7821 R-028-204.14

REVISED ADDENDA TO REVISION 3 OF THE REMOVAL ACTION 17 WORK PLAN

09/10/96

DOE-1277-96
DOE-FN EPAS
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ADDENDA

7821

Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

SEP 10 1996
DOE-1277-96

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

REVISED ADDENDA TO REVISION 3 OF THE REMOVAL ACTION 17 WORK PLAN

Enclosed for your review are the revised addenda to the Removal Action (RvA) 17 Work Plan and the responses to the comments received from the Agencies on July 3, 1996. These addenda incorporate the responses; subsequent discussions were held with the Agencies to clarify their comments and to confirm the submittal date for the revised addenda.

You have previously provided verbal approval for open, bulk storage of certain categories of debris generated from Plant 4. Storage of this material on the Plant 1 Pad has begun. Due to the timing of the Plant 1 activities, we would like to request approval to store the same categories of materials generated by the Plant 1 decontamination and dismantling on Plant 1 Pad.

If you or your staff have any questions, please contact Pete Yerace at (513) 648-3161.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Yerace

Recycled and Recyclable

cc w/enc:

R. L. Nace, EM-425/GTN
G. Jablonowski, USEPA-V, 5HRE-8J
R. Beaumier, TPSS/DERR, OEPA-Columbus
F. Bell, ATSDR
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S. M. Houser, FERMCO/52-3
C. Little, FERMCO/2

REMOVAL ACTION 17, REVISION 3
SOIL MANAGEMENT ADDENDUM

This addendum addresses the interim storage of soil from interim actions and site-wide maintenance activities. Those activities comprise construction, operation, remedial investigations, and repair work that is needed to maintain the FEMP, but is not directly related to remedial action. Remedial action planning documents identified later in this addendum will supersede RvA 17.

Management of soil generated from maintenance activities

Maintenance activities, IDW, emergency actions, and other minor construction activities are not covered by remedial designs or remedial action work plans. Excess soils generated during these activities will be managed under RvA17, Revision 3, as supplemented by this addendum until superseded by the approved Operable Unit 5 Sitewide Excavation Plan (SEP) (see the last section of this addendum for the complete list of documents that supersede the RvA 17, Revision 3 Work Plan, Soil Management Plan).

DOE's commitments to waste minimization practices will be met as follows:

- Backfilling of an excavated maintenance activity (e.g., following a pipe repair in the Former Production Area) will be performed with the soil that was removed from the original excavation.

- IDW generated will be returned to its source area.

These two actions should result in the generation of only minimal quantities of excess soil. Excess soil will be characterized based on RI/FS data, process knowledge, or real-time analysies. Subsequent disposition of this material will be performed in accordance with the OSDF WAC as follows:

- Soil exceeding the WAC will be staged and characterized for off-site disposal.

- Soil below the OSDF WAC will be stockpiled for further characterization and possible on-site disposal.

The above will apply only to small quantities of excess soil at any given location. Management of excess soil exceeding 50 cubic yards would be addressed with the USEPA and OEPA on an individual basis. Until the SEP is approved, the use of the stockpiled material as borrow would be evaluated individually, depending on characterization for FRLs and regulatory agency approval. The SEP will present the method of characterization needed for on-site disposal or as borrow material.

Existing Soil Stockpile Locations

Currently, there are five primary existing soil stockpiles on-site (Figure 1). Although descriptions of stockpile contents are provided here and assumed to be correct, evaluation

of stockpile media is underway. These stockpiles are designated as SP-1, SP-2, SP-3, SP-4, and SP-5. SP-2 is thought to consist of Category I soil but verification of the contents are pending. SP-3 and SP-5 consists of Category I soil; SP-3 also consists of a segregated stockpile of approximately 100 cubic yards of Category II soil. The SP-5 rubble pile consists of Category I soil. SP-4 consists of petroleum-contaminated soil from underground storage tank removal. A number of other smaller temporary stockpiles have been created, and are under evaluation for consolidation into the existing stockpiles.

Soil Tracking System and Manifesting

The FEMP Site-Wide Waste Information, Forecasting and Tracking System (SWIFTS) database will be used to document movement of soil for interim segregated storage. This system is also being considered for manifesting, and direct placement of excess soil from maintenance activities into the OSDF during remediation. SWIFTS has been used successfully at the FEMP for tracking containerized legacy and newly generated wastes. Systems modifications are being implemented that will also allow the database to track non-containerized bulk inventory (i.e., soils and debris) during remediation.

Key data entered into SWIFTS using the Project Waste Identification and Disposition Document (PWID) for soil are identified in Table 1 below. The PWID is completed during the project planning stage, at which time anticipated waste types, categories, and quantities are identified.

Table 1
PWID Data to be Entered into SWIFTS

1. PWID Cover Sheet:	2. PWID Part B (Soils):	3. Soil Profile MEF	4. Soil Sub-Area Source
Project Name	Soil Profile MEF Data (See column 3)	Profile MEF Number	Sub-Area Number
PWID ID Number	Soil Sub-Area Source (See column 4)	Description	1983 State Planar Coordinates
Project Soil Area (Areas 1 - 7; others as identified)	Generating OU	On-site disposal WAC acceptability (Y, N, U)	
Project Type (maintenance, construction)		Category Type (i.e on-site/off-site)	

Upon actual generation of excess soils from maintenance activities, a Soil Transport Routing Sheet (STRS) will be prepared by the generator (Figure 2). A STRS will be required for placement of that soil into an interim stockpile. The concepts utilized in the STRS are being condensed into a manifesting system (presented in the Impacted Material Placement Plan, June 28, 1996) proposed for use during remediation as a routing procedure to transport soil from an interim stockpile or excavation site to the OSDF. Receipt of soils at the destination (including the OSDF cell location, if applicable) would be processed in SWIFTS using information on the STRS.

A placement location in a soil stockpile will be defined in SWIFTS by unique identification (ID) numbers. The ID numbers will reference specific grid positions which will be defined by 1983 State Planar Coordinates. Volumes of soil will be cumulatively added to or subtracted from the placement locations as the material is contained and moved. Placement locations will be entered into the database as they are utilized in the field.

Key data elements from the original excavation will "follow" the soil as it is transported. These include the generating project, soil area and sub-area, generating operable unit, and soil profile. This information will be identified on the STRS. Each STRS will be identified by a unique serial number. Each placement location in SWIFTS will maintain a transaction history based upon this STRS serial number.

Figure 3 presents a flow diagram of the various stages of soil management for which a STRS is prepared. Points in time when information would be recorded on a STRS form may include: 1) complete a profile (i.e., soil characterization information) for future disposition, 2) identify the material for ultimate on-site or off-site disposal, and 3) identify a stockpile location, based on the disposition profile.

The schematic in Figure 4 contains the main elements that have been included in the new soil procedure. Compliance of soil to the on-site disposal Waste Acceptance Criteria (WAC) is indicated on the STRS by the generator. Soil will be evaluated using existing characterization information, such as, but not limited to, Remedial Investigation and Feasibility Study data, existing data from areal waste characterizations, and process knowledge. Only soils meeting the WAC will be acceptable for direct transport to the OSDF. Soil above the WAC will be staged for transport to the appropriate off-site disposal facility.

Design Documents to Supersede RvA17

The Operable Unit 5 SEP and Integrated Remedial Design Packages (IRDPs) will supersede RvA17 when soil management activities are directed by remedial design. Disposition of soil from on-going maintenance activities will also be reviewed and revised, as needed, in the SEP. Section 4 of the Operable Unit 5 Remedial Design Work Plan describes the general content of these deliverables and the schedule of submittals. RvA17 will also be superseded by staging areas designated in the design packages of the other operable units as part of their remedial action planning. The appropriate design documents that will supersede RvA 17 are identified below:

OU1

OU1 Remedial Design, Pre-final Design Packages, I and II, approved June 28, 1996

OU1 Site Preparation Activities and Materials Management, approved April 30, 1996

Final Amendment to the OU1 Remedial Design, Pre-final Design Packages, I and II, approved July 3, 1996

OU2/OU5

Site-wide Excavation Plan, to be submitted March 14, 1997

Integrated Remedial Design Packages

Area 1, Phase I, submitted July 17, 1996
Area 1, Phase II, to be submitted June 26, 1997
Area 2, Phase I, to be submitted March 14, 1997
Area 3, to be submitted July 2, 1998
Area 4 and Area 5, to be submitted, November 15, 2000
Area 6; Area 7; Area 1, Phase III; and Area 2, Phase II, to be submitted January 15, 2001

<u>OU4</u>

Silo Superstructure Prefinal Design Document, submitted May 2, 1996

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Soil Transport Routing Sheet

Serial Number: _____

Section I - Containerization

1. PWID ID # _____ 2. Container Inventory # _____

3. Container Type: ☐ ROB ☐ ISO ☐ Top Load MB ☐ B25 ☐ B12 ☐ Other: _____

4. Packaging Start Date: _____ Packaging Complete Date: _____

5. Soil Sub-area ID # _____

6. Soil Profile: _____ OSDF WAC Status for Profile: ☐ Meets WAC

☐ Does not meet

☐ Not determined

7. Certification Signature: (Project generation only, see note "b")

Name: _____ Signature: _____ Date: _____

Notes:

a. To be placed in soil stockpile.

b. Project certification not required for soils transported from interim stockpiles.

Section II Soil Destination and Volume

1. Destination:

☐ Soil Stockpile ☐ OSDF (direct)

Location: _____ Location: _____

2. Delivery Volume:

Amount: _____ Units: _____ Method: _____

3. Packaging Support Verification:

Name: _____ Signature: _____ Date: _____

Section III Soil Placement (line 1 (or) line 2)

1B. OSDF Receipt: OSDF Placement Location: _____

Name: _____ Signature: _____ Date: _____

2. Soil Stockpile Receipt:

Name: _____ Signature: _____ Date: _____

FORM SOILTRANS.FR1, Revision 0.91 5/10/96

Figure 2

Soil Generation & Management

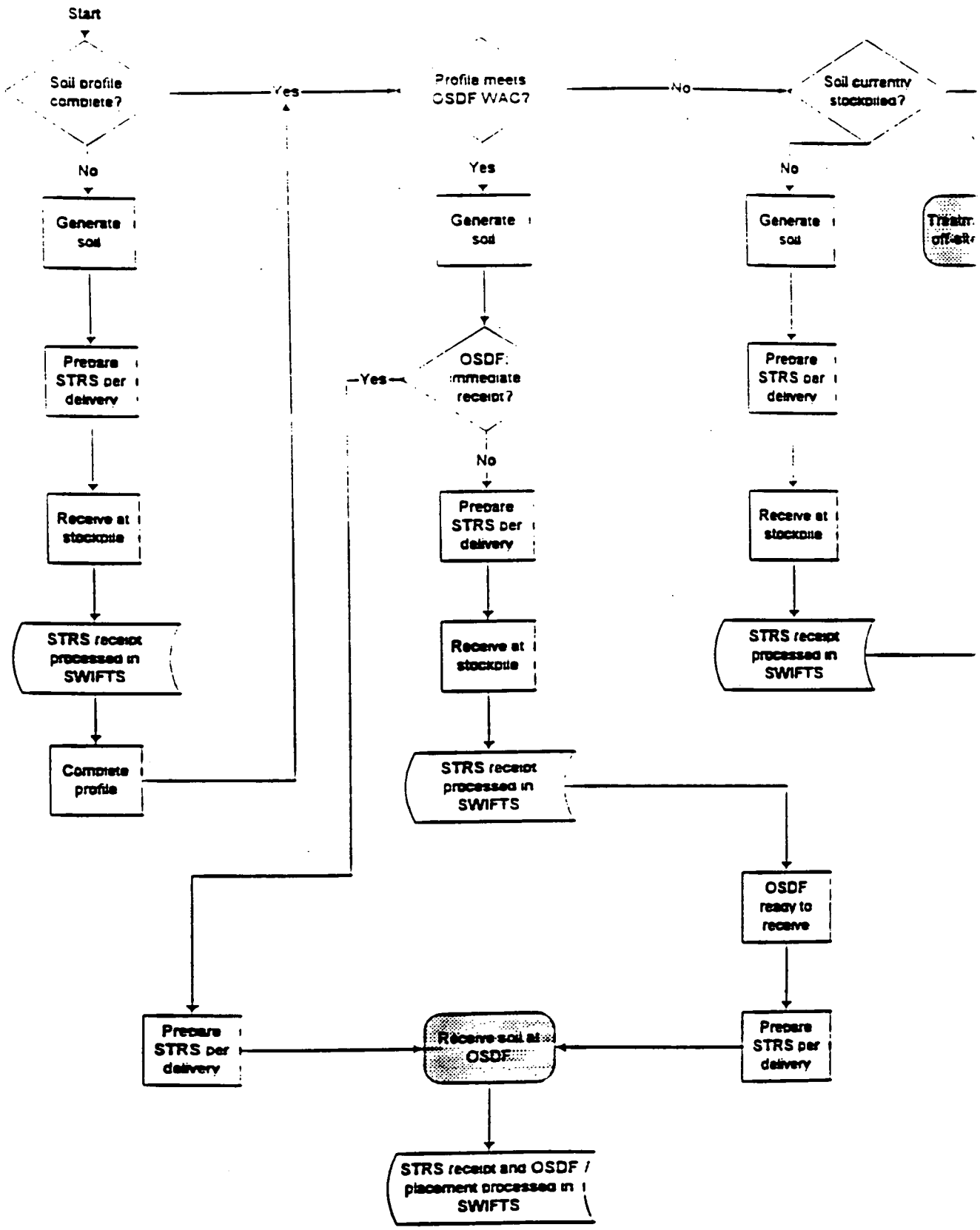


Figure 3

Soil/Debris Project Definition

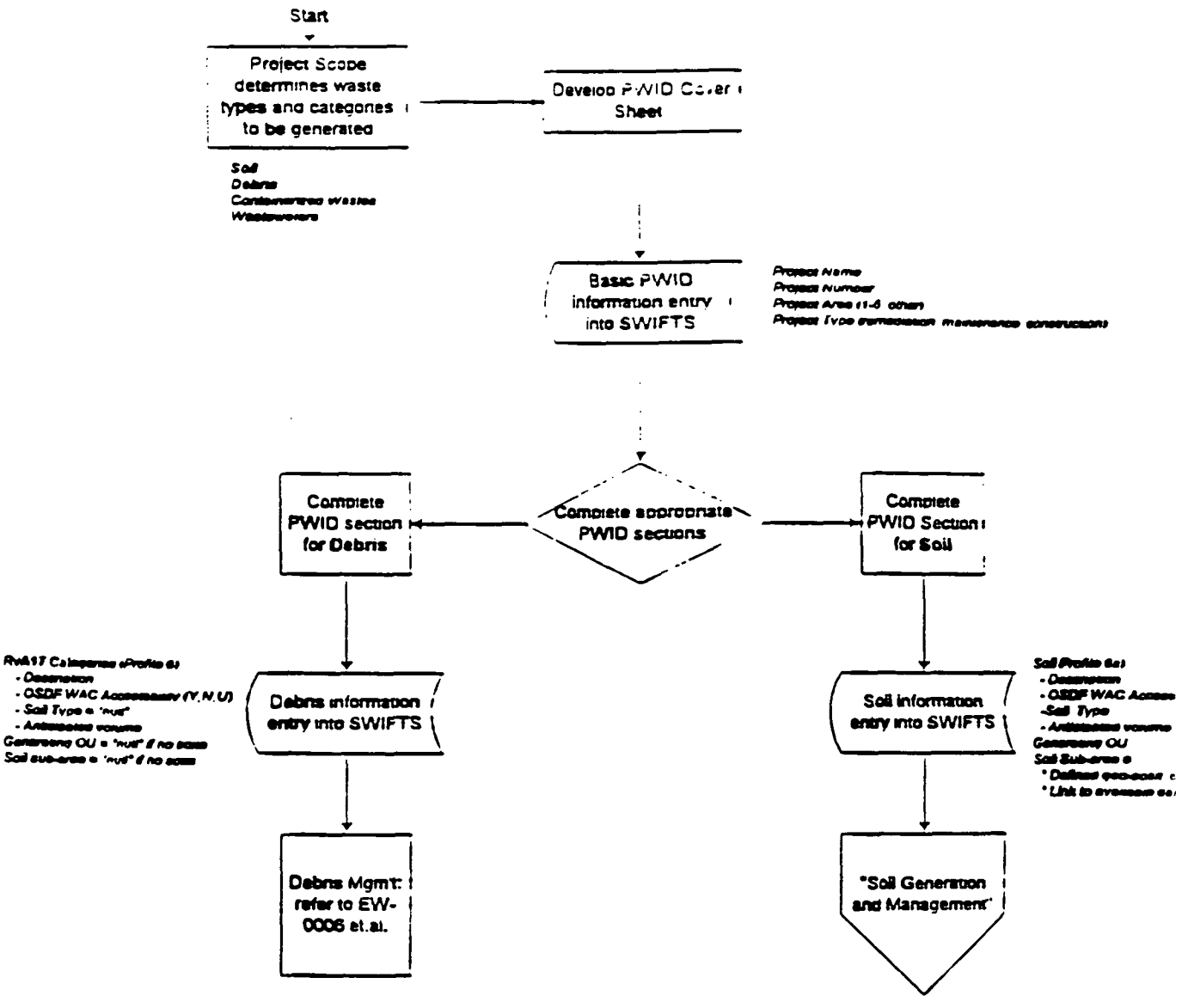


Figure 4

REMOVAL ACTION 17, REVISION 3
DEBRIS MANAGEMENT ADDENDUM

This addendum to the Removal Action 17 Work Plan, Revision 3, enhances the framework established in the Work Plan. It provides specific details on quantities, locations and duration of interim storage, the anticipated method of tracking debris, and the document roadmap for phasing into remedial action from the removal action (i.e., those documents which will supersede RvA 17).

Integrated Debris-Waste-Soil Model

The Integrated Debris-Waste-Soil Model was created to facilitate management of the various waste streams to be produced by each of the operable units during remediation. The model integrates debris generation from facility demolition, soil generation from excavation activities, OSDF construction, and legacy/nuclear/new generation waste management activities. The model consists of six modules: Model A - Debris Generation; Model B - Excavated Soil Generation; Model C - Non-Remediation Waste Disposition; Model D - On-Site Disposal, Storage, Staging, and Off-Site Shipping Calculation; Model E - Storage Location and Footprint Calculation; and Model F - On-Site Disposal Facility (OSDF) Lift Computation. Attachment 1 illustrates the relationships between these model modules within the overall model. The following discussions are intended to present selected results from use of the Integrated Debris-Waste-Soil Model that are pertinent to interim storage of debris and not to provide an extensive discussion of the model specifics.

One of the primary outputs from the model is the identification of the debris volumes which must be interim stored prior to the capability of the OSDF to receive debris. The model provides projected quantities on a quarterly basis for debris for each of the debris categories, identifies debris container requirements, identifies debris to be placed into interim storage by location of storage, and the quantities and timing of debris placement in the OSDF. The quantities of debris generated, the amount placed in the OSDF, or in interim storage, and the duration debris is in storage is a function of facility demolition, soil excavation, and off-site shipment of wastes.

The model identifies four potential debris storage locations, presented here in descending order of preferred usage: Plant 1 Pad, Plant 7 Slab, Plant 4 Slab, and Plant 8 Pad. Attachment 2 illustrates the Model E output for the Plant 1 Pad using the current D&D schedule associated with the accelerated remediation plan (Attachment 3). The output demonstrates that Plant 1 Pad usage for interim storage of debris will peak during fiscal years 1997 and 1998 and will be discontinued in advance of the excavation of the pad scheduled in fiscal year 1999. After the removal of the Plant 1 Pad as part of Area 3 soils excavation, the Plant 7 and Plant 4 Slabs (Attachments 4 & 5, respectively) would be utilized for the small amounts of debris slated for interim storage. Both facilities would have stored debris dispositioned prior to fiscal year 2002. The model predicts that the Plant 8 Pad would not be required to support debris storage. These model results rely heavily on a number of funding and project interrelation assumptions.

The assumptions used in the model depend on the type of information desired in the

output. A base set of assumptions that match the ten-year cleanup scenario were initially used to review the ramifications of the current plan (initially a validation or impact assessment of the conceptual plan). Key outputs of the model yield information about the need for debris or soil storage capabilities, which in turn allow the overall plan to be adjusted to minimize the production of soils or debris in excess of that which can be utilized effectively (one goal is to match soil excavation rates closely to debris generation and to placement activities).

The major base assumptions for the model include the assumptions of continuous funding under the ten-year level funding plan (and the associated funding of each of the remediation programs per the current approved budget baseline). Current estimated costs for each element of the remediation are also significant assumptions for the model. The following are also considered major assumptions with respect to soil and debris management and the model:

- Legacy waste disposition schedules
- Bulking factors of debris in various storage configurations
- Soil and debris placement rates (reliable weather, productivity, transport, etc. are embodied)
- Projected soil to debris ratio in the OSDF

Since the model is a general tool for remediation planning, it can also help answer the questions about what happens if one or a number of the model assumptions are changed. An example illustrates how the model output might change if a major assumption is altered. For example, if the debris/soil sequence is not optimized, a significant increase in debris storage could be required and possibly result in loarge periods of closure of the OSDF. The model might also identify that storage space is unavailable for such a scenario and yield a estimate of the needed additional footprint.

Attachments 6 and 7 provide examples of numerical output from Model D. Attachment 6 illustrates how soil availability by period influences the placement of debris in the OSDF. Debris is accumulated prior to the availability of soils for placement and is thereafter accumulated only in periods of inactivity at the OSDF, such as winter shutdowns. Attachment 7 illustrates the usage of containers by period for debris which will require containerized storage. It also identifies the quarterly generation rates for debris which will be eligible for bulk open storage.

The model will be updated periodically to incorporate actual inventory and changes in remediation plans.

Debris Tracking

As debris is generated from decontamination and dismantlement (D&D) projects it may be stored for on-site disposal (container storage or interim debris piles), transported directly to the OSDF, or shipped to an off-site disposal facility. SWIFTS is the current containerized waste tracking system utilized at the FEMP that will be modified to incorporate the

management of stockpiled debris (non-containerized material/debris).

The debris will be placed into a container for transport to interim storage areas (for on-site disposal) typically except for the following: Category A, Accessible Metals, will be placed on the project pad from which the waste was generated; Category G, Non-Regulated Asbestos Containing Materials, transite walls and roofs, will be palletized and wrapped for interim on-site storage and disposal. The remainder of the categories representing on-site disposal will be placed into boxes and transported to on-site interim storage areas for storage as depicted in Removal Action 17 Work Plan, Revision 3.

Each box of above grade debris will be weighed before it is taken to the interim storage area for bulk or container storage or directly to the OSDF for disposal. Containers of debris which are not immediately emptied into a stockpile or the OSDF will be tracked in SWIFTS as current containerized waste. Containers of debris which are emptied into stockpiles are recorded as transactions in SWIFTS utilizing the appropriate Transport Routing Sheet. To assure material characterization data remain relevant, debris transactions in SWIFTS have been designed to maintain accountability of the volume, generation source and characterization profile of all material placed in each stockpile.

Bulk debris piles will be stored within limited access compounds to assure only materials meeting OSDF waste acceptance criteria are placed. This approach also facilitates safeguard of worker exposures to physical, chemical, and radiological hazards. The OSDF WAC will serve as the primary driver for the development and management of debris stockpiles.

Debris will be managed up to the point of bulk storage by site procedure EW-0006, "Management of Debris", issued June 5, 1996. Bulk storage of debris will be governed by procedure SOP 20-C-635, "Receipt and Bulk Storage of Debris", issued May 31, 1996. Soil will be managed up to the point of bulk storage by site procedure EW-0026, "Management of Soil", issued June 28, 1996. The site procedure for bulk storage of soil is under development. Completion and implementation of this procedure is pending finalization of this Addendum to the Removal Action 17 Work Plan, Revision 3.

The boxes that are unloaded will be returned to a project for reuse. Each interim debris pile will have a unique identifier within SWIFTS into which the net weight of the debris added to it will be tracked. SWIFTS will be capable of reporting, at any given time, the weight and volume estimate of debris in a particular interim debris pile and the project from which the debris was generated.

To support the above description of how debris will be tracked, a "Debris Transport Routing Sheet" (DTRS) will be utilized by field personnel to accompany each container that is filled. The routing sheet directs the transport of the debris to interim storage (container staging or interim debris pile). Signature lines are on the routing sheet for certification from the project, packaging support verification, and interim storage receipt. The concepts utilized in the DTRS are being condensed into a manifesting system (presented in the Impacted Material Placement Plan, June 28, 1996) proposed for use as a routing procedure to transport debris directly to the OSDF. The routing sheet is a new streamlined

process for debris generated for off-site shipment.

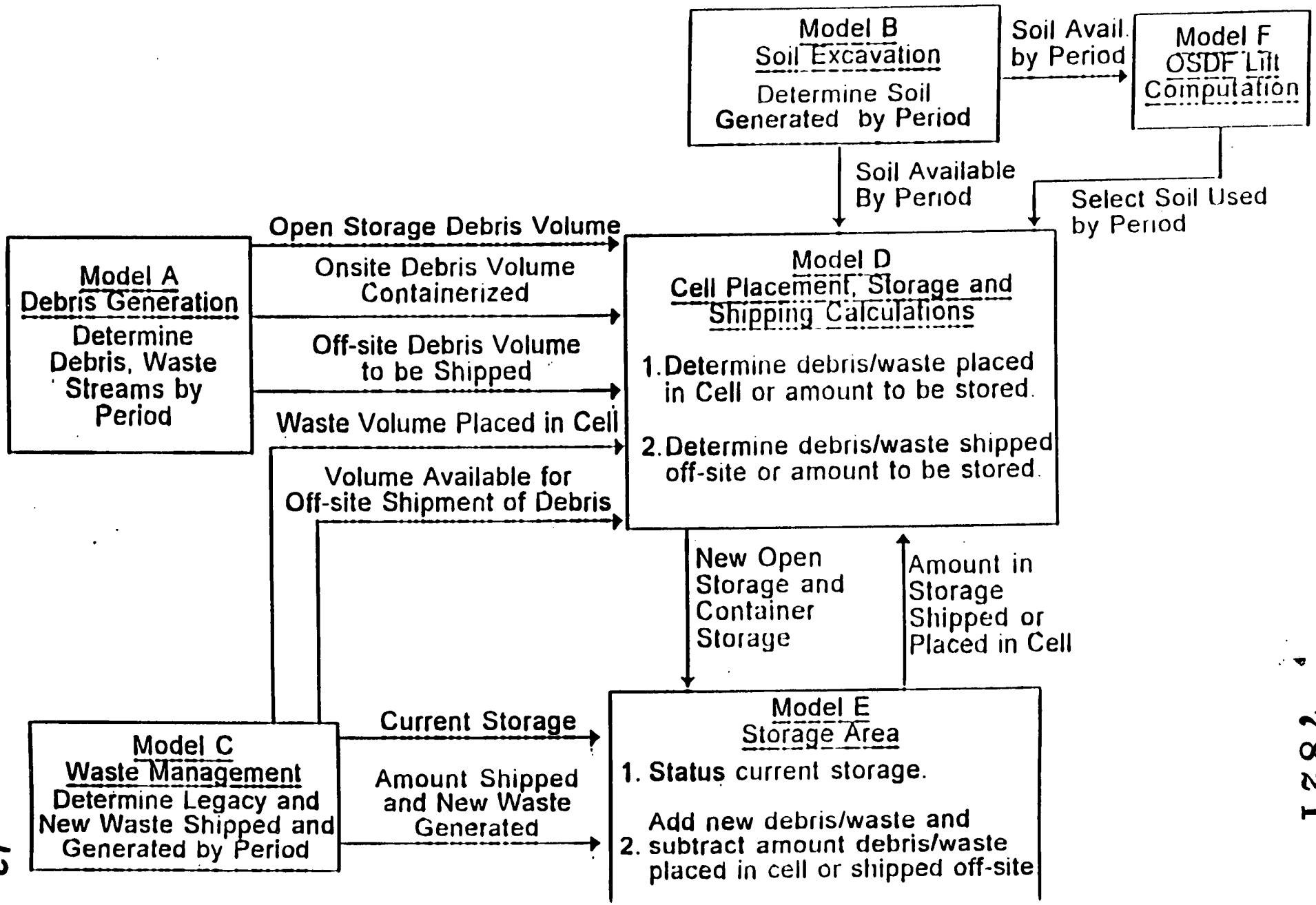
Documents to Supersede RvA 17

Interim storage of debris to be generated during the OU3 interim remedial action currently falls within the scope of the OU3 Record of Decision for Interim Remedial Action (IROD), which will become part of the OU3 ROD for Final Remedial Action. Any debris generated from the interim remedial action that requires storage prior to approval of the OU3 Integrated Remedial Design/Remedial Action (RD/RA) Work Plan (WP) will be managed in accordance with the debris management criteria/requirements discussed in Removal Action 17 Work Plan, Revision 3 (including this addendum to RvA 17), and the appropriate complex-specific Implementation Plans. Once the OU3 Integrated RD/RA WP, scheduled for submittal 60 days after the effective date of the Final Record of Decision for OU 3, is approved, the debris management strategy and requirements of RvA 17 will be superseded by the OU3 RD/RA WP.

The complex-specific Implementation Plans which have been approved to date include: Building 4A; Plant 1 - Phase I; and High and Low Nitrate Tanks. The debris generated as a result of the interim remedial action which requires storage will be managed in accordance with RvA 17 and this addendum. Additional Implementation Plans which may be submitted prior to the approval of the OU3 Integrated RD/RA Work Plan include the Boiler Plant/Water Plant, Thorium/Plant 9, and Tank Farm Complexes. These Implementation Plans will contain the relevant debris management information including quantities to be stored, specific storage locations, and duration of storage.

The OU3 Integrated RD/RA WP will incorporate the framework of the debris management strategy/requirements of RvA 17 and supersede RvA 17. It is anticipated that Implementation Plans submitted after approval of the RD/RA WP will be streamlined in nature and summarize debris management strategies already identified in the RD/RA WP.

DEBRIS-WASTE-SOIL DISPOSAL INTEGRATED MODEL



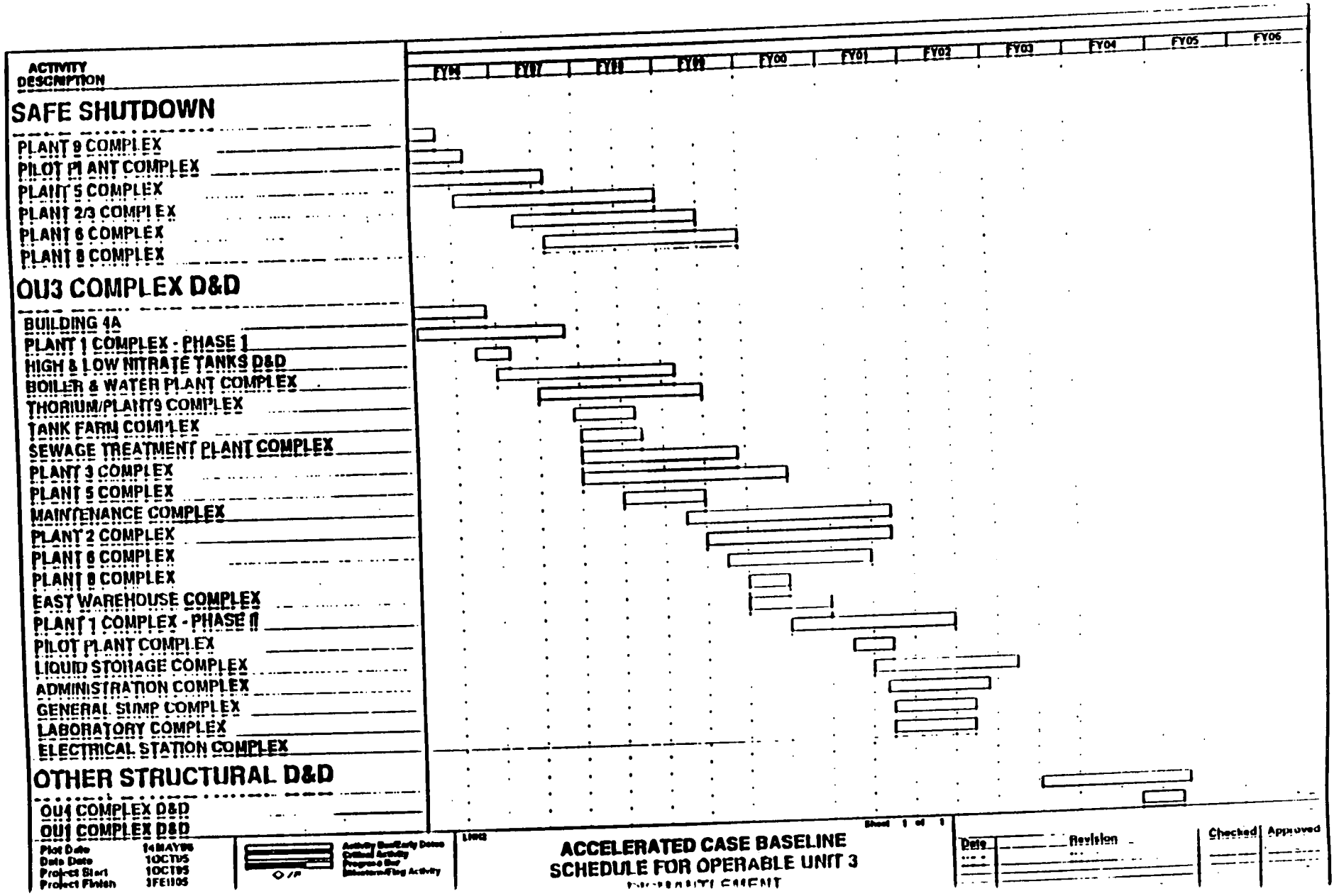

ACTIVITY DESCRIPTION
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY04
FY05
FY06
SAFE SHUTDOWN
PLANT 9 COMPLEX
PILOT PLANT COMPLEX
PLANT 5 COMPLEX
PLANT 2/3 COMPLEX
PLANT 6 COMPLEX
PLANT 8 COMPLEX
OU3 COMPLEX D&D
BUILDING 4A
PLANT 1 COMPLEX - PHASE 1
HIGH & LOW NITRATE TANKS D&D
BOILER & WATER PLANT COMPLEX
THORIUM/PLANT9 COMPLEX
TANK FARM COMPLEX
SEWAGE TREATMENT PLANT COMPLEX
PLANT 3 COMPLEX
PLANT 5 COMPLEX
MAINTENANCE COMPLEX
PLANT 2 COMPLEX
PLANT 6 COMPLEX
PLANT 8 COMPLEX
EAST WAREHOUSE COMPLEX
PLANT 1 COMPLEX - PHASE II
PILOT PLANT COMPLEX
LIQUID STORAGE COMPLEX
ADMINISTRATION COMPLEX
GENERAL SUMP COMPLEX
LABORATORY COMPLEX
ELECTRICAL STATION COMPLEX
OTHER STRUCTURAL D&D
OU4 COMPLEX D&D
OU1 COMPLEX D&D
Plot Date 14MAY96
Data Date 10CT95
Project Start 10CT95
Project Finish 3FEB05
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity
L1002
Sheet 1 of 1
ACCELERATED CASE BASELINE
SCHEDULE FOR OPERABLE UNIT 3
Date
Revision
Checked
Approved

TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 4 PAD AREA USAGE

10 YEAR PLAN, REV. 2a - 05/22/96

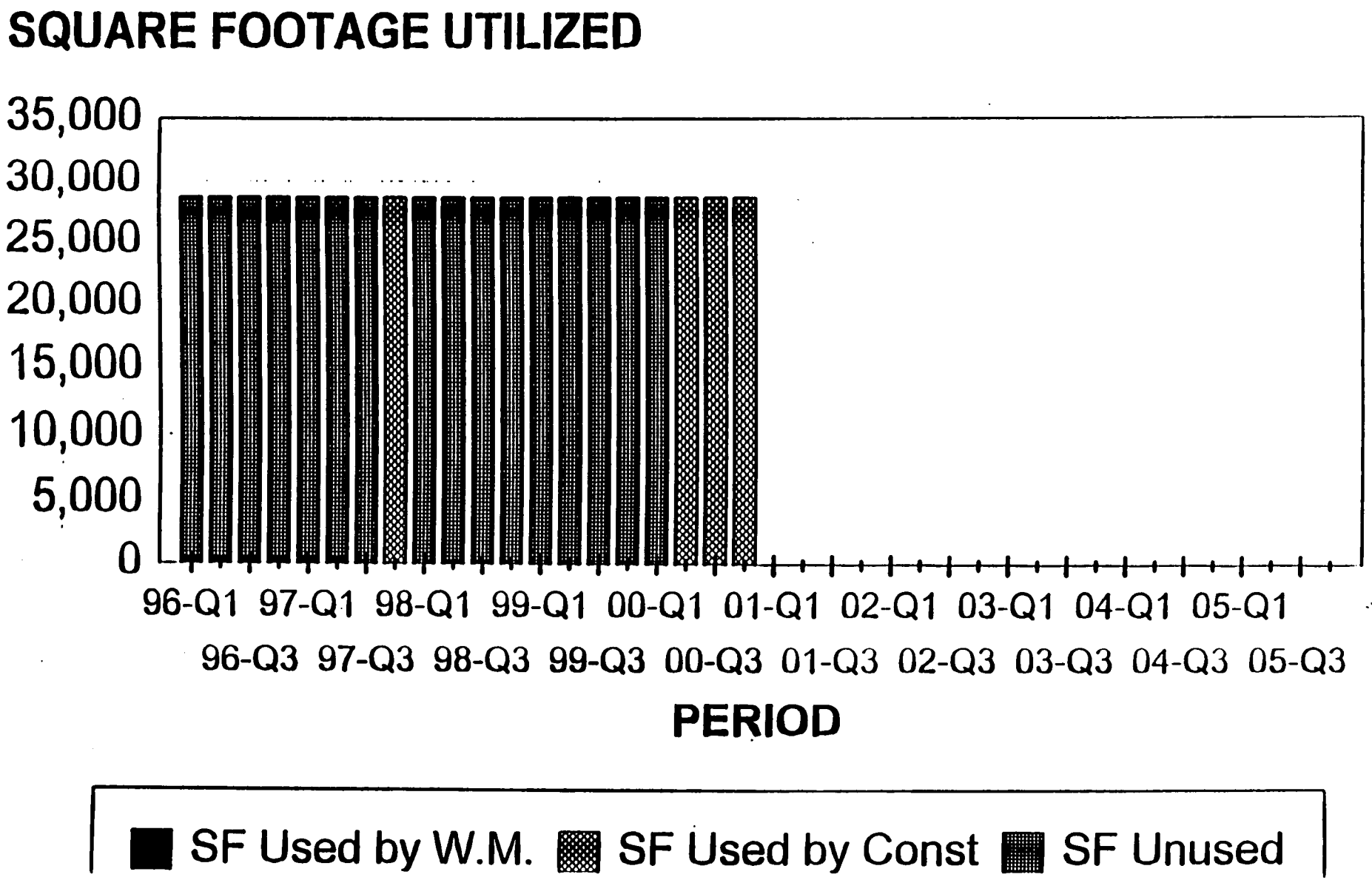


TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 7 PAD AREA USAGE

10 YEAR PLAN, REV. 2a - 05/22/96

SQUARE FOOTAGE UTILIZED

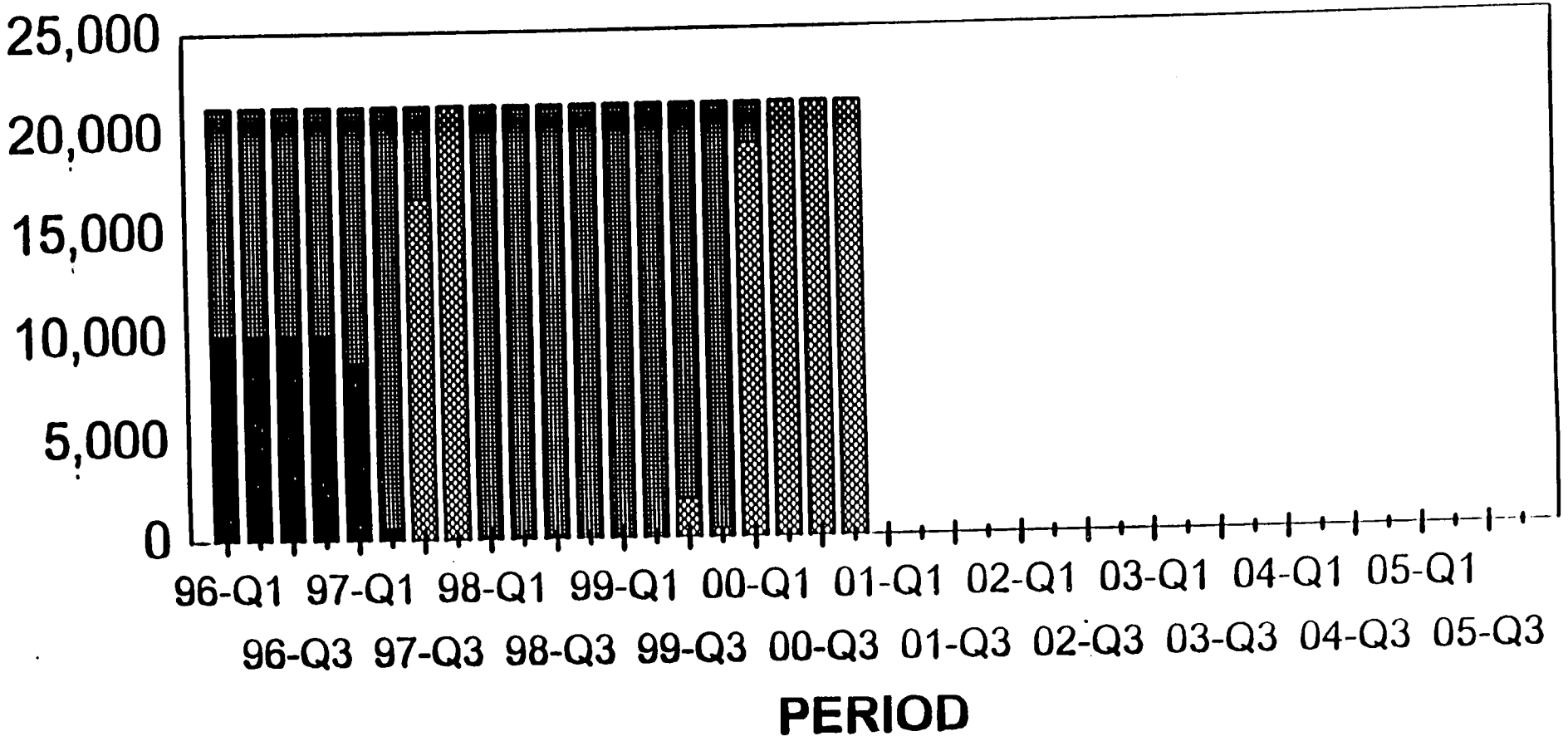


TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 8 PAD AREA USAGE

10 YEAR PLAN, REV. 2a - 05/22/96

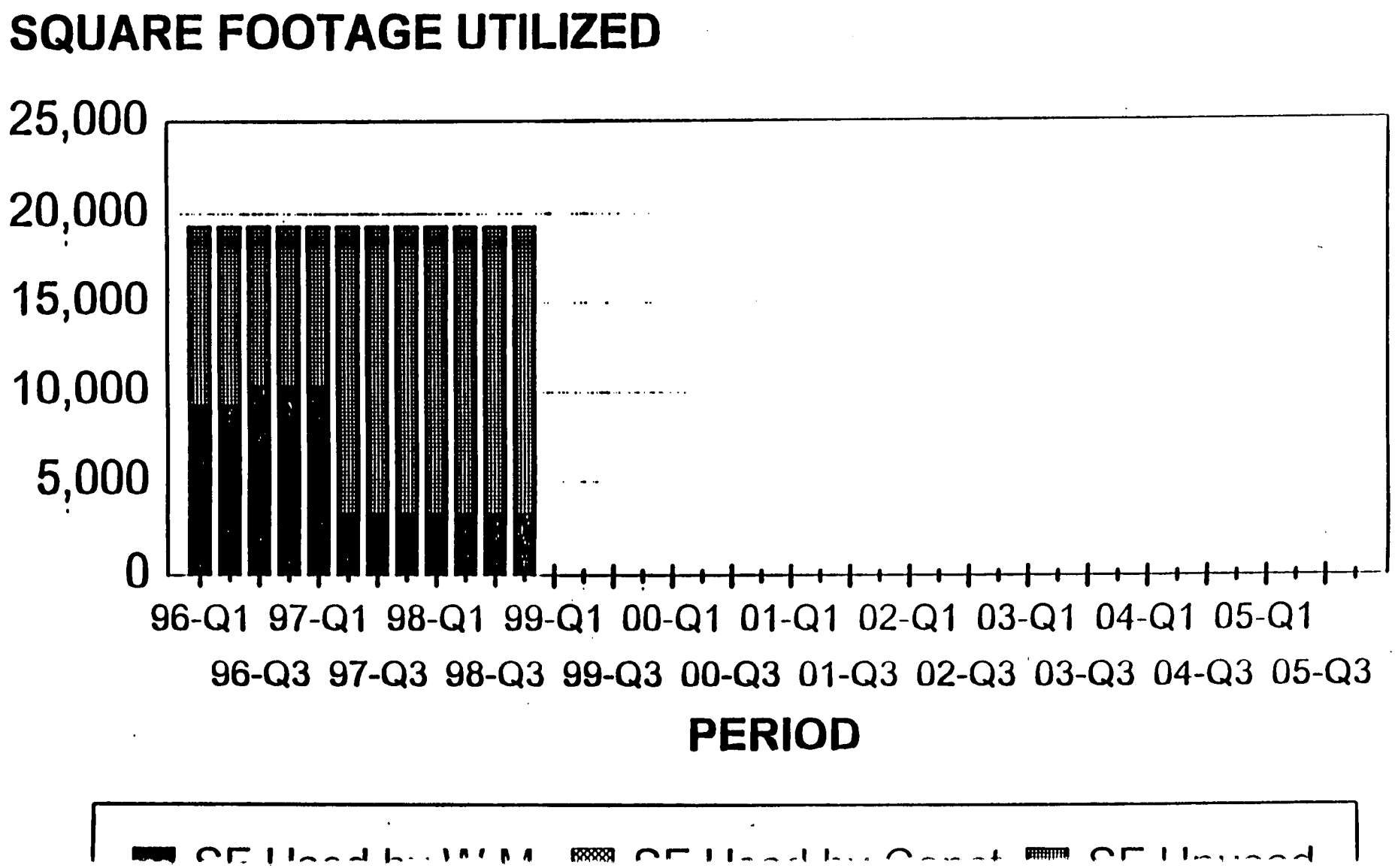


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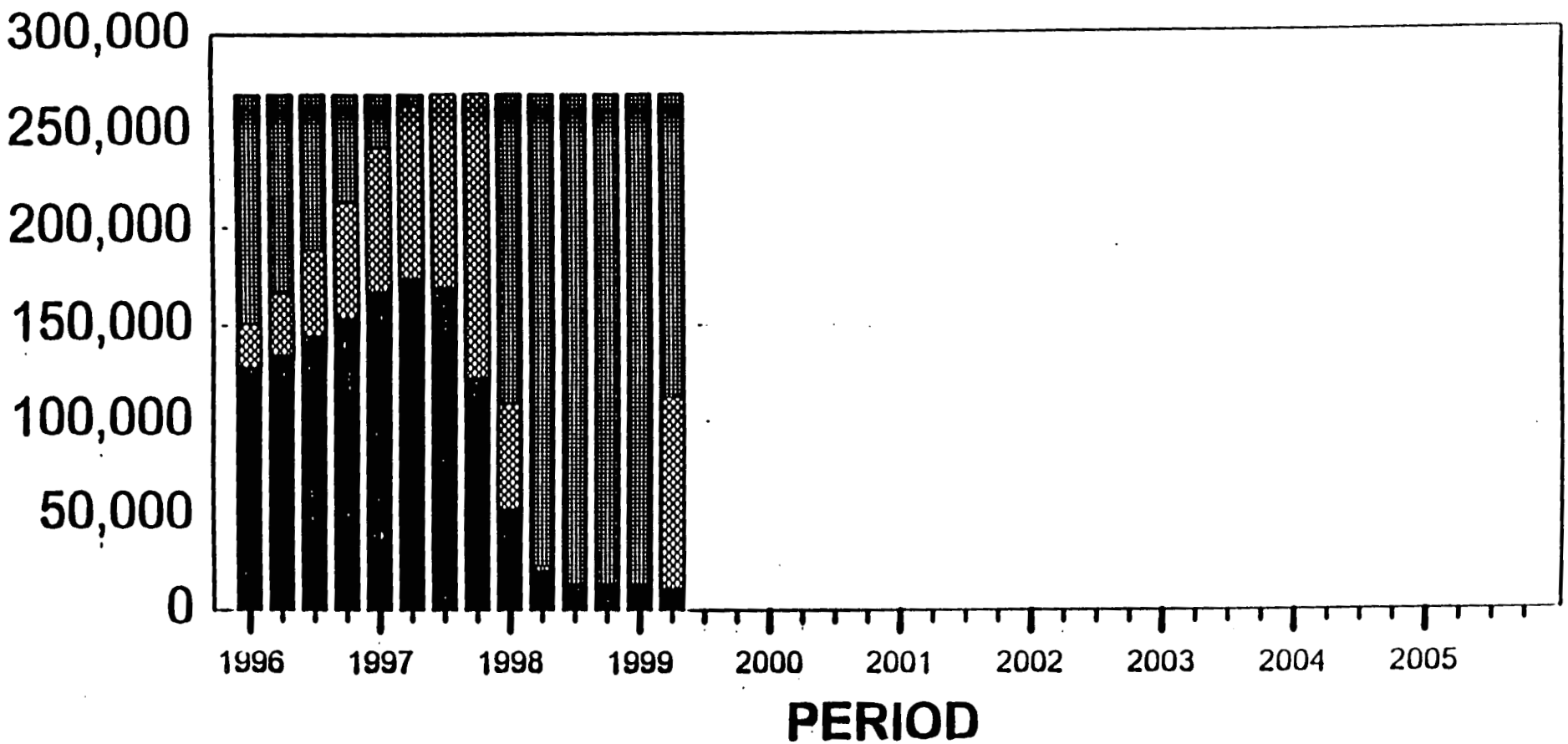
TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 1 PAD AREA USAGE

10 YEAR PLAN, REV. 2a - 05/22/96

SQUARE FOOTAGE UTILIZED



Model D Section I Part A - Onsite Construction Debris Storage and Placement
Scenario: 10 Year Plan Rev2a
5-15-96

1000 Compacted Cubic Yards

FY	Qt	Soil Excavated	Soil for Select Use	3 to 1 Ratio Soil Avail for Debris	Debris Capacity	Soil not Used with Debris	Debris Generated This Period	Debris in Storage Beginning Period	Total Debris Avail for Placement	Amount Debris Placed	Debris in Storage Ending Period
1995	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.9	0.0	0.9
	4	0.0	0.0	0.0	0.0	0.0	2.9	0.9	3.7	0.0	3.7
1996	1	0.0	0.0	0.0	0.0	0.0	0.7	3.7	4.5	0.0	4.5
	2	0.0	0.0	0.0	0.0	0.0	0.8	4.5	5.3	0.0	5.3
	3	0.0	0.0	0.0	0.0	0.0	2.1	5.3	7.3	0.0	7.3
	4	0.0	0.0	0.0	0.0	0.0	2.1	7.3	9.5	0.0	9.5
1997	1	0.0	0.0	0.0	0.0	0.0	1.1	9.5	10.6	0.0	10.6
	2	0.0	0.0	0.0	0.0	0.0	0.9	10.6	11.5	0.0	11.5
	3	0.0	0.0	0.0	0.0	0.0	5.9	11.5	17.4	0.0	17.4
	4	33.0	24.3	8.7	2.9	0.0	13.3	17.4	30.7	2.9	27.8
1998	1	133.9	35.6	98.3	32.8	0.0	11.9	27.8	39.6	32.8	6.9
	2	50.5	4.3	46.2	15.4	0.0	8.8	6.9	15.6	15.4	0.2
	3	95.3	11.1	72.4	24.1	11.7	12.1	0.2	12.4	12.4	0.0
	4	104.1	17.0	72.4	24.1	14.7	9.5	0.0	9.5	9.5	0.0
1999	1	69.4	30.1	36.2	12.1	3.1	9.0	0.0	9.0	9.0	0.0
	2	3.0	5.8	(2.8)	(0.9)	0.0	8.7	0.0	8.7	(0.9)	9.7
	3	80.2	12.7	67.5	22.5	0.0	13.1	9.7	22.7	22.5	0.2
	4	80.2	10.0	63.1	21.0	7.1	13.7	0.2	14.0	14.0	0.0
2000	1	53.6	2.5	51.0	17.0	0.0	19.9	0.0	19.9	17.0	2.8
	2	26.7	7.4	19.3	6.4	0.0	16.6	2.8	19.5	6.4	13.1
	3	80.2	23.9	56.3	18.8	0.0	15.2	13.1	28.3	18.8	9.5
	4	61.3	12.0	49.3	16.4	0.0	14.1	9.5	23.6	16.4	7.2
2001	1	40.9	8.2	32.7	10.9	0.0	12.0	7.2	19.2	10.9	8.2
	2	20.5	0.8	19.6	6.5	0.0	10.2	8.2	18.5	6.5	11.9
	3	116.7	18.2	85.7	28.6	12.8	3.8	11.9	15.8	15.8	0.0
	4	90.5	26.4	57.4	19.1	6.8	12.4	0.0	12.4	12.4	0.0
2002	1	60.4	9.9	50.3	16.8	0.2	16.5	0.0	16.5	16.5	0.0
	2	30.3	7.8	22.5	7.5	0.0	9.3	0.0	9.3	7.5	1.8
	3	127.2	12.2	98.0	32.7	16.9	13.9	1.8	15.8	15.8	0.0
	4	161.9	43.0	99.6	33.2	19.4	13.8	0.0	13.8	13.8	0.0
2003	1	108.0	17.8	79.9	26.6	10.3	16.3	0.0	16.3	16.3	0.0
	2	41.8	1.7	36.8	12.3	3.3	9.0	0.0	9.0	9.0	0.0
	3	180.7	44.1	109.3	36.4	27.3	9.1	0.0	9.1	9.1	0.0
	4	168.5	30.2	103.7	34.6	34.6	0.0	0.0	0.0	0.0	0.0
2004	1	112.4	31.5	60.7	20.2	20.2	0.0	0.0	0.0	0.0	0.0
	2	56.3	7.8	36.5	12.2	12.2	0.0	0.0	0.0	0.0	0.0
	3	147.1	17.8	101.6	33.9	27.8	6.1	0.0	6.1	6.1	0.0
	4	60.9	8.3	52.7	17.6	0.0	17.6	0.0	17.6	17.6	0.0
2005	1	40.7	11.0	29.7	9.9	0.0	9.9	0.0	9.9	9.9	0.0
	2	20.4	1.7	18.7	6.2	0.0	6.2	0.0	6.2	6.2	0.0
	3	34.8	20.2	12.8	4.3	1.7	2.6	0.0	2.6	2.6	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Model D Section I Table 2 - Containerized and Open Construction Debris Storage Requirements
Scenario: 10 Year Plan Rev2a
5-15-96

FY	Qt	Total SWMB	LWMB	ISO	ROR	Pallet	Open CY
1995	1	0.0	0.0	0.0	0.0	0.0	0
	2	0.0	0.0	1.2	0.0	0.0	0
	3	33.4	1.8	1.8	2.1	0.0	609
	4	118.3	6.5	0.0	7.5	8.6	2,157
1996	1	28.3	1.6	0.7	1.8	13.6	516
	2	0.0	0.1	7.9	11.8	8.9	625
	3	0.0	2.5	1.4	20.1	14.8	1,808
	4	0.0	2.6	2.3	20.3	17.9	1,828
1997	1	0.0	0.4	2.8	13.0	30.5	2,441
	2	0.0	0.1	5.0	11.5	2.7	2,625
	3	0.0	3.2	4.3	16.7	15.2	5,282
	4	0.0	5.0	4.9	22.3	18.4	7,619
1998	1	0.0	5.8	3.7	29.1	4.9	5,522
	2	0.0	3.3	14.2	19.5	34.5	3,524
	3	0.0	9.6	4.6	28.5	31.1	6,432
	4	0.0	8.3	5.7	32.2	19.2	5,179
1999	1	0.0	11.0	9.3	25.0	13.9	7,818
	2	0.0	10.4	2.9	30.2	45.6	8,656
	3	9.0	0.8	5.0	19.4	23.9	10,903
	4	9.1	3.8	12.2	21.8	0.0	12,459
2000	1	9.1	19.9	5.2	34.6	0.0	20,280
	2	10.7	17.8	3.2	37.4	0.5	23,932
	3	15.4	5.6	8.5	23.1	35.0	13,239
	4	9.1	7.7	7.9	29.1	59.1	15,225
2001	1	9.1	4.1	4.2	25.9	21.1	12,758
	2	0.0	2.5	5.6	18.1	44.2	5,306
	3	0.0	0.0	1.8	11.5	29.6	6,178
	4	34.7	2.2	16.2	38.0	2.6	12,220
2002	1	34.7	3.4	3.1	71.3	0.0	16,400
	2	34.0	0.8	4.9	11.9	0.0	10,817
	3	34.3	0.8	2.3	12.0	1.0	14,254
	4	34.7	0.8	2.7	12.1	29.8	14,514
2003	1	34.7	0.8	1.4	12.1	32.3	17,325
	2	34.0	0.8	1.3	11.9	37.7	9,449
	3	34.3	0.8	1.3	12.0	0.0	8,554
	4	0.0	0.0	0.0	0.0	0.0	0
2004	1	0.0	0.0	0.0	0.0	0.0	0
	2	0.0	0.0	0.0	0.0	0.0	0
	3	10.5	0.2	0.1	0.9	0.0	6,308
	4	31.5	0.6	0.2	2.8	0.0	18,822
2005	1	31.3	0.6	0.2	2.8	0.0	18,753
	2	0.0	0.0	0.0	0.0	0.0	0

Response to the USEPA Comments on the Addenda to the
Removal Action 17 Work Plan, Revision 3

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 1

Comment: The Addendum to Revision 3 of the Removal Action 17 Work Plan states that it will provide a document road map for phasing into remedial action from sitewide removal actions (documents establishing provisions that will supersede the provisions governing management of soil and debris during remedial actions at the site), however, such detail was not provided in this deliverable. No listing of the documents that will supersede the Removal Action 17 Work Plan was included in this deliverable. The addendum should be revised to include a description of the documents that will supersede the Removal Action 17 Work Plan soils management requirements during site-wide remediation.

Response: It is recognized, as a result of further discussions in a teleconference on July 29, 1996, that additional specific details are needed. A listing of the specific design documents that will supersede the RvA 17 Work Plan are listed below along with tentative submittal dates; these have been incorporated into the addenda. Please note that actual submittal dates will be formalized in the respective RD Work Plans as appropriate.

<u>OU1</u>

OU1 Remedial Design, Pre-final Design Packages, I and II, approved June 28, 1996

OU1 Site Preparation Activities and Materials Management, approved April 30, 1996

Final Amendment to the OU1 Remedial Design, Pre-final Design Packages, I and II. Approved July 3, 1996

<u>OU2/OU5</u>

Site-wide Excavation Plan, to be submitted March 14, 1997

Integrated Remedial Design Packages

- Area I, Phase I, submitted July 17, 1996
- Area I, Phase II, to be submitted June 26, 1997
- Area 2, Phase I, to be submitted March 14, 1997
- Area 3, to be submitted July 2, 1998
- Area 4 and Area 5, to be submitted, November 15, 2000
- Area 6; Area 7; Area 1, Phase III; and Area 2, Phase II, to be submitted January 15, 2001

<u>OU3</u>

Integrated Remedial Design/Remedial Action Work Plan, to be submitted 60 days after effective date of Record of Decision

OU4

Silo Superstructure Prefinal Design Document, submitted May 2, 1996

Commenting Organization: U.S. EPA Commentor: Saric

Section #: Integrated Debris-Waste . . .Page #: 1 Line #: NA

Original Specific Comment #: 1

Comment: The third paragraph states that "the model relies on a number of funding and project interrelation assumptions," however, those assumptions are not stated in the text. The text should be modified to specify the assumptions it relies upon and describe how those assumptions affect the stockpile location, the volume of waste generated, and the way debris and soil will be managed during sitewide remedial activities.

Response: The addendum provides a summary of the model outputs pertinent to interim storage of debris and not an extensive discussion of model specifics. A briefing was provided for Ohio EPA and U.S. EPA on May 29, 1996, on the design of the model and some of its typical outputs. Since a large number of assumptions make up the model inputs, the following discussion will deal only with the major assumptions affecting the D&D and soils programs.

The assumptions used in the model depend on the type of information desired in the output. A base set of assumptions that match the ten-year cleanup scenario were initially used to review the ramifications of the current plan (initially a validation or impact assessment of the conceptual plan). Key outputs of the model yield information about the need for debris or soil storage capabilities, which in turn allow the overall plan to be adjusted to minimize the production of soils or debris in excess of that which can be utilized effectively (one goal is to match soil excavation rates closely to debris generation and to placement activities).

The major base assumptions for the model include the assumptions of continuous funding under the ten-year level funding plan (and the associated funding of each of the remediation programs per the current approved budget baseline). Current estimated costs for each element of the remediation are also significant assumptions for the model. The following are also considered major assumptions with respect to soil and debris management and the model:

- Legacy waste disposition schedules
- Bulking factors of debris in various storage configurations
- Soil and debris placement rates (reliable weather, productivity, transport, etc. are embodied)
- Projected soil to debris ratio in the OSDF

Since the model is a general tool for remediation planning, it can also help answer the questions about what happens if one or a number of the model

assumptions are changed. An example illustrates how the model output might change if a major assumption is altered. For example,if the debris/soil sequence is not optimized, a significant increase in debris storage could be required and possibly result in long periods of closure of the OSDF. The model might also identify that storage space is unavailable for such a scenario and yield an estimate of the needed additional footprint.

This response has been incorporated in the revised addendum.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Debris Tracking Page #: 2 Line #: NA
Original Specific Comment #: 2
Comment: The third paragraph states that "bulk storage will be governed by specific procedures to assure material characterization data remain relevant." The text does not specify what the procedures that will be followed or what is meant by the phrase "to assure that characterization data remains relevant." It is assumed that the phrase refers to the method the U.S. Department of Energy (DOE) will use to track waste materials with respect to the location from where soil or debris was generated and the characterization of the waste from that location. The text should be revised to clarify the issue. Specifically, the text should state the "specific procedures" that will be followed or a reference to the supporting documents that outline such procedures.

Response: Agreed. The third paragraph of the Debris Tracking Section has been revised to read as follows:

> Each box of above grade debris will be weighed before it is taken to the interim storage area for bulk or container storage or directly to the OSDF for disposal. Containers of debris which are not immediately emptied into a stockpile or the OSDF will be tracked in SWIFTS as current containerized waste. Containers of debris which are emptied into stockpiles are recorded as transactions in SWIFTS utilizing the appropriate Transport Routing Sheet. To assure material characterization data remain relevant, debris transactions in SWIFTS have been designed to maintain accountability of the volume, generation source and characterization profile of all material placed in each stockpile.
>
> Bulk debris piles will be stored within limited access compounds to assure only materials meeting OSDF waste acceptance criteria are placed. This approach also facilitates safeguard of work exposures to physical, chemical and radiological hazards. The OSDF WAC will serve as the primary driver for the development and management of debris stockpiles.
>
> Debris will be managed up to the point of bulk storage by site

procedure EW-0006, "Management of Debris", issued June 5, 1996. Bulk storage of debris will be governed by procedure SOP 20-C-635, "Receipt and Bulk Storage of Debris", issued May 31, 1996. Soil will be managed up to the point of bulk storage by site procedure EW-0026, "Management of Soil", issued June 26, 1996. The site procedure for bulk storage of soil is under development. Completion and implementation of this procedure is pending finalization of the Addendum 3 to the Removal Action 17 Work plan.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Management of Soil Page #: 3 Line #: NA
Original Specific Comment #: 3

Comment: The text states that during the interim time frame, excavated soils that are characterized as having levels of contaminants that are lower than the final remediation levels (FRL) for Operable Unit 5 may be used to backfill associated excavations. The text lacks information about the methods that will be used to determine whether levels of contaminants in soils are lower than FRL and about whether those soils can be used for backfilling. The methodology to be applied in determining whether the soil is acceptable should be included in the text, or, at a minimum, a reference to a supporting document that outlines the methodology should be included in the text.

Response: Agreed. An explanation of the methodology to be used when determining if excess excavated or drilled soil is acceptable for backfilling is included with the revised addendum. The sub-section entitled, "Management of soil generated from maintenance activities", has been revised as follows,

> Maintenance activities, IDW, emergency actions, and other minor construction activities are not covered by remedial designs or remedial action work plans. Excess soils generated during these activities will be managed under RvA17, Revision 3, as supplemented by this addendum until superseded by the approved Operable Unit 5 Sitewide Excavation Plan (SEP).
>
> DOE's commitments to waste minimization practices will be met as follows:
>
> - Backfilling of an excavated maintenance activity (e.g., following a pipe repair in the Former Production Area) will be performed with the soil that was removed from the original excavation.
>
> - IDW generated will be returned to its source area.
>
> These two actions should result in the generation of only minimal quantities of excess soil. Excess soil will be characterized based on

RI/FS data, process knowledge, or real-time analysies. Subsequent disposition of this material will be performed in accordance with the OSDF WAC as follows:

- Soil exceeding the WAC will be staged and characterized for off-site disposal.
- Soil below the OSDF WAC will be stockpiled for further characterization and possible on-site disposal.

The above will apply only to small quantities of excess soil at any given location. Management of excess soil exceeding 50 cubic yards would be addressed with the USEPA and OEPA on an individual basis. Until the SEP is approved, the use of the stockpiled material as borrow would be evaluated individually, depending on characterization for FRLs and regulatory agency approval. The SEP will present the method of characterization needed for on-site disposal or as borrow material.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Figure 2 Page #: NA Line #: NA
Original Specific Comment #: 4

Comment: It is recommended that in Section 1, Characterization, the methods used to determine how the onsite disposal facility waste acceptance criteria (WAC) was met or not met should be included on the Soil Transport Routing Sheet. For example, the sheet could include a line item that states the characterization method used to determine that the soil met or did not meet the WAC. The items could be presented as check-off boxes with the following categories provided: 1) analytical sample (a line for entering the associated sample number could also be included); 2) remedial investigation data; 3) real-time radiological monitoring data, 4) other methods. The information could be useful at a later date if the origin or characterization of the soil is ever questioned. In addition, the information also could be useful in tracking placement of soils into the onsite disposal facility (OSDF) or in determining the disposition of such soils at an off-site disposal facility.

Response: The Soil Transport Routing Sheet (STRS) is used as a tracking mechanism (manifest) for transporting, stockpiling and dispositioning soil, and to facilitate data entry into SWIFTS. The STRS is required by procedure EW-0026, "Management of Soil", issued June 28, 1996, and is used by field personnel to track individual loads of soil. Soil characterization information (e.g., characterization method, WAC compliance) is documented within the Sitewide Environmental Database (SED) and/or the Waste Characterization project files and is easily retrievable through use of the SWIFTS Project Number identified in section I, line 1 of the STRS. The project number refers to a specific Project Waste Identification and Disposition Form (PWID) and waste management project file which are developed during the planning

phase. The PWID identifies soil characterization profiles, generation locations and expected volumes. WAC compliance, including references to analytical results and RI data will be documented in the project file during the planning phase, and later as the project progresses and new information is collected and compiled. The PWID form is incorporated in site procedure EW-0026. Characterization profiles are documented using a Material Evaluation Form (MEF) and associated file.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Documents to Supersede Page #: 5 Line #: NA
Original General Comment #: 5
Comment: This section should discuss all documents that will supersede the provisions set forth, for soil and debris management, that are contained in the Removal Action 17 Work Plan, not just the Operable Unit 3 documents. It is understood that the remedial action planning documents for each Operable Unit set forth the provisions for the management of soil and debris generated during site-wide remedial actions. However, the Removal Action 17 Work Plan cannot be considered complete unless it includes a comprehensive list of all documents, from all five Operable Units, that will supersede the removal action work plan. A proposed schedule of deliverable dates for all of the documents discussed above should be included in the Removal Action 17 Work Plan.

Response: See response to Original General Comment #1.

Response to the OEPA Comments on the Addenda to the Removal Action 17 Work Plan, Revision 3

Commenting Organization: OEPA Commentor: Schneider
Section #: NA Page #: NA Line #: NA
Original General Comment #: NA

Comment: The Integrated Debris-Waste-Soil Model output reveals that from the 2nd quarter of 1999 to the third quarter of 2001, there is only one quarter where the OSDF is not "soil-poor". Open debris storage requirements for the time period from the third quarter of 1999 through the first quarter of 2003 are always in excess of 10,000 cubic yards except for two quarters of 2001. Figure 5-2 of the OU3 RI/FS shows that in the years 1999 and 2000 in excess of 600,000 cubic feet and 800,000 cubic feet respectively of concrete materials will be generated.

These facts lead the Ohio EPA to the conclusion that using an on-site crusher to reduce large blocks of concrete to a soil-like material is an implementable and practical solution to the staging problem. We offer the following considerations in support of that conclusion:

- The technology exists and has been implemented at FUSRAP sites in Ohio,
- The technology exists to control air-borne emissions from the crusher and this technology has been utilized at FUSRAP sites and at stone quarrying operations,
- The technology can accommodate the re-enforcing steel components of concrete,
- Previous cost estimates for the OSDF placement are un-realistic because they do not properly account for the material handling required to place large blocks of concrete. It is our understanding that the additional effort needed to compact around monolithic blocks as well as the additional soil testing that the regulators are likely to require have not been adequately reflected in the cost estimates,
- Solution equilibrium of leachate and concrete contaminants will be attained during the one thousand year design life of the OSDF. The equilibrium concentration of contaminants in the leachate is independent of the physical size of the concrete,
- Staging concrete will result in additional costs associated with double handling of this material, air borne emissions control and run-on run-off control.

We anticipate that further discussions will be necessary before resolution of this issue is achieved.

Response: The FEMP recognizes the potential application of a concrete crusher in site

remediation. However, it has not been deemed a viable option to-date because the significant quantity of concrete does not become available until late in the remediation schedule. Typically, the concrete that will be available in 1999 and 2000 is from building slabs that will be removed as part of the OU5 remediation and soil will be available with it.

It is important to note that the model results cited originate from one run using one particular set of assumptions and a specific schedule scenario. It is not a certainty at this time to what extent the site may encounter soil-poor conditions for on-site disposal facility operations. We are continuing to evaluate the optimal sequencing to minimize the need to interim store debris.

DOE intends to conduct an engineering study of a concrete crusher at the Mound facility. The results of that study will be used to help determine the appropriate disposition of concrete from the FEMP. The use of concrete crushing at the Weldon Springs Site Remedial Action Project will also be monitored for its relevance to Fernald remedial actions. DOE will continue to work with both USEPA and OEPA on determining the viability of concrete crushing/recycling.

Commenting Organization: OEPA Commentor: Schneider
Section #: NA Page #: NA Line #: NA
Original General Comment #: NA
Comment: Another area of concern is the "evaluation of stockpile media" that is mentioned under the heading Existing Soil Stockpile Locations on the first page of the Addendum. Earlier versions of Removal Action 17 were intended to maintain the history of process knowledge and place of origin of the soils in the piles. It is Ohio EPAs contention that if this knowledge is lost due to the addition of uncharacterized soils to the piles, the burden of proof rests with DOE to show compliance with WACs.

Response: Agree. See the response to USEPA Original Specific Comment #3.