

SCHEDULES FOR DEVELOPING A LOW LEVEL WASTE DISPOSAL FACILITY IN THE MIDWEST COMPACT

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ABSTRACT

Four potential schedules are presented for the development of a low-level radioactive waste disposal facility by the Midwest Compact. Two schedules presume a volunteer state with volunteer sites is found for the disposal facility. The other two schedules presume no volunteer is found and a host state is designated. Within each schedule eight activities are specifically delineated. The purpose of these schedules is to show what time can be allowed for these activities and still meet key milestones of the Low-Level Radioactive Waste Policy Amendments Act in the Midwest Compact. With the schedules defined in this manner it is possible to see whether the time periods allotted for the various activities are reasonable.

INTRODUCTION

This paper delineates key technical and regulatory activities that must be completed before operations can begin at a Midwest Compact^a regional low-level waste disposal facility. It describes several schedules for those activities and shows how they can satisfy the requirements of the Low-Level Radioactive Waste Policy Amendments act of 1985(1). The host state for the disposal facility is not known at the time of writing, and no states in the Midwest Compact are currently agreement states able to license a disposal facility themselves. Therefore, procedures that could be used if the facility is licensed by the U.S. Nuclear Regulatory Commission are assumed in developing the schedules.

Four host states were designated for the Compact on February 28, 1987. The Compact language allows any host state so named to withdraw from the Compact within 90 days after its designation. The Compact is also actively seeking a volunteer host state with volunteer host sites. The schedules developed in this paper all assume that the 90-day period ends about June 1, 1987, and that a single host state is selected on that date from among those designated in February if a volunteer has not been found. Four scenarios are investigated. Two involve failure to find a volunteer state and the designation of a single host state by June 1, 1987. In that context, two possibilities are investigated. One is that the January 1990 milestone for a license application is met. The other is that the January 1990 milestone for license application is not met but the January 1992 for a license application is met. The approach is to assume that those deadlines will be met and arrange the schedules for key activities to fit within the time between the emergence of a single host state and the chosen

deadline. Then the schedules for the activities are reviewed to see if they are reasonable.

The remaining two scenarios assume that a volunteer host state with volunteer sites is located in time to preclude the need for selecting a host state. Within that context two possibilities are also investigated. One is that a volunteer site proves to be technically acceptable; the other is that efforts focus on a single volunteer site and that site is rejected after detailed site characterization has begun.

MAJOR ACTIVITIES LEADING TO THE OPERATION OF THE DISPOSAL FACILITY

For the purpose of scheduling, the following major activities were considered necessary to lead to the operation of a low-level radioactive waste disposal facility:

- Host state selection
- Site selection
- Site characterization
- License application preparation (including environmental report)
- Facility licensing
- Facility construction

The above list is essentially provided in the sequence in which these events must take place, although there can be overlaps in the schedules of many of these activities. Note that the above list does not explicitly include public review of the actions taken by the Compact or by a host state. The host state and any public involvement procedures it may prescribe are not presently known. Therefore, it was difficult to estimate the impact of public review

^a The Midwest Compact consists of Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin.

on the schedule. Any schedule that is developed and contains only the above activities would be extremely conservative as a result of not including public review activities. Also absent from the list of activities that were considered are any additional activities required to license a facility to receive mixed wastes.

One key activity in the above list is that of licensing the disposal facility. The Low-Level Radioactive Waste Policy Amendments Act allows as much as three years between the time a complete license application must be submitted and the disposal facility must begin operation. A review of the potential schedule for licensing a disposal facility was conducted in order to see whether the time period is realistic. Telephone discussions with NRC staff members regarding the sequence and timing of events led to the rough schedule displayed in Fig. 1. The largest uncertainty regarding the time required for different events in the licensing process is the time required for public hearings. The period for public hearings was estimated conservatively to range anywhere from 12 to 18 months. Allowing this time in the schedule is the only exception to the rule stated above that no time has been allotted in the major activities schedule for needed public review. It can be seen from Fig. 1 that the three years that appear to be allowed in the Low-Level Radioactive Waste Policy Amendments Act from the time of license application to the commencement of facility operations is not necessarily optimistic.

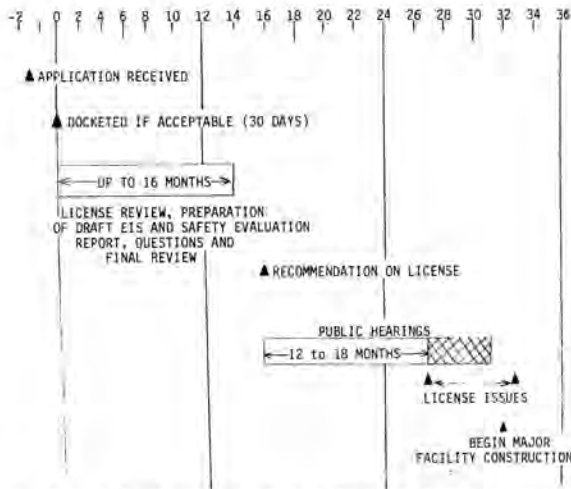


Fig. 1. Illustration of a Schedule for Licensing

SCHEDULES WHEN NO VOLUNTEER STATE IS FOUND

Figure 2 illustrates a schedule of activities leading to a complete license application by January 1, 1990. The schedule is extremely optimistic. For example, it is assumed that a final host state is selected on June 1, 1987, shortly after the last date in which any host states designated on February 28, 1987 can leave the Compact.

The schedule shown in Fig. 2 indicates that site screening will be completed only taking 7 months after host state designation. Screening activity and selection of sites for characterization is followed in the schedule by a two month mobilization period, followed by 12 months of site characterization. While the primary purpose of the mobilization period is

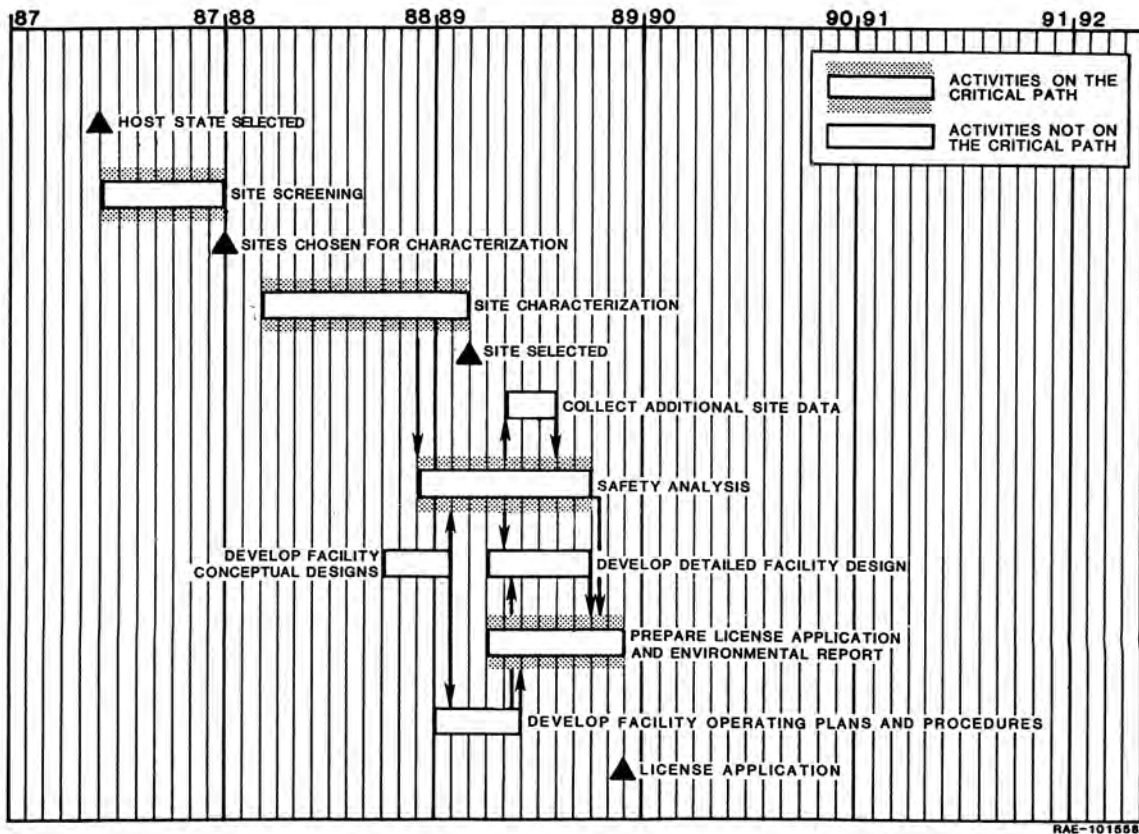
technical, it may also provide some time for public comment and hearings. The 12 month period is considered to be the bare minimum time for proper characterization of a potential disposal site. It is anticipated that more than one disposal site will be characterized during this period. This will allow at least one site to be found technically unacceptable during characterization without significantly delaying the schedule.

During the site characterization period, conceptual designs for the disposal facility are developed and the safety analysis and the development of facility operating plans and procedures are begun. At the end of the site characterization period a single site is chosen for licensing. Because of the extreme brevity of the schedule illustrated in Fig. 2 in order to meet the January 1, 1990 milestone, the site selection is shown to occur at the very end of the 12 month period of site characterization. Other illustrative schedules presented in this paper have longer site characterization periods, and allow more time to process the information collected during characterization before picking a single site for licensing. Because it is likely that there will be a need for additional data collection at the chosen disposal site, a three month period to collect additional site data is shown in the schedule. It is assumed that this data will not necessarily be seasonal in nature.

Shortly after the selection of a single site for licensing and development, work will begin on a detailed facility design. Also approximately at the time of site selection, work will begin on preparing the license application and environmental report. The schedule illustrated in Fig. 2 ends with a completed license application submitted to the NRC (or other appropriate regulatory agency) one month prior to the January 1, 1990 milestone. This will allow one month for the regulatory agency to determine completeness of the application. Activities felt to lie on the critical path to the complete license application are indicated in Fig. 2 by shading. The schedule shown in Fig. 2 is extremely optimistic and, as noted earlier, provides little time for public review of action, selection of contractors to do the work, etc. The schedule is intended to illustrate what is necessary in order to meet the January 1, 1990 deadline with the constraints surrounding host state selection for the Midwest Compact.

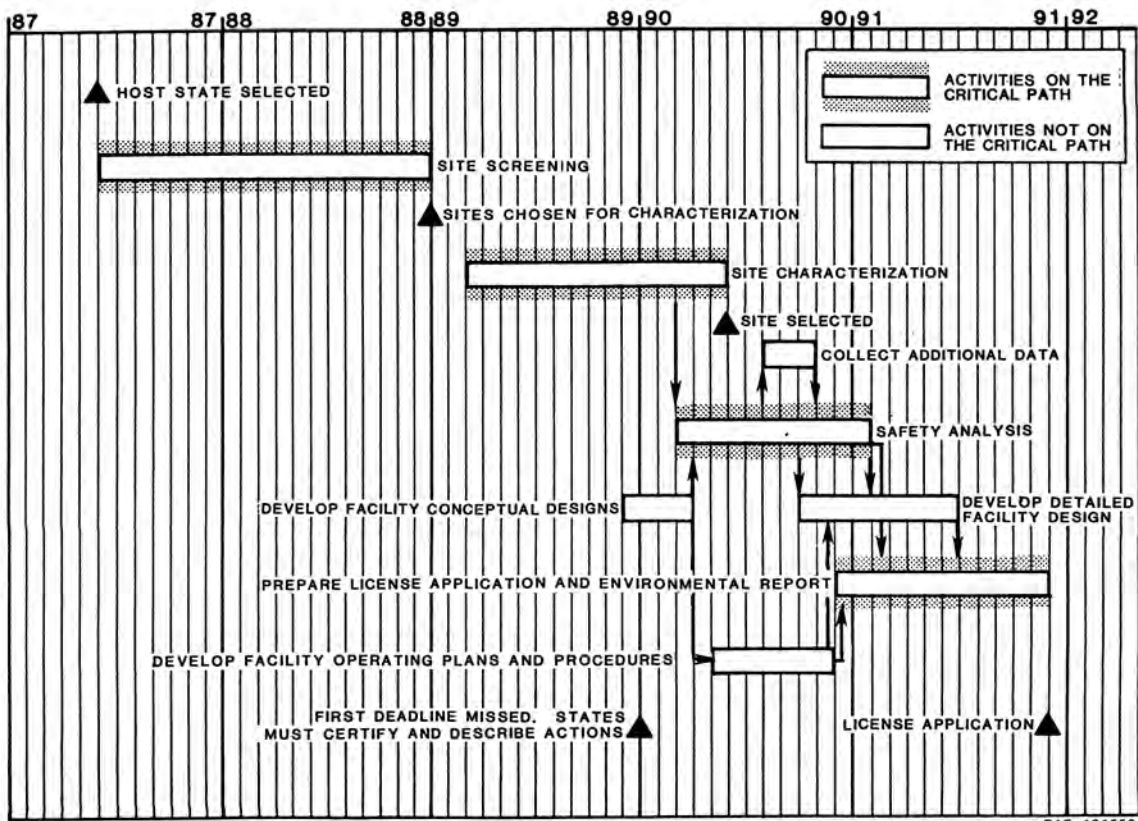
Figure 3 illustrates a schedule that will meet the January 1, 1992 milestone for submittal of a licensing application. The Compact can miss the January 1, 1990 milestone for license application and still have access to existing disposal facilities. This requires the governor of each state to present written certification that the state will be capable of providing for, and will provide for, storage, disposal or management of any low-level radioactive waste generated within the state and requiring disposal after December 31, 1992. The governors must also submit a "description of the actions that will be taken to ensure that such a capacity exists"(1).

Failure to meet the January 1, 1990 milestone for a license application also means that it is highly unlikely that the Compact will be able to meet the January 1, 1993 milestone for operation. This will mean that each state will be required to take title to and possession of the low-level radioactive waste generated within its borders or be liable for damages for failure to take possession or repay some of the



RAE-101558

Fig. 2. Schedule to Meet January 1, 1990 Milestone.



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Fig. 3. Schedule to Meet January 1, 1992 Milestone.

surcharges collected from its waste generators after January 1, 1990 until a facility is finally operating.

Comparing Figs. 2 and 3 it can be seen that the schedule illustrated in Fig. 3 allows longer periods of time for all of the activities on the critical path. These time periods are considered to be more realistic than those shown in Fig. 2. In particular, the site screening activity is allowed 19 months in the schedule illustrated in Fig. 3, while it is only allowed 7 months in the schedule illustrated in Fig. 2. This longer period will allow more time for developing site screening criteria and for the site screening process. Also, the site characterization period illustrated in Fig. 3 is 15 months. This will allow the minimum 12 months of data collection plus additional data collection time and more time to select a site to be licensed and developed.

Overall, the schedule illustrated in Fig. 3 is considered to be much more achievable than the schedule illustrated in Fig. 2. However, it has the unfortunate disadvantage of submitting a license application so late that it is almost certain that the Midwest Compact will not be able to open its disposal facility by January 1, 1993.

SCHEDULES WHEN A VOLUNTEER STATE IS FOUND

One way to relieve some of the pressure on the schedules illustrated in Figs. 2 and 3 is to have local political jurisdictions within the compact states volunteer sites for the disposal facility. A

state with several volunteer sites may then volunteer to be the host state. This has the potential for reducing the site screening effort needed when there are no volunteers. (Of course volunteered sites that are clearly technically unacceptable will be rejected.) It also presents the possibility of allowing some public review and comment activity to take place earlier in the process. Unfortunately, if only one volunteer site is put forward and that site is subsequently found to be technically unacceptable, the whole schedule is set back by a considerable period. Also the Environmental Impact Statement that must accompany a favorable decision on a license application will need to show that alternative sites were considered. Therefore it is very unlikely that the Compact would accept a volunteer host state with only one promising volunteer site.

Figure 4 illustrates a schedule that meets the January 1, 1990 milestone if a volunteer state with volunteer sites is available and one of those sites is shown to be technically acceptable. It is assumed that no volunteer state is located by February 28, 1987, but that one does come forward at the end of the period when the four host states designated on that date can withdraw from the compact without penalty. If a state volunteers before the end of that 90-day period, that will allow an earlier start of the steps leading to a license application.

After June 1, 1987, fifteen months are allowed for site characterization. This is the same duration for site characterization shown in Fig. 3. This period will leave some time for choosing which site of several sites being characterized will be licensed and

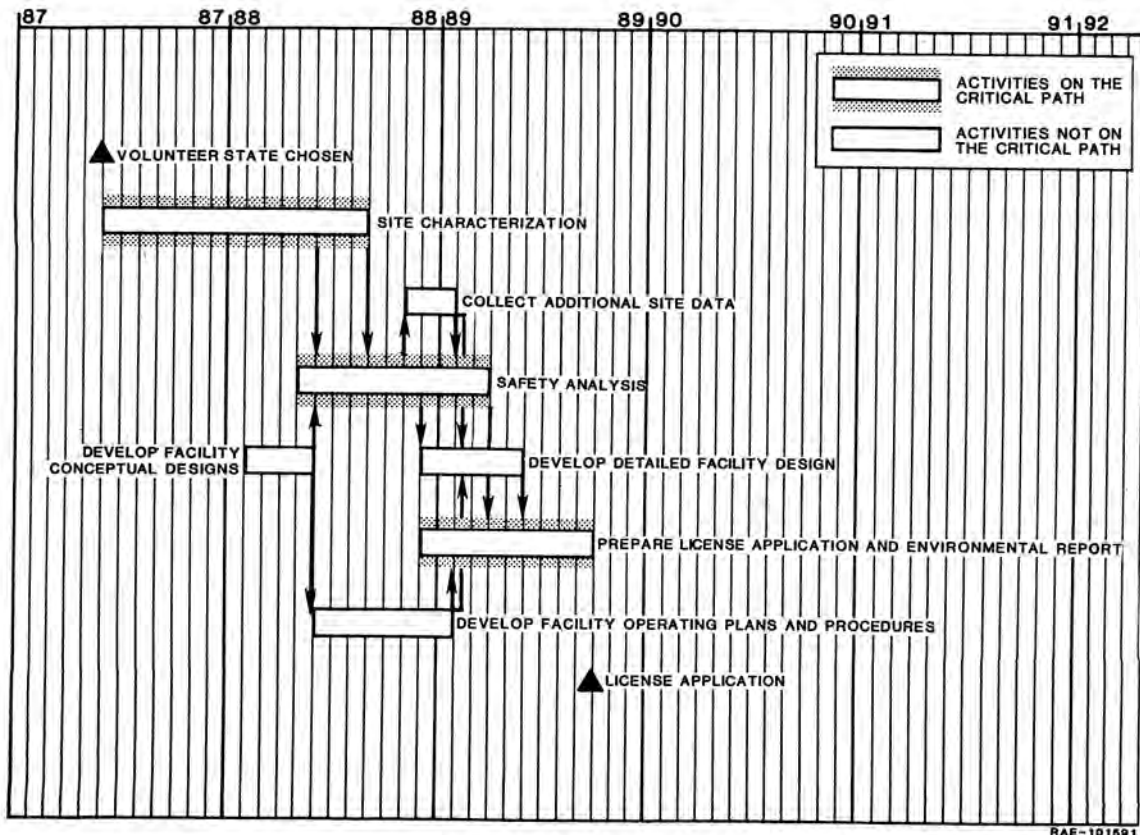


Fig. 4. Schedule if a Volunteer Site is Technically Acceptable.

developed. Periods for the safety analysis and for developing a detailed facility design shown in Fig. 4 are the same as in Fig. 2 for meeting the 1990 milestone without a volunteer site. However, the interval for preparing the license application and environmental report is two months longer when a volunteer site is available. The schedule illustrated in Fig. 4 indicates that the license application is submitted three months before the milestone. This is a relatively early submittal and should allow ample time for the NRC or other regulatory agency to judge the completeness of the application.

The schedule illustrated in Fig. 4 clearly identifies the scheduling benefits of finding a technically acceptable volunteer site for the regional disposal facility. By eliminating the need for site screening activity, more time is made available for other necessary activities. Consequently the probability of meeting the January 1, 1990 milestone for a complete license application -- and also the January 1, 1993 milestone for having a disposal facility in operation -- is greatly improved.

In the unlikely event that only a single volunteer site is put forward initially, and if at some point during site characterization the site is determined to be unacceptable for licensing, difficulty in scheduling and meeting the requirements of the Low-Level Waste Policy Amendments Act will result. Figure 5 illustrates a situation in which a single volunteer site begins characterization, but

6 months into characterization the site is rejected on technical grounds. At that time the state in which the volunteer site is located must begin to search for a new set of candidate disposal sites. Figure 5 shows a site screening activity that begins one month after the volunteer site is rejected. All of the activities that take place after the start of site screening are scheduled for the same durations as those shown in Fig. 2, for the case where there was no volunteer site but the January 1, 1990 milestone is met. In other words, a very ambitious schedule following a rejection of the initial volunteer site is assumed.

Even with a short schedule for activities after the volunteer site is rejected, it can be seen from Fig. 5 that the January 1, 1990 milestone is missed by at least 6 months. Furthermore, given the optimistic nature of the schedule shown and the probable time needed between license application and the start of disposal operations, it is very likely that the January 1, 1993 deadline for the start of operations at the disposal facility will also be missed. The scenario illustrated in Fig. 5 demonstrates that, aside from the requirements of multiple sites in preparing an EIS, having only one volunteer site can lead to significant penalties to the Compact if that site proves unacceptable; there is virtually no chance of meeting the earlier deadline of the Low-Level Radioactive Waste Policy Amendments Act for submitting a license application or for getting a regional disposal facility in operation by the January 1, 1993 date.

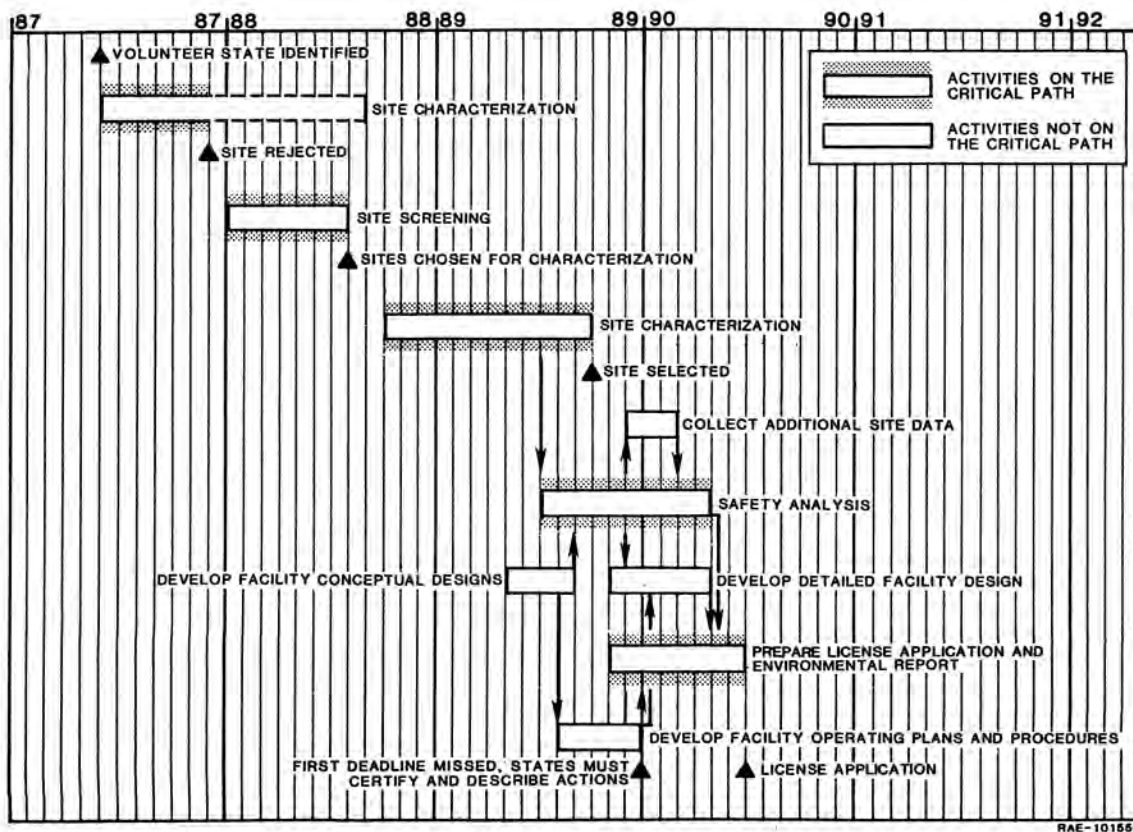


Fig. 5. Schedule is a Single Volunteer Site is Found Unacceptable.

SUMMARY

This paper supports the following conclusions regarding the scheduling of the development of a regional low-level waste management facility for the Midwest Compact:

- Finding one or more technically acceptable volunteer sites can greatly improve the probability of meeting the milestones and constraints of the Low-Level Radioactive Waste Policy Amendments Act. If only one volunteer site is available and it is found to be technically unacceptable, the Compact's

ability to meet the milestones will be seriously jeopardized.

- If there are no volunteer sites, any schedule that meets the LLRWPA January 1, 1990 milestone based on the current Midwest Compact schedule for host state designation, is very optimistic.

REFERENCES

1. "Low-Level Radioactive Waste Polict Amendments Act," PL 99-240, (January 1986).