U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

SECTION 2.1.1 SITE LOCATION AND DESCRIPTION

REVIEW RESPONSIBILITIES

Primary - Accident Analysis Branch (AAB)

Secondary - None

I. AREAS OF REVIEW

Reactor location is reviewed (1) as identified by latitude and longitude and by the UTM* coordinate system; (2) with respect to political subdivisions; and (3) with respect to prominent natural and man-made features of the area to ascertain the accuracy of the applicant's safety analysis report (SAR) description and for use in population analyses (Standard Review Plan 2.1.3).

The site area which contains the reactors and associated principal plant structures is reviewed to determine the distance from the reactor to boundary lines of the exclusion area, including the direction and distance from the reactor to the nearest exclusion area boundary line. The location and orientation of plant structures within the exclusion area are reviewed to identify potential release points and their distances to plant boundary lines. The location, distance, and orientation of plant structures with respect to highways, railways, and waterways which traverse or lie adjacent to the exclusion area are reviewed to assure that they are adequately described to permit analyses (Standard Review Plan 2.2) of the possible effects on the plant of accidents on these transportation routes.

II. ACCEPTANCE CRITERIA

The size of the plant exclusion area and the location of the plant within the area should be such as to provide reasonable assurance that the guidelines of 10 CFR Part 100 will be met.

Highways, railways, and waterways which traverse the exclusion area should be sufficiently distant from plant structures so that routine use of these routes is not likely to interfere with normal plant operation (Ref. 2).

*Universal Transverse Mercator coordinate system as found on USGS topographical maps.

Information included in this section should allow two types of safety analyses to be conducted. The first addresses the consequences in the unlikely event that a serious release of radioactive material should occur. The second addresses the effect that accidents on, or routine use of, routes on or near the site will have on the operation of the plant. Adequacy of the data for these purposes should be decided jointly with the reviewers having primary responsibilities for the particular analyses involved.

III. REVIEW PROCEDURES

Selection and emphasis of various aspects of the areas covered by this review plan will be made by the reviewer on each case. The judgment on the areas to be given attention during the review is to be based on an inspection of the material presented, the similarity of the material to that recently reviewed on other plants, and whether items of special safety significance are involved.

The information in this section of the SAR forms the basis for evaluations performed in various other sections. The purpose of this review is to establish the validity of the basic data. Check the UTM coordinates to assure that they include the zone number and that the Northing and Easting are presented to within 100 meters. The latitude and longitude should be checked to assure that they are expressed to the nearest second.

Cross-check the minimum exclusion area distance with the minimum distance used in the Accident Analyses, SAR Section 15. In general, a minimum exclusion boundary distance of 0.4 miles provides assurance that engineered safety features can be added (if necessary) that will bring doses within Part 100 guidelines. At the operating license stage, the acceptability of the exclusion area and low population zone with respect to Part 100 dose criteria will be reaffirmed using the latest available engineered safety features design data and X/Q values. The final determination of acceptability must be made in conjunction with the analyses of the accidents postulated and evaluated in Section 15. Scale the map provided to check distances specified in the SAR and to determine the distance-direction relationships to area boundaries, roads, railways, waterways, and other significant features of the area. At the operating license stage, the location and orientation of plant structures and effluent release points with respect to the exclusion area and plant property boundaries, transportation routes and political subdivisions will be reviewed to identify any changes since the construction permit (CP) review. Where changes have occurred, new analyses may be required to ensure that the findings reached during the CP review are not affected by these changes.

If, in the reviewer's judgment, maps of larger scale are desirable, they may be requested from the U.S. Geological Survey (USGS). The USGS map index should be consulted for the specific names of the 7-1/2 minute quadrangles that bracket the site area. If available, these maps provide topographic information in addition to details of prominent natural and man-made features in the site area. This information should be supplemented by updated information as available, e.g., aerial photographs or information obtained on the site visit. (Ref. 4). Check the plant layout to determine that the orientation of plant structures with respect to nearby roads, railways, and waterways is clearly shown. Check to see that there are no obvious ways in which transportation routes which traverse the exclusion area can interfere with normal plant operations.

IV. EVALUATION FINDINGS

Summary descriptions of the site location, the site itself, and transportation routes on or near the site will be prepared for the staff safety evaluation report. Any deficiencies of site parameters with respect to the proposed plant will be noted.

V. REFERENCES

1. U.S. Geological Survey Topographical Map Indices (one for each state).

2. 10 CFR Part 100, "Reactor Site Criteria," Section 100.3(a).

3. AEC Manual Appendix 0621, "Damage Assessment Handbook," Part III, "Universal Transverse Mercator Coordinate System."

4. Appendix A, Standard Review Plan 2.1.1, "Site Visits - Suggested Procedure for Site Analysts," attached.

5. Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Revision 2.

APPENDIX A

STANDARD REVIEW PLAN 2.1.1

SITE VISITS - SUGGESTED PROCEDURE FOR SITE ANALYSTS

A. GENERAL

Site visits are designed to gain information which supplements that contained in the preliminary safety analysis report (PSAR). This information, since it is derived independently, makes it possible to verify and substantiate the findings reached by the applicant in the PSAR. In addition, new information obtained during the course of the visit may lead to the identification of safety issues which have not been adequately addressed in the PSAR.

This procedure should be used in conjunction with the review procedures for SAR Sections 2.1 and 2.2, which discuss the specific site characteristics that may be important to safety. The "site" referred to here is the property owned by the applicant and the surroundings to a distance of several miles. Not all items listed can be done on each review. The judgement of the Site Analyst must be exercised to make sure that the limited time available is spent on issues that are important for the particular case.

The five suggested phases of a site visit are:

1. Site orientation and identification of prominent site features.
2. Review and discussion of draft questions.
3. Visit to plant site.
4. Supplementary visits.
5. Administrative followup.

The goals and procedures for each phase are described in the following sections. A Site Analyst may find it convenient to modify the phases and the procedures to suit himself or the particular plant. The procedures are written with the construction permit phase of the review in mind. A site visit is also made at the operating license stage but is primarily confirmatory.

B. SITE ORIENTATION AND IDENTIFICATION OF PROMINENT SITE FEATURES

In this phase, the Site Analyst familiarizes himself with the site and its surroundings on the basis of information contained in the SAR and other sources available in the office. He notes those things about the site which may be significant to safety so that they can be seen during the visit to the plant site.

The Site Analyst should orient the plant site with respect to prominent landmarks (roads, rivers, railroads, towns, etc.). Based on information contained in the SAR, he locates the safety-related features of the site which the applicant has analyzed, reviews the findings, and identifies problem areas which need additional attention.

The Site Analyst can obtain his own set of maps for the plant site by checking the U.S. Geological Survey (USGS) index in the Site Analysis Branch office and ordering the appropriate maps. The "7-1/2 second" coverage maps, representing a 1:24,000 scale, work well. These can be ordered from the USGS office in Washington.

Compare the SAR maps and USGS maps and identify any significant discrepancies which may exist between them. Features related to plant safety should be located on the USGS maps. Study the USGS maps to see if any other features are shown which may also relate to plant safety.

At this point, the Site Analyst can list those site-related features that may affect plant safety. Some may be considered less important than others but they should still be noted. This list is used in generating draft first round question (Q-1) input, selecting items to be seen on the visit to the plant site and acquiring supplemental information.

C. REVIEW AND DISCUSSION OF DRAFT Q-1'S

This phase is used to make sure the applicant understands the reasons for the questions, knows the information which is needed in the reply and understands how the information will be used. In so doing, the chances of getting the desired information in the Q-1 reply will be improved.

Every effort is made to make sure that the applicant understands each of the Accident Analysis Branch draft questions. Explain why the question is being asked. It may stem from errors, lack of completeness, or omission. It may be based on discrepancies between the PSAR and USGS maps. Tell the applicant exactly what information should be included in his reply and, if necessary, how it should be presented. Let the applicant know how the information which he supplies will be used.

This meeting may be used as an opportunity to ask the applicant any other questions which are not part of the draft question list. For the most part, these may be general information questions which yield useful background information. They may also include questions on the terminology used in the PSAR. The Site Analyst can also point out any typographical or editing errors which he has noted in the PSAR.

These discussions may occur either before or after the visit to the plant site but should generally be held in conjunction with the site visit.

D. VISIT TO THE PLANT SITE

The plant site is visited in order to inspect the area and observe the prominent features of the site. These features can be identified and located in the first phase but a site visit is necessary to aid the Site Analyst in obtaining a perspective on the overall effect that they may have on plant safety. The plant site and its surrounding area should be viewed with an open attitude so that unexpected or new features can be recognized. Upon its completion, the Site Analyst should have a thorough understanding of the relationship between site-related features and plant safety. The Site Analyst may want to be prepared to take photographs on and around the plant site.

The applicant should take the Site Analyst to the plant site and to the proposed location of the reactors, cooling towers, intake/discharge structures, settling basins, etc. Check for any features in the immediate areas of these locations which may adversely affect their safe operation (sources of missiles, tall structures, excavations, etc.). Try to visualize the area as it will exist when construction is completed.

Try to see as much of the remainder of the plant site as possible. If any part is not accessible by automobile or rough terrain vehicle, the use of a helicopter might be recommended. If a helicopter or plane is available, it may be used for aerial observation of the plant site. Look for evidence of any activities which need to be evaluated such as hunting, grazing, mining, drilling, flooding, etc.

Adjacent and nearby properties should be looked at to develop a feel for the density of homes. Public and commercial facilities around the plant site should be viewed. Nearby towns, industries, military facilities, airports, recreation sites, etc., should be visited and activity in and around these places should be observed. Note their locations so that supplementary visits (see next section) can be made, if desired. Evidence of major construction or land development projects should be noted and checked out.

Transportation routes (including pipelines) which pass through or near the plant site should be inspected and some time should be spent at each of them to obtain a sampling of the density and type of traffic using the route. It may be possible to determine that they do not represent significant hazards or that a hazard may exist, but additional information is required to assess it. Note the frequency of aircraft flying near the plant site. Compare all of these observations to those which are stated or implied in the PSAR.

E. SUPPLEMENTARY VISITS

The purpose of this phase is to gain information independent of the applicant. The Site Analyst can then use his own sources of information to verify, supplement, or oppose the findings stated in the PSAR. The Site Analyst should use this opportunity to develop any information which he deems appropriate based on what he has learned from the SAR, his map studies, and visit to the site.

The Site Analyst should make his own arrangements for supplementary visits. If the applicant offers his assistance, it is preferable not to accept it. Remember, the objective is to develop your own sources of information, not to redevelop those of the applicant. It may be desirable to allow an extra day for this activity.

Selection of parties to contact is based on the local telephone listings. First, contact the Federal, state, and local government offices which appear, by their titles, to be potential sources of information. Government offices are contacted first because they are probably accustomed to these types of requests, are familiar with local activities, and are in a position to refer you to contacts in local businesses and industries. Examine the local listings of government offices and pick out those offices whose titles seem to be applicable. As an example, on the River Bend plant site visit, the following contacts were made:

State of Louisiana

Highway Department
  Safety Section
  Highway Safety Commissioner
Liquified Petroleum Gas Commission
State Police, Explosives & Metals Division

U. S. Government

U. S. Coast Guard
  Coast Guard and Marine Shipping
  Vessel Documentation
  Shipping Commission
Department of Transportation, Federal Highway
  Administration, Motor Carrier Safety Officer
Commerce Department, Economic Development Commission
Corps of Engineers

Parish of East Baton Rouge

Agriculture Stabilization & Conservation Service

City of Baton Rouge

Port of Baton Rouge

Any office having responsibilities for safety, transportation, hazardous materials controls, planning, economic development, explosives, liquified gas, chlorine, etc., should be contacted.

Check with the local governments (City Hall and County Court House) for any local agencies which might be of assistance. Planning, Safety, Development, etc., Commissions are sometimes organized within them.

Military facilities, local officials, and the larger industrial firms near the plant site should be contacted and arrangements made to talk with their public relations personnel. Discuss the proposed nuclear power plant with them, explain any interaction which you believe their operation will have on the plant and ask for their comments. Ascertain if any future changes are planned in their operations. Obtain information on any hazardous materials which these facilities may store or use. Their operating experiences (accidents, consequences, procedures, etc.) with these materials may be pertinent information to obtain.

Check with the local Agriculture Stabilization and Conservation Service (ASCS) office and obtain the identification of the latest aerial photographs of the plant site. Aerial photographs covering an area about two miles around the plant site are useful to have because they are generally more up-to-date than maps and may reveal features which cannot be identified from maps. These maps can be ordered through the Administrative Services Branch.

Other possible contacts are commercial associations that are listed in the telephone directory such as; American Trucking Association, American Waterways Operators Association, Airplane Owners & Pilots Association, and Liquified Petroleum Gas Association; and civic organizations such as the Chamber of Commerce and Better Business Bureau.

F. ADMINISTRATIVE FOLLOWUP

In this phase, the Site Analyst organizes, evaluates, and records the information he has obtained. He identifies areas where more information is needed. Any contacts that have not been pursued can be done so by telephone. At some point, it may become necessary to revisit the area to obtain additional information which your sources may have developed for you.

Check to see that you have all the information you need. Make sure that the SAR and amendments reflect all important aspects which you have identified. Draft question lists should be modified appropriately before formal transmittal to the applicant. The last task is to organize what information you have for input into the staff safety evaluation report, as outlined in Standard Review Plan 2.1.1.

SRP 2.1.2