

Site and Facility Transportation Services

Planning Documents*

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**SITE AND FACILITY TRANSPORTATION
SERVICES PLANNING DOCUMENTS**

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ABSTRACT

The Office of Civilian Radioactive Waste Management (OCRWM) will eventually ship Purchasers' (10 CFR 961.3) spent nuclear fuel from approximately 122 commercial nuclear facilities. The preparation and processing of Site and Facility Specific Transportation Services Planning Documents (SPDs) and Site Specific Servicing Plans (SSSPs) provides a focus for advanced planning and the actual shipping of waste, as well as the overall development of transportation requirements for the waste transportation system. SPDs will be prepared for each of the affected nuclear waste facilities over the next 2 years with initial emphasis on facilities likely to be served during the earliest years of the Federal Waste Management System (FWMS) operations.

INTRODUCTION

This paper describes the development of Site and Facility Specific Transportation Services Planning Documents (SPDs). These documents assist the Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM) Transportation Program in planning shipments of spent nuclear fuel (SNF) and/or high-level radioactive waste (HLW) from the 122 commercial waste generator facilities served by the Federal Waste Management System (FWMS).

The SPDs are precursors to operations plans needed for each site and associated facility(ies) from which SNF and/or HLW will be shipped to DOE's facilities. These operations documents are referred to as Site Specific Servicing Plans (SSSPs).

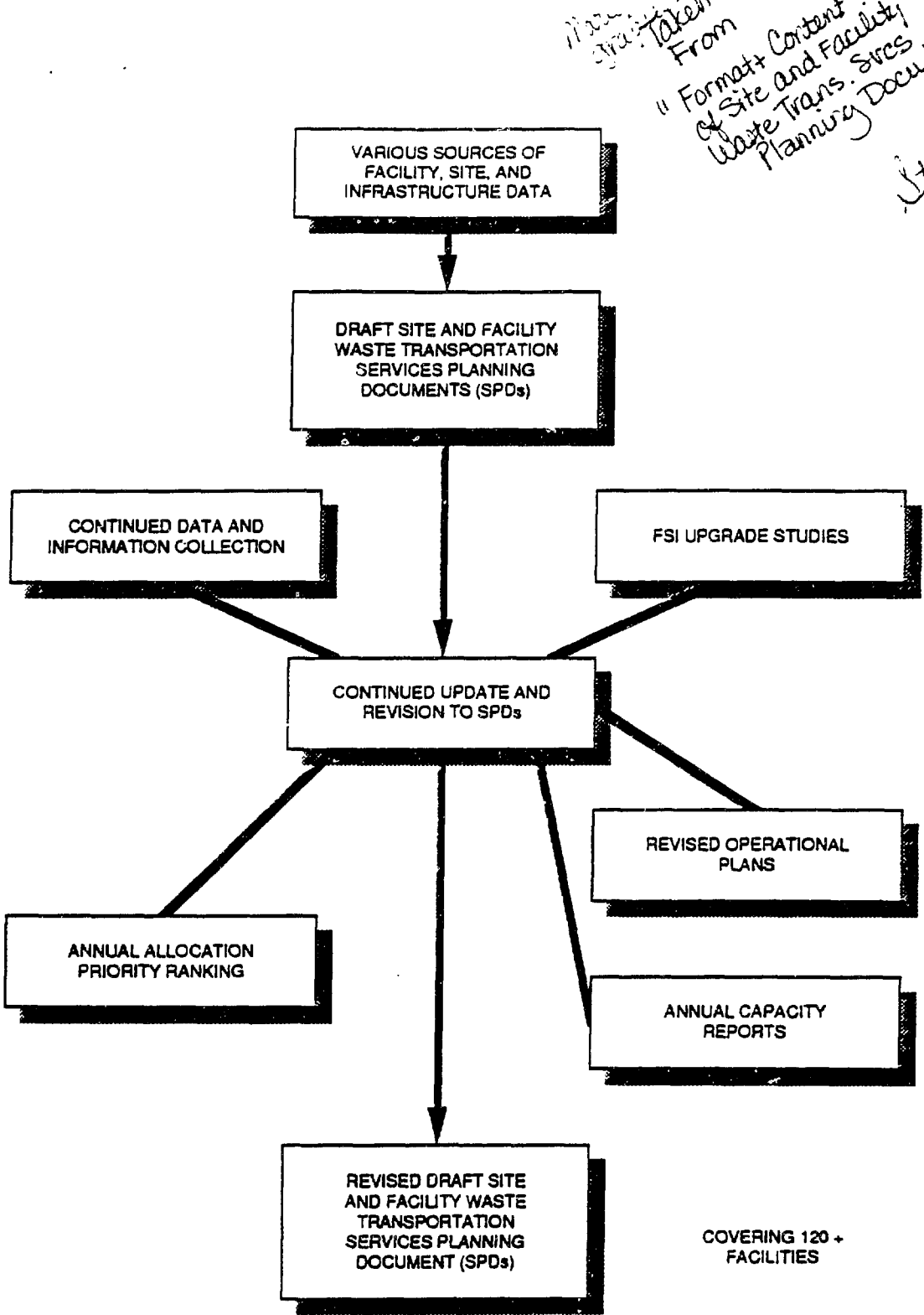
The DOE's OCRWM Transportation Program places high priority on the preparation of SPDs. Figure 1 illustrates the SPD development process. Figure 2 illustrates the transition from an SPD to an SSSP.

PURPOSES OF SPDS

SPDs bring together and/or identify in one place regional, site-specific, and facility-specific technical, operations, and institutional information needed to prepare for the actual shipping of waste. They support advanced planning for shipping operations, for actions designed to promote resolution of regional and local institutional issues, and for conducting any operations testing that may be appropriate. They also support developing an understanding of transportation requirements at each of the sites to be served and for the operations of the Waste Transportation System as a whole.

The specific purposes of SPDs are:

1. **To Assemble, evaluate, reduce to essential items, organize for use, and document (in easy-to-use, facility-specific reference documents), the relevant information needed to prepare for and conduct routine waste transportation operations from commercial nuclear reactor facilities.** Information is collected from a variety of sources including the Facility Interface Capability Assessment Project (FICA); the Near Site Transportation Infrastructure Project (NSTI); the RW-859 data provided to the DOE by utilities; the Spent Fuel Characteristics Data Base maintained at the Oak Ridge National Laboratory (ORNL); the Transportation System Data Base (TSDB) compiled by the OCRWM Transportation Program; nuclear industry periodicals; knowledgeable sources inside or close to the commercial nuclear utility industry, with emphasis on reactor facility and spent fuel and waste transportation operations specialists; cask development contractors; commercial cask fleet owners; and others that may provide useful information.



Note: Taken From "Format + Content of Site and Facility Waste Trans. Services Planning Docu." 5/90

Steve Schmid

Figure 2

FACILITY-SPECIFIC ACTIVITIES LEADING TO TS STARTUP PRIOR TO ISSUE OF DELIVERY COMMITMENT SCHEDULES

Development of & Review of Facility-Specific Service Planning Documents

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Steve Schmidt
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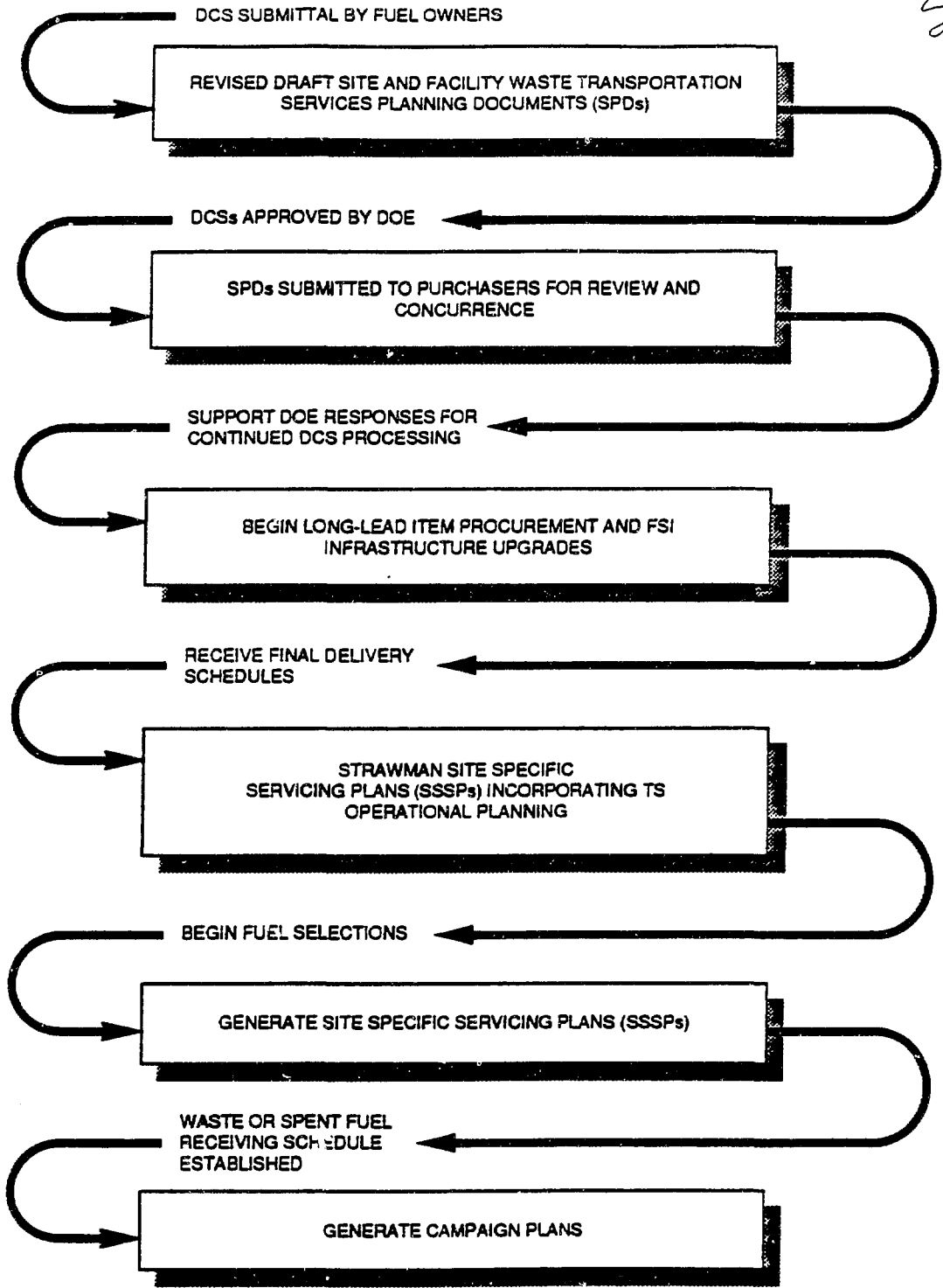


Figure 3

^{2.} ^{of SPDs} **EVOLUTION TO SITE-SPECIFIC SERVICING PLANS (SSSPs) AFTER DCS SUBMITTALS BY THE FUEL OWNERS.**

2. To provide a key focal point for Transportation Project activities. The development and maintenance of SPDs helps the OCRWM Transportation Program to focus its attention on gaining needed information about activities carried out in shipping spent fuel from reactor facilities that have unique transportation operations characteristics.

3. To identify and characterize operations issues associated with the facility, site, and local transportation infrastructure, and with the integration of these, that must or should be resolved before waste transportation operations can commence. Included are efforts to identify facility constraints/interface requirements that affect preparation of design specifications for OCRWM Initiative III casks, should these casks be needed. Any need to develop, design, and acquire equipment, procedures/practices, and personnel to support and conduct waste transportation operations from a facility using OCRWM Initiative 1 casks is also identified.

4. To provide for, and ensure, OCRWM Program continuity by following the FICA and NSTI data acquisition projects with value-added efforts that make timely and effective use of information collected. This includes maintaining "corporate memory" within the OCRWM program and the utilities on the information needs and issues of the products of the FICA and NSTI. This is necessary because the transportation activities of the FWMS will span beyond the careers of many individuals currently working for, or on the behalf of, the DOE and the utilities.

5. To provide facility-specific information that can be used to support DOE in issuing the Acceptance Priority Ranking (APR) and preparations for, communication with, and responses to, Purchasers' (see 10 CFR 961.3) submittals of Delivery Commitment Schedules (DCSS). Large numbers of DCSSs, applying to many of the 122 reactor and spent fuel storage facilities, are expected from utilities and other owners of spent nuclear fuel beginning in January 1992.

6. To identify additional information needed for use in operations planning and execution that is not provided in available sources. Preparation of SPDs identifies information that is suspect or needs additional verification.

7. To provide a DOE-supplied "draft" reference for issue to facilities receiving approvals of DCSSs. The draft reference would be issued to the owners of the DCSSs at the time of DOE approval, and would provide a facility owner with a reviewable document that presents DOE's knowledge and its questions regarding the transportation interface and shipping capabilities of the affected facility, site, and near-site transportation infrastructure. The facility owner's review of the SPD for its site, and subsequent response, forms the initial basis for joint utility/DOE planning for shipping operations. This planning will lead to the development of mutually agreed upon Site Specific Servicing Plans (SSSPs) used by FWMS in planning and executing shipping campaigns.

APPROACH FOR DEVELOPING SPDS

SPDs are being and will continue to be developed using the FICA and NSTI data, portions of the FICA assessment reports, and information from the FICA backup data files. Other sources of information for preparing SPDs are: RW-859 data provided by utilities; DOE's most recent Annual Capacity Report; information collected during visits by Transportation Program personnel to observe transportation-related activities at nuclear facilities; Federal Register Notices; and knowledgeable individuals.

As the first step in preparing an SPD, the best available drafts of the respective FICA and NSTI reports are studied and analyzed. This work is performed by individuals who have extensive knowledge of, and experience in, spent fuel cask design, licensing, and operations and spent fuel transportation operations. The individuals who perform this work are also knowledgeable about Initiative 1 cask system designs being developed for the OCRWM and the OCRWM Transportation Program's activities, goals, and objectives. Potentially useful information from other sources is treated similarly. In these efforts, information contained in the FICA and NSTI data bases (including text in data-base comment fields) and information from other sources is evaluated to determine if it is relevant or useful. Relevant information is distilled, organized, and documented.

In the second step, the same specialists evaluate the information for consistency, meaning, and validity. Where uncertainties, inconsistencies, or ambiguities exist, these are resolved or highlighted in the draft of the SPD.

The DOE is currently planning to issue applicable SPDs to Purchasers who submit Delivery Commitment Schedules (see 10 CFR 961). The plan is to provide SPDs to Purchasers along with DOE's approvals of the DCSSs. With the information provided by the SPDs, Purchasers will be able to review: the DOE's knowledge of the transportation capabilities of their sites and facilities; the DOE's knowledge of the characteristics and capabilities of the near-to-site transportation infrastructure that may have a bearing on transportation preparations; the DOE's current planning for transportation of spent fuel from the facilities and sites; and the DOE's perspective regarding site and facility-specific issues that need to be resolved to permit the most efficient transportation operations from the specific facility.

Purchasers who receive SPDs should provide feedback to the DOE in the form of corrections, suggestions, and additional information that will contribute to planning for future transportation and constitute the first step in the preparation of SSSPs. The SSSPs will, of necessity, need to be prepared in full cooperation with the purchasers.

CONTENTS OF AN SPD

SPD contents are somewhat restricted. Topics covered normally include a transportation capabilities summary; facility background, arrangement, design configuration, and operating information; fuel, geographic, and local infrastructure information; facility, site, and infrastructure constraints to transportation operations; alternatives for removing constraints; conclusions; and appropriate attachments, such as cask certificates of compliance, layout drawings, and a glossary of terms. SPDs focus on the information needed to assess and describe how, when, and if a facility will be able to handle, load, and prepare for shipment of a cask, and the facility organizations that will need to be involved. Any other important information (e.g., description of the spent fuel and associated non-fuel assembly hardware, infrastructure constraints) relevant to shipment of wastes to FWMS facilities are also included.

The typical contents of an SPD are illustrated by the Transportation Capabilities Summary (Figure 3) prepared for the Lacrosse Power Station. The Lacrosse Power Station was permanently shutdown in 1987; it is owned by the Dairyland Power Cooperative of Wisconsin. The summary, in preliminary draft form, follows.

SPD PREPARATION STATUS

At the time of preparation of this paper, draft SPDs for seven facilities had been prepared. These include the Lacrosse Power Station, Peachbottom 2, Crystal River 3, Surry 1, Monticello, Millstone 1, and Oyster Creek facilities.

Generally, the order of preparation of SPDs is being governed by the availability of information. However, the priority will be on facilities likely to be served during the earliest years of FWMS operations. Particular attention will be given to facilities where it is believed that longer-range advanced preparations for transportation will be needed. Table 1 presents two priority orders for preparation of SPDs to address delivery requirements anticipated for approximately the first 3 years of FWMS operations. The first column is based on an Oldest Fuel First ranking of the facilities for waste Acceptance Priority (i.e., those facilities for which permanently discharged spent nuclear fuel has the earliest discharge dates). The second column lists facilities expected to be designated by Purchasers for early deliveries. The facilities in the second column in bold type are common to both rankings.

Over the next two years, SPDs for all 122 facilities will be prepared.

"1.0 TRANSPORTATION CAPABILITIES SUMMARY

This section summarizes key data, and assesses the present capabilities to receive, handle, load, and ship wastes from this site.

LaCrosse is the only nuclear unit owned by Dairyland Power Cooperative; it is an Allis-Chalmers BWR rated at 165 MW thermal power, and shares the site with fossil units. The nuclear plant was permanently shut down in 1987.

The plant has a number of dimensional and weight restrictions to cask operations. The airlock doors are only 5 ft. 4 in. wide which limits the cask size to legal weight truck casks. The cask must be removed from the transport trailer outside of the containment using a special horizontal lifting fixture and the 40 ton yard crane to set it on a special cask transfer cart. The transfer cart is then pulled into the containment. The cask must be carefully raised as it is moved into the containment, since the containment is shorter than the length of the cask. The cask length is limited to about 16'-8". The cask decon area has a floor load rating of 36 tons.

A cask drop accident analysis has been completed, and a 50 ton cask could be accommodated. The cask loading area is only 5'-6" in diameter, but due to cutouts should be able to accommodate the standard cask lifting yoke in one plane.

The DOE/OCRWM Initiative 1 truck cask (GA-4/9) should be able to serve LaCrosse, but special equipment and adapters are likely to be required including:

- * Special horizontal lift beam to transfer cask from trailer to transfer cart.
- * Special transfer cart modification to accommodate the cask turning trunnions.
- * Special lifting yoke or yoke adapter link to mate with the cask crane hook and to assure clearance within the airlock area, and the loading pool.

It might be valuable to examine whether the GA-4 cask might be modified to accept a shortened nine hole BWR basket to hold the LaCrosse fuel, this marginally shorter and lighter cask might be easier to fit into the limited dimensions of this facility. A dry transfer of spent fuel could allow the use of a rail size cask with no major additional facility or infrastructure upgrade." ✓

Figure 3. Transportation Capabilities Summary
Prepared for the LaCrosse Power Station

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Table 1. Priority Order for SPD Preparation

Based on Oldest Fuel First	Based on Distribution Options
1. Dresden 1	1. Zion 1
2. Haddam Neck	2. G.E. Morris
3. San Onofre 1	3. Oyster Creek
4. G.E. Morris	4. Haddam Neck
5. Humboldt Bay.	5. Humboldt Bay
6. Oyster Creek	6. San Onofre 1
7. Nine Mile Point 1	7. Brunswick 1
8. Yankee Rowe	8. Indian Point 2
9. R.E. Ginna	9. LaCrosse
10. LaCrosse	10. Three Mile Island 1
11. Millstone 1	11. Nine Mile Point 1
12. Point Beach 1	12. Millstone 1
13. Indian Point 1	13. Prairie Island 1
14. H.B. Robinson	14. R.E. Ginna
15. Dresden 3	15. Point Beach 2
16. Monticello	16. Yankee-Rowe
17. Vermont Yankee	17. Brunswick 2*
18. Pilgrim	18. Zion 2*
19. Quad Cities 1	19. Oconee 2
20. Big Rock Point	20. St. Lucie
21. Maine Yankee	21. Maine Yankee
22. Turkey Point 3	22. Millstone 2
23. Surry 1*	23. Vermont Yankee
24. Point Beach 2*	24. Point Beach 1*
25. Oconee 1	25. Pilgrim
26. Dresden 2*	26. Byron 2
27. Fort Calhoun	27. Big Rock Point
28. Turkey Point 4*	28. Palisades
29. Surry 2*	
30. Duane Arnold	