci
in the draft of the Department
Energy's environmental report.

"How in the world can ther
only be nine wells affected?"
said, agreeing with opponen
who say there are more. "It do
n't make sense."

Michaux said he is concern
about the money it would co
the state to build roads to the c
lider campus and the burden o
Durham's wastewater treatme
plants.

"Never let it be said we are n
for progress," he said, but adde
that people must not be sacri
ficed in the process.

William Bell, chairman of th

See Collider/6C

LETTER 766 (CONTINUED)

Collider From 1C

Durham County Board of Commissioners, said commissioners voted in March to not support the project because of inadequate information.

The commissioners' position today is unchanged, he said.

A letter dated June 19, 1987, was distributed to the press by state collider officials. In that letter, signed by Bell, the Durham commissioners expressed support for the state's application.

Bell said Monday that lands taken for the project would remove $53,000 in taxes annually from Durham County.

The environmental statement also indicates Durham County would need 154 additional public employees, he said.

To provide the necessary services would require direct aid or a 6-cent hike on the current 65-cent tax rate, Bell said. He also indicated the project must conform to Durham's existing land-use requirements.

Bell said the county could not support the collider until the watershed issue is addressed.

Ellen Rackhow, a candidate for the board of commissioners, also said she cannot support the project now.

She listed the financial burden on local governments, disruption of the Rougemont community and possible harm to the watershed as reasons.

Gerald Kelley, an assistant director of the Durham city-county planning department, said city officials want to know if the project would affect plans for a building another reservoir on the Flat River.

Dr. Bill Dunn, director of the state's super collider project, said it would not necessarily preclude the city from building a reservoir there.

Dunn said it would be possible for the city to build a reservoir over the tunnel without disturbing operation of the collider.

"There are parts of the ring where you could have a lake, a reservoir, and it wouldn't impede the operation," he said.

"You could have a problem with blasting. So there might be a restriction on the size of blasting."

Pam Bowen of Rougemont said she is not a public speaker and her voice would crack during her speech. "But, to save my home, my church and my community I would read that whole blooming blue book in front of everybody," she said, referring to the 4,000-page environmental statement.

Kitty Fried, a Granville County resident, spoke in favor of the collider, calling it a "once in a lifetime project." She said preservation of water and air quality and the beauty of the land does not mean one has to resist all progress.

Rep. Mickey Michaux
Speaks against collider

Paul Delacourt, a Raleigh developer, also spoke in favor of the collider. Environmental issues are more than physical, he said, and include people and their attitudes.

The Energy Department's decision needs to be based on technical criteria and not emotional issues, Delacourt said.

Henry Brown, a geology professor at N.C. State University, said the collider might affect the area less than a large subdivision or interstate highway construction.

"Whether we like it or not," he said, "growth and development are going to occur."

References were made during the evening session both to relocations during World War II to make room for Camp Butner and the demise of the town of Weston, Ill., now the site of Fermilab.

Lynn Van Scoyoc said little was done to help the people of Weston when the town was taken over by the accelerator project and the same thing could happen in North Carolina.

Jeff Clayton said his family is among those who might have to move.

"It would put me out of business as far as my farm is concerned," he said.

Staff writer Mark Andrews also contributed to this article

LETTER 767

Jerry Lyda

Non-Binding N.C. Proposal

The Draft Environmental Impact Statement is filled with numerous omissions, factual errors, misrepresentations, and facts detrimental to the siting of the Super Collider in North Carolina. I wish to address the fact that the North Carolina proposal for the Super Collider is a non-binding proposal.

The Invitation for Site Proposals, or ISP, for the Superconducting Super Collider states (and I quote): "The person(s) signing the proposal must have the authority to commit the proposer to all of the provisions of the proposal, fully recognizing that the Government has the right, by term of this Invitation, to make the selection without further discussion if it so elects" (ISP, p. 8). This means that the proposal is supposed to be binding if that state's bid is selected.

1

However, the North Carolina proposal for the SSC clearly states (and again I quote):

> Because of provisions in the North Carolina Constitution, the General Assembly is unable to bind future legislatures on spending. However, Governor Martin has the support of General Assembly leadership, including Lieutenant Governor Robert Jordan, who presides over the Senate, and Speaker Liston Ramsey, who presides over the House. (end quote; p. 2-1)

In fact, Speaker Liston Ramsey has stated his opposition to the SSC on several occasions, including once during the SSC Site Task Force site visit to North Carolina in late June. The Lieutenant Governor has refused to publicly support the Governor on this project as well.

Perhaps more importantly, both State Senators and all six State Representatives who serve the three affected counties have expressed their opposition to the SSC. Several of these legislators are among the most powerful in the

Legislature, including Senator Kenneth Royall, Jr., Representative Billy Watkins, and Representative George Miller--to name just a few. In case you did not know, North Carolina has one of the strongest and finest Legislatures in the country. They traditionally tend to follow the wishes of local legislators when enacting legislation. Therefore, it is highly unlikely that any funds whatsoever would be appropriated by the North Carolina Legislature to back up the commitment by the Governor in the proposal. I find it ironic that the DOE has not contacted or talked with any of these legislative leaders either before, during, or after their site visit to North Carolina to confirm their positions against the Collider as proposed in North Carolina.

Therefore, since the North Carolina proposal is not binding and the odds are overwhelmingly against the Legislature funding it, the DOE would be very unwise to select North Carolina as either the primary or as an alternate host site for the Super Collider.

It is clear that the North Carolina site has not been demonstrated to be an acceptable host site for the Superconducting Super Collider.

LETTER 768

Dear Dr. Hebb,

I strongly urge you to select the most logical, cost effective site available to build the SSC - Illinois!

I fully concur with your findings in the draft Environmental Impact Statement that indicates the proposed site at Fermilab:

> Offers known, consistent geology for tunnel construction

1 > Has a strong, established infrastructure of roads, airport, schools, hospitals and utilities that would have to be built from scratch at some other sites:

> Features an established, single source of electrical power with sufficient capacity to meet the energy needs of the SSC at a relatively low cost.

I urge you to thoroughly review these points when you make a decision on the SSC. I know you will agree that Illinois is the best choice

Sincerely,

Marie Fowler
5026 N. Farwell
Milwaukee, WI 53073

LETTER 7860

Roland Hughey

Durham Morning Herald

FINAL DURHAM, N. C., THURSDAY, JULY 28, 1988 DAILY 25¢

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Durham May Recoup Partial Cost Of Watershed Study

By ELAINE THOMAS
Herald staff writer

OXFORD — Members of the N.C. Superconducting Super Collider Commission voted Wednesday night to reimburse Durham County if information from a study being conducted by a watershed consulting company can be incorporated into a regional watershed study on the collider.

Durham County officials, who are paying a consultant more than $200,000 for a study on managing growth in the Lake Michie and Little River watersheds, asked the state for help on the project at the commission's last meeting July 13.

The commission was then told that the firm, Camp Dresser & McKee, could add an evaluation of the collider project to the larger study for about $25,000.

However, some members of the commission questioned helping pay for a study of only Durham County.

Bill Dunn, director of the state's collider project and commission chairman, said Wednesday that the state planned to have an independent watershed study conducted on a regional basis and that $40,000 had been set aside by the Legislature for that purpose.

"The state funding Durham County's study is not consistent with the reason the funds were given and would, in fact, splinter it up," he said. "A regional study is the most responsible way to do the study at this point."

Bell said the campus for the collider, plus many of the highways necessary to serve it, would be constructed in Durham County. Because of time limitations (with the U.S. Department of Energy scheduled to announce a preferred site in November), Dunn said it would be best to proceed with the study under way and see what effects the collider would have.

If the project would not have a negative effect on the watershed then it could proceed as planned, he argued. But, if it could have negative effects, then that information would be available to the state and Durham County before DOE makes its announcement in November and the campus site could be moved if North Carolina is the selected site.

Granville County Manager Harold Blizzard said the study needs to be regional because the campus is not the only area that would be affected.

Bell agreed that a regional study should be conducted but said that something is needed to

See Watershed/10A

IIA.1- 1409

LETTER 7860 (CONTINUED)

Durham Sun
September 8, 1988

Page 342
Sewage treatment would be supported by existing municipal systems

Council will study effects of collider

Durham city administrators will examine the possible effects of the superconducting super collider on city services and make a report available to the City Council in about a month.

Wrapping up business held over from a meeting Tuesday night, the council last night agreed to have City Manager Orville Powell and his staff find out how the collider would affect water and sewer service and other city resources if North Carolina is selected as the site for the $4.4 billion atom smasher.

North Carolina is among seven states vying for the project, which would allow scientists to study subatomic particles colliding at the speed of light.

The North Carolina proposal calls for the construction of a 53-mile-long tunnel underneath Durham, Granville and Person counties.

LETTER 786 (CONTINUED)

Roland Hughey

EIS
Page 4-91
bottom on electricity capacities
mentions that other states are
doing but nothing on North Carolina

More Deals Likely On Power Interruptions To Customers

CHARLOTTE (AP) — As the gap narrows between rising demand for electricity and the generating capacity of utilities, more deals may be struck between companies and customers for planned power interruptions, officials say.

"As their reserve margins decline, you would expect them to rely on these more and more," said Dennis Nightingale, an official of the N.C. Utilities Commission.

But Nightingale said that if Duke Power Co. adds more peak-time generating units, it may depend less on power interruptions to get it through the hot summer afternoons and cold winter mornings of the next decade.

Duke began promoting passive load-management techniques, such as heavy insulation in buildings, in the late 1970s, said Jim Rickard, Duke's assistant vice president for marketing and rates.

Load management was begun during that decade to help North Carolina utilities meet peak power demand and avoid the costs of building new plants.

The strategy evolved at a time when new power plants were costing billions of dollars. "This is supposed to be cheaper," Nightingale said.

Rickard said active load-management devices that control the use of appliances came in the early 1980s.

Under that program, customers with central air-conditioning or electric water heaters give Duke the right to turn off the appliances with radio signals for several hours when electricity runs short.

In return, the customers get an incentive—free electricity in the form of a monthly credit on their power bills. The credit on the average is $11.75 if the customer has both air-conditioning and waterheater controls.

The air-conditioning credit is available only from June through September. The $2 monthly credit for water heating is applied year-round.

"Emergency load control is there to deal with shortfalls when these situations should occur," said Allan Shub, Duke's manager of forecasting. "That's the whole purpose of the program."

In addition, Duke has signed up 99 large industries that volunteered to have service interrupted or to run their own emergency generators during periods of high demand. For doing so, industries such as Florida Steel in Charlotte get lower power rates.

At the time Duke was installing the load-control devices, it was also building four large nuclear units. And even though use of electricity was growing, Duke's generating capacity was rising even faster.

It wasn't until June that Duke first cut off both air-conditioning and water heaters on two occasions. Previously, only water heaters had been cut off. During the recent emergencies, Duke also appealed to all customers to voluntarily turn off other household appliances.

On both days an unusual spate of malfunctions shut down several large units, triggering the emergency.

"Right now we're treating it as a fluke," said Nightingale, director of the electrical division for the N.C. commission's staff that represents the public.

While Duke interrupts power as a last-ditch measure, neighboring Carolina Power & Light Co. routinely flips the switches as power demand creeps upward.

Norris Edge, vice president of rates and service practices, said the Raleigh-based utility has turned off the appliances of 41,000 households nine times this summer.

Edge said CP&L uses a different approach, shutting down air conditioners and water heaters to avoid starting up costly oil-fired generators as well as to meet rising demand.

"We see load control as part of our normal operation," Edge said.

CP&L estimates it saves about 130 megawatts of electricity. Duke puts its savings at 300 megawatts.

LETTER 786 (CONTINUED)

Morning Herald

DURHAM, N. C., SATURDAY, SEPTEMBER 3, 1988

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DAILY 25¢

Robert Rizzo

EIS Page 3-42

Sewage treatment would be supported by existing municipal systems in North Carolina

Durham Sewer Work Stopped

Some Projects Halted For Lack Of Permits

By WILLIAM M. SMITH
Herald staff writer

Work has stopped on a number of sewer projects in Durham because the projects have not obtained the necessary permits from the state Division of Environmental Management, city and state officials said Friday.

Durham's City Council has been wrestling with the problem of trying to stretch dwindling capacity at the city's four sewage-treatment plants through 1992, the earliest year by which substantial expansion might be expected.

But the officials said the suspension of work had nothing to do with the capacity problem. Instead, they said, it involved a question over the issuance of the permits.

It was not clear how many projects were affected.

Bryson Jenkins of the Division of Environmental Management mentioned one, a sewer line that would serve a 24-house subdivision. Ms. Jenkins suggested, however, that city officials would be better sources of information on the matter.

Larry Kerr, assistant city engineer, said he understood "the state said that there were 11 projects."

And Terry Rolan, director of water resources, said he thought there were "11 under investigation. Now whether 11 have been stopped or not, I don't know."

No information was available on the location or magnitude of the projects.

Rolan said developers and their contractors routinely apply for sewage-treatment permits through the city. The city has no authority to act on the applications, he said, but passes them on to the Division of Environmental Management.

There is a 30- to 60-day lag between the filing of the application and approval or denial by the state, Rolan said.

He added that many contractors are unwilling to lose that much construction time while awaiting a decision, and begin work on the assumption that permits will be approved.

While this is a routine practice in Durham and other cities, Rolan said, contractors proceed with the knowledge that they are in technical violation of state law—which requires that they have a permit in hand before laying sewer lines or making connections—and that they will be liable for making any changes in the event the permits are denied.

In this case, the state agency apparently informed one contractor that he was installing a sewer line without a permit, and the city suggested that others who were in the same circumstances

See Sewer Work/8A

Martin, Jordan say state needs roads funds

By The Associated Press

Republican Gov. Jim Martin and Democratic Lt. Gov. Bob Jordan agree that the state needs billions of dollars of highway construction, but neither gubernatorial candidate would suggest a way of paying for the projects.

Citing studies showing that the state needs $12 billion to $18 billion in new roads, Martin and Jordan said the next governor would have to find a way to sharply escalate road construction in the state.

But neither candidate would commit to new taxes, and both said they would raise the motor fuels tax only as a last resort. Neither would rule out a tax increase however.

Jordan said he would not recommend how money could be raised for new roads until after a legislative study commission issues a report that is not due until after the Nov. 6 election.

"I'm not going to say I am going out and be for tax increases until I see that we can't do it any other way," Jordan told reporters after his speech yesterday.

BOB JORDAN

JIM MARTIN

Martin also offered few clues on how the state should finance road improvements, except to say he would continue to press his proposal for a $450 million bond issue — which he acknowledged would only make a small dent in the problem.

"That proposal is still valid and is still on the table, and it's a good way to finance the capital needs, despite what timid critics would say to the contrary," Martin said.

Martin and Jordan appeared before about 150 members of the N.C. Highway Users Conference, a collection of industry groups that includes truckers, oil jobbers and other groups that are heavy highway users.

Elsewhere in politics yesterday, Republican attorney general candidate Sam Wilson said that former Sen. Robert Morgan should be fired as the head of the State Bureau of Investigation.

"I've asked (Attorney General) Lacy Thornburg to stop the cronyism in our Justice Department," Wilson said. "I promise the people of North Carolina that my first duty will be to appoint a law enforcement professional to be director of the SBI."

Roland Hayes

Jordan morning Herald July 28, 1988

EIS
Page 3-42 Transportation
NC
40 miles new roads needed
upgrading will be required

LETTER — 786 (CONTINUED)

Roland Hughey

EIS Page 4-67
5.1.5-28
Discusses detail on wetlands in North Carolina

Durham Morning Herald

FINAL DURHAM, N. C., TUESDAY, JULY 26, 1988 Copyright 1988 Durham Herald Co., Inc. DAILY 25¢

Watershed Rule Dampens Plans For Chewning High

By MARK ANDREWS
Herald staff writer

Plans for turning Chewning Junior High School into a senior high hit two stumbling blocks Monday with Durham County commissioners and the Board of Adjustment.

That means sticking with the Chewning plan could force the school board to buy a huge amount of land to make the project comply with the county's watershed ordinance.

Chewning is on 32 acres at the corner of Red Mill and Hamlin roads, where restrictions on development are strict because of proximity to Falls Lake, a source of drinking water for Raleigh. The school board has bought another 22 acres for expansion.

Because of limits on the amount of land that can be covered there, school officials said they might eventually need an additional 300 acres costing an estimated $3.7 million to comply with the ordinance.

Commissioner Al Hight was the lone dissenter Monday night in the Board of Commissioners' decision not to amend the ordinance to permit school officials to proceed with their plans.

Earlier Monday, the Board of Adjustment voted 4-to-0 with one abstension against making an exception to the watershed ordinance for Chewning.

Jim Maxwell, county school board attorney, said schools in the northern part of the county needed relief from overcrowding.

"If you are going to say protection of the water is the highest priority above all else, then we'll deal with that," he said. "And it's going to be very, very expensive."

[redacted] area where [redacted] can be covered with buildings, pavement or other things that don't let the rain soak in.

The Board of Commissioners can grant nine percent coverage if the property owner takes steps to reduce drainage from the property.

Officials have said 38 percent to 40 percent of the 54 acres the school board now owns for the

See Chewning/7A

LETTER 806

CHAMBER OF COMMERCE RESOLUTION

WEREAS, the proposed Superconducting Super Collider (SSC) will be the largest and most ambitious scientific project ever constructed in the world; and

WHEREAS, the Super Collider, a 53-mile oval tunnel consisting of two rings of 10,000 superconducting magnets, will allow scientists from around the world to investigate the basic constituents of matter and to obtain knowledge about the origins of the universe; and

WHEREAS, the knowledge gained from both building and using the Super Collider will benefit the nation now and in future generations; and

1 WHEREAS, Texas is one of seven finalists for this project which will create at least 4,500 jobs during construction and roughly 2,500 positions will become available once the facility is fully operational; and

WHEREAS, Texas is the home of great public and private universities and colleges, which can readily provide much needed expertise for the project and capable resources to accelerate the spin off research and development to benefit mankind;

NOW, THEREFORE, BE IT RESOLVED that the Mineral Wells Chamber of Commerce strongly endorses the construction of the Superconducting Super Collider and the scientific, economic and technological benefits it will bring the nation, and that the Mineral Wells Chamber of Commerce enthusiastically supports the location of the Super Collider in Texas.

PASSED AND APPROVED AT Mineral Wells, Texas, this 8th day of September, 1988.

APPROVED:

President
Mineral Wells Chamber of Commerce

LETTER 807

Mason Mich
29 of Sep. 1988

Dear Sir
I have not been to any Meetings but Mich Needs the Super Collider as the Automobile Shop have had there best Days. We need something new and Michigan dont have as many Stores as some States have good Roads and Hospitals. it wont help me but lots of others.

Alice Bryson
137 N. Jefferson St
Mason Mich
48854

1

LETTER 808

September 30, 1981

Dear Dr. Hess:

I strongly urge you to choose Illinois as the site for the SSC. The existence of Fermilab here - and the resulting savings of time and money - would make Illinois the most logical and cheapest choice for the U.S. tax payers.

1 Thanks to its solid geology, its established infrastructure and relatively low cost electrical power, the EIS has further shown Illinois to be the "right" choice.

Illinois is clearly the best suited site for this important research tool!

Barbara Rach
28W364 Indian Knoll Dr
West Chicago, Ill. 60185

LETTER 809

Dr. William Hess
SSC Site Task Force
ER-65 G.T.N.
Office of Engineering Research
Attention SSC Draft EIS Comments
U.S. Dept. of Energy
Washington, D.C. 20545

23 Sep. 1988

Dear Dr. Hess:

1 For many reasons I oppose the proposed S.S.C. whether at Stockbridge, Michigan or any place else in our U.S. of A.

And From here it does not seem smart to put such here at Stockbridge.

Why?

1. Our country has a huge debt problem. The projected costs of this S.S.C. run from four to 10 billion dollars. Current Promotion, review, whatever are expenses that ought to be eliminated. It ought to immediately be stopped.

2 2. Personally I do not understand exactly the purpose of the project, but I do know what living is like today and feel mankind has survived well enough up to now, that while the results of this research could be beneficial to mankind, it's not of immediate importance. That this research be done.

3. A project such as this would impact negatively the rural environment for miles beyond it's actual site. What's left of such in S/E Michigan is rapidly being destroyed. S/E Michigan was one of the very best agricultural areas in our state with good climate, soil, moisture to grow crops - fairly good ones - year after year without having to depend on ground water irrigation!

3 Such a project would, of course, eliminate much agricultural land at it's site. There would be spin off with lots of expensive new housing being built for the lab's work force, most of whom would likely be moving into Michigan or from elsewhere in this state.

While the farmland at the site is not all of the best, it would cause loss elsewhere. It's becoming harder and harder today to farm, in part, because there are not enough farmers left to support the back up farm businesses, and farmers waste a lot of time today driving many extra miles, for parts for machinery, for instance.

4. There are many acres of wet lands which would be changed by this proposed project. More and more mankind today is beginning to realize just how important they are to our well being and that of this planet. (Sandhill cranes like the Stockbridge area too.)

5 These are some of the reasons why I oppose this project, esp. cost and potential environmental damage. So I hope it will be set aside for now. Also, better uses might be made of research monies on several studies rather than one such costly one.

Yours truly,
M. H. Sias
Mrs. Harold Sias

Copies to - Gov. Blanchard
Sen. Riegle

LETTER 810

September 30, 1988

Mrs. Deborah Gibbs
80 S. Meridian Road
Mason, Michigan 48854

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545
Attn: SSC DEIS Comments

Dear Dr. Hess:

1 I am very much opposed to the Superconducting Super Collider. My major concerns are water, soil and air.

2 In the Environmental Impact Statement, page 4-31 it states, "Water provides a major mechanism for the transport of radionuclides in the environment as well as a pathway for exposure through drinking and submersion. This should not be a significant amount of radionuclides." What do you mean should not? Don't you know for sure?

3 On page 5.5-1 it states, "Activities within 1000 feet of the tunnel will be disallowed including resource recovery operations such as well installation, blasting and other actions causing increased vibrations or increasing the risk that leachates from the tunnel could reach a water source." Our well is about 500 ft. from where the tunnel will be. What happens if something happens to our well some day like maybe it drys up? I take it from this statement that we could not redrill our well on our property. Will we just be out of luck?

4 The SSC Task Force has stated that the tunnel will produce low level radiation which will not hurt us. What will happen years down the road to our soil, water and air? Will it be safe to eat vegetables out of my garden, drink our water and breath the air?

5 I do not want to raise my children in a potentially harmful environment. Please consider the people living on and around the tunnel and service areas. Is this project in our best interest?

Sincerely,

Deborah Gibbs

Deborah Gibbs

LETTER 811

October 3, 1988

Dr. Wilmont Hess, Chairman
SSC Draft EIS Comments
SSC Site Task Force
Office of Energy Research, ER-65, GTN
Department of Energy
Washington, D.C. 20545

Dear Dr. Hess:

As concerned citizens of Michigan, we are writing this letter in opposition to the proposed Superconducting Super Collider. Living just outside the proposed ring, we are very concerned with the environmental effects, the boomtown effect and the noise produced, all of which we will have to live with.

1 Why has such a populated area in Michigan been chosen as the proposed site? There are too many variables, unknowns, and long-term effects that there are no answers to. The state owns more than enough land to house a project of this magnitude.

My family and I do not want to suffer the long-term effects that we have not been given answers to. DO NOT LOCATE THIS SUPERCONDUCTING SUPER COLLIDER IN MICHIGAN!!!

Sincerely,

Paul & Linda Aleo

PAUL & LINDA ALEO
3485 Rolfe Rd.
Mason, MI 48854

225-775 0 - 88 (Book 4) - 14

LETTER 812

Dr. Wilmot Hess,

Now that the SSC hearings in Waxahachie, Texas are over, it seemed that the majority of people that had a chance to speak were in favor of the SSC. I want you to know there are many people that are against the SSC. Fear of radiation is the main concern for those of us who live nearby, ~~and~~ the proposed site, and you cannot guarantee that that will not happen. The SSC would ruin some of the best farming land in the state of Texas, not to mention toxic materials and waste getting into our water supply and the possible vibration & noise that we could do nothing about. 1

This area is heavily populated and I cannot see putting so many people at health risk, when, if there must be a SSC, that it could not be put someplace else in an unpopulated area.

The money that this project will cost us, the taxpayers, could be put to much better use such as keeping drugs and illegals from crossing our borders, on education of our young citizens and for our military to keep our country strong. 2

Please, Please locate this health hazard (SSC) anywhere besides here in Waxahachie, Texas even in and around Washington, D.C. if you so wish. 3

Louis and Edith Hroza
Route 4 Box 87
Ennis, Texas 75119

LETTER 813

September 30, 1988

Dr. Wilmot Hess
Department of Energy
Washington, D.C. 20545

Re: Scoping meeting, Stockbridge, Mi., 9/26/88

Dear Dr. Hess:

I spoke in February at the Scoping meeting at Stockbridge, finally endorsing the concept of the Superconducting Super Collider, after having opposed it adamantly, and, happily, subsequent developments have reinforced our decision. 1

I must admit, frankly, that the eight months delay in scheduling announced recently has had a negative effect in that it results in continued uncertainty. It is difficult to envision a different home after having spent our lives as the third generation on our farm.

After having read the D.E.I.S. (well, most of it) I do have some questions and concerns. If we were to look forward to living in the beam absorber area, I would holler long and loud for proof of safety, although I realize that some questions have no answers at this time, but they must be forthcoming. No one should be endangered physically or financially by this project. 2

I also wondered if there might be surface vibration at the time the tunnel is constructed. I am not a geologist, and it seems to me that displacement of solid rock might be felt above ground-I am concerned about structural damage to existing structures. 3

We are aware that at times there will be conditions which we will hate. We live in the country because we dislike the noise, dirt, and pollution of the city, but we've all become accustomed to noisy tractors lifting dirt into the air. Being in the area of many muck farms, we are well acquainted with dirt pollution. We feel the end result is worth it. We are so confidant that measures will be taken to minimize these and other stressful factors that we have no intention of leaving the area where we have family and friends when we are relocated.

Michigan's economy has grown 2% in the past year-a tribute to those who have helped the state rise from its knees after the wholesale exodus of the auto industry. However, this is only 40% of the national increase. We still have our jobless, homeless and hopeless. We have a large number of residents who fled the mines of Kentucky to work in the onion fields of Michigan-they are certain the S.S.C. will make the lives of their grandchildren better than theirs. We must develop new industry to provide income not only for these families, but for our young people who must leave the area for employment. What better and more exciting than the S.S.C.? I can hardly wait to see what marvelous secrets will be revealed by particle physics research. I wish construction could begin tomorrow! 4

LETTER 813 (CONTINUED)

We recognize that our small town as it is today would no longer exist, and I admit that it would be a painful thing for me to see-I have been happy here for fifty years. But the face of our community has changed more rapidly in the past five years than it has in the previous fifty, and it will continue to do so. Widely scattered single family dwellings have
5 sprung up in every direction from Stockbridge with increasing demands for services, which has imposed a burdensome tax responsibility for us all. Better to welcome newcomers who will share the load. I look forward to an expanded curriculum in our schools and more residents to contribute toward this goal.

I was delighted to hear the D.N.R.s announcement that wetland involvement
6 was less than stated in the draft. Those of us who live here are familiar with the topography and didn't believe 2800 acres for a minute.

I take great pride in the fact that Michigan-its leaders and legislators- have gone to great lengths to listen to citizens who are involved. To mitigate and compensate adequately shows a human quality not often
7 seen in todays world. I have recently been informed that new legislation is being developed which will enable persons in the stratified fee area to relocate should they care to. The entire staff is to be commended. I feel priveleged to have had a small part in it.

I look forward to reading the next E.I.S., hoping that all concerns and questions will be satisfactorily addressed. My husband and I remain firm in our enthusiasm for the S.S.C.

Sincerely,

Margaret L. Wild

Margaret L. Wild
3300 Baseline Road
Stockbridge, Mi. 49285

LETTER 814

Dr. Wilmont Hess
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Dept. of Energy
Washington, D.C. 20545

Dear Mr. Hess:

1 I have been made aware of what a negligent landlord the Department of Energy has been in Long Island, N.Y., Ellenton, S.C., and elsewhere - how it has polluted the environment, covered up its errors and blocked efforts to make it clean up after itself.

Do not bring your mess to Michigan. Count me against the Superconducting Super Collider.

Sincerely,

LETTER 815

September 30, 1988
319 Delcy Drive
De Kalb, IL 60115

Dear Dr. Hess:

I firmly believe that the most reasonable site for the SSC is Illinois. Your findings in the draft Environmental Impact Statement seem to make this clear

1 The resources available for human services, the availability of electric energy, and the favorable geology coupled with the presence of Fermilab are points strongly in Illinois favor

I urge you to select Illinois as the site for this project.

Sincerely,

Albert Wiggin

Albert Wiggin
Teacher,
West Chicago High School

IIA.1- 1426

LETTER 816

THE UNIVERSITY OF CHICAGO
OFFICE OF THE PRESIDENT
5801 ELLIS AVENUE
CHICAGO • ILLINOIS 60637

October 3, 1988

Dr. Wilmot Hess
Chairman
SSC Site Task Force
ER-65, GTN
Office of Energy Research
U.S. Department of Energy
Washington, D.C. 20545

Dear Dr. Hess:

Others will write to describe the many advantages of Illinois and of the existing facility at Fermilab as a site for the SSC. These are very important considerations, and I want to be on record as supporting them. The purpose of this letter, however, is to describe the resources offered by The University of Chicago to this endeavor.

The tradition of excellence in physics is one of very long standing in this University. Since its founding in 1892, 21 individuals who worked here, taught here, or were once students here, have received Nobel Prizes in Physics. Two members of The University of Chicago's physics faculty have received the Nobel Prize since 1980.

Particle physics is the field of many distinguished members of our faculty, including Nobel Prize winner James Cronin. As I write this, the University has 19 faculty members whose field is elementary particle physics. Nine of these faculty are experimental researchers; 10 are theorists. This year, 35 graduate students are working toward the Ph.D. under these professors. All of this is within a physics department numbering 50 faculty, with 130 Ph.D. graduate students.

The ties between The University of Chicago and Fermilab have always been close. Members of our high energy physics group work at Fermilab on a regular basis. Scientists at Fermilab teach courses at The University of Chicago. In fact, Dr. Leon Letterman, the Director of Fermilab, will teach a course in physical sciences to our college students in 1988-89.

LETTER 816 (CONTINUED)

Dr. Wilmot Hess
October 3, 1988
Page 2

I am aware of the complex nature of the decision about the location of the SSC. I believe that scientific criteria should have primacy in the decision making process. The existing infrastructure at Fermilab, the fact that the SSC could be completed more quickly and the science which follows begun earlier, the rich resource in the faculties of universities in Illinois all argue persuasively for Illinois as the site.

We enjoyed the visit of the Site Committee to The University of Chicago. We look forward to working with the Department of Energy in further developing the extraordinary science that is part of this state.

Sincerely,

Hanna H. Gray

Hanna H. Gray

LETTER 817

CLAYTON, MYRICK, McCLANAHAN & COULTER
ATTORNEYS AT LAW
P. O. BOX 929
DURHAM, NORTH CAROLINA
27702

JERRY B. CLAYTON
ROBERT W. MYRICK
ROBERT D. McCLANAHAN
RONALD G. COULTER
MARCUS E. HILL
GREGORY L. HUGHES

109 NORTH CHURCH STREET
A C (919) 688 8258

September 29, 1988

SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545

Attn: Wilmot Hess

Dear Mr. Hess:

This letter is written on behalf of Citizens Against the Collider Here (CATCH) in North Carolina to bring to your attention irregularities and violations of the procedures set forth for the public hearings on the Draft Environmental Impact Statement in North Carolina. It has come to our attention that there are many persons from the general public who have submitted timely requests for an opportunity to speak at the North Carolina hearing, scheduled on October 3, 1988 at the Butner Sports Arena in Butner, North Carolina. The reason being given for the denial of these person's speaking is that there is simply not enough time during the day and evening for them to all speak. It is my understanding that the regulations regarding the conduct of these hearings states "An additional session will be held on the day following the scheduled date, if requests for presentation of comments received by the week before the hearing are so extensive that the time needed to accommodate registered speakers would exceed the time available for the scheduled date". There has been no mention of any additional date. To our knowledge, there have been no attempts to schedule persons to speak on the day following the hearing.

1

An additional concern regards the number of speakers and the time of the speeches on October 3. Apparently, speakers have been scheduled from 2:00 o'clock p.m. until 6:30 o'clock p.m. and from 7:30 o'clock p.m. until 11:00 o'clock p.m. Because of the large number of persons requesting speaking time, all of these registrants have been scheduled back-to-back, leaving little or no time for persons who may not have registered in advance to speak. Of course, this could be alleviated by scheduling at least one additional day for the hearing.

In the event that North Carolina is selected either as the primary or an alternative site for the Superconducting Super Collider (SSC), then these violations of the public hearing procedures will give rise to court action to invalidate the Environment Impact Statement for the Collider in North Carolina. We urge your immediate attention to this matter.

Sincerely,

CLAYTON, MYRICK, McCLANAHAN & COULTER

Jerry B. Clayton

Jerry B. Clayton

JBC:srm

LETTER 818

BEDFORD COUNTY
TENNESSEE

Office of
PAUL R. PARKER
County Executive

SHELBYVILLE, TENN.

September 29, 1988

EIS Comments
Dr. Wilmont N. Hess, Chairman
SSC Site Task Force
Office of Energy Research,
ER-G5, GTN
Department of Energy
Washington, DC 20545

Dear Dr. Hess:

I submit this letter to you in my capacity as County Executive of Bedford County, Tennessee, and on behalf of the Bedford County Board of Commissioners. The Board of Commissioners under Tennessee law is the primary legislative body for our county and my position is elected Chief Executive officer of the County.

On July 28, 1987, the Bedford County Board of Commissioners, through official resolution, a copy of which attached, moved to pledge its unanimous support to the State of Tennessee in its efforts to obtain the site for the Super Conducting Super Collider.

1 I am happy to state that the vast majority of comments that I have received from citizens of Bedford County are in total support of this project. There have been a few negative comments concerning the rights of homeowners, adverse changes to the physical environment, and a gentle concern for the change in the rural middle Tennessee life style. These are all valid concerns that should be weighed and they, of course, would be considered by the Bedford County Board of Commissioners in fairness to all citizens of our county. However, at this point, there has been no substantive indication that any of these negative concerns are well grounded. Therefore, the Bedford County Board of Commissioners unanimously goes on record in supporting this project.

The middle Tennessee area has in recent years been selected as a relocation site for the Nissan truck plant in Smyrna and the General Motors Saturn plan in Spring Hill. These two selections alone point out the many favorable aspects of this area for such a project as the SSC. The area has an abundance of very educational and technical institutions and is being recognized throughout the country as a high-tech corridor with the Red Stone Arsenal being located in Huntsville, Alabama, and the Arnold Engineering Development Center and UT Space Institute being located in adjacent Tullahoma, Tennessee.

To summarize our position, we believe that the Super Conducting Super Collider will have a favorable and positive impact on the economic status and quality of life of our citizens and residents. Because of these various factors, the Bedford County Board of Commissioners gladly goes on record as being in support of the location of this project in our area.

Yours very truly,

Paul R. Parker

Paul R. Parker
County Executive
Bedford County, Tennessee

PRP/bb

2

RESOLUTION

WHEREAS, the State of Tennessee has enthusiastically entered into the competition for proposing a site for the Super Conducting Super Collider; and

WHEREAS, a significant portion of the proposed site is located in Bedford County; and

WHEREAS, the Bedford County Board of Commissioners recognizes that the economic impact of this project presents a significant opportunity for the community;

THEREFORE, be it RESOLVED that the Bedford County Board of Commissioners pledges its unanimous support to this effort, and be it further RESOLVED that a copy of this Resolution be properly publicized and transmitted to the appropriate Federal, State and local officials.

This 28th day of July, 1987.

James T. Brown

James T. Brown, Chairman

A Certified True Copy
This 29 day of July 1987
Carl O. Clayton
By [illegible]

LETTER 819

SEPT. 28, 1988

SSC DRAFT EIS COMMENTS
WILMOT HESS
SSC SITE TASK FORCE
OFFICE OF ENERGY RESEARCH
ER-65 GTN
DEPARTMENT OF ENERGY
WASHINGTON, D.C. 20545

GENTLEMEN:

RE: AWARDING OF THE SUPER COLLIDER CONTRACT

1 AS AN ACT OF MERCY, YOU ARE PETITIONED TO REQUIRE ALL STATES BIDDING FOR THE SITE OF THE SUPERCOLLIDER AND FINALLY THE WINNER TO GUARANTEE THAT ACCESSIBLE HOUSING FOR THE HANDICAPPED, INCLUDING FLOOR LEVEL WALK-IN SHOWER WILL BE AVAILABLE.

HON. PRESIDENT REGAN HAS SIGNED LEGISLATION PUTTING NEW ENFORCEMENT TEETH IN THE OPEN HOUSING LAW OF 1968 FOR THE HANDICAPPED.

2 THE NEW CIVIL RIGHTS LAW REQUIRES THAT 30 MONTHS FROM NOW, NEW BUILDINGS WITH 4 OR MORE UNITS MUST BE CONSTRUCTED SO THAT THEY ARE READILY ACCESSIBLE TO THE HANDICAPPED. DOORS MUST BE WIDE ENOUGH TO ACCOMMODATE WHEEL CHAIRS. SWITCHES AND OUTLETS MUST BE IN ACCESSIBLE LOCATION. BATHROOM WALLS MUST BE RE-INFORCED TO ALLOW INSTALLATION OF GRAB BARS.

DISABLED TENANTS WOULD HAVE THE RIGHT TO MAKE REASONABLE MODIFICATION TO A DWELLING AT THEIR OWN EXPENSE. THE TENANTS WOULD

(CONTINUED)

II

HAVE TO AGREE TO RESTORE THE PROPERTY TO ITS ORIGINAL CONDITION WHEN THEY LEAVE.

THE NEW ACCESSIBLE HOUSING LAW MAKES NO MENTION OF FLOOR LEVEL WALK-IN SHOWERS,

THERE IS NO GUARANTEE THAT UNDER THE NEW FEDERAL CIVIL RIGHTS LAW 30 MONTHS FROM NOW FLOOR LEVEL WALK-IN SHOWERS WILL BE BUILT IN ONE BEDROOM AND TWO BEDROOM APARTMENTS WHERE THE COLLIDER WILL BE BUILT.

3 THERE ARE VERY FEW APARTMENT HOUSES THAT OFFER THE OPTION OF FLOOR LEVEL WALK-IN SHOWERS IN THE STATES BIDDING FOR THE SUPER COLLIDER.

THERE ARE NO FEDERAL, STATE, COUNTY, CITY LAWS THAT REQUIRE ANYONE TO BUILD APARTMENT HOUSES WITH FLOOR LEVEL WALK-IN SHOWERS.

4 UNLESS ACTION IS TAKEN NOW TO INSTALL ACCESSIBLE WALK-IN SHOWERS IN THE STATE THAT IS AWARDED THE SUPER COLLIDER PROJECT, THE HANDICAPPED AND SENIOR CITIZENS WILL BE DISCRIMINATED AGAINST, EXPLOITED, AND DENIED EQUAL OPPORTUNITY FOR HOUSING WITH THOSE WHO ARE ABLE TO CLIMB IN AND OUT OF A SLIPPERY HIGH BATHTUB WITH SHOWER.

5 FLOOR LEVEL WALK-IN SHOWERS HAVE BEEN IN EXISTENCE SINCE 1880. IT IS NOW 1988 AND THERE ARE STILL NOT ANY WALK-IN SHOWERS AVAILABLE FOR THE HANDICAPPED AND SENIOR CITIZENS.

III

AS AN ACT OF MERCY PLEASE TAKE THIS MATTER INTO CONSIDERATION IN THE MEETING WITH THE VARIOUS STATE BIDDERS FOR THE SUPER COLLIDER.

PLEASE MAKE IT A REQUIREMENT TO INSTALL ACCESSIBLE WALK-IN SHOWERS FOR THE HANDICAPPED IN NEW HOUSING UNITS AT THE TIME THE SUPER COLLIDER AWARD IS ANNOUNCED AND NOT 2½ YEARS LATER.

AS AN ACT OF MERCY SPEAK UP FOR WALK-IN SHOWERS FOR THE HANDICAPPED AND ELDERLY.

PLEASE CHAMPION THE CAUSE FOR WALK-IN SHOWERS IN CONJUNCTION WITH THE EXPENDITURES OF BILLIONS OF DOLLARS FOR THE SUPER COLLIDER.

THE IS A WALL OF SILENCE IN THE UNITED STATES REGARDING FLOOR-LEVEL WALK-IN SHOWERS FOR THE ELDERLY AND HANDICAPPED AND THE HEAT.

THERE IS NO ONE TO CHAMPION THEIR CAUSE.

HISTORY RECALLS ANOTHER WALL OF SILENCE THAT PREVAILED IN NAZI GERMANY
6 IN 1943 WHEN THE ELDERLY, THE HANDICAPPED, THE JEWS, GYPSIES AND OTHER UNDESIRABLES WERE FORCED FROM THEIR HOMES INTO CONCENTRATION CAMPS WHERE THEY WERE SHOT, BURNED AND GASSED.

WALK-IN SHOWERS ARE A FUNCTION OF THE RESPONSIBILITIES OF THE VARIOUS GOVERNMENTAL PUBLIC HEALTH AGENCIES INCLUDING STATE AND LOCAL BOARDS OF HEALTH THAT INCLUDES DISEASE PREVENTION AND PROTECTION OF THE HEALTH OF EVERY AMERICAN HANDICAPPED OR NOT AND FROM ANY CAUSE THAT THREATENS THE INDIVIDUAL'S LIFE AND HEALTH, INCLUDING UNBEARABLE HEAT.

IV

THE PUBLIC HEALTH SYSTEM HAS NOT FULLFILLED ITS LEGAL OBLIGATION TO ADDRESSING THE PUBLIC HEALTH NEEDS OF THE HANDICAPPED IN NEED OF FLOOR-LEVEL WALK-IN SHOWERS NOW WITH THE "GREENHOUSE EFFECT".

THE PUBLIC HEALTH AGENCIES HAVE MAINTAINED A WALL OF SILENCE IN THE LIFE AND DEATH STRUGGLE OF THE HANDICAPPED BY NOT CALLING PUBLIC ATTENTION TO THE PLIGHT OF THE HANDICAPPED IN NEED OF FLOOR LEVEL WALK-IN SHOWERS IN APARTMENT HOUSES.

THERE CANNOT BE ANY COMPROMISE WITH INTENSE HEAT, FILTH AND SQUALOR. CLEANLINESS MUST PREVAIL IN THE BATHROOM WITH FLOOR-LEVEL WALK-IN SHOWERS FOR THOSE AMERICANS HANDICAPPED OR NOT WHOSE LIFE, HEALTH, AND WELFARE DEPENDS ON IT.

THE GOD-GIVEN RIGHT TO BE CLEAN AND COOL AND THE RIGHT TO A SHOWER IS A CIVIL RIGHT THAT IS BEING DENIED THE ELDERLY AND HANDICAPPED EVEN IF THEIR LIVES DEPENDED ON IT.

DURING THE BEGINNING OF WORLD WAR II INTERNMENT CAMPS WERE BUILT TO RELOCATE AND INTERN JAPANESE-AMERICANS. THERE WERE SHOWERS FOR INTERNEES IN THE INTERNMENT CAMPS IN THE HOT DESERTS

V

THE SCARCITY OF WALK-IN SHOWERS IN APARTMENT HOUSES PREDISPOSE HANDICAPPED PEOPLE WITH LATENT PRE-EXISTING HEALTH VULNERABILITIES AND SUSCEPTIBILITIES TO FURTHER RISKS INVOLVING THE BATHROOM - KITCHEN ENVIRONMENT, SANITATION, PERSONAL HYGIENE SPREAD OF DISEASE, CONTAGION, INFECTION AND INJURIES AND DEATH FROM FALLS AND DROWNING. HEAT FROM THE "GREEN HOUSE EFFECT" IS ANOTHER LIFE AND DEATH CONCERN.

THE QUALITY OF LIFE AVAILABLE TO THE HANDICAPPED WHO CANNOT RAISE THEIR FEET EVEN SLIGHTLY PRECLUDES AND DENIES THEM THE RIGHT TO WALK INTO A SHOWER ALONE TO USE WARM WATER AND SOAP TO REMOVE THE SWEAT, GRIME, FILTH, BACTERIA, ETC. ARISING FROM NORMAL EVERYDAY PHYSIOLOGICAL AND BIOLOGICAL FUNCTIONING OF THE BODY, EVEN WHEN THEIR LIVES DEPEND ON IT, DURING LONG HOT SUMMER DAY AND NIGHT HEAT WAVES.

HANDICAPPED PEOPLE WITH CARDIAC, RESPIRATORY, ASTHMA, DIABETIC CONDITIONS, ETC. MUST MAINTAIN CLEAN BODIES TO LIVE AND BREATH. AIR POLLUTION, OZONE LONG DAY AND NIGHT RECORD BREAKING HEAT WAVES WITH HIGH HUMIDITIES PUTS ADDED STRESS AND STRAINS ON THE VITAL ORGANS OF THE HEART, LUNGS, AND BODY COOLING SYSTEM.

THE HANDICAPPED ARE ALWAYS AT THE MERCY OF OTHERS IN HAVING TO COPE AND MEET THE DAILY NECESSITIES OF LIVING WHICH THE ABLE BODIED TAKE FOR GRANTED.

VI

THE HANDICAPPED ARE AMERICA'S DISADVANTAGED
THE HANDICAPPED ARE OBJECTS TO BE EXPLOITED AND DENIED THE RIGHT TO LIVE IN THE AGE OF THE WARMING OF THE EARTH - "THE GREEN HOUSE EFFECT."

THERE ARE NO "GOLDEN DOORS" IN THE UNITED STATES FOR THE HANDICAPPED. THE "GOLDEN DOOR" IS SHUT TIGHT IN THE FACES OF THOSE IN NEED OF FLOOR LEVEL WALK-IN SHOWERS, EVEN IF THEIR LIVES DEPENDED ON IT.

THE UNITED STATES HAS EXPERIENCED THE WORST RECORD BREAKING CONTINUOUS DAY AND NIGHT HIGH HEAT AND HUMIDITY WAVE IN HISTORY. THE WARMING OF THE EARTH WITH THE "GREEN HOUSE EFFECT" IS HERE.

PEOPLE WITH CARDIAC, RESPIRATORY, HEAT STRESS, HEAT DISORDERS, ETC. DIED IN RECORD BREAKING NUMBERS FROM THE HEAT THIS SUMMER. IT IS ESTIMATED THAT 15,000 AMERICANS MAY HAVE DIED FROM THE HEAT THIS SUMMER. MANY WHO DIED WERE HANDICAPPED, LIVING ALONE, AND WITHOUT FLOOR LEVEL WALK-IN SHOWERS TO SAVE THEM

THE UNITED STATES HAS BEEN PLAGUED THIS SUMMER BY POWER FAILURES. THE HOTTER IT GETS, THE MORE PEOPLE USE AIRCONDITIONERS. THIS RESULTS IN BURNOUT AND OVERLOADS OF ELECTRIC POWER GENERA. THE RESULTS ARE POWER FAILURES FOR LONG PERIODS OF TIME, WALK-IN SHOWERS WOULD HAVE SAVED LIVES OF THE HANDICAPPED WHEN EVERYTHING ELSE FAILED.

VII

"THE 1988 HEAT WAVE THREATENS TO KILL MORE THAN 15,000 PEOPLE." THIS WILL PROBABLY EMERGE AS ONE OF THE LARGEST NATURAL DISASTERS OF THIS CENTURY, SAID W. MOULTON AVERY, EXECUTIVE DIRECTOR OF THE CENTER FOR ENVIRONMENTAL PHYSIOLOGY IN WASHINGTON

"IF I HAD IN MY HAND RIGHT NOW THE NUMBER OF PEOPLE THAT HAVE DIED THIS SUMMER AS A RESULT OF HOT WEATHER, IT WOULD BE FRONT PAGE NEWS ALL OVER THE COUNTRY, BUT, I DON'T HAVE THAT NUMBER."

THAT IS BECAUSE MOST HEAT RELATED DEATHS GO UNREPORTED, BEING BLAMED ON HEART ATTACKS, STROKE, OR OTHER CAUSES.

THOSE MOST VULNERABLE TO HEAT STRESS ARE THE ELDERLY WHO MAY ALREADY SUFFER VARIOUS AILMENTS. IN 1980 THE ELDERLY MADE UP 70 % OF THE EXCESS DEATHS IN HOT WEATHER. SEVERAL FACTORS CONTRIBUTE TO THIS INCREASED VULNERABILITY TO HEAT STRESS INCLUDING LESS CARDIOVASCULAR STAMINA, HEART DAMAGE, LESS RESPONSIVE BLOOD VESSELS, UNDERLYING DISEASES AND A DECREASED ABILITY TO SWEAT," THE SPECIAL SENATE COMMITTEE ON AGING REPORTED.

IN ADDITION, THE ELDERLY USE MORE PRESCRIPTION MEDICATIONS AND MANY OF THOSE DRUGS CAN INCREASE SENSITIVITY TO HEAT. HEAT CAUSED DEATHS DO NOT AROUSE THE CONCERN THAT THEY SHOULD, BECAUSE THE REPORTING SYSTEM HAS NOT BEEN ESTABLISHED" AVERY SAID.

VIII

AS A RESULT, ONLY CASES OF HEAT STROKE ARE REPORTED AS HEAT DEATHS, AND THOSE AMOUNT TO PERHAPS 200 IN A NORMAL SUMMER AND UP TO 1600 IN A HOT SUMMER LIKE 1980.

STILL NOT ATTRIBUTED TO HEAT ARE THE THOUSANDS OF TEMPERATURE-INDUCED HEART ATTACKS, STROKES AND OTHER FATAL AILMENTS. THEY ARE MEASURED LATER, WHEN DEATHS IN THE HOT YEARS CAN BE COMPARED WITH MORE NORMAL ONES AND THE EXCESS CALCULATED.

WE HAVE VERY ACCURATE ASSESSMENT OF WHAT CROP LOSSES ARE GOING TO BE, AND IT SEEMS WE ARE MORE CONCERNED ABOUT CORN THAN ABOUT PEOPLE. I THINK THAT'S A TRAGEDY," AVERY SAID.

THANK YOU FOR YOUR CONCERN FOR YOUR FELLOW HUMAN BEINGS, THE HANDICAPPED AND ELDERLY AMERICANS.

EXODUS 20

AND GOD SPAKE ALL THESE WORDS,
2 I AM THE LORD THY GOD, WHICH HAVE BROUGHT THEE OUT OF THE LAND OF EGYPT, OUT OF THE HOUSE OF BONDAGE
12. HONOUR THY FATHER AND THY MOTHER THAT THY DAYS MAY BE LONG UPON THE LAND WHICH THE LORD THY GOD GIVETH THEE.

SINCERELY,
S. Stark
P.O. BOX 42288
TUCSON, ARIZONA
85733 - 42288 -

The Arizona Daily Star

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'Greenhouse effect' is here, scientist says

Earth feeling heat of predicted trend

By Philip Shabecoff
© 1988 The New York Times

WASHINGTON — The Earth has been warmer in the first five months of this year than in any comparable period since measurements began 130 years ago, and the higher temperatures can be attributed to a long expected global warming trend known as the "greenhouse effect," a space agency scientist reported yesterday.

Scientists have been cautious about attributing rising global temperatures of recent years to the greenhouse effect, a predicted global warming caused by pollutants in the atmosphere.

But yesterday, Dr. James E. Hansen, of the National Aeronautics and Space Administration, told a congressional committee that it was 99 percent certain that the warming trend was not a natural variation but was caused by a buildup of carbon dioxide and other artificial gases in the atmosphere.

Hansen, a leading expert on climate change, said in an interview that no "magic number" showed when the greenhouse effect was actually starting to cause changes in climate and weather. But he added: "It is time to stop waffling so much and say that the evidence is pretty strong that the greenhouse effect is here."

If Hansen and other scientists are correct, then humans, by burning of fossil fuels and other activities, have altered the global climate in a manner that will affect life on Earth for centuries to come.

Hansen, director of NASA's Institute for Space Studies, in New York, testified before the Senate Energy and Natural Resources Committee.

He and other scientists testifying before the Senate panel yesterday said that projections of the climate change that is apparently occurring mean that the Southeastern and Midwestern sections of the United States will be subject to frequent episodes of very high temperatures and drought in the next decade and beyond.

But they cautioned that it was not possible to attribute a specific heat wave to the greenhouse effect, given the still limited state of knowledge on the subject.

Some scientists similarly argue that warmer temperatures in recent years may be a result of natural fluctuations rather than human-induced changes.

Several senators on the committee joined witnesses in calling for action now on a national and international program to slow the pace of global warming.

Sen. Timothy E. Wirth, D-Colo., who presided at the hearing yesterday, said: "As I read it, the scientific evidence is compelling. The global climate is changing as the Earth's atmosphere gets warmer. Now, the Congress must begin to consider how we are going to slow or halt that warming trend, and how we are going to cope with the changes that may already be inevitable."

Mathematical models have predicted for some years that a buildup of carbon dioxide from the burning of fossil fuels such as coal and oil and other gases emitted by human activities into the atmosphere would cause the Earth's surface to warm by trapping infrared radiation from the sun, turning the entire Earth into a kind of greenhouse.

If the current pace of the buildup of the gases continues, the effect is likely to be a warming of 3 to 9 degrees Fahrenheit from the year 2025 to 2050, according to the projections.

The rise in temperature is not expected to be uniform around the globe, but to be greater in the higher latitudes, reaching as much as 20 degrees, and lower at the equator.

The rise in global temperature is predicted to cause a thermal expansion of the oceans and to melt glaciers and polar ice, thus causing sea levels to rise by one to four feet by the middle of the next century.

Scientists have already detected a slow rise in sea levels. At the same time, heat would cause inland waters to evaporate more rapidly, thus lowering the level of bodies of water such as the Great Lakes.

Hansen, who records temperatures from readings at monitoring stations around the world, has previously reported that four of the hottest years on record occurred in the 1980s.

Compared with a 30-year base period from 1950 to 1980, when the global temperature averaged 59 degrees Fahrenheit, the temperature was one-third of a degree higher last year.

In the first five months of this year, the temperature averaged about 0.4 degree above the base period, Hansen reported yesterday.

"The first five months of 1988 are so warm, globally, that we conclude that 1988 will be the warmest year on record unless there is a remarkable, improbable, cooling in the remainder of the year," he told the Senate committee.

He also said that current climate patterns were consistent with the projections of the greenhouse effect in several respects in addition to the temperature rise.

For example, he said, the rise in temperature is greater in high latitudes than in low, is greater over continents than oceans, and there is cooling in the upper atmosphere as the lower atmosphere warms up.

"Global warming has reached a level such that we can ascribe with a high degree of confidence a cause and effect relationship between the greenhouse effect and observed warming," Hansen said at the hearing, adding: "It is already happening now."

Dr. Syukuro Manabe, of the Geophysical Fluid Dynamics Laboratory of the National Oceanic and Atmospheric Administration, testified that a number of factors, including an earlier snowmelt each year because of higher temperatures and a rain belt that moves further north in the summer, indicate that "it is likely that severe midcontinental summer droughts will occur more frequently with increasing atmospheric temperature."

While natural climate variability is the most likely chief cause of the current drought, Manabe said, the global warming trend is probably "aggravating the current dry condition."

Dr. George Woodwell, director of the Woods Hole Research Center, in Woods Hole, Mass., said that, while a slow warming trend would give human society time to respond, the rate of warming is uncertain.

One factor that could speed up global warming is the widescale destruction of forests that are unable to adjust rapidly enough to rising temperatures. The dying forests would release the carbon dioxide they store in their organic matter, and this greatly speed up the greenhouse effect.

LETTER 819 (CONTINUED)

IIA.1 - 144

LETTER 819 (CONTINUED)

1888

CATALOGUE "G"

ILLUSTRATING

THE • PLUMBING • AND • SANITARY • DEPARTMENT

THE J. L. MOTT IRON WORKS.

OFFICES AND SHOW ROOMS:

86, 88 AND 90 BEEKMAN STREET, NEW YORK

AND

311 AND 313 WABASH AVENUE, CHICAGO, ILL.

E. B. SLATER, PRINTER, 153 AND 155 FULTON STREET, NEW YORK.

PLATE 82-G.

PLATE 82K-G.

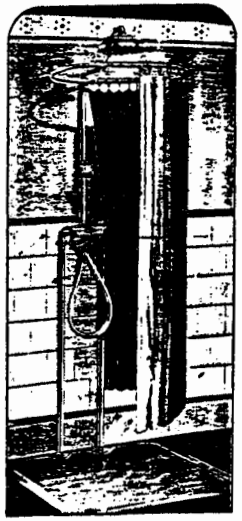

PLATE 83-G.

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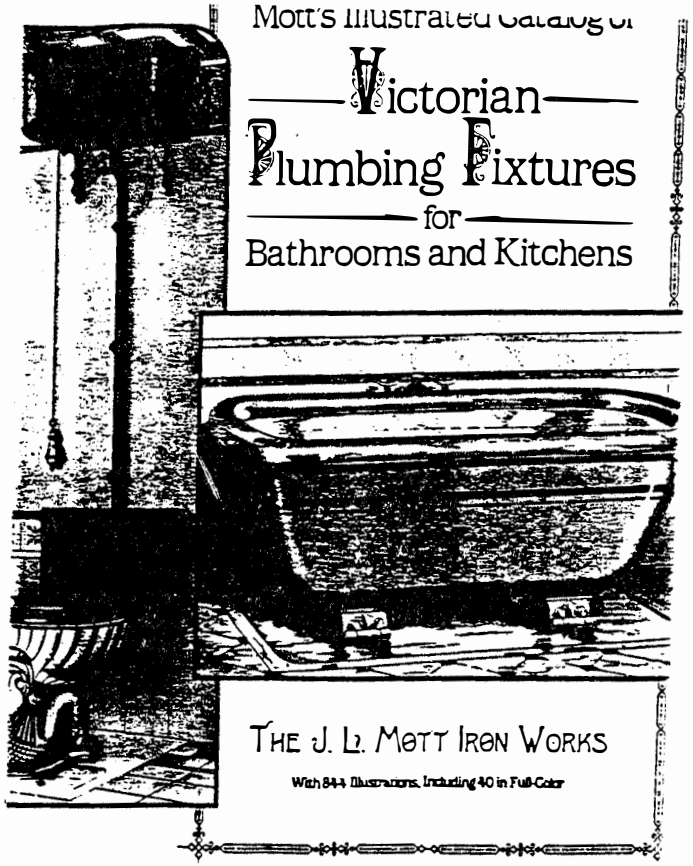
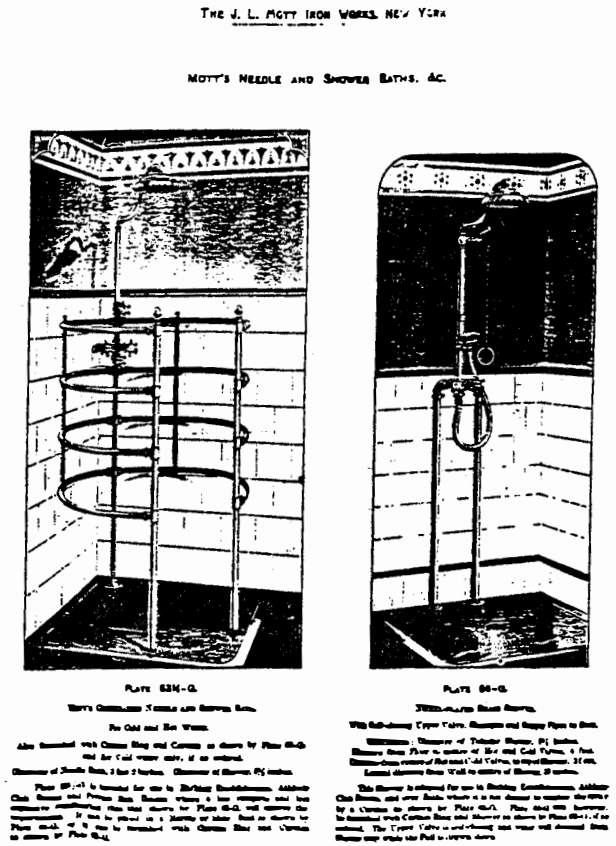
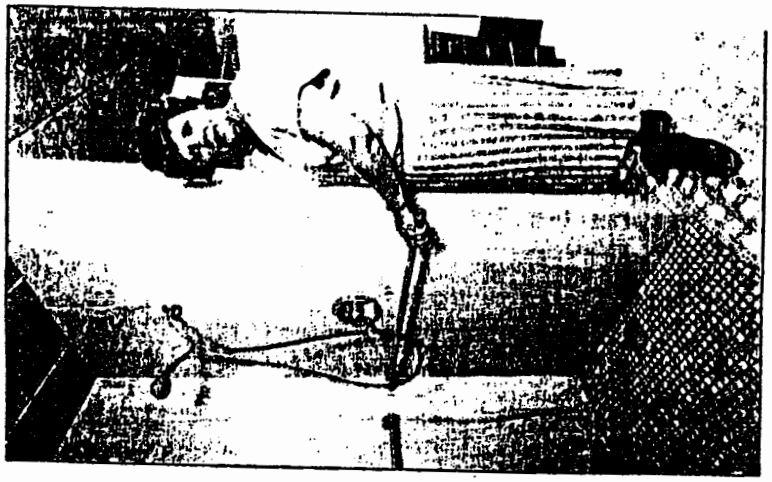
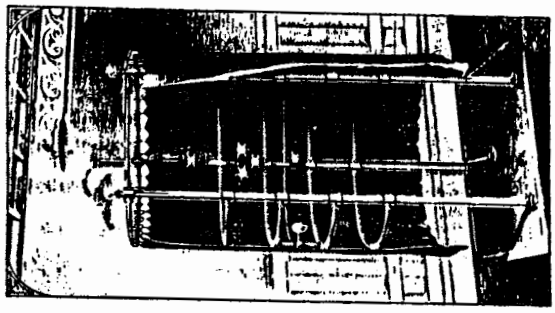
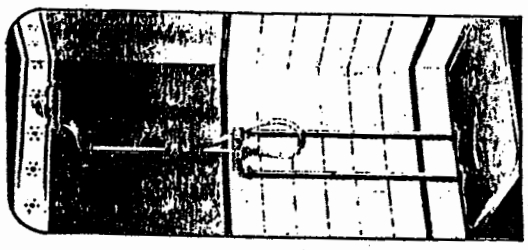

Mott's Illustrated Catalog of
Victorian
Plumbing Fixtures
for
Bathrooms and Kitchens
The J. L. Mott Iron Works
With 844 Illustrations, Including 40 in Full-Color


The J. L. Mott Iron Works, New York
Mott's Needle and Shower Baths, &c.







LETTER 819 (CONTINUED)

Reagan signs bill for payments to Japanese-American internees

By Eben Warren
Knight-Ridder Newspapers

WASHINGTON — As elderly Japanese-Americans brushed the tears from their faces, their president yesterday righted a few "to right a grave wrong."

The men and women, some in their 60s, came from across the country to witness America's effort to close a painful chapter of American history: the internment of 120,000 Japanese-Americans in camps during World War II.

"No payment can make up for those lost years," Reagan said as he signed legislation to pay $20,000 to each of those held in the camps. "What is most important in this bill has less to do with property than with honor. For here we admit a wrong. Here we reaffirm our commitment as a nation to equal justice under the law."

Weeping after the ceremony, 81-year-old Susumu Emori recalled how he, his wife and their four tiny children — the oldest was 6 — were sent from the farm he managed in Stockton, Calif., to a camp in Arkansas.

Yesterday's ceremony, he said, "brings back the old days." With his wife by his side, searching in her purse for a fresh white handkerchief, Emori said the family had decided to use the $120,000 they will receive to endow a nursing education program at Loma Linda University, which gave them jobs and a home after their four years in the Arkansas camp.

Like others interviewed, he seemed to bear the United States no ill will. "It was terrible but it was a time of war. Anything can happen. I didn't blame the United States for that," Emori said.

His son, Walter, now a doctor in Medford, Ore., explained the family's view of the wartime events. "Forever. It's not forgotten (but) there's no animosity, no frustration, no 'what if.'"

Under the new law, which goes into effect immediately, each of the estimated 60,000 surviving people who were held in the camps will receive the tax-free payment.

The first checks likely will go out in January 1990, said an aide to Rep. Norman Mineta, D-Calif., a key sponsor of the bill, which has been introduced four times since 1978. About 34,000, or 40 percent of the Japanese-Americans eligible for payments, live in California, Mineta spokesman Eric Pickering said.

The $1.25 billion legislation, which also includes an apology for the policy of internment, provides for a maximum of $500 million in any fiscal year and the payouts will go to the oldest first, in lump sum checks of $20,000, the White House said.

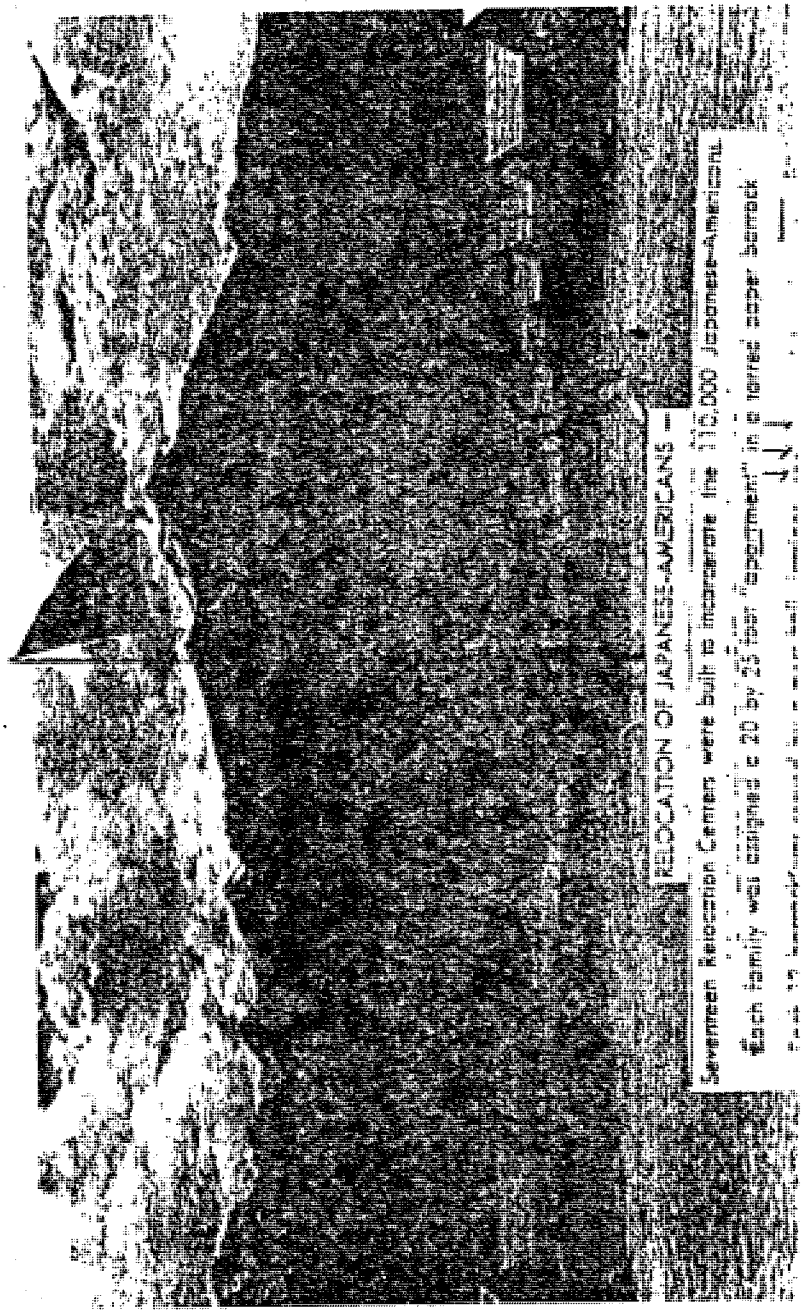
For the elderly who die before the money is disbursed, the funds will go to surviving spouses, children or parents, the White House said.

In the six months following Japan's bombing of Pearl Harbor on Dec. 7, 1941, until the camps were closed June 30, 1946, Japanese-Americans were rounded up, losing homes, businesses and virtually all their belongings. Mineta, his parents and five siblings were sent to a camp in Heart Mountain, Wyo., when Mineta was 10.

The Associated Press

Reagan shakes hands with Sen. Spark Matsunaga, D-Hawaii, during signing ceremony

INTERNMENT CENTERS HAD SHOWERS


RELOCATION OF JAPANESE-AMERICANS —
Each family was assigned a 20 by 25 foot "apartment" in a tarred paper barrack

LETTER 819 (CONTINUED)

Thousands threatened by rising temperatures, expert says

'Furnace': U.S. bakes A-14

WASHINGTON (AP) — Rising temperatures across America are overwhelming vulnerable people and could kill thousands, according to an authority on health and the environment.

"This will probably emerge as one of the largest natural disasters of this century ... and it will have just whispered its way by," said W. Monlton Avery, executive director of the Center for Environmental Physiology in Washington.

By times and tens, the poor and elderly are succumbing to the heat, which overtaxes their bodies, he said. But most of these tragedies will pass with little notice, being recorded in government statistics as heart attacks or strokes, rather than heat-related fatalities.

In the end, Avery warned Tuesday, this summer's stifling temperatures threaten to exact a higher death toll than the 1980 heat wave that killed an estimated 15,000 Americans.

"If I had in my hand right now the number of people that have died this summer (from heat) it would be front-page news all over the country, but I don't have that number," said Avery, whose non-profit center researches the effects of heat and cold on humans for government agencies and other clients.

He has argued for a reporting system to record heat deaths, but statisticians must depend on comparing deaths during heat waves years with "normal" years and calculating the excess fatalities. That was the system used to determine the 15,000 extra deaths in 1980.

"What we're seeing through now is the same thing we were living through in 1980," he said.

Those most vulnerable to heat stress are the elderly, who already may suffer various ailments, Avery said. In 1980 the elderly accounted for 70 percent of the excess deaths in the hot weather, he said.

After a few days of a heat wave, the elderly begin to arrive at hospitals with heat-related problems, said Dr. Keith Silverman, director of emergency medicine at Johns Hopkins School of Medicine.

STATE EDITION

THE ARIZONA REPUBLIC

35¢

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Thursday, September 8, 1988 Phoenix, Arizona C 99th year, No. 113

Nation's public-health system 'in trouble,' report says

Republic Wire Services

WASHINGTON — The nation's public-health system is in disarray and is probably ill-equipped to cope with such major responsibilities as AIDS prevention or ensuring safe drinking water, according to a report released Wednesday by a panel of the National Academy of Sciences.

"We have slackened our public-health vigilance generally and the health of the public is unnecessarily threatened as a result," the report says.

"Public health is a vital function that is in trouble."

"We Americans are taking our public-health system for granted," said Dr. Richard D. Remington, professor of preventive medicine and environmental health at the University of Iowa and chairman of the Institute of Medicine study group.

"Our guard is now down."

The institute, a part of the National Academy of Sciences, attributed the erosion of the public-health system to an inadequate understanding by public-health agencies and by citizens of what services should be provided.

It also cited erratic delivery of care "that often leaves the poor without services," a tremendous diversity of services from one state to another and within states, and tension between public-health experts and politicians.

The public also expects public-health agencies to provide health care to the estimated 30 million or more Americans who have little or no health insurance, without giving them the resources to do so, the study said.

"The result is a public-health system in disarray — a system in which neither the public-health providers nor the citizens receiving the benefits have a clear vision of what the responsibilities for public-health institutions ... should be," Remington said.

The Institute of Medicine was chartered by the National Academy of Sciences in 1970 to enlist members of the medical and other professions to study various aspects of public-health policy.

The two-year study found substantial differences in the ways states delegated public-health responsibili-

— See U.S. HEALTH, page A6

Heat Stress and Heat Disorders

"At temperatures above 80° F, one actually begins to gain heat from the environment."

Another summertime problem occurs when the air temperature exceeds 80° F. At this temperature, the body does not effectively lose heat by convection. At temperatures above 80°F, one actually begins to gain heat from the environment.

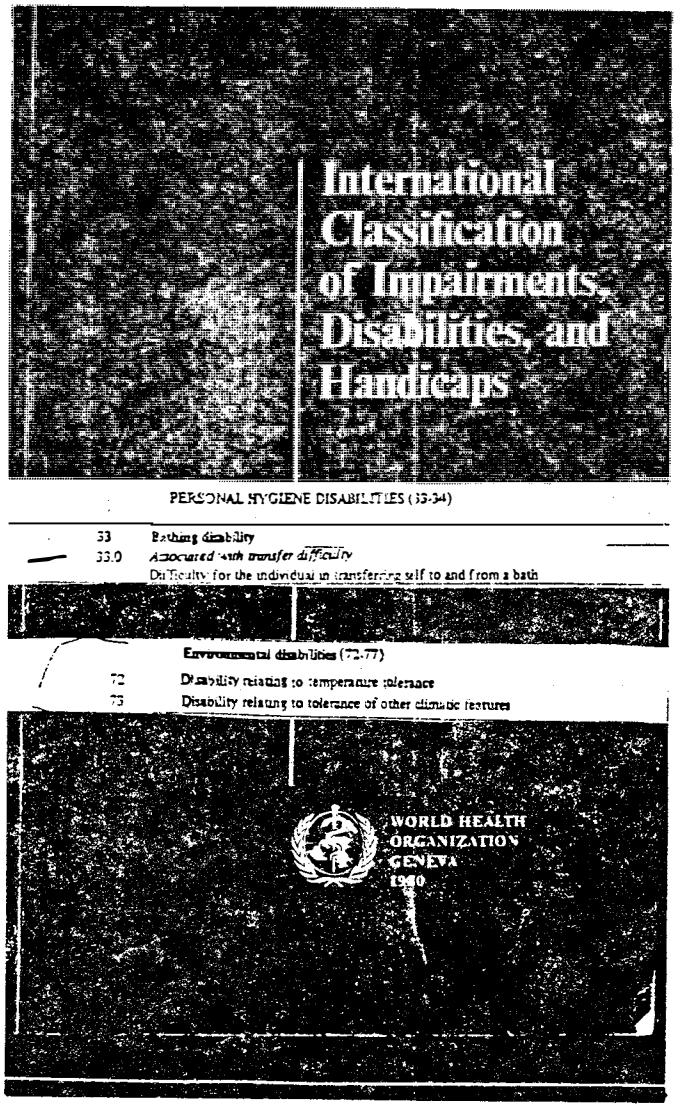
"... the ability to acclimatize and to handle heat is going to depend on the health of the cariodvascular system."

Your heart must be able to respond. As I discussed earlier, the body needs to handle the immense load with vasodilatation which is how we get rid of heat, both by radiation and through evaporation.

So if you do have chronic heart disease, you are going to be more liable to develop heat stroke. Individuals with symptoms of these diseases should be made aware of this fact, especially in those types of illnesses where the myocardial contractility is affected and the heart cannot respond as efficiently as that of a person in good health.

"There will be approximately two percent in any population who are going to be heat intolerant. . . ."

Another item to consider is the circulating effect of *hear load*. In one test, subjects were fitted out in hot suits. The subjects were only able to tolerate 130° F in one of these suits, unable to sweat, unable to get rid of their heat for only two hours. They were able to tolerate a temperature of 160° F in this type of suit for only one hour. The venous *pressure* rose. The cardiac output initially went up as the person felt hot. As the body realized it was hot, the skin vessels would dilate, the heart beat faster and the amount of blood that the heart pumped each minute increased in order to make up for this need. Initially the cardiac output rose but later it fell. The face of the subject was initially pink and then became ashen grey when it appeared circulatory collapse was imminent. Some people ceased to sweat at the end of this experiment.

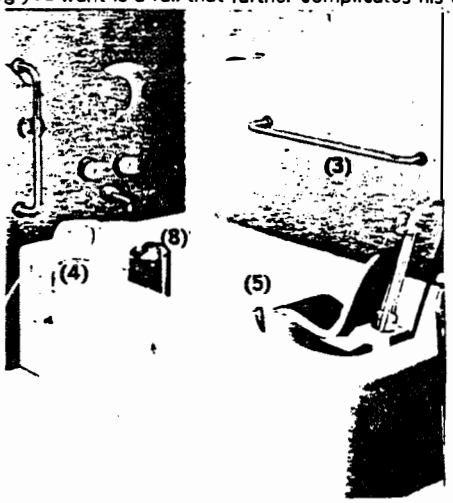

International Classification of Impairments, Disabilities, and Handicaps
PERSONAL HYGIENE DISABILITIES (33-34)
33 Bathing disability
33.0 Associated with transfer difficulty
Difficulty for the individual in transferring self to and from a bath
Environmental disabilities (72-77)
72 Disability relating to temperature tolerance
73 Disability relating to tolerance of other climatic features
WORLD HEALTH ORGANIZATION
GENEVA
1980

Living in BERLIN

Jews, Communists, gypsies, handicapped people – all were forced from their homes into the camps, where people were shot, burned and gassed, and many others died from starvation and disease. Twelve years later, when World War II had ended, more than 10 million such people had been killed by the Nazis.

Caution! ~~Bathrooms~~ BATHTUBS may be hazardous to health.

Your bathroom is the most accident-prone room in the house — even for healthy members of the family. So, you must be extra cautious on behalf of the patient who may be weak and unsteady on his feet. The last thing you want is a fall that further complicates his condition.



LETTER 819 (CONTINUED)

1988 heat toll may top 15,000 killed in 1980

The Associated Press

WASHINGTON — This summer's stifling temperatures threaten to exact a higher death toll than the 1980 heat wave that killed an estimated 15,000 Americans, an authority on health and the environment said Tuesday.

"This will probably emerge as one of the largest natural disasters of this century," said W. Monston Avery, executive director of the Center for Environmental Physiology in Washington.

"If I had in my hand right now the number of people that have died this summer (as a result of hot weather), it would be front-page news all over the country, but I don't have that number."

That is because most heat-related deaths go unreported, being blamed on heart attacks, stroke or other causes, said Avery, whose non-profit center studies the effects of extreme temperatures on humans for government agencies and other clients.

The 1980 heat wave, which was not as severe as the one now taking much of the nation, was calculated later to

— See HEAT page A6

Heat toll may top 15,000 killed in '80

— HEAT from page A1

have led to 15,000 more deaths than would have been expected in a normal summer, Avery said.

"What were living through now is the same thing we were living through in 1980" in terms of a natural disaster, he said.

Normal death rates nearly doubled in the eastern half of the United States during a 1966 heat wave, according to the National Oceanic and Atmospheric Administration. Deaths were five times normal in St. Louis.

The Senate Special Committee on Aging later reported that heat waves in 1963 and 1966 claimed a total of 11,000 lives.

And a study by researchers at the University of California at Berkeley found that hot spells in Los Angeles in 1939, 1955 and 1963 each accounted for more deaths than any recorded natural disaster in that state, including the San Francisco earthquake and fire of 1906.

Those most vulnerable to heat stress are the elderly, who may already suffer various ailments, Avery explained. Indeed, in 1980, the elderly made up 70 percent of the excess deaths in the hot weather, he said.

"Several factors contribute to this increased vulnerability to heat stress, including less cardiovascular stamina, heart damage, less-responsive blood vessels, underlying diseases and a decreased ability to sweat," the Senate committee reported.

In addition, it said, the elderly use more prescription medications, and many of those drugs can increase sensitivity to heat.

Heat-caused deaths do not arouse the concern that they should, because a uniform reporting system has not been established, Avery said.

As a result, only classic cases of heat stroke are reported officially as heat deaths, and those amount to perhaps 200 in a normal summer and up to 1,600 in a hot summer like 1980, he explained.

Still not attributed to the heat are the thousands of temperature-induced heart attacks, strokes and other fatal ailments. They are only measured later, when deaths in the hot years can be compared with more-normal ones and the excess calculated.

"We have very accurate assessment of what crop losses are going to be, and it seems we are more concerned about corn than about our people. I think that's a tragedy," Avery said.

Death and illness aren't the only heat-wave related problems; heat affects work attendance and productivity, depending on the region.

A five-year study by researchers at the University of Delaware found that hot weather increases work attendance in the Sun Belt but reduces it in other areas of the country.

Attendance rates remain high in hot-weather cities where air conditioning is common at home, work and car, the study found. But rates drop when the weather cools slightly and workers want to engage in outdoor tasks and recreation.

In northern cities, however, work attendance dips as people unaccustomed to hot, muggy weather lose sleep and suffer other discomforts.

Reagan signs new bill on housing bias

WASHINGTON (AP) — President Reagan signed legislation yesterday putting new enforcement teeth in the open-housing law Congress passed in the wake of Martin Luther King Jr.'s 1968 assassination.

Standing with members of Congress in the White House Rose Garden, Reagan hailed the newly enacted bill as "the most important civil rights legislation in 20 years."

Singling out Rep. John Lewis, D-Ga., who had accompanied King to Washington for the civil rights leader's "I Have a Dream" speech in 1963, the president said the legislation "has brought us one step closer to realizing Martin Luther King's dream."

The measure, which was passed overwhelmingly by the House and Senate, extends anti-discrimination protections to the handicapped and to families with children.

It also empowers the federal government — for the first time — to seek fines of up to $100,000 against individuals or organizations found to have engaged in a pattern of housing discrimination.

Under the open-housing provision of the Civil Rights Act of 1968, the government was given only a mediating role in housing discrimination disputes.

Reagan used the occasion to throw a bouquet in the direction of Vice President George Bush, who was out on the campaign trail as the Republican presidential nominee.

"The Civil Rights Act of 1968 included for the first time in our history a fair-housing provision. That was a major achievement, one that many members of Congress — including a young congressman named George Bush — had to show enormous courage to vote for," the president said.

Here are major provisions of the Fair Housing Amendments Act of 1988:

● Protection against housing discrimination would cover the disabled and handicapped and families with children under age 18. Current law already protects against discrimination because of race, sex, religion or national origin.

● The secretary of the Department of Housing and Urban Development would try to win a conciliation agreement after a complaint is filed. If that effort fails, the secretary or any party could take the case to an independent administrative law judge in the department or to a U.S. District Court.

● If the administrative judge finds that someone has engaged or is about to engage in a discriminatory practice, the judge shall order appropriate relief, which may include actual damages, an injunction or civil penalties.

● The maximum fines would be $10,000 for a first violation, $25,000 for a second violation within a five-year period and $50,000 for two or more violations within a seven-year period.

Civil penalties ranging from $10,000 for a first offense to $100,000 for successive offenses would be authorized in cases where a "pattern or practice" of discrimination has been proved.

● The administrative law judge's ruling would be subject to review by a federal appellate court.

● A U.S. district judge could impose the added penalty of punitive damages.

● New buildings with four or more units must be constructed so they are readily accessible to the handicapped. Doors must be wide enough to accommodate wheelchairs; switches and outlets must be in accessible locations; bathroom walls must be reinforced to allow for installation of grab bars. This would apply to dwellings sold or occupancy 30 months after the law's enactment.

● Disabled tenants would have the right to make reasonable modifications to a dwelling at their own expense. The tenants would have to agree to restore the property to its original condition when they leave.

● Children could be barred from housing intended for the elderly, but that would be the only exception to an open-housing policy for those 18 years old and younger. Housing for the elderly is defined as a community in which at least 80 percent of the dwellings are occupied by at least one person age 55 or older, and significant facilities and services are provided, or those occupied solely by people age 62 and older.

The Associated Press

Signing ceremony — Reagan talks with Attorney General Richard Thornburgh, center, and Samuel Pierce, right, Housing and Urban Development secretary, during the bill signing ceremony in the White House Rose Garden.

HA.1- 1453

LETTER 819 (CONTINUED)

Tucson Arizona

Tuesday, September 27, 1988 Tucson Citizen CITY EDITOR, MARK KIMBLE, 573-4[illegible]

It may be too late: Irreversible 'greenhouse effect' feared

By EDWARD STILES
Citizen Staff Writer

Science loses a bit of its detachment — some might say irrelevance — when you happen to be inside the petri dish instead of coolly observing it from the outside.

That's why John A. Eddy is worried. He's connected to a massive experiment: man-caused global change. If the wrong button gets pushed, he is in big trouble, and, he added, so are you.

"We have inadvertently initiated a global experiment whose consequences are not now fully predictable," he said. "We're out where we've never been before — well beyond it — and that's kind of scary."

Eddy, director of the Office of Interdisciplinary Earth Sciences, in Boulder, Colo., said elevated amounts of methane and carbon dioxide in the air already may have driven Earth's atmosphere beyond recovery. In other words, we may be on our way to a "greenhouse" warming effect that cannot be stopped, even if no more fossil fuel is burned.

Last Thursday, Eddy was the first of seven speakers in the A.E. Douglass lecture series on global change. The series is being sponsored by the University of Arizona's Coordinating Committee on Global Change. The lectures, at the rate of about one a month, will continue through March. They celebrate the 50th birthday of UA's Tree-Ring Research Laboratory.

Eddy was quick to note that if we continue to pour huge amounts of methane and carbon dioxide into the atmosphere, we could make the situation far worse.

Half the carbon dioxide released into the atmosphere from fossil fuels since the beginning of the Industrial Revolution — about the time that Charles Dickens was a boy — is still up there, he said. The carbon dioxide our cars spew out today will remain there for 100 years, he added.

The biggest problem right now, he said, is collecting data on the problem. Scientists don't know worried they should be.

They can't say for certain tha greenhouse effect has started. T don't know enough about changes that are occurring.

He noted that environm crises are a dime a dozen, wit many false alarms that it's diffi to arouse public interest.

But, he said, "I think the cerns about global change are different sort. In this case, po

EXPERT, continued

Expert fears irreversible 'greenhouse effect'

Continued from 7A

getting it from very serious, normally conservative scientists who are genuinely concerned."

Eddy is on the national and international committees of the International Geosphere-Biosphere Programme. It includes 70 nations, and the United States, the Soviet Union and China are taking active roles.

"We're setting up things to share data" on global changes, Eddy said. "The program itself will start in earnest in 1990, and it will last about 20 years."

Efforts will be made to monitor land use, atmospheric chemistry, activity of the sun, soil chemistry, ground water, sea-level changes and the decay of large glaciers, he said. "The global-changes program proposes to put the Earth in intensive care, to monitor a selected set of vital signs very carefully," Eddy explained.

Labs, such as UA's tree-ring lab, already have contributed data that gives a partial look at the history of the Earth's climate, he said. "Nature may be secretive, but she's a compulsive diarist," he added. Those diaries are kept in tree rings, annual growth rings of fossil coral, and in the gases and particles locked in ice cores, to name a few.

These natural diaries record data on solar activity, volcanic eruptions, fire frequency, and temperature fluctuations.

He noted that a 2,000-meter-long core taken at a Soviet facility in Antarctica is a time capsule that goes back 160,000 years. It shows a rapid warming after an ice age 142,000 years ago. After that warming trend, the Earth experienced another ice age before the beginning of the current period of warm temperatures, he said.

During the warm era 142,000 years ago, carbon dioxide was about 280 parts per million in the atmosphere. Today, we're at 350 parts per million, and predictions are that we could see an increase to 600 ppm in the next 30 to 40 years from increased burning of fossil fuels, he said.

The Soviet ice core shows that the earlier warming period was even warmer than this one — by 4 to 7 degrees.

"To me, the fact that it was warmer then than it is now isn't a source of comfort, it's a source of worry," Eddy said. If it was that much warmer when amounts of carbon dioxide and methane were lower than today, we could be in big trouble if the greenhouse effect gets rolling, he said.

LETTER 820

James Read Brazier

Route Four, Box 91
Ennis, Texas 75119

September 28, 1988

SSC DRAFT EIS COMMENTS
Dr. Wilmot Hess, Chairman
SSC Site Task Force
Office of Energy Research, ER=65, GTN
Department of Energy
Washington, D. C. 20545

Dear Dr. Hess,

By virture of your position as the Chairman of the Superconducting Super Collider Site Task Force, you are in a position which entitles you to learn the views not given at the hearing held in Waxachie, Texas on September 26-27. Thus, it is the purpose of this letter to express to you or the proper person my feelings on the Superconducting Super Collider Project.

1

After attending the meeting and hearing the many statements in support of this project and the few in opposition, I did some research. One source used was your four volume, 4,000+ word report and in doing so, many errors were found. Therefore, based on your report and other resources available to me, I find that I cannot support this project nor do I want it located in Ellis County, Texas !

Several questions which I had and still have concerning this Federal project remain unanswered. I shall list several for your consideration and answer:

2 1) There are those who feel the Superconducting Super Collider will help the economy. What good is a booming and flowing economy if radiation kills the citizens?

3 2) What guarantee can you offer that no radiation, hazardous or toxic material waste will not get in the underground water system?

4 3) What guarantee can you offer which will keep the lakes, rivers, creeks and cattle-ponds free from radiation materials or pollution?

After reading your multi-volume report, no answer to these simple questions could be ascertained.

5 Why should we, the tax-payers and land-owners, allow our taxes tobe wasted on such foolishness when other important areas of need exist. As an example of this is the National debt, military defense of our Country, or the stopping of the drug traffic and the use of such. I find it shocking

that our fine Government and its outstanding employees can only spend money and raise my taxes. Why can't the National budget be balanced? As a tax-payer I would not object to taxes if the money went to goodand worthwhile causes and was better managed. As it is today, I need no additional taxes to pay nor any additional financial burdens to bear.

Why can't this Superconducting Super Collider not be built in Washington, D. C.? Since your supporters, including many politicians, feel it to be such a wonderful and scientific achievement and will have no known side effects, let them have the radiation, population increase, toxic waste, and the other related problems. Just keep it out of Ellis County, Texas!

During the hearing held in Waxachie, Texas, I learned that some water tretment plants exist in several local communities, but when visiting these locations, no water treatment plants could be found. The local residents in each of the communities did not know of the treatment facilities. Also, stated was the fact that all the steel mills in Ellis County could supply the steel needed in this construction project. There are no steel mills in Ellis County. Neither is there any iron ore located in this county which could be used in making steel. Please do not be mislead by those who see only dollar signs ($ $ $) and could gain from this project into placing the Superconducting Super Collider in Ellis County. 6

The Superconducting Super Collider Project may have some advantages, but the disadvantages most certainly out weigh them. I encourage you to disregard the current Texas site for your project and possibly forget the whole thing. By doing this, we the tax-payers and citizens could live a longer and healthier life and be very grateful. 7

Thank you, Dr. Hess, for your time and cooperation in this matter.

Awaiting your reply, I remain yours very sincerely,

James R. Brazier

James R. Brazier, Ed. S.
Assistant Professor

LETTER 821

C.A.T.C.H.-Illinois

Citizens Against the Collider Here

October 3, 1988

Honorable John S. Herrington
Secretary of Energy
Room 7A
257 1000 Independence Avenue SW
Washington, D.C. 20585

Dear Secretary Herrington:

Since you are unable to meet with representatives of our organization, we are submitting this package to you as our lobby against the siting of the Superconducting Super Collider in the State of Illinois.

1 Please keep in mind while meeting with Governor Thompson and his delegation on October 6th that they do NOT represent ALL the people of Illinois. Although the tactic of our political representatives is to minimize the strength and depth of our opposition, the signatures of almost 20,000 Illinois residents shows otherwise. Of those, there are hundreds of dedicated C.A.T.C.H.-ILLINOIS members who have made a commitment to continue to do everything they can to keep the SSC out of Illinois.

2 In its attempt to placate affected landowners, the Illinois General Assembly came up with what they call their "good neighbor" bill. As you can see by our enclosed synopsis, it was a "smokescreen" and does not mitigate our concerns.

3 The enclosed Detrimental Effects of Locating the Superconducting Super Collider (SSC) in Illinois prepared by C.A.T.C.H.-ILLINOIS, March 15, 1988, addresses the technical/socio-economic problems and we, of course, will be commenting further on these issues relative to the Draft EIS.

It is our hope that you will take the time to peruse this package so that you will better understand our position and resolve.

C.A.T.C.H.-ILLINOIS is available to talk with you at any time.

Respectfully submitted,

William A. Tardy
President

P.O. Box 104, Wasco, Illinois 60183 Phone: 312-584-4244

LETTER 821 (CONTINUED)

C.A.T.C.H.-Illinois

Citizens Against the Collider Here

THIS COMPREHENSIVE PACKAGE HAS BEEN SENT OUT NATIONWIDE TO 25 MAJOR NEWS MEDIA, BOTH TELEVISION AND PRINT, AND WE ARE ALREADY RECEIVING INQUIRIES ABOUT C.A.T.C.H.-ILLINOIS AND OUR ACTIVITIES. THIS PACKAGE HAS GENERATED SIGNIFICANT NATIONAL INTEREST BOTH IN THE ILLINOIS HEARINGS AND THE PURSUIT OF OUR STORY IN DETAIL AFTERWORDS.

P.O. Box 104, Wasco, Illinois 60183 Phone: 312-584-4244

LETTER 821 (CONTINUED)

C.A.T.C.H.-Illinois

Citizens Against the Collider Here

DETRIMENTAL EFFECTS OF LOCATING THE SUPER CONDUCTING SUPERCOLLIDER (SSC) IN ILLINOIS

PREPARED BY C.A.T.C.H.-ILLINOIS
MARCH 15, 1988

P.O. Box 104, Wasco, Illinois 60183 Phone:312-584-4244

LETTER 821 (CONTINUED)

C.A.T.C.H.-Illinois

Citizens Against the Collider Here

PRESS RELEASE - FOR IMMEDIATE RELEASE

July 10, 1988

On June 30, 1988, the Illinois Legislature passed Amendment Two of HB3512. This amendment was an attempt by the legislature to address some of the negative economic impacts of siting the Superconducting Super Collider in the state
4 of Illinois. After careful consideration of the legislation, C.A.T.C.H.-IL believes it falls far short of providing guarantees which Governor Thompson said were "in order" at the Department of Energy's Scoping Hearing in February of this year.

The amendment to the bill covered three topics: 1) compensation for loss of tax revenue due to land acquisition, 2) com-
5 pensation for loss of property values due to the clouding of titles as a result of the acquisition of stratified fee estates
6 and 3) compensation for damages due to construction of the SSC.

COMPENSATION FOR LOSS OF TAX REVENUE: The main objection to this portion of the legislation is that it limits state appropriation for lost revenues to only five years, whereas the property that would have been subject to tax will be off the tax rolls for a minimum of thirty-five years (10 years during con-
7 struction and an estimated 25 years of operation of the SSC).

The state contends that any loss of tax revenue would be made up within the five year period of time. However, it will only place the taxing districts back to where they should have been when the property was originally acquired. Once the property is lost to the SSC, the taxing districts will always be behind from the amount of revenue that could have been generated.

COMPENSATION FOR LOSS OF PROPERTY VALUE AS A RESULT OF CLOUDING OF TITLES WITH THE STRATIFIED FEE ESTATES: This aspect of the amendment sets up an arbitrary and unreasonable procedure to compensate property owners for loss of property value due to the acquisition of stratified fee estates:

8 1) Appraisals are to be done at the direction of the Department of Energy and Natural Resources. No input is to be alloved by property owners. There is no provision to have the owners or their representative present at the time the property is being appraised. Appraisers are to be retained by the Department, which will clearly result in the appraiser being biased, consciously or not, to value the property low to the benefit to the state and to the detrement of the affected property owners.

2) Notice of the availability of the appraisals is to be pro-

P.O. Box 104, Wasco, Illinois 60183 Phone:312-584-4244

This is a petition
that is approximately
5" thick.

1/29/88

**PETITION TO REMOVE
BID TO SITE THE
SUPER-CONDUCTING, SUPER-COLLIDER (SSC) ATOM SMASHER
IN THE STATE OF ILLINOIS**

We, the undersigned residents of the State of Illinois, who will be most impacted by the siting of the Super-Conductor, Super-Collider (SSC) ATOM SMASHER, do hereby petition the Governor of the State of Illinois, to withdraw the proposal to the Department of Energy (DOE) to locate said ATOM SMASHER in Northern Illinois, as proposed.

LETTER 833

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Rose Mofford, Governor
Ronald L. Miller, Acting Director

October 6, 1988

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U. S. Department of Energy
Washi gton, D. C. 20545

ATTN: SSC DEIS Comments

Dear Dr. Hess,

The Arizona Department of E vi onmental uality appreciates this opportunity to provide you w th its comments relative to the draft environmental impact statement (DEIS) for the Superconducting Super Collider (SSC) Project proposed in Arizona. The A izona Department of Environmental Quality (DEQ) is the State's regulatory agency charged with the responsibility of protecting and pre erving the water quality, air quality and soils in Arizona. In carrying out those responsibilities, DEQ oversees various permit p ogram , including aquifer (groundwater) protection permits, hazardous and solid waste disposal permits, national pollution discharge elimination systems (NPDES) permits, reuse and recha ge project pe mi s, drinking water and wastewater facility approvals, and air quality permits.

DEQ, based on its regulatory responsibilities, has reviewed the DEIS for the SSC project in Arizona and, in general, found no substantive problems or environmental impacts that are troublesome or would prevent DEQ from carrying out its environmental p ograms and responsibilities. However there are a few errors in the DEIS that need to be corrected.

The DEIS errors in not p oviding a more favorable assessment of Arizona's ab lity to fully p otect the environment, especially in meeting the wastewater treatment and haza dous, indust ial and solid waste n eds of the SSC project. In particular, Volume IV, Appendix 10, Section 3.3.1 Sewage, on page 10A22488107, the DEIS in rrectly references a statement from my letter of March 11, 1988, by stating that the Arizona Dep rtment of Envi onmental Qu lity believes that Arizona's proposal for sewage treatment " . . . would not be acceptable because it does not include a tertiary system, . . . ". The Arizona proposal to install two aerating operating ponds for effluent is quite acceptable and provides a good wastewater system for the SSC project. Moreover, this matter was clarified when I amended my letter of March 11, 1988 by another letter sent to Dr. Josepb Comfort on April 28, 1988 (See

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Central Palm Plaza Building 2005 North Central Avenue Phoenix, Arizona 85004

attached copy). In this letter I emphasized that the wastewater treatment system proposed by the state is quite acceptable. In the development of the DEIS, however, my April 28, 1988, letter was obviously overlooked as a qualifying reference and, as a result of this oversight, the Arizona project was couched as a less acceptable site in terms of wastewater treatment needs. Again, the DEIS needs to be corrected to reflect that DEQ's assessment of Arizona's original proposal is favorable and that the State of Arizona had chosen the best option for treatment of its wastewater. The bottom line is that a tertiary sewage treatment facility is not needed and would unnecessarily add to the cost of the project.

The DEIS also errored in Volume IV, Appendix 10, Section 3.3.2 Solid Waste, on page 10A22488117, by again misinterrupting my letter of March 11, 1988. The DEIS stated that "DEQ strongly recommended that an on-site landfill be provided." The DEQ suggested that an on-site municipal solid waste landfill would be possible to permit and is a viable option. However, other current and future off-site solid waste disposal facilities are viable options too. No special emphasis toward an on-site disposal facility was ever intended by DEQ. Moreover, even though the DEIS mentioned several off-site municipal landfills, it failed to emphasize that some of the nearby off-site landfill projects that are proposed for construction in the near future may actually be synergistic to the waste disposal needs of the SSC project in Arizona. In particular, a firm near Mobile, Arizona, Waste Management, Inc. is planning to construct a large municipal landfill that could very efficiently and economically service the SSC project's domestic waste disposal needs. In addition, the Continental Corporation is also in the planning stages to develop a landfill in the nearby Rainbow Valley Area. Thus, on-site and off-site options are equally viable and neither one is favored or strongly urged as the best option by DEQ.

On the issue of waste disposal, the DEIS fails to emphasize the hazardous and industrial waste disposal benefits that will accrue to the SSC facility by having the Arizona Hazardous Waste Management Facility within the influence of the SSC ring near Mobile, Arizona. The Arizona Hazardous Waste Management Facility will be available to fully meet the needs of the SSC for all of its non-ionizing hazardous and industrial waste. Moreover, the State's investment in this facility will provide additional infrastructure benefits to the SSC project (1.e., improved transportation routes, increased emergency response facilities and services, specially trained personnel and other benefits). The DEIS should better relect these synergistic qualities that Arizona presents to the SSC Project.

In conclusion, the DEQ is excited about the SSC Project and is ready to assist in anyway to ensure that the SSC Project can meet its environmental protection responsibilities. Moreover, DEQ believes that Arizona provides the best environment, geology, hydrogeology, and all other environmental factors for selection as the SSC Project site.

Dr. Wilmot Hess
Page 3

Again, DEQ appreciates this opportunity to comment and urges the U. S. Department of Energy to give every favorable consideration that it can to Arizona as the site for the Superconducting Super Collider Project.

Sincerely,

Paul A. Scheidig
Ombudsman

cc: Ron Miller, Acting Dir., DEQ
Michael Doyle, Dep. Dir., DEQ
Dr. Joseph Comfort, A.S.U.

LETTER 833 (CONTINUED)

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Rose Mofford, Governor
GERALD R. TELETZKE, PH.D., DIRECTOR

April 28, 1988

Joseph R. Comfort, Ph.D.
Professor of Physics
Physics Department
Arizona State Unviersity
Tempe, AZ 85287

Dear Dr. Comfort,

On March 11, 1988, I sent you a letter on behalf of the Arizona Department of Environmental Quality, which commented on the environmental analysis section of the Proposal developed for the proposed Superconducting Supercollider (SSC) Project in Arizona. In that letter, I incorrectly stated that the proposed sewage treatment processes for the project may have been oversimplified and would cost considerably more than the estimated $250 thousand given in the Proposal. In fact, the Proposal correctly evaluated the cost of a 150 thousand gallons per day sewage treatment plant, as approximately $250 thousand. My letter on the other hand, expressed a need to reevaluate the cost of the treatment facility since it would probably range in the neighborhood of $20 million to $100 million. Also, my letter incorrectly advised that the aeration basins may allow for disposal by evaporation but would probably fall short of needed treatment to meet reuse or recharge objectives. My incorrect assessments were based on an understanding that the SSC facility would handle 150 million gallons a day of effluent, rather than the 150 thousand gallons a day that would actually occur. Thus, the Proposal's statements pertaining to wastewater treatment are correct and need not be changed or altered.

I hope these corrections are timely and that the errors included in my March 11, 1988, letter did not cause or create any hardships or inconvenience to you in the development of an Environmental Impact Statement for the proposed SSC Project.

Sincerely,

Paul A. Scheldig
Ombudsman

PAS:par

c: Gerald Teletzke, Director

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Central Palm Plaza Building 2005 North Central Avenue Phoenix, Arizona 85004

LETTER 839

10/6/88

DEPARTMENT OF ENERGY DEIS MEETING - 10/6/88

Dr. Wilmot Hess
Chairman
SSC Site Task Force ER-65, GTN
Department of Energy
U.S. Department of Energy
Washington, D.C. 20545

Good afternoon ladies and gentlemen and thank you for taking time away from your busy schedules and jobs to be here today. I am sure that many of you are losing money being here, as I am. Also, welcome to the Department of Energy. Thank you for coming to hear us plead our case in order to disqualify Illinois.

My name is William Tardy and I am the President of Citizens Against the Collider Here in Illinois, otherwise known as C.A.T.C.H./ILL. I represent 20,000 plus people, who live in the State of Illinois. Our committees have read, studied and thoroughly analyzed all 4,700 pages in 16 appendices of the Draft Environmental Impact Statement, dated August, 1988. It doesn't take a rocket scientist, or should I say a Fermi physicist, to realize the Draft Environmental Impact Statement shows many areas that clearly indicate Illinois is

a terrible choice as a host state for the SSC. Some of the shortcomings of the Illinois site are as follows:

1 1. More affected parcel owners than all other sites combined, i.e., 3,305-4,375 C.A.T.C.H. count; Table 4-2 A-3C through A-34.

2 2. Second most wetlands affected - 850 acres. Table 3-7

3 3. More acreage of prime farmland would be removed from production than any other site. Table 4-23

4 4. More businesses would be closed than all the other states combined. Table 4-2

5 5. Illinois has a regional ground water shortage. Table 3-7

6. Illinois would have the most ground water leakage into the tunnel.

6 7. More people would be adversely impacted by noise, air pollution, and exposure to airborne, radionuclides than any other site. Appendix 4, Sec. 4.5.1, Page 4-29

7 8. Illinois currently is in a non-attainment status for carbon monoxide and ozone levels. Appendix 4, Sec. 4.2.2, Page 4-26

8 9. Surface water in Illinois is the worst of the seven sites. Appendix 4, Sec. 4.2.1.2, Table 4-2

However, the Draft EIS is deficient in many areas, which will be enumerated by many of the following speakers over the next several days. Some of these areas that will be discussed in detail are as follows:

9 1. The potentially affected wells, as referenced in Volume IV, Appendices 7, Page 113, Fig. 7-17, is clearly deficient. The count shows 320 potentially affected wells, and in our studies, which only encompass half the ring, we have located 610 wells. If one were to extrapolate this figure to include the entire ring, one could assume that 1,220 wells could be potentially affected.

10 2. The number of affected parcels, as enumerated in Table 4-2, Appendix 4, Page 16, shows 3,305 affected parcels in Illinois. However, if one merely counts the parcels as shown on the enclosed maps, one comes up with 3,624. Bare

in mind this is not including the 1988 housing starts on the ringer corridor. If one were to add these approximate 500 new '88 houses, one would arrive at 4,375 affected parcels - more than 10 times all of the other sites combined.

3. The E-8 shaft site does not address the problem of building this shaft in someone's front yard and directly across the street from a 60 home subdivision. E-8 is not even shown in Appendix 4, Page A-3C, nor is helium site F-8 even shown on A-3D.

11

These are just a few of the shortcomings of the Draft EIS that you will be hearing more detail on in the next few days. Suffice it to say, you and the State of Illinois have put a lot of people through a lot of misery, time and expense during the last nine months, and we don't appreciate it. We don't like the State of Illinois' actions, misinformation and arrogance. We don't appreciate your attempt to install your experiments through, under and around our homes, farms, schools, churches and factories. We don't want your experiments as our neighbors, and we don't want you and your physicists on our property. Please take this down and take it down very carefully - after the

12

Department of Energy and Mr. Harrington have reviewed all the negative impacts that this project will cause the State of Illinois and the Fox Valley, if you make the mistake of trying to build the SSC in our neighborhood, we will not let it come to fruition. We will not allow the SSC to be built in Illinois. If this project must be built in America, don't site it in Illinois, or your super toy will never come on line. Give it to a state that wants it. A state that needs it. A state that welcomes it. That state is clearly NOT the State of Illinois.

Over the last nine months we have garnered 20,000 signatures on our petitions, and we have tried without success to present these to Governor Thompson. Therefore at the end of my time I wish to present these petitions, and I request that every name be entered into the record as being opposed to this project. I want to further state that unlike the State of Illinois, who has been circulating petitions for over two years, ours were not signed by children, DOE employees, state and Fermi employees and Fermi subcontractors, etc. Ours were all signed by the people who would be affected, that is the adult homeowners and taxpayers. I should also add that many of the people who have signed our petitions, previously had signed the

states petitions, until they learned the facts. Once they learned the facts and shortcomings they changed their minds and have now signed our petitions.

Again, I thank everyone who is in attendance and I wish to present the petitions to the Department of Energy to be entered into the record.

William A. Tardy

William A. Tardy
P O Box 104
Wasco, IL 60183

LETTER 841

YOUNG AMERICANS FOR FREEDOM
Greater Chicagoland Chapter
P.O. Box 543
River Forest, Illinois 60305
(312) 692-7312

1710 W. Touhy.
Park Ridge, IL
60068-3074

Chairman
Michael Hugh Burny

Vice Chairman
John F. Di Leo

Testimony presented to the Department of Energy -- October 6, 1988

1 As the United States loses its edge on high technology to West Germany, Japan, Hong Kong, Taiwan, and Singapore, some of which were so far behind us as to necessitate the formation of special trade status just a decade ago, any effort to improve our stature in science and technology must appear commendable. The supercollider project undoubtedly serves the government as a major propaganda tool to give the appearance that the United States is preparing to leap back into the forefront of worldwide technological superiority.

As usual, however, the government misses the point. American industry has fallen behind not for lack of research and development, but for lack of freedom in the marketplace. The ridiculous abundance of federal restrictions, taxes, and mandates on business have driven jobs in the high-tech industry, and all other industries, overseas to nations with less abundant chains on their business sectors.

The SSC project will cost a minimum of four billion dollars. In the era of trillion dollar debt, can anyone truly believe this is a justifiable expenditure of taxpayer dollars? When thousands are homeless, tens of thousands are starving, millions are suffering a sluggish economy in need of jobs and decent housing, can it possibly be rational to steal four billion dollars more from the public and bury it underground?

2 If government's chief duty is to help the people of this nation lead peaceful, prosperous lives, it must lower their taxes and encourage business to thrive. It must not waste billions of tax dollars, force thousands out of their homes, and close dozens of local businesses by competing with the R & D departments of private business and universities.

Government, allegedly the servant of the people, has no right to disrupt and destroy communities, diminish property values of residents, and contaminate the water supply through radiation! By closing hundreds of wells, clouding the titles of thousands of citizens, and destroying the potential productivity of this region, the government will be harming not only the thousands of Illinoisans here, but the millions of other taxpayers nationwide whose hard-earned dollars are put to use in the SSC, making the entire nation share the sins committed against these residents.

YOUNG AMERICANS FOR FREEDOM
Greater Chicagoland Chapter
P.O. Box 543
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Chairman
Michael Hugh Burny

Vice Chairman
John F. Di Leo

page two

How should the government solve its problems? By lowering taxes, cutting government waste, eliminating failed programs and restrictive regulations, and leaving people alone to live their lives in peace...

And leaving research and development to the business community, where it belongs.

Incidentally, if the government is determined to waste these billions on an overgrown, underground racetrack, there are other states available for the project, states with more vacant land already in the government's possession, states with less risk of environmental ill effects, states without an arrogant, egomaniac governor willing to sell his constituents down an irradiated river for a few pages of favorable newsprint!

3

Illinois is the best state for residing in, raising children in, and doing business in. It is the worst state for another dangerous, wasteful government program, however well-intentioned or scientifically popular. Do it somewhere else, or don't do it at all.

President Reagan, in 1980, proposed the elimination of the Department of Energy. If this is an example of DOE's activities, I have no doubt that the president was right.

Thank you.

John F. Di Leo
Vice Chairman,
Illinois YAF

LETTER 842

Carla Wells
6N296 Woodward Rd
St Charles 60175
584-4876

C.A.T.C.H.-Illinois

Citizens Against the Collider Here

October 6, 1988

Dr. Wilmont Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, DC 20545

Attn: SSC DEIS Comments---Sightlines and F8

Dear Sir:

1 Appendix 16 which concerns scenic and visual resource assessments fails to consider every E and F site which will actually affect individual's sightlines. For example, Sec.16.3.3.2 identifies key viewing points along roads, railroads or bike paths where individuals may become annoyed if confronted with continually having to view the industrial yard nature of the compressor stations. This section of the Draft EIS fails to indicate that compressor station F8 will be located immediately adjacent to Randall road, a main north-south highway. Not only will this site be fully visible on all four sides, it will be located directly at the entrance to the newly developed Red Gate Subdivision. How can the EIS fail to realize this is a problem when it earlier states "Residential land uses are not visually compatible with the proposed project because of the obvious functional and structural contrasts between project features and residences."?

F8 will be constructed right in the midst of an area of estate homes. Logically, sightlines towards F8 would have a measurable longterm negative impact and would be non-mitigable, and yet the EIS very conveniently ignors this.

2 This proposed F8 site happens to be one of the sites where the State Department of Energy and Natural Resources has purchased options on land in order to move the facility further away. The ENR has purchased an option on 10 acres of land at $20,000 per acre slightly further west on the north side of Bolcum road. This new location for F8 is still in full view from Randall and Bolcum roads and from the Red Gate Subdivision. What the ENR apparently does't know is that this optioned land lies adjacent to a piece of property owned by the Christ Community Church of St. Charles. Also, this optioned property is within 700 feet of another site owned by Saint Patrick's Church of St. Charles. The Catholic

P.O. Box 104, Wasco, Illinois 60183 Phone:312-584-4244

Church
intends to begin construction on their new church next spring, while the Christ Community Church has delayed their plans to build until it is clear that the SSC project will go to Texas. Whatever the outcome, the EIS makes it perfectly clear that niether the EIS writers or the DOE is aware of this potential unmitigable SSC facility siting. They are once again unaware because the State ENR has failed to notify them of this situation.

3 How can an industrial complex be allowed to be built at the entrance to a residential subdivision, adjacent to two churches, and in full view of a major highway without the Draft EIS even mentioning it? Does the ENR or DOE feel this problem will simply go away by not drawing attention to it? This is a totally unacceptable location for your tank farm facility. Not only will it be an eye sore for everyone passing it or living near it, but what about the noise? Are the church PA systems going to have to be abnormally loud in order to compete with the drone of the compressor station? Are the church windows going to have to remain closed forever? How can anyone be expected to attend church in the atmosphere that the DOE and the collider are going to create at this location?

Your failure to realize that this situation exists is just another example of your arrogance and unconcern for the quality of human life that surrounds you. It's quite clear that all that matters to you is your precious collider---everything else is relegated to a level of insignificance. This cannot and will not be accepted. The Fox Valley site is not the logical choice for the SSC project. Put it where Dr. Lederman originally planned for it to go---out in the desert where it belongs!

Sincerely yours,

LETTER 843

The Illinois Prairie Path

P. O. Box 1086
Wheaton, Illinois 60189

295 Abbotsford Court
Glen Ellyn, Illinois 60137
October 6, 1988
(312) 469-4289

Dr. Wilmot Hess, Chairman
SSC Site Task Force
ER-65/GTN
Office of Energy Research
U.S. Department of Energy
Washington, D.C. 20545

Attention: Draft EIS

Dear Dr. Hess:

1 On February 21, 1988, I wrote to you on behalf of the board of directors of The Illinois Prairie Path, a not-for-profit corporation which for twenty years developed and managed an extremely popular multiple-purpose trail by the same name located in the study area of the proposed SSC. In that letter I called to your attention the fact that the Illinois Prairie Path is a national recreation trail which could be seriously impacted by the construction and/or operation of the SSC. This means that the National Trails Act applies and should be considered in the Draft Environmental Impact Statement.

2 Although my letter stated several concerns of our board arising from the fact that the SSC ring will pass under three branches of our trail and the U.S. Department of Energy will acquire fee title to three 1000-foot sections of the trail, the Draft EIS fails to respond to these concerns. Indeed, the Draft EIS (Section 5.1.5-40) contains the following misleading statement, indicating a total lack of awareness of the importance of the Illinois Prairie Path and other similar trails in the study area of the Fox River Valley: "C. Illinois. Hunting, fishing, environmental education, and bird-watching are the primary recreational uses of the area of the Illinois site." You should understand that the most popular form of recreation by far in this area is none of the above but is, instead, bicycling on the various trails, including the Illinois Prairie Path, the Great Western Trail, the Fox River Trail, and the Virgil L. Gilman Trail. The Illinois Prairie Path alone generates an estimated 300,000 user-trips annually.

3 As stated in my letter of February 12, our board is concerned about maintenance of trail continuity, both temporarily during construction and permanently during operation, and also about possible radiation

hazards to our users. To this list we would like to add one more concern: visual impact on a national recreation trail. Although the Draft EIS considers the visual impact of the SSC on the Great Western Nature Trail, another national recreation trail, (Section 5.1.10-14 F9), it makes no mention of the Illinois Prairie Path in this regard. In fact, as far as we have been able to determine, the Draft EIS does not mention or consider the impact of the SSC on our trail at all. 4

We think that the National Trails Act should be added to the list requiring Federal permits, licenses, and other entitlements in Chapter 6 and that the DEIS should address all of our above-mentioned concerns. Above all, we want a guarantee that the continuity of the Illinois Prairie Path will not be interrupted. 5

Very truly yours,

F. Paul Mooring

F. Paul Mooring
President

Enclosure: copy of the above-mentioned letter of February 21, 1988.

225-775 0 - 88 (Book 4) -

LETTER 843 (CONTINUED)

The Illinois Prairie Path

P.O. Box 1086
Wheaton, Illinois 60189

295 Abbotsford Court
Glen Ellyn, Illinois 60137
February 21, 1988

Dr. Wilmot Hess, Chairman
SSC EIS Scoping
SSC Site Task Force
ER-65, GTN
Office of Energy Research
U. S. Department of Energy
Washington, D. C. 20545

Dear Dr. Hess:

I am writing to you on behalf of the board of directors of The Illinois Prairie Path, a not-for-profit corporation which developed and managed over a period of twenty years a multiple-purpose recreation trail by the same name in DuPage County, northeastern Illinois. The trail also extends into Kane County and into Cook County. The Illinois Prairie Path was designated a National Recreation Trail by the U. S. Department of the Interior in 1971 and has since then become one of the most popular recreation facilities in the Chicago area. In DuPage County it is currently being developed and managed by the DuPage County Division of Transportation.

If the Superconducting Supercollider is built near Fermilab, the preliminary site plans show the main ring passing under three branches of our trail. (See enclosed map.) Three thousand linear feet of trail right-of-way will be acquired by the federal government. There will be a large Abort/External Beam Access structure J 5 at the southwest corner of the separated crossing of the East-West Tollway and Eola Road. This structure will be within a few hundred feet of two Illinois Prairie Path trail sections. Two other Abort/External Beam Access structures J 3 and J 4 will be near other trail sections.

We have three concerns:

1. Continuity. The most valuable attribute of the trail is its continuity. We do not want any part of it fenced off preventing access by our users.

2. Radioactivity. Will there be a hazard to our users from the near-by structures J 5, J 3 and J 4?

3. Additional road crossings. At-grade crossings pose a hazard to bicyclists, hikers, and equestrians. Will any new roads be built across

the trail to service the SSC?

We would appreciate any information you might have regarding these concerns and we expect them to be addressed in the EIS.

Very truly yours,

F. Paul Mooring
President

cc: Jack T. Knuepfer, Chairman, DuPage County Board
Richard Carlson, Chairman, DuPage County Board Highway Committee

LETTER 844

Naperville
Area Chamber of Commerce
Box 832 • 9 West Jackson Ave., Naperville, IL 60566
312/355-4141

RANDALL A. PROS
Board of Directors
Naperville Area
Chamber of Commerce

TESTIMONY IN SUPPORT OF SITING THE SSC IN ILLINOIS
PRESENTED BY THE NAPERVILLE AREA CHAMBER OF COMMERCE

On behalf of the Board of Directors of the Naperville Area Chamber of Commerce, which represents approximately 1,000 businesses and 1,800 individuals, I am here to speak in support of the siting, construction and operation of a super conducting, super collider facility in connection with the Fermi National Accelerator Laboratory in DuPage and Kane Counties.

Our relations with the current operations at Fermi Laboratory have been excellent over the many years that Fermi Laboratory has been operational in this area. The Naperville area is just one of several communities surrounding and supporting the personnel and operations of this laboratory. We cannot presume to speak for other communities also adjacent to this area, but we can in fact speak for our own community.

1 Naperville has enjoyed its relationship with Fermi and we believe that the personnel of Fermi Lab have enjoyed and found this area productive. Other speakers can address the technical aspects of the operation of Fermi Lab and the SSC project when it is sited here as to geological, environmental and technical adaptability. We believe that there is nothing inherently dangerous or undesirable in the SSC project.

We, however, can address other issues which also bear on the needs of such a facility. The surrounding communities, which include Naperville, that serve Fermi are expanding their personal service and retail base by literally leaps and bounds. In Naperville alone 150,000 sq. ft. of retail space is created each year. In terms of office space, approximately 750,000 sq. ft. is built within the corporate limits of Naperville each year. Space is being created in each of the communities that will be used for both general and professional services that can serve the staff of the SSC as they have the staff of Fermi Lab.

In terms of living conditions each of the communities offers a number of different residential housing opportunities, both in existing as well as in new construction. Again, speaking only for Naperville, approximately 1200 to 1500 new single family residences are created in our community each year. This has been the trend for several years. Additionally, multi-family housing, town houses and condo units are also built at a fast rate. Due to the nature of the area and particularly Naperville, there is such a turnover in the existing housing market that there are many opportunities for individuals who have transferred to places such as SSC to choose between either new residential areas or well-established neighborhoods with mature trees.

"Progress and History in Harmony"

In terms of education Naperville is building approximately one new elementary school classroom per month in both District 203 and District 204. We have added junior highs or middle schools at a corresponding rate of growth and there are additions to the three high schools serving the area. Naperville has just completed a magnificent new public library building offering multi-media data services to the public. Concerts, plays, theatre groups, chamber music, children's activities, multi-media art programs and athletic events are all available either immediately adjacent or in the Chicago Metropolitan area. Museums and galleries are, of course, in abundance. They are available in a diversity of sittings and subject areas to entertain, enjoy and educate the personnel that will be staffing this new facility.

Transportation and communications are state of the art in the Chicago Metropolitan area. This area enjoys the cutting edge advantages of fiber optic telecommunications as well as an on-demand buss service.

Finally, there is an aspect which has not been given proper recognition which we also believe is extremely important. This is the fact that there is a recognition of individual rights and responsibilities in this area. During the years that Fermi Laboratory and Argonne National Laboratory have been located in DuPage County, the communities, including Naperville, have had the opportunity to be involved with the scientists, engineers and support personnel that work in these important installations. As you are fully aware, these individuals represent many nations, cultures and religions. Over these many years our community and others have offered an atmosphere where these individuals and their families have resided comfortably and unchallenged in their beliefs and philosophies. We will continue this tradition with the next generation of scientific leaders from all over the world who will study and work in this new facility when it is built here in Illinois.

Thank you for your attention.

Copies to press, board, economic development committee.

October 1988

LETTER 845

CITY OF WARRENVILLE
DU PAGE COUNTY, ILLINOIS

RESOLUTION NO. 88-25

RESOLUTION OF SUPPORT FOR SUPERCONDUCTING SUPER COLLIDER

WHEREAS, it is incumbent upon the Department of Energy to select the most logical, cost effective site on which to build the proposed superconducting super collider ("SSC"); and

WHEREAS, the environs of Fermilab contain the qualities necessary for the establishment of the SSC, including geology which would support tunnel construction, a strong, established infrastructure of roads, airports, schools, hospitals and housing which would have to be built from scratch at other sites, and an established, single source of electrical power with sufficient capacity to serve the energy needs of the SSC at a relatively low cost; and

WHEREAS, for twenty years Fermilab has been a good neighbor to the City of Warrenville, offering employment to City residents; and

WHEREAS, the Mayor and City Council of the City of Warrenville believe that it is vital to our community that the SSC be established at Fermilab, thereby continuing Fermilab's preeminence in the field; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF WARRENVILLE, DuPAGE COUNTY, ILLINOIS, AS FOLLOWS:

1

SECTION ONE: That the City of Warrenville strongly supports the location of the SSC at Fermilab, and the Mayor is authorized and directed to forward a certified copy of this resolution to the Department of Energy and to offer testimony which supports the location of the SSC at Fermilab at any hearing of the Department of Energy.

SECTION TWO: That this Resolution shall be in full force and effect from and after its passage and approval in the manner provided by law.

PASSED THIS 19th day of September, 1988.

AYES: Ald. Aschauer, Wheeler, Ulery, Taylor, Kruse, Goodman, Baloun.

NAYS: -0-

ABSENT: Ald. Jones.

APPROVED THIS 20th day of September, 1988.

Vivian M. Lund
Mayor

ATTEST:

Lucy Bernard
City Clerk

LETTER 846

IDMM SSC Presentation (Aurora, Illinois: 10/6/88; 3:20 p.m.)

Good Afternoon

My name is Richard Shockley. I am the Director of the Illinois Department of Mines and Minerals. On behalf of my agency, I welcome this opportunity to testify on behalf of the Superconducting Super Collider Project.

The Department has been working with the Governor's Interagency Task Force on the SSC since 1984. After the U.S. Department of Energy made the decision to include Illinois in its group of finalist sites, the Department stepped up its work in support of the SSC. Having reviewed the data gathered by Department personnel and after reviewing the United States
1 Department of Energy's Draft Environmental Impact Statement, I can give my agency's unqualified support to this extremely important project.

The Illinois Department of Mines and Minerals' comments on the Draft Environmental Impact Statement focused on three areas: increasing worker safety, mitigating the noise and vibration caused by construction activities and controlling the disposal of rock spoil generated by the construction of this project.

The statements in the Draft Environmental Impact Statement regarding worker safety procedures, safety training and compliance with safety standards are too vague. The Department of Energy should indicate the safety standards followed during each phase of the construction and operation of the SSC,
2 specify the agency providing necessary safety training and specify the agency charged with enforcing safety standards. The Illinois Department of Mines and Minerals' many years of experience in successfully regulating underground mine safety in Illinois is a resource that could be made available during the construction and operation of the SSC.

The measures proposed in the Draft Environmental Impact Statement to mitigate the effects blasting has on the public should be made mandatory. Measures such as stemming the blasts and reducing the charge-weight-per-
3 delay should be formalized in the Final Environmental Impact Statement. A carefully designed blasting plan will help ensure worker safety, serve to eliminate any threat to the public and serve to allay public concerns about airblast and vibration attendant to construction activities.

The removal of dolomite attendant to SSC construction is not considered to be "surface mining" regulated by my agency. However, the disposal of the large volumes of dolomite generated by this construction project at one (1) of the quarries identified by the U.S. Department of Energy will require
4 the Department of Mines and Minerals' input. Since the Department of Mines and Minerals regulates the mining and reclamation associated with the Fox River Stone quarry, the Department will review potential reclamation plan changes caused by the disposal of large volumes of dolomite at this site to ensure that no environmental harm occurs.

In closing, I am pleased to announce that the Illinois Department of Mines
5 and Minerals has identified no aspect of the SSC Project within its

jurisdiction that poses any adverse impact to the health and safety of the public or to the environment. The Department is fully committed to supporting the SSC Project, in any way it can, during construction as well as during the subsequent operation of this facility. The State of Illinois needs the SSC, especially given the large number of unemployed coal miners that could be retrained to help build this enormous project. We earnestly hope that the U.S. Department of Energy decides to site the SSC in Illinois.

Thank You.

RICHARD "DICK" R. SHOCKLEY
DIRECTOR

DEPARTMENT OF MINES & MINERALS
STATE OF ILLINOIS

100 WM. G. STRATTON BLDG.
SPRINGFIELD
PHONE 217-782-6797

LETTER 847

Elgin AREA CHAMBER OF COMMERCE

24 East Chicago Street, P.O. Box 648
Elgin, Illinois 60121 Area Code (312) 741-5660

October 6, 1988

Wilmot Hess
Chairman
SSC Site Task Force

Dear Mr. Hess:

My name is M. Edward Kelly, and I am Executive Vice President of the Elgin Area Chamber of Commerce.

My organization represents 726 businesses employing over 24,800 people. Our members are located in Elgin, South Elgin, East and West Dundee, and Carpentersville, all in Kane County.

1 We agree with your findings in the Environmental Impact Statement that the proposed site at Fermilab has the proper geology for tunnel construction, has a strong existing infrastructure, and features an established single source of electrical power.

The City of Elgin is also in support of this project.

We recognize the impact of the SSC on growth in the entire Fox Valley area. Northern Kane County, which my organization represents, has the infrastructure to accommodate any growth generated by this SSC project.

Our area supports the SSC and hope you will recommend it be built here in Illinois.

Sincerely,

M. Edward Kelly

M. Edward Kelly, CCE
Executive Vice President.

MEK:bc

LETTER 848

My name is Kal Lester and I am the Business Representative of Operating Engineers Union Local 150. I certainly support the SSC and understand its importance to our community and the working men and women who live here.

Ladies and gentlemen, the day before the draft environmental impact statement was released, I participated in ceremonies when Governor Thompson signed legislation that offers - - at their request - - safeguards to the small numbers who oppose the SSC.

I said at that time that my union, and the many others of northeastern Illinois have supported the idea of building the SSC in Illinois since it was first proposed. We believe that the SSC represents an opportunity to improve our community, and a chance to employ the working men and women who build for the future.

1 As a union leader, it is my job to promote the ability of union members to work in their communities. The SSC, with its thousands of permanent and construction jobs, offers a great opportunity not just for me and the members of my union, but for all of us.

We realize, as I said that day, how important Fermilab has become to this community. We also realize that the EIS failed to mention that Illinois, unlike any other state, has something to lose if the SSC is awarded to another state. We can lose Fermilab. Maybe not next year, or five years from now, but the plain fact is that if the SSC is built elsewhere, Fermilab's future is seriously in doubt.

- more -

Kal Lester
Page Two

As they say, we don't miss something until it's gone. I'd rather not find out what it's like to be without Fermilab.

There is no doubt in my mind and the minds of the men and women of my union who have helped build and operate this important facility that Fermilab would close if the SSC is built someplace else. If that were to happen, it would be a waste for our community and our nation.

Because we understand Fermilab and its important role in this community, we clearly understand the similar beneficial role the SSC can play. That is why, for example, not only has my union endorsed the SSC, but so has the Illinois AFL-CIO, the largest union in the state.

And I might add that the reasons which have compelled us to support the SSC also have brought out more than 200 resolutions of support for this project from organizations that represent hundreds of thousands of individuals. In addition to all this, nearly 40,000 members of this community have taken the time to add their names to petitions of support for the SSC. Those petitions, not a guess at membership, have been forwarded to your offices in Washington. Finally, every newspaper with the exception of one has formally and consistently endorsed the SSC in Illinois.

In my opinion, these are important factors in the case for the SSC in Illinois. In fact, they make the case for the SSC and bringing its jobs and economic benefits to Illinois and to Fermilab.

- more -

Kal Lester
Page Three

Ladies and gentlemen, I appreciate the opportunity to say again what I said when the SSC bill was signed. That we are ready to build the SSC in the state that deserves it -- Illinois. Thank you very much.

###

KEVIN "KAL" LESTER
BUSINESS REPRESENTATIVE

INTERNATIONAL UNION
OF OPERATING ENGINEERS
LOCAL NO. 150
AFFILIATED WITH A.F.L.-C.I.O.

2112 W. JEFFERSON
JOLIET, ILLINOIS 60435
AREA CODE 815-725-5561

KAL LESTER BUS. REP.
I.U.O.E. LOCAL #150
2112 W. JEFFERSON
JOLIET ILL 60435
815/725-5561

RESID.
85 648 JOLIET.
BIG ROCK
ILL 60511

LETTER 849

CATCH - Illinois

To: Dr. Wilmot Hess
Chairman, SSC Site Task Force

CHANGES TO THE ORIGIONAL DESIGN

My comments will address two significant modifications Illinois has made to your original SSC proposal.

1) The use of the present Fermilab Facility. This should be relabelled the "Fermilab Disadvantage"
2) Extensive modifications proposed to force fit the SSC into the Illinois Site.

First, the "Illinoise Disadvantage". The State ENR and its supporters have indicated that ~~this~~ Status of Fermilab is the key advantage of the Ill. proposal. However, upon reading the EIS, it becomes very clear just how important Fermilab is for maintaining our leadership role in particle research. In fact, the accelerators at Fermilab and Stanford are going to play major roles while the SSC is being built and on into the next century. You need Fermilab in full operation while the SSC is being constructed. Otherwise, you run the risk of losing precious time and prestige to your European and Russian Counterparts. Therefore, Fermilab becomes a "Disadvantage for Illinois. Why?? Quite simply, you can not hook the present Tevatron up as the SSC injector without jeopardizing the loss of Fermilab for one or more years for extensive modifications or the injector system has to be built from scratch. This major change in the Ill. proposal becomes a major disadvantage or no advantage at all.

1

Second, Ill. has made numerous changes to the site proposal to force fit the SSC into the Ill. site. In fact, Ill. has made more changes or adjustments to the so-called ring template than any other state. Ill. proposes moving 5 service access areas (F sites) from their original positioning. Only Michigan, has as many as 3 such changes to the proposal.

2

LETTER 849 (CONTINUED)

Also, 42 shaft sites will be moved from their original position. Even more such changes have been recently proposed by the Illinois ENRD Dept of Energy & Natural Resources. Only one other state changes one E site location. Perhaps, more ipportantly, Illinois proposes moving the 5 buried beam zone access at the J areas. Any and all chages as proposed mean altering the original design concept of the SSC and will necessitate changes which equate to increased time and costs for the Illinois site. As E and F sites are moved further from the ring, additional tunneling and angled shafts become necessary. The Illinois tunnel is already the deepest of the seven proposed sites. In fact, at one stretch it exceeds the maximum optimum level of 600 feet. Be adding additional angled tunnels to accomodate the altered E,F, and J sites, there will be far more tunneling required at the Illinois site. All of these adds up to increased tunneling time, and costs. This, the Illinois taxpayer must pay for this and not the Federal Government. Without and doubt, the Illinois site provides the meet difficult and costly tunneling project of the seven sites.

It bears pointing out that these 14 or more changes proposed by Illinois can be compared to absolutely ZERO changes to the template as originally proposed in Arizone, Colorado, North Carolina and Texas. The DOE has designed the SSC, but Illinois requires the most extensive modifications, loss of time and expending of more dollars to complete than other proposed sites. I'd rather have the SSC at one of the other sites than under my home and in my source of water for my family.

3

Alexa Houston
3N851 Dickens Dr
St Charles Ill 60175
377-0619

LETTER 850

John Brining
59563 Kirk Pl
Naperville 60540

The Superconducting Super Collider must be built in the United States if we are to maintain our competitive-edge in the area of High Energy Physics.

I believe Illinois is the best possible location for the S.S.C! Building the S.S.C. at the Fermi site offers to many advantages to be ignored.

Using Fermi;TREVATRON, the world's most powerful accelerator, as the injector to the S.S.C. would result in an estimated savings of at least 450 Million Dollars in construction costs and over 60 million dollars a year in operating costs. To build at another location would add years to the construction schedule and project start up time. It would be fiscally wise for the Department of Energy to take advantage of the Trevatron and build upon Fermi's existing investment of more than 1.3 Billion Dollars in 6800 acres of its campus and facilities.

Even without the Fermi advantage, Illinois scores very high in this competition. The proposed site offers a solid layer of hard dolomite rock, excellent for tunneling conditions. A highly skilled UNION labor force, proven tunneling technology and machinery in place.

The area has an impressive network of educational centers - The University of Chicago. Northwestern University. University of Illinois. Northern Illinois University. Illinois Institute of Technology. University of Wisconsin and dozens of other colleges and universities. These well-established educational insititutions provide an unrivaled academic base.

Within minutes of the site are major research facilities that have found the Chicago metropolitan area an attractive place to locate. They include Abbot Laboratories. Argonne National Laboratory. Amoco Research Center. AT&T Bell Labs. AT&T Technologies. IIT Research Institute and Nalco Chemical Co. to name just a few. Estimates show the Chicago Metropolitan area supports 200,000 jobs in high technology.

O'Hare, the world's businest airport is nearby, connecting the site to any destination in the world. Chicago's central U.S. locatioin is well served by an extensive network of highways and railroads, which will be further developed for the S.S.C.'s needs.

Chicago also has the nations's largest industrial base, with numerous machine tool and fabrication firms experienced in high technology applications. The aree offers a wide range of housing choices and varied employment for spouses and children. And metropolitan Chicago has considerable international character: scientists from virtually anywhere in the world feel at home.

The State of Illinois is committed to major improvements that increase the overall suitability of the site, including land acquisition, housing, road and tunnel construction and the establishment of university fellowships related to the SSC. The estimated value of these improvements is more than $570 million.

After hours, the area offers a cultural scene that is second to none: the Chicago Syphony Orchestra, The Cubs. the Bears. and the White Sox; Brookfield Zoo, the Museum of Science and Industry Newberry Library, the Art Institute and Chicago's famous festivals.

LETTER 850 (CONTINUED)

Department of Energy: Do not be misled by the shrill voice of opposition, for it does not represent the concensus opinion of the community. 40,000 plus citizens have signed petitions in suppert of this project. Their voice cannot be ignored.

5 5 563 Kirk Rd John R Bruning Naperville Ill 60540

LETTER 851

Stan Perry
2326 N. Main St
Wheaton Ill 60188

Ladies and gentlemen, my name is Stan Perry and I represent the ([redacted]) members of the International Brotherhood of Electrical Workers Union in northeastern Illinois. It is my pleasure to offer my comments on the Superconducting Super Collider and the amount of skilled labor in Illinois that is ready to build this important project, much as we helped construct Fermilab more than 20 years ago.

It is my opinion that the draft Environmental Impact Statement proves without a doubt that ~~Illinois, more than any other state, will benefit from the SSC being built here~~ the benefits the SSC brings to Illinois far outweigh the benefits it will bring to any other state. It also shows that Illinois, more than any other state, has the labor capacity to build and operate the SSC.

1

To prove my point, we need only to examine the excellent record of Fermilab and the operation of the Tevetron, the world's largest particle accelerator. By the joint efforts of some of the most brilliant minds in the world and the most skilled hands and minds in America, we were able to build the next step to the SSC when we built the Tevetron. Now we want to help build the next generation of a machine that can help explain the unknown.

I believe we should remember something very important here today. While we talk about how Fermilab has helped our community and been a tool to answer questions, while we we discuss the SSC and the Environmental Impact Statement, it is important and logical to examine the growth of this part of Illinois and how the SSC can become part of it.

- more -

Stan Perry
Page Two

To do that, I'd like to quote directly from the environmental impact statement. In describing Kane and DuPage counties, the EIS said the following: "These two counties probably would not be adversely affected (by the SSC), in part due to their recent experiences in growth management and in part because Fermilab's presence means that their socioeconomic environments are accustomed demands."

In my opinion, this is perhaps one of the most important things the EIS says in its more than 4,000 pages of charts, statistics and text. What you are telling us is that we have the ability, because of Fermilab and the growth of our communities, to host the SSC.

I believe no other state can make that claim and back it up with the resources we offer.

Those resources will stay in Illinois in the form of jobs and tax revenue that will help support our schools, build our roads, and provide services to those in our community who need them.

The more than 10,000 SSC-related construction jobs and the more than 3,200 jobs that would be created as a result of building the SSC in Illinois will add millions and millions of dollars to our economy. The SSC, in other words, will put people to work.

In this part of Illinois, the IBEW has been a big part of the unprecedented economic expansion that is going on every day. We have helped build thousands of homes, office building, schools and countless other private and public buildings and facilities.

We know how important the SSC is to Illinois. We want to be a part of it, to help bring it to Illinois, and to help build it in Illinois. Its potential is tremendous, and so is our support for the SSC.

Ladies and gentlemen, thank you for giving me the chance to speak out today and to tell you that I agree with the draft EIS: that Illinois has the skilled labor force and other resources to build the SSC right here.

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LETTER 852

I am a human receptor. I prefer to think of myself and the rest of the people living in the Fox Valley as human beings, but, after reading the Draft Environmental Impact Statement, I've discovered that the Department of Energy is unfamiliar with that term.

I would like to call your attention to the Draft EIS, Volumne IV, Appendix 14, page 98. The draft states quote: "By the year 2000 the SSC is expected to be at full operating employment level, providing approximately 3,200 direct jobs. Secondary economic activity would add about 3,300 jobs to the total SSC regional
1 employment impact during SSC operation." end quote.

One of SSC for Fermilab's most repeated arguments is that it already has an infrastructure and support staff in place that would save the Department of Energy more than $3 billion. If that is the case, then there is no way that the SSC could create an additional 3,200 permanent jobs. And if it does not create an additional 3,200 permanent jobs, then all of the figures in the Draft EIS concerning total employment impact and economic benefits are grossly overstated. C'mon guys. Illinois can't have it both ways.

Let's continue with Volume IV, Appendix 14. Turn to page 129. On that page you cite a survey conducted by the Center for Governmental Studies at Northern Illinois University that quote "indicates an overall favorable attitude toward the SSC by residents of the area." You go on to say, quote, "An important ancillary finding of this research is that concerns over potentially adverse effects of the SSC tend to diminish as knowledge of the project is increased." end quote.

Well, I have here a copy of that survey, and I defy you to find
2 any reputable opinion research organization that would describe this as scientific, unbiased research.

If I had been a respondent to this survey back in April of 1987, I would have supported the SSC.

Why?

Because the only knowledge available at that time was what Gov. Thompson and his administration had spoonfed us. It wasn't until January of this year, when we finally got a look at the specific proposal, that we discovered that state officials had done a magnificent job of lying to the public--or, at the very least, they had committed sins of omission.

They have grossly overstated the number of permanent and temporary jobs, both direct and induced, that this project will create while failing to inform the public of the thousands of real and potential jobs it will destroy, resulting in a net loss of income
3 to the Fox Valley if not to the state. They have ignored the effect this project will have on our water supplies, which are already overdrafted; they have kissed off the threat to our wetlands; they don't care that far more people than they are willing to admit will suffer economically from devalued homes, their titles forever clouded, their front yards turned into ugly views of helium factories and tank farms.

I could go on, but others before and after me have or will state
4 the specifics more eloquently than I. The point I want to make is this:

LETTER 852 (CONTINUED)

How can our governor submit a proposal to the Department of Energy that has so many devasting effects on so many people? We've tried to ask him that question, but he refuses to give us an audience. He tells the press he will protect us by asking a head-in-the-sand General Assembly to compensate us for our loss. He calls it good neighbor legislation. I call it dishonest since the triggering mechanism that would bring this law into play is in the hands of the robber instead of the robbee.

When the governor staged a media event in Geneva in August to sign the alleged "good neighbor" legislation, he stacked the audience with SSC supporters so that the very people he claimed he was protecting couldn't enter the Government Center. Three of them risked arrest and physical harm from his goon squad by crashing into the signing ceremony to see how they were being "protected."

But still the governor wn't talk to us, [redacted] 20,000 of us, who have signed petitions opposing this intrusion into our lives and thousands more who haven't had the opportunity to sign a petition. And why is the good governor not here today? Why isn't this "good neighbor" here to explain to us how we'll benefit from this?

I'll tell you why:

Just as it was at the Government Center in Geneva, he is afraid to face us. Instead, Governor Yellowbelly cowers off to Washington to lick the boots of Secretary Herrington, hoping that by landing the SSC, the fat cat contractors will stuff his campaign treasury and those of his political cronies.

That's what it comes down to because any logical, right-thinking individual who analyzes carefully the Illinois site proposal and the Draft Environmental Impact Statement will find that this obscenity, this welfare project for the over-educated, has no benefit for the little guy.

Twenty years ago, the people of Weston, Ill., were raped by the state of Illinois when they were forced to give up their property at fire sale prices, as documented in the book Poliscide, written by Drs. Lowi & Ginsberg. In some cases, land was outright stolen from them as they received no financial remuneration. To your everlasting shame, your predecessor, the Atomic Energy Commission, encouraged this action. We've learned a lot from that land grab, and if you think you're going to site the SSC here, we're prepared to right your phony mitigations with real litigations that would stall this project well into the next century.

Do not underestimate the opposition. We are formidable. If Illinois is chosen, the SSC will never get built here.

Sharon Bough
6N267 Woodland Drive
St. Charles, Illinois 60175
(312)377-3883

LETTER 852 (CONTINUED)

CENTER FOR GOVERNMENTAL STUDIES
PUBLIC OPINION LABORATORY

An Overview of Citizen Reactions to the Proposed Superconducting Super Collider in Illinois

NORTHERN ILLINOS UNIVERSITY
DeKalb, Illinois
April 1987

LETTER 853

C.A.T.C.H. - ILLINOIS

This brief presentation is intended to address specific negative aspects of the SSC being considered for placement in Kane County, Illinois, with regards to the SSC DEIS Comments - - SEDGE MEADOWS, RADIATION IN OUR GROUNDWATER, and RADON.

1 First, page 4-67 of the EIS indicates that sedge meadows are very rare in the area proposed for the SSC. This being true, their presence is of even greater significance to the local community, and every attempt should be made to preserve any existing rare sedge meadows. The EIS mentions two that do exist near the SSC site. One is immediately south-southwest of Lily Lake and another is southwest of Kress Creek north of the Collider ring. The EIS fails to mention the sedge meadow which exists west of Denker Road and south of the E8 access shaft area. This sedge meadow and adjacent wetland area will be adversely affected by the SSC project because of encroachment that will occur with the widening of Denker Road as a haul road leading to and from area E8. This area will also face degradation due to the enormous amount of truck traffic that will pass by it. Due to the fine texture of much of the hauled material, wind-blown and rain-washed silt can be expected to originate from that traffic and adversely affect both plant and animal life living in that area. The EIS is incomplete for failing to acknowledge the existence of this sedge meadow and wetland area, especially since this type of habitat is termed by the EIS to be rare. You can be assured that the Army Corp of Engineers will hear about this one.

2 Second, Chart 4-13 clearly shows that Illinois has the greatest exposure to the presence of radionuclides in its groundwater because of elevated levels of radium. Citizens of the Fox Valley are already exposed to better than 7 times as much radiation through our drinking water as any other site under consideration. With our site also containing the greatest numbers of people, any further exposure from SSC related radiation can therefore be expected to produce greater numbers of cancer related ailments. Why do Governor Thompson and our other elected officials feel obligated to expose such large numbers of people to this risk? This is madness.

Last, Table 4-8 and Table 4-9 give statistics pertaining to radon levels present in living spaces and basements at each site. The figures that appear for Illinois are in error. Both charts show that Illinois State Levels and the SSC Region

of Influence levels of radon are below Environmental Protection Agency standards. However, as recently as September 21st of this year, John Cooper, Manager of Environmental Safety for the Illinois Department of Nuclear Safety, has been quoted in the St. Charles Chronicle as saying, "the average level of radon in Kane County homes was a little over the state average of nearly 5 picocuries". If this is true, then both the State and Kane County radon levels are actually above the EPA standards. Has the Illinois ENR again provided the DOE with inaccurate or outdated information? How many times does this have to happen before the DOE tells Illinois to get its act together?

In closing, how long will the rape of the environment continue, leaving a mess to posterity?

BETTY ANN ZAHNER
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LETTER 854

10-3-88

DR. HESS

THE MICHIGAN SSC COMMISSION HAS TRIED TO LEAD YOU TO BELIEVE THAT THE OPPOSITION TO THE SSC IS INSIGNIFICANT AND UNFOCUSED. IT IS UNFORTUNATE THAT JOHN HANEISKI AND HIS STAFF HAVE MISLEAD YOU.

JOHN REPRESENTS A GROUP OF BUSINESS PEOPLE AND POLITICIANS — NOT THE RESIDENTS. AND IT IS THE RESIDENTS THAT THE SSC PROJECT WILL RUN INTO IF BROUGHT TO MICHIGAN.

1 THE 1,000 + PETITION SIGNATURES YOU RECIEVED LAST WEEK IN STOCKBRIDGE, ALONG WITH THESE LETTERS AND OTHERS THAT HAVE BEEN SENT TO YOU IN RECENT DAYS SHOULD ALERT YOU TO THE FACT THAT OPPOSITION IS GROWING RAPIDLY. WE MAY HAVE STARTED LATE, BUT WE ARE FIGHTING THROUGH MEDIA BLOCKAGE AND POLITICAL STRUCTURES. YOUR INPUT DEADLINE OF OCTOBER 17TH WILL NOT CAP OUR EFFORTS.

THE MICHIGAN SSC COMMISSION'S ALLEGEDLY SLANTED SURVEYS, LOPSIDED SALES PITCHES, AND CARELESS MISINFORMATION HAVE DONE THE DOE A GROSS DISSERVICE HERE; A DISSERVICE THAT WE HAVE BEGUN TO, AND WILL CONTINUE TO, EXPLOIT IN SCHEDULED TALK-SHOWS, MEDIA ADS AND ARTICLES, AND TOWNSHIP FORUMS ALL AROUND "THE RING".

SINCERELY,

Craig M Chittle*

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LETTER 855

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ER-65/GTN
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U.S. Department of Energy
Washington, D.C. 20545

Attn: SSC DEIS Comments

Derek Larson
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Hello, my name is Derek Larson. I'm 10 years old. I don't want the SSC. Why should it be built if it may be obsolete before it is finished. I will have to move if it does come, because my mother said we will not live here because of the noise, traffic and my safety. On the Constitution about the people having the right to our free speech, that has gone down the tubes from the SSC. It just isn't fair. Just because we are a small town doesn't mean you can just come in and walk all over us. That's not fair for the people.

Derek Larson
A Kaneville Kid

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