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# DISPOSAL OF CHEMICAL AGENTS AND MUNITIONS STORED AT ANNISTON ARMY DEPOT ANNISTON, ALABAMA

## FINAL PHASE I ENVIRONMENTAL REPORT

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Aberdeen Proving Ground, Maryland 21010-5401

## ABSTRACT

As part of the U.S. Army's Chemical Stockpile Disposal Program (CSDP), which is concerned with destruction of agents and munitions stored at eight existing Army installations in the continental United States, the Army proposes to dispose of lethal chemical agents and munitions stored at Anniston Army Depot (ANAD), Anniston, Alabama. In compliance with the National Environmental Policy Act (NEPA), the Army has initiated a site-specific NEPA review of this proposed action at ANAD. The NEPA review will be conducted in two phases. A final Phase I Environmental Report for ANAD was issued by the Army in July 1989 (*Disposal of Chemical Agents and Munitions Stored at Anniston Army Depot, Anniston, Alabama—Final Phase I Environmental Report*, Office of the Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Maryland, July.) The report concluded that the FPEIS environmentally preferred alternative (on-site disposal), which is also the Army's preferred alternative, is indeed valid for ANAD. No new or unique site-specific information was found that would change or contradict the conclusions of the FPEIS with respect to ANAD. The report recommended that preparation of the site-specific EIS should proceed and should focus on implementation of the on-site incineration and should not consider other alternatives for disposing of either the ANAD stockpile or stockpiles from other installations at ANAD. The Phase I report was independently reviewed by Argonne National Laboratory (ANL) and the review summarized in a report (*Chemical Stockpile Disposal Program: Review and Comment on the Phase I Environmental Report for the Anniston Army Depot, Anniston, Alabama*, ANL/EAIS/TM-5, Argonne, Illinois, December 1989). Additional recommendations for the content of the site specific EIS were included in the ANL review. This report represents an addendum to the final Phase I report to summarize the external review of the Phase I report by cooperating agencies and ANL, and to include additional information in the Phase I process, as recommended by the independent review. Principal new information added dealt with seismicity. None of this new information changed the conclusions of the Phase I report. On April 20, 1990, the findings and conclusions of the Phase I report, the independent review, and the addendum to Phase I were certified to the Congress by Acting Assistant Secretary of the Army, Michael W. Owen. This Oak Ridge National Laboratory Technical Memorandum consists of the July 1989 Phase I report (Volume 1) and the 1990 Addendum (Volume 2). It was prepared to document the Phase I process for disposal of chemical agents and munitions stored at ANAD.

## FOREWORD

As part of the U.S. Army's Chemical Stockpile Disposal Program (CSDP), which is concerned with destruction of agents and munitions stored at eight existing Army installations in the continental United States, the Army proposes to dispose of lethal chemical agents and munitions stored at Anniston Army Depot (ANAD), Anniston, Alabama. In compliance with the National Environmental Policy Act (NEPA), the Army has initiated a site-specific NEPA review of this proposed action at ANAD. The environmental compliance documentation will be prepared in two phases.

In the Phase I process, the overall CSDP decision to dispose of each installation's stockpile on-site is further considered, and its validity at each storage installation is reviewed with more recent and more detailed data than those that provided the basis for the final programmatic environmental impact statement (FPEIS) for the CSDP (completed in January 1988). The Phase II process [the preparation of a site-specific environmental impact statement (EIS)] focuses on the site-specific implementation (plant construction and disposal operations) of on-site disposal (assuming that on-site disposal is upheld after Phase I). It should be emphasized that the Phase I Environmental Report is the starting point for the site-specific decision-making process, and it provides the environmental information by which the impacts of the proposed action are to be assessed in the site-specific EISs.

A final Phase I Environmental Report for ANAD was issued by the Army in July 1989 (*Disposal of Chemical Agents and Munitions Stored at Anniston Army Depot, Anniston, Alabama—Final Phase I Environmental Report*, Office of the Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Maryland, July.) The report concluded that the FPEIS environmentally preferred alternative (on-site disposal), which is also the Army's preferred alternative, is indeed valid for ANAD. No new or unique site-specific information was found that would change or contradict the conclusions of the FPEIS with respect to ANAD. The report recommended that preparation of the site-specific EIS should proceed and should focus on implementation of the on-site incineration and should not consider other alternatives for disposing of either the ANAD stockpile or stockpiles from other installations at ANAD.

The Phase I report was independently reviewed by Argonne National Laboratory (ANL) and the review summarized in a report (*Chemical Stockpile Disposal Program: Review and Comment on the Phase I Environmental Report for the Anniston Army Depot, Anniston, Alabama*, ANL/EAIS/TM-5, Argonne, Illinois, December 1989). Additional recommendations for the content of the site specific EIS were included in the ANL review. An addendum to the final Phase I report was issued in February 1990 to summarize the external review of the Phase I report by cooperating agencies and ANL, and to include additional information in the Phase I process, as recommended by the independent review. None of this new information changed the conclusions of the Phase I report.

On April 20, 1990, the findings and conclusions of the Phase I report, the independent review, and the addendum to Phase I were certified to the Congress by Acting Assistant Secretary of the Army, Michael W. Owen.

This Oak Ridge National Laboratory Technical Memorandum consists of the July 1989 Phase I report (Volume 1) and the 1990 Addendum (Volume 2). It was prepared to document the Phase I process for disposal of chemical agents and munitions stored at ANAD.

# 1. INTRODUCTION

The Anniston Army Depot (ANAD) is one of eight continental United States (CONUS) Army installations where lethal unitary chemical agents and munitions are stored, and where destruction of agents and munitions is proposed under the U.S. Army's Chemical Stockpile Disposal Program (CSDP). In 1988, the Army issued a Final Programmatic Environmental Impact Statement (FPEIS) for the CSDP (U.S. Army 1988) that identified on-site disposal as the environmentally preferred programmatic alternative for destruction of the agents and munitions stored at the CONUS installations. The subsequent Record of Decision (ROD) for the CSDP FPEIS (*Federal Register* 1988) also selected on-site disposal. Implementation of this decision at each of the eight CONUS installations will be done in conjunction with preparation of a site-specific environmental impact statement (EIS).

The ROD for the FPEIS stated that once the studies for the site-specific EISs began, "additional study may uncover information that would warrant the reconsideration of the programmatic decision." Consequently, the U.S. Army developed a two-phase approach for preparing the site-specific EISs. In Phase I, the identification of the programmatic environmentally preferred alternative is reexamined on a site-specific basis by using more recent and more detailed data than those on which the FPEIS is based. A report prepared at the end of Phase I documents the reconsideration of on-site disposal using more recent and more detailed information than that in the FPEIS, and also summarizes background information that may be needed in the preparation of the site-specific EIS in Phase II. Phase I thus serves as the link between the FPEIS and the site-specific EIS. After evaluation by an independent reviewer, the reviewer's report and the Phase I report are used by the Army to prepare a letter to Congress certifying completion of the Phase I process.

The U.S. Army began the site-specific EIS process at ANAD in December 1988 with a public scoping meeting and notice of intent to prepare an EIS. In May 1989, a draft of the Phase I report for ANAD was sent to the CSDP cooperating agencies for review. Revisions made in response to comments received led to the publication of the Final Phase I report in July 1989 (U.S. Army 1989). The independent reviewer, Argonne National Laboratory (ANL), reviewed the Final Phase I report, and completed its report summarizing the review of the ANAD Phase I report in January 1990 (Krummel et al. 1990). The ANL report confirmed the principal Phase I conclusion that on-site disposal remains valid for disposal of chemical agents and munitions at ANAD. However, the ANL report noted that additional data, principally in the area of seismicity, should have been included in the Phase I report to support this conclusion; in addition, ANL made a few observations on the methods used to estimate population and potential fatalities that require clarification.

The primary purpose of this Addendum is to include ANL-requested seismicity information in the Phase I process, and to clarify some of the other issues raised in the ANL report in order to provide a firm basis (i.e., to reduce uncertainty) for preparation of the certification letter to Congress. In addition, the cooperating agency review comments on the draft Phase I report are presented herein. The Addendum also notes additional items beyond those addressed by ANL requiring correction and/or clarification. Brief conclusions regarding the new information and the findings of the Final Phase I Environmental Report for ANAD (U.S. Army 1989) are presented.

# 2. RESPONSE TO THE PHASE I REVIEWER'S COMMENTS

Argonne National Laboratory (ANL) is the independent reviewer for the ANAD Phase I report. In their review, ANL raised questions about the methods used for analyzing population data in the computing of potential fatalities. They also noted that insufficient seismicity information was presented in the ANAD Phase I report. This section addresses these issues. For each major issue, a summary of the relevant text from the ANL report is presented first [underlined text, with reference to section and page number in the ANL report (Krummel et al. 1990)] and is followed by the discussion of the issue.

## 2.1. POPULATION/FATALITIES

The method used to compute population may underestimate population counts and fatalities (Krummel et al. 1990, Sect. 4.2, p. 8). It is agreed that the FPEIS method may underestimate population counts; however, it should be emphasized that any underestimation would apply only to extremely small regions within the study area. The total population within the study area (100 km from ANAD) has been adequately included in the development of population counts, because the entire set of census data applicable to the study area (100 km radius around ANAD) was the basis for developing the population counts.

The conclusion (that fatalities may also be underestimated) in the second part of the reviewer's text cannot be derived from the argument (underestimated population) made in the first part of the text. Data other than population distributions were used in the mathematical technique to develop fatality estimates. These data and the population and fatality estimation methodology are discussed in Appendix A (Sect. A.1.4) of the ANAD Phase I report. As acknowledged in Sect. 4.2.3.1 of the FPEIS, the mathematical technique used to develop fatality estimates contains many conservative assumptions that ultimately result in a higher number of predicted fatalities than would be expected to actually occur.

## 2.2. SEISMICITY

A. A rather comprehensive probabilistic treatment of the United States released in 1986 by the Electric Power Research Institute (EPRI) has not been considered and referenced and should have been (Krummel et al. 1990, Sect. 4.3, p. 10). The comment refers to EPRI report NP-4726, entitled *Seismic Hazard Methodology for the Central and Eastern United States* (EPRI 1986). The EPRI document describes the theory and methodology for estimating seismic hazards, but does not provide site-specific or national probabilities for given peak ground accelerations. The most recent nationwide probabilistic risk assessment is that of Algermissen et al. (1982). However, current building codes [International Conference of Building Officials 1988; Federal Emergency Management Agency (FEMA) 1988] are based on Algermissen and Perkins (1976). The seismicity section in the ANAD Phase I report highlights data from Jacobs Engineering Group, Inc., and URS/Blume and Associates (1987), as well as Army open-file data. These data are not germane to probabilistic risk analysis and were included in the ANAD Phase I report only to provide additional background information for the reader.

B. No geologic or engineering log to bedrock is given, and the reader must accept on faith that strata underlying 18 m are competent. The phase I report does not indicate overburden thickness. The phase I report does not provide such data as earthquake catalogs and seismicity maps. The seismicity section of the phase I report is current but incomplete. Current seismotectonic issues are not discussed, seismicity maps are not included, locations of known faults are not shown, depths of overburden are not given, and most references are absent (Krummel et al. 1990, Sect. 4.3, p. 11). This information will be developed for inclusion in the site-specific EIS for disposal of ANAD's stockpile of chemical agents and munitions; current (draft) versions of key components of this information are presented below.

Liquefaction/Overburden Thickness

A limited number of geotechnical data (U.S. Army open-file data) suggest that the proposed facilities will not be damaged by earthquake-induced soil liquefaction. The site for the proposed disposal facility is located on high ground where the water table is at least 18 m (60 ft) deep as indicated by several test wells. Furthermore, foundation materials are composed of cohesive clayey silts of high relative density as determined by lithologic drill logs and standard penetrometer tests. Additional soil investigations at the site of the proposed disposal facility at ANAD was completed by the Mobile District Corps of Engineers in the fall of 1989. Preliminary results indicate that the overburden consists of cohesive, clayey silts of high density. Bedrock was found at a depth of 21 to 30 m (68 to 100 ft). Based on these results, the site is not threatened by liquefaction. The final report from this investigation will be available for incorporation into the site-specific EIS for disposal of ANAD's stockpile of chemical agents and munitions. According to Seed and Idriss (1971), cohesive soils such as those characterized at ANAD are less sensitive to liquefaction than are cohesionless soils.

Seismic Zones

Figures 1 and 2 are seismic zone maps of the United States based on International Conference of Building Officials (1988) and Federal Emergency Management Agency [(FEMA) 1988] data, respectively. Figure 1 shows that ANAD is in Seismic Zone 1 (a zone having potential for minor earthquake damage). In comparison, Tooele Army Depot (TEAD) is in Seismic Zone 3 (a zone having potential for major earthquake damage). Figure 2 shows that ANAD is located in an area where an effective peak ground acceleration of slightly greater than 0.05 g would have a 10% probability of exceedance at least once in 50 years.

Earthquakes

Figure 3 illustrates maximum historical and other strong-motion earthquakes in the seismic zones of the southeastern and central United States within 640 km (400 miles) of Anniston Army Depot. The Giles County, Virginia, and Charleston, South Carolina, earthquakes are shown. According to Bollinger (1973), the largest earthquake to occur in the southeastern United States (Bollinger's South Carolina-Georgia Seismic Zone) was the Charleston, South Carolina, earthquake of 1886 [body wave magnitude (mb) = 6.8, modified Mercalli intensity (Imm) = X; peak ground acceleration (PGA) of about 0.60 (PGA estimate based on data provided by Hermann 1981)]. The Charleston earthquake

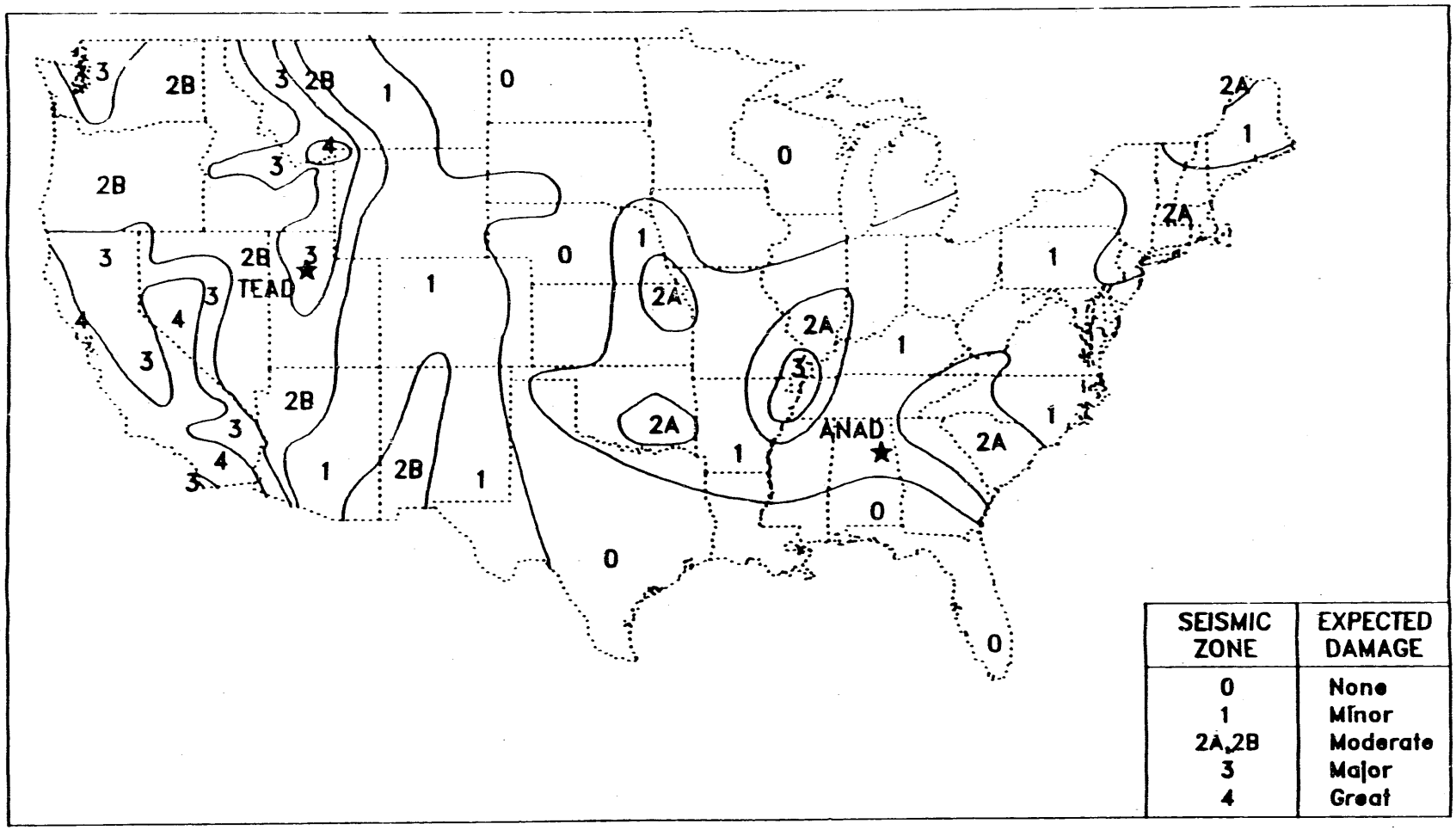


Fig. 1. Seismic zone map of conterminous United States and locations of Anniston Army Depot (ANAD) and Tooele Army Depot (TEAD). *Source*: Modified after ICBO (International Conference of Building Officials), *Uniform Building Code*, Whittier, Calif., 1988.

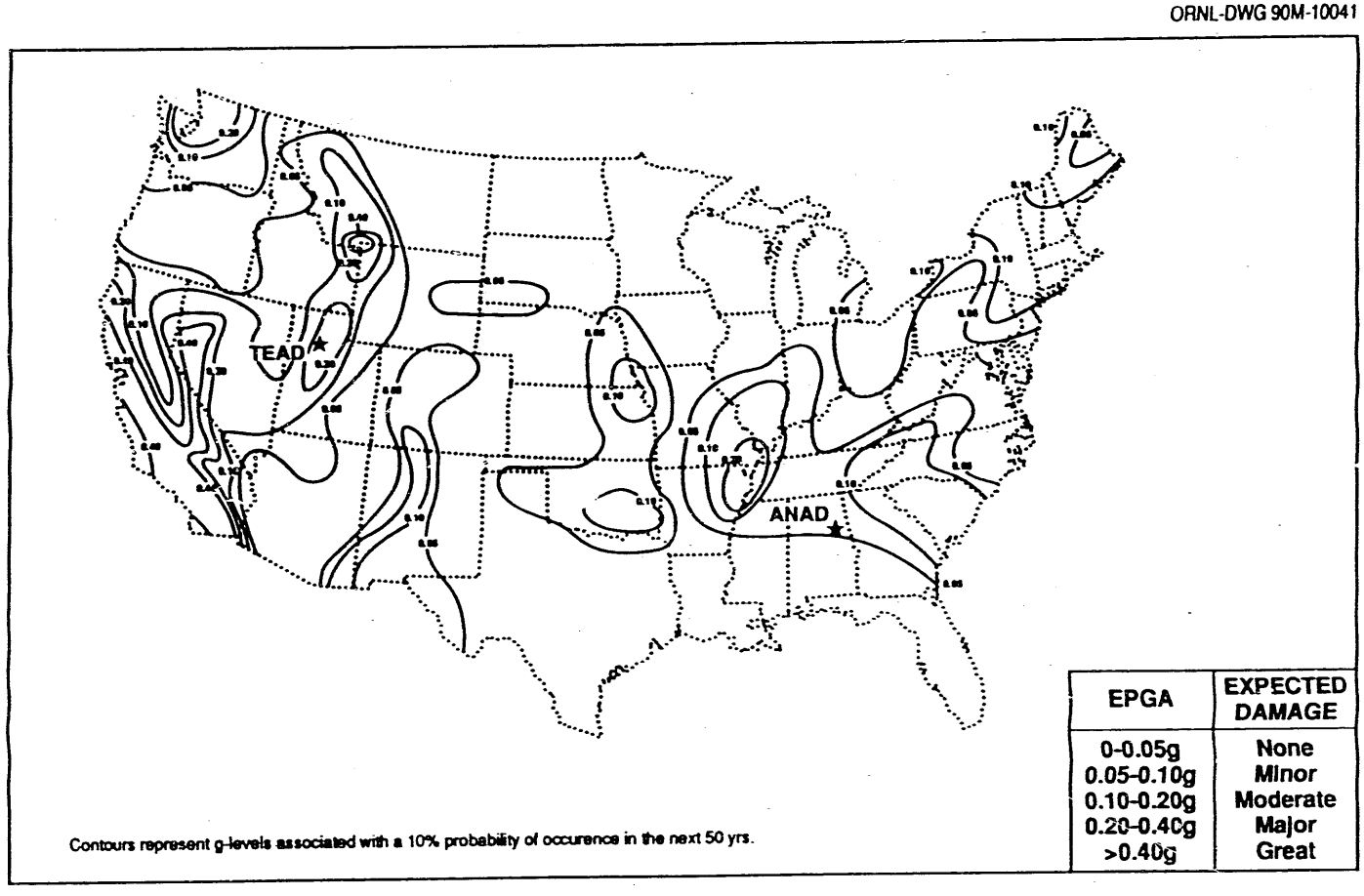


Fig. 2. Probabilistic seismic risk map of conterminous United States and locations of Anniston Army Depot (ANAD) and Tooele Army Depot (TEAD). *Source*: Modified after FEMA (Federal Emergency Management Agency), *NEHRP (National Earthquake Hazard Reduction Program), Recommended Provisions for the Development of Seismic Regulations for New Buildings*, Building Seismic Safety Council, Washington, D.C., 1988.

*EPGA = effective peak ground acceleration.

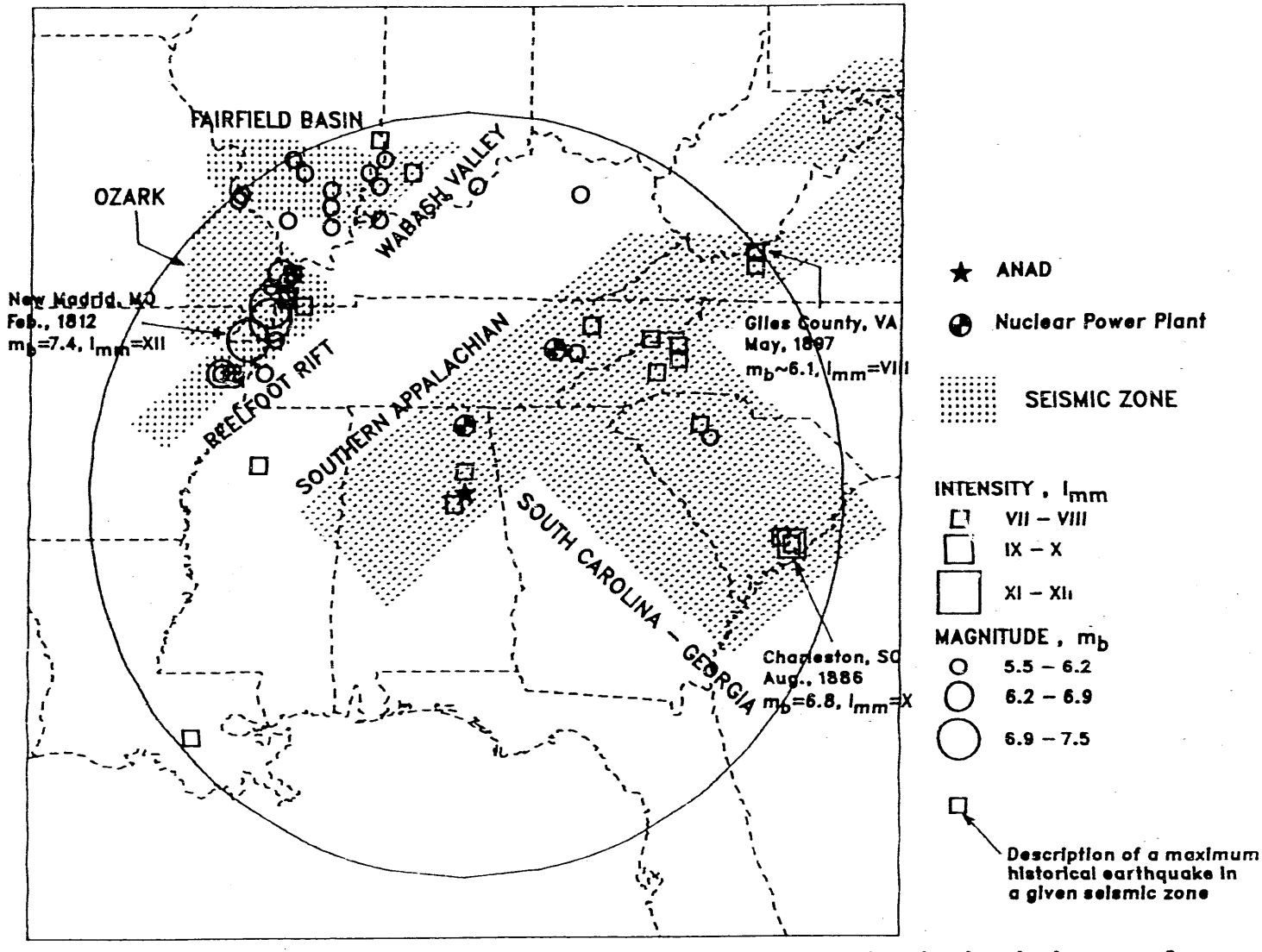


Fig. 3. Maximum historical and other strong-motion earthquakes in seismic zones of Southeastern and Central United States within 640 km (400 miles) of Anniston Army Depot (ANAD).

was somewhat smaller than the TEAD design earthquake, and such an earthquake may be expected to recur about one-tenth as frequently. Bollinger (1973) does not speculate on the recurrence interval of an Imm = X earthquake in the southeastern United States (only one such earthquake having been experienced in 200 years over a 320,000 $km^2$ region). At ANAD, it is assumed that Imm = X earthquakes recur about one-tenth as frequently as Imm = VIII earthquakes. Figure 4 is a plot of all historical and instrumentally recorded earthquakes equal to or greater than mb = 4 and Imm = IV in the central and southeastern United States within 640 km (400 miles) of ANAD.

The ANAD Final Phase I Report lists the Giles County earthquake as the worst-case earthquake (Table 2, p. 3-8). The design of the toxic cubicle at ANAD is planned to be identical to that of the toxic cubicle at TEAD, which assumes that an earthquake of Imm = X (PGA = 0.81 g) occurs at the site of the proposed disposal facility, rather than the Giles County earthquake (Imm = VIII; PGA = 0.28g). Because of the highly conservative design of the toxic cubicle at ANAD, ground motion magnification is not an issue for that portion of the facility.

Locations of Faults

Faults in the Southern Appalachian Fold Belt (Fig. 5) are inactive and thus incapable of producing on-site surface rupture. Several nuclear power plant sites (locations for which seismicity information is available), as well as ANAD, are located in this general area. No faults have been mapped within 61 m (200 ft) of the proposed facilities at ANAD, and the nearest identified faults (Eden fault and Jacksonville fault, Fig. 6) are several kilometers away. These nearby faults are late Paleozoic thrust faults (no longer active) like many others associated with the convergent, southern Appalachian fold belt. Earthquakes plotted on Fig. 6 do not appear to be spatially related to any particular surface fault. Bollinger and Wheeler (1988) suggest that historical seismicity in the southeastern United States is related to deeply buried but unknown geologic features rather than geologic features that are exposed at the surface. Surface ruptures are seldom, if ever, produced by historical earthquakes in the eastern United States (Nuttli 1981), although site-specific information is not available at ANAD to support or deny this assertion. Investigations of the ages of thrust faults in the vicinity of nuclear power plant sites in the Southern Appalachian Fold Belt indicate that where Holocene or Pleistocene strata lay astride a fault trace, these strata have not been cut by the fault (NRC 1974, 1980). No faults capable of causing surface rupture [faults displaying Mid-Pleistocene to Holocene surface rupture (10 CFR Pt. 100)] have been reported in the Southern Appalachian Fold Belt.

As a basis for comparison, one could cite the example of the Nuclear Regulatory Commission's findings regarding earthquake motion at the Clinch River Breeder Reactor (CRBR). Although no evidence is available regarding the capability of faults at the CRBR site, NRC (1983) reached the conclusion (based on the preponderance of evidence in the Southern Appalachian Fold Belt) that earthquake motion along local faults is not capable of producing surface rupture. Such a conclusion applies equally well to ANAD.

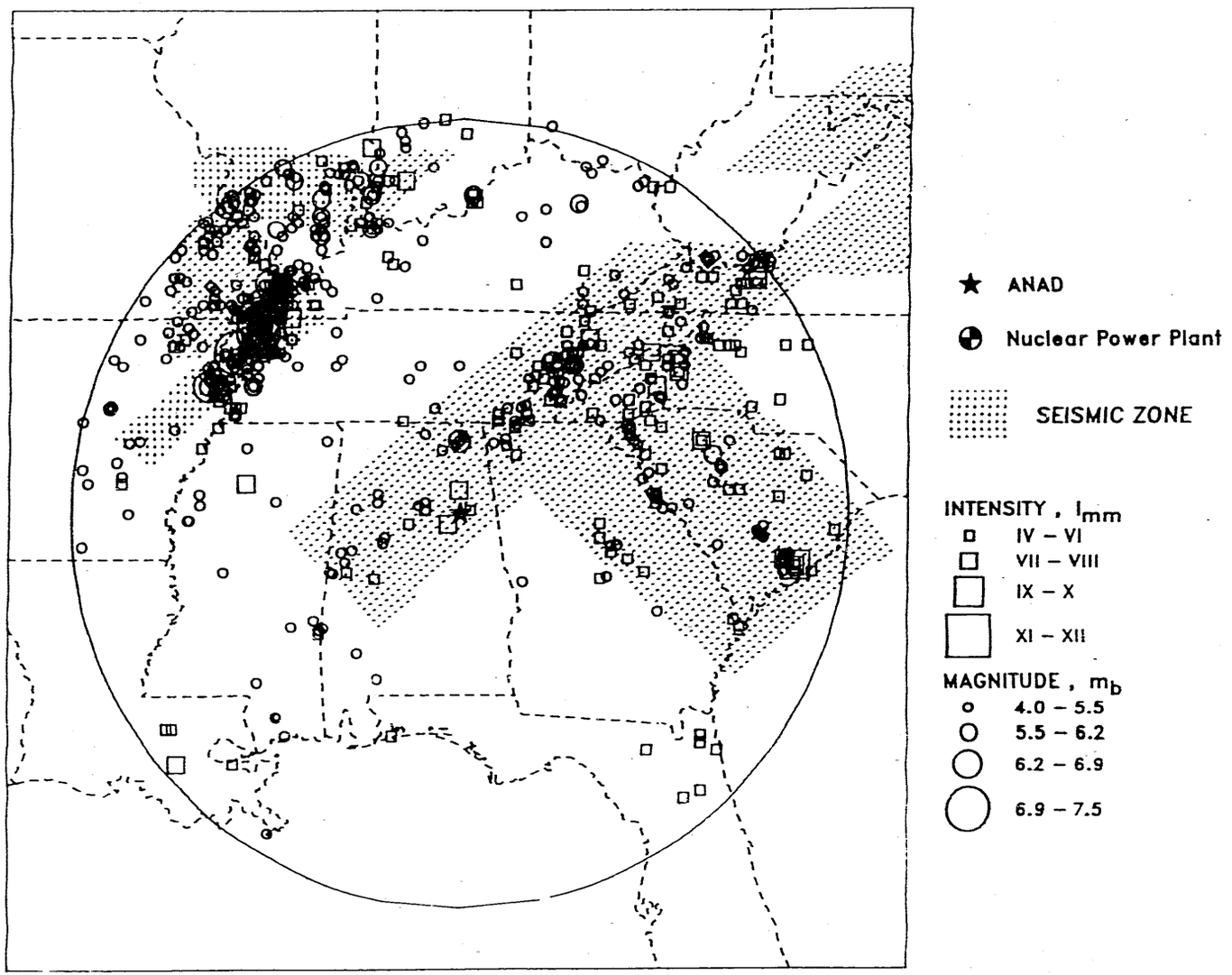


**Fig. 4. All historical and instrumentally recorded strong-motion earthquakes in seismic zones of Southeastern and Central United States within 640 km (400 miles) of Anniston Army Depot (ANAD).**

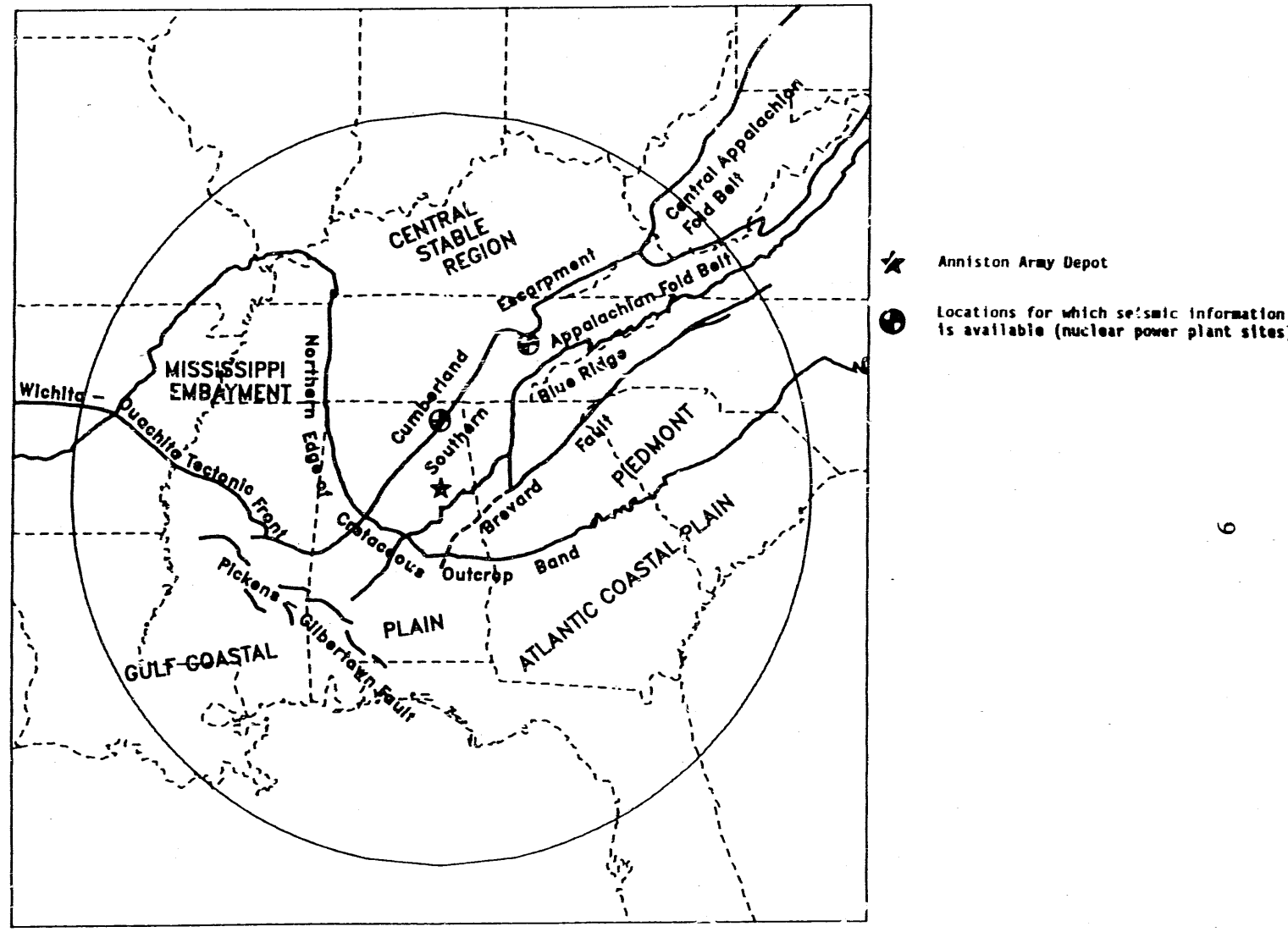


Fig. 5. Tectonic and physiographic provinces and bounding faults of Central and Southeastern United States.

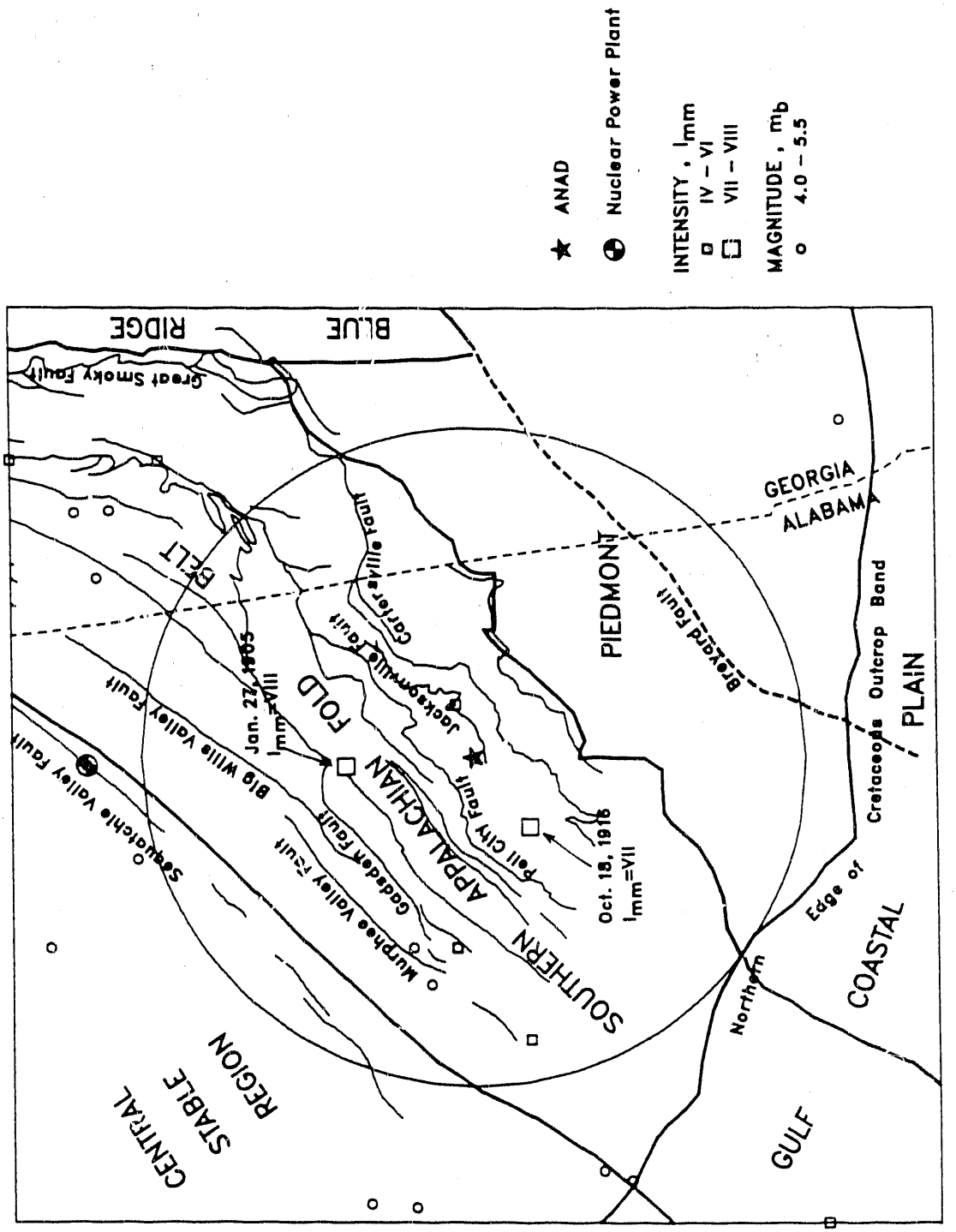


**Fig. 6. Maximum historical and other strong-motion earthquakes within 100 km (62 miles) of Anniston Army Depot (ANAD).**

Inclusion of References

Many of the references that the ANL report identified as missing from the ANAD Phase I report are contained in this Addendum, and others will be included in the site-specific EIS for disposal of ANAD's stockpile of chemical agents and munitions. For example, the report by Jacobs Engineering Group, Inc., and URS/John A. Blume and Associates (1987) references Bollinger (1973) several times, and many of these references will be included in the site-specific EIS, as will papers published by Bollinger since the URS/Blume study was completed (e.g., Bollinger and Wheeler 1988). The report by Jacobs Engineering Group, Inc., and URS/John A. Blume and Associates report (1987) does not reference any of the Memphis State University documents (e.g., Johnston, Reinbold, and Brewer 1985; *CERI Quarterly Seismological Bulletin*, Vols. 1–10; *Seismicity of the Southeastern United States*, Vols. 1–24) mentioned by ANL.

ANL also refers to the inclusion of references and information on sand-filled dikes. Sand boils and landslides are surface disturbances that are often associated with strong-motion earthquakes (Imm ≥ VIII). The Talwani reports referenced by ANL (Talwani 1985, 1988; Talwani and Poleg 1984) describe sand dikes in the South Carolina piedmont that were apparently generated by strong-motion earthquakes in the South Carolina-Georgia seismic zone. If it is correct to assume that the Giles County, Virginia, earthquake (Imm = VIII) of 1897 is the maximum expected earthquake at ANAD, there is a remote possibility that a small sand boil might be generated by such an earthquake. Furthermore, because the proposed ANAD site is located on steep topography, an earthquake-generated landslide is also a remote possibility.

## 3. AGENCY REVIEW OF DRAFT PHASE I

The Draft Phase I report for ANAD was provided to the following agencies for review:

Alabama Department of Environmental Management
U.S. Environmental Protection Agency

U.S. Department of Health and Human Services
Federal Emergency Management Agency

Official responses were received from the Alabama Department of Environmental Management (ADEM), the U.S. Environmental Protection Agency, and the Federal Emergency Management Agency; their correspondence is presented on the following pages. The ADEM comment was incorporated on page 3-23 of the Final Phase I report.

## 4. ERRATA

Two important items in the Final Phase I report not identified by ANL but which should be mentioned for the preparation of the certification letter are as follows:

- Table 5, page 3-6 of the Final Phase I report (U.S. Army 1989) presents estimated fatalities by downwind distance for selected meteorological conditions

at Anniston Army Depot using data collected during Phase I. For the 50-km (31-mile) distance category, no potential maximum fatalities are given for conservative most likely (CML) meteorological conditions because it is stated that the largest credible accident does not travel this distance under CML conditions. The table should have listed a value of 11,800 estimated potential maximum fatalities for this entry, because the accident of interest does in fact travel into the 50-km (31-mile) distance category under CML conditions.

- Table B-26, page B-4, is entitled "Overall population and income figures for towns and communities in Calhoun, Etowah, and Talladega counties." The income data were inadvertently omitted from the table. These data are shown in the attached Table 1.

In addition, Section 3.2.5 (p. 3-33) of the ANAD Phase I report states that detailed data on place-of-work population for the area surrounding ANAD were not available from the State of Alabama, but were requested from the Federal Emergency Management Agency (FEMA). Since the Final Phase I report was issued, the FEMA data were obtained and analyzed, and were found to be inappropriate for the needs of the site-specific EIS for disposal of ANAD's stockpile of chemical agents and munitions, primarily because of insufficient coverage of rural areas in the ANAD vicinity (i.e., the data primarily represent urban areas).

## 5. CONCLUSIONS

Additional information germane to the Final Phase I Report for Disposal of Chemical Agents and Munitions at Anniston Army Depot (U.S. Army 1989) has been identified and presented in this Addendum. None of the new information changes the

ADEM

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June 6, 1989

Brigadier General David A. Nydam
Program Manager for Chemical
Demilitarization
Aberdeen Proving Ground, MD 21010-5401

Dear General Nydam:

The Anniston Army Depot Chemical Stockpile Disposal Program Phase I Environmental Report has been reviewed and the following comment is submitted:

a. Paragraph 3.2.1, p 3-21. There are now six permitted boilers at ANAD. Their allowable and expected emissions combined with those of other permitted sources are of sufficient magnitude to result in ANAD being designated a major stationary source. ANAD emissions are included in the state inventory

If you have any questions, please call me at 205/271-7861.

Sincerely,

Nathan Hartman
Engineering Services Branch
Air Division

jdc
cc: Commander, Anniston Army Depot
ATTN: SDSAN-CO

J. Danny Cooper
Director, Alabama Emergency Management Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 2 1989

OFFICE OF
EXTERNAL AFFAIRS

Brigadier General David A. Nydam
U.S. Army
Program Manager for Chemical Demilitarization
Aberdeen Proving Ground, MD 21010-5401

ATTN: Environmental and Monitoring Division

Dear General Nydam:

On May 9, 1989, you requested that the Environmental Protection Agency (EPA) review the draft "Phase I" Report for the proposed chemical munitions incinerator at Anniston Army Depot. The report contains new site-specific data relating to the selection of the Anniston site for the Chemical Demilitarization Program. Based on this new information, the report's purpose is to verify the Army's prior decision for on-site disposal of the chemical munitions at Anniston and to identify any significant resources that might be adversely affected at the site. To some extent, the report is a site-specific up-dating of the earlier Environmental Impact Statement (EIS) for the Chemical Stockpile Disposal Program.

Pursuant to your request, EPA has reviewed the draft in the time available to us. Our review was based on the draft Phase I Report as well as the earlier EIS and permit related materials. The report was reviewed by appropriate staff in EPA's headquarters and in EPA's Atlanta Regional Office.

Based upon our review, we concur with the draft Phase I Report's conclusion that on-site disposal remains valid as the environmentally preferable alternative. Similarly, no unique resources were identified in the report that would preclude the use of Anniston Army Depot in the disposal program. As you know, the disposal of the munitions is subject to a number of environmental requirements and will be regulated by EPA and Alabama.

We appreciate the opportunity of reviewing the draft Phase I Report, and look forward to working with you and your staff on the site-specific EIS for the disposal facilities at Anniston Army Depot.

Sincerely,

Richard E. Sanderson
Director
Office of Federal Activities

Federal Emergency Management Agency
Region IV
1371 Peachtree Street, NE, Suite 700
Atlanta, GA 30309

R4-NT

June 5, 1989

Brigadier General David A. Nydam
Program Manager for Chemical Demilitarization
Department of the Army
Aberdeen Proving Ground, Maryland 21010-5401

Dear General Nydam:

This will respond to your letter requesting comments on the Phase I Environmental Draft Report for the Anniston Army Depot facility. Our staff has carefully reviewed the above named document and has no comments.

We appreciate the opportunity to comment on the draft and look forward to receiving the final Phase I Environmental Report.

Sincerely,

Glenn C. Woodard

Glenn C. Woodard, Chief
Natural and Technological
Hazards Division

principal conclusion reached by the ANAD Phase I report, and confirmed by ANL, that on-site disposal remains valid for disposal of chemical agents and munitions stored at Anniston Army Depot.

**Table 1. Income data for towns and communities in Calhoun, Etowah, and Talladega counties**

| Town/Community (County) | Per capita income 1979 | Per capita income 1985 | Per capita income percentage change 1979–85 |
|---|---|---|---|
| Anniston (Calhoun) | 5,842 | 8,731 | 49.5 |
| Glencoe (Etowah, Calhoun) | 7,152 | 9,993 | 39.7 |
| Jacksonville (Calhoun) | 5,010 | 7,548 | 50.7 |
| Piedmont (Calhoun, Cherokee) | 5,160 | 7,773 | 50.6 |
| Southside (Etowah, Calhoun) | 7,073 | 9,653 | 36.5 |
| Weaver (Calhoun) | 6,143 | 9,077 | 47.8 |
| Oxford (Calhoun, Talladega) | 6,210 | 9,029 | 45.4 |
| Childersburg (Talladega) | 5,400 | 7,877 | 45.9 |
| Lincoln (Talladega) | 4,968 | 7,207 | 45.1 |
| Sylacauga (Talladega) | 5,948 | 8,796 | 47.9 |
| Talladega (Talladega) | 4,711 | 6,766 | 43.6 |

## 6. REFERENCES

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