7690 R-028-204.13

ADDENDUM TO REVISION 3 OF THE REMOVAL ACTION 17 WORK PLAN

05/31/96

DOE-0945-96
DOE-FN EPAS
15
ADDENDUM

7690

Department of Energy

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

MAY 3 1 1996

DOE-0945-96

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

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

Dear Mr. Saric and Mr. Schneider:

ADDENDUM TO REVISION 3 OF THE REMOVAL ACTION 17 WORK PLAN

Enclosed for your review and approval is the addendum to the Removal Action (RvA 17) Work Plan, Revision 3. This addendum provides enhanced detail for the soil and debris management approaches delineated in the Work Plan, as identified below:

Soil:

1) Identification of proposed staging areas for those soils generated by maintenance or construction activities prior to development of remedial action planning documents and intended for on-site disposal. This also includes a map showing the locations of the existing soil stockpiles. The location and size of interim stockpiles designated for future on-site disposal resulting from actions by specific operable units (OUs) will be identified on appropriate remedial design drawings along with a proposed schedule for removal; this will be included on the appropriate submittals to the Agencies for approval.

2) A soil tracking system based on the Site-Wide Information, Forecasting and Tracking System (SWIFTS), is described which will be utilized to support interim segregated storage, as well as manifesting, and direct placement in the On-Site Disposal Facility (OSDF).

3) A description of those documents which will supersede RvA 17 soils management requirements during remediation is included.

Debris:

4) The anticipated amount, location, and duration for interim storage of debris, by type from each D&D activity, is shown. This is based on the Debris-Waste-Soil Disposal Integrated Model. Validation of the model is currently underway.

5) A debris tracking system based on SWIFTS is described which will be utilized to support interim segregated storage, as well as manifesting and direct placement in the OSDF.

6) A description of those documents which will supersede RvA 17 debris management requirements during remediation is included.

Previously, verbal approval has been provided for open, bulk storage of certain categories of debris currently in roll-off boxes. This material is to be stored on the Plant 1 Pad. The site procedure for handling this material has been approved and a copy will be forwarded to you for information during the week of June 2, 1996.

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

FN:Yerace

Enclosure: As Stated

cc w/enc:

R. Nace, EM-423, GTN
G. Jablonowski, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton (3 Total)
Manager, TPSS/DERR, OEPA-Columbus
F. Bell, ATSDR
D. Ward, GeoTrans
R. Vandegrift, ODH
S. McLellan, PRC
AR Coordinator, FERMCO

cc w/o att:

J. M. Sattler, DOE-FN
P. J. Yerace, DOE-FN
L. C. Goidell, FERMCO
T. D. Hagen, FERMCO
R. P. Heck, FERMCO
S. M. Houser, FERMCO
C. Little, FERMCO
N. S. Weatherup, FERMCO

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 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 soils, a Soil Transport Routing Sheet (STRS) will be prepared by the generator (Figure 2). A STRS will be required for entry of soil into an interim stockpile. The STRS is anticipated to be used during remediation as a routing slip to transport soil from an interim stockpile or excavation site to the OSDF if/until superseded by the SEP. 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 will be included in the new soil

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, emergency actions, investigative-derived waste (IDW) soil currently contained in white metal boxes, and other minor construction activities that are not covered by a remedial design or remedial action work plan are anticipated to be performed as an interim activity and continue during remediation. Soil generated as a result of these maintenance activities will be managed under RvA17, Revision 3, as supplemented by this addendum until superseded by the approved Operable Unit 5 Site-wide Excavation Plan (SEP). Accordingly, excavated soil during the interim time-frame that exceeds the final remediation levels (FRLs) will be staged within one of the five existing stockpiles (based on the previous Category I and II descriptions defined in RvA17, Revision 2) using existing run-on/run-off controls. Soil generated from the above activities that are sufficiently characterized (per FEMP Waste Programs Management procedures) as lower than the On-Site Disposal Facility (OSDF) waste acceptance criteria (WAC) will be placed in existing stockpiles formerly known as Category I. If soil exceeds the OSDF WAC or is not sufficiently characterized, the material will be placed in the interim in existing stockpiles formerly known as Catagory II. A plan for dispositioning of the Category II soil piles will be included in the SEP. During the interim time-frame excavated soil from any of the above activities that is characterized as below the Operable Unit 5 FRL for that area may be used to backfill the associated excavation.

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.

Soil Tracking System and Manifesting

The FEMP Site-Wide 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 into the OSDF during remediation. SWIFTS has been used successfully at the FEMP for tracking containerized legacy and

procedure. Compliance of soil to the on-site disposal Waste Acceptance Criteria (WAC) is indicated on the STRS by the generator. Only soils meeting the WAC will be acceptable for direct transport to the OSDF. Soil above the WAC 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.

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 four operable units as part of their remedial action planning.

Staging areas for waste to be shipped off-site to a licensed commercial facility will be identified in the Operable Unit 1 Remedial Design Pre-final Design, Packages 1 and 2, which are currently under review by the agencies. Each of the remaining operable units will also identify staging area locations in their remedial design drawings.

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 WAC (a)

☐ Not determined (a)

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

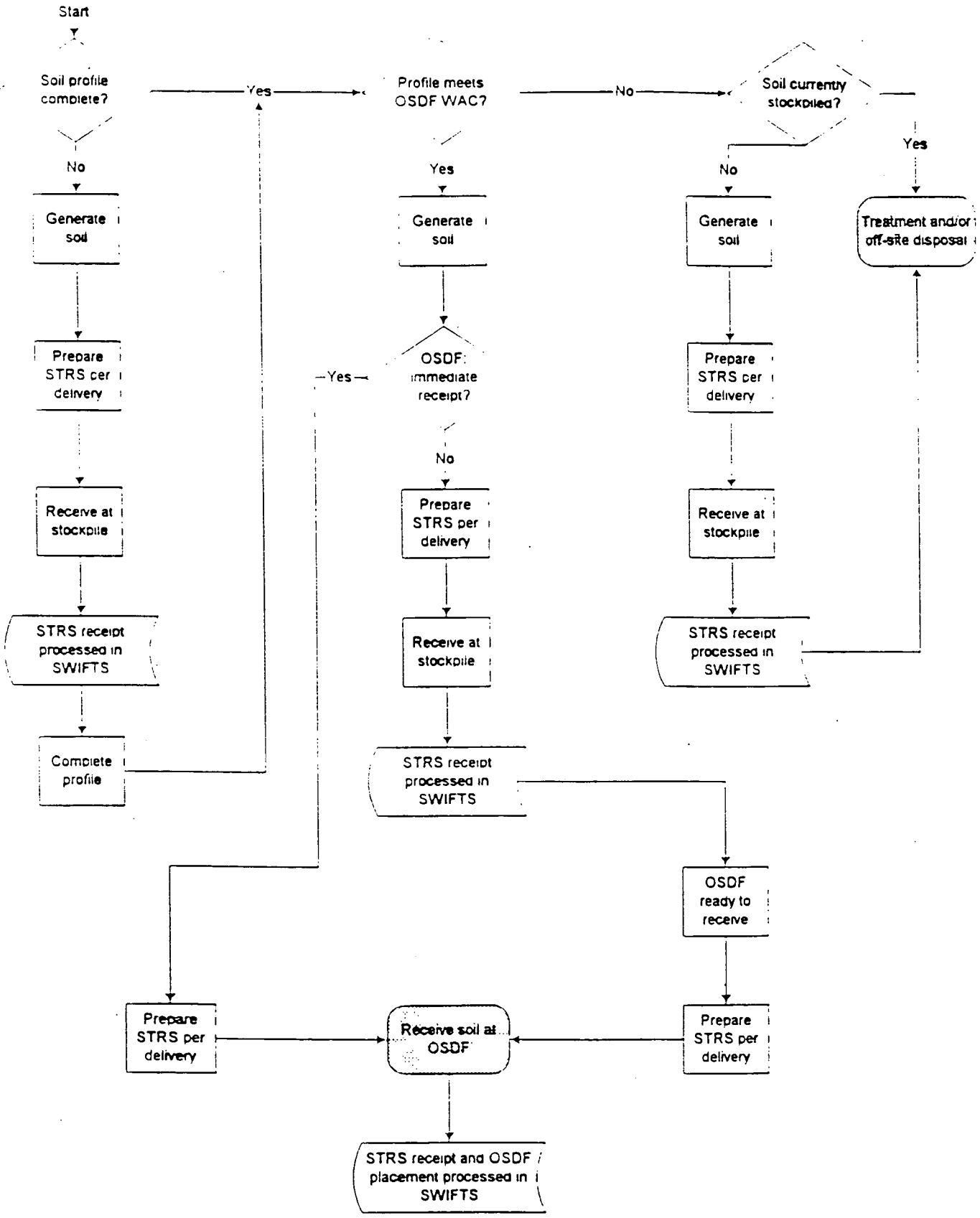


Figure 3

Soil/Debris Project Definition

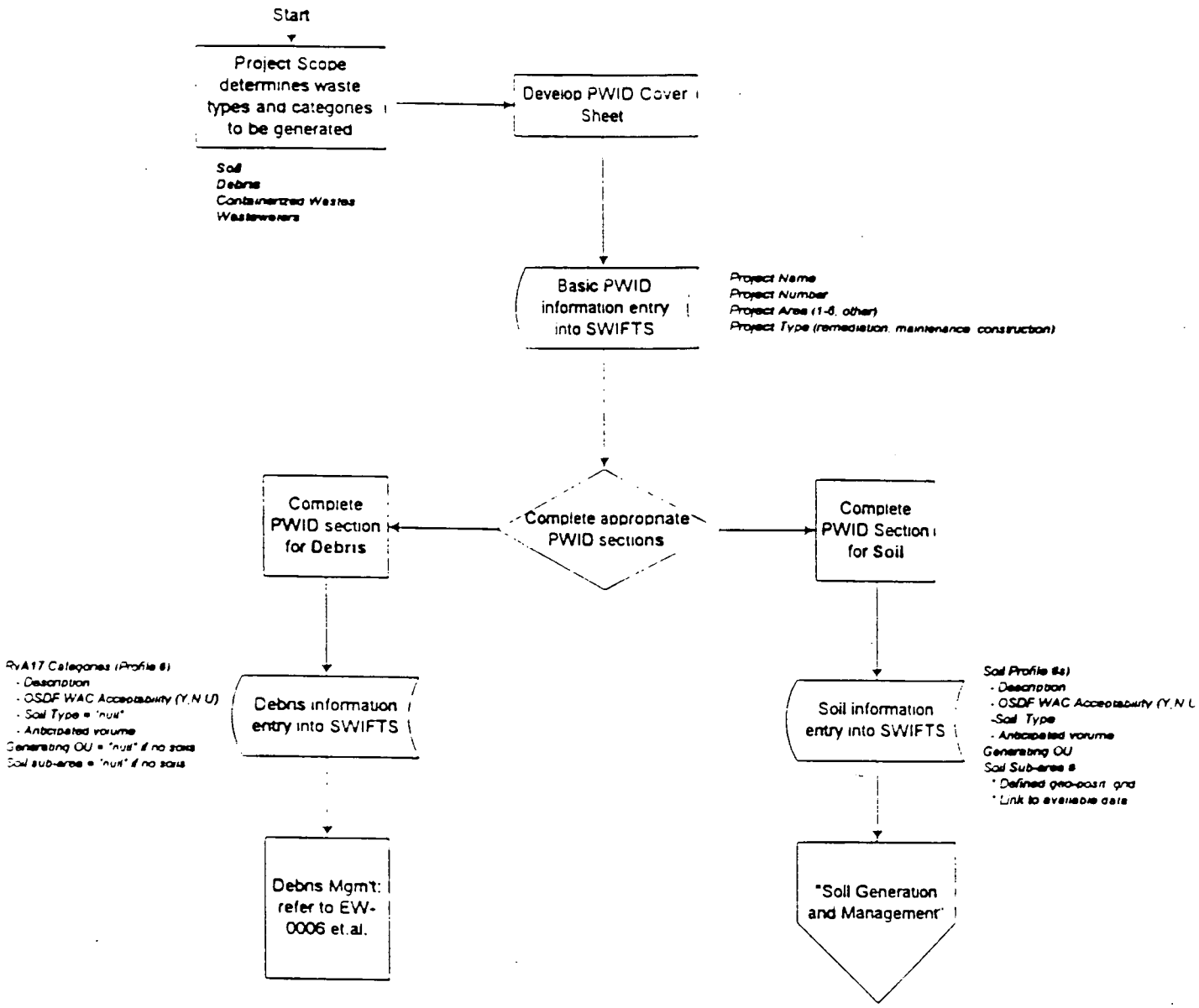


Figure 4

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.

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 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 will be weighed as it is taken to the interim storage area for bulk or container storage or directly to the OSDF for disposal. These boxes will be tracked in SWIFTS as current containerized waste. At this point, the boxes may be placed into a container storage area or, if eligible, unloaded onto the proper debris bulk storage pile. Bulk storage will be governed by specific procedures to assure material characterization data remain relevant. Bulk 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 hazards.

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" will be utilized by field personnel to accompany each container that is filled. The routing sheet directs the transport of the debris to either interim storage (container staging or interim debris pile) or directly to the OSDF. Signature lines are on the routing sheet for certification from the project, packaging support verification, interim storage receipt, and OSDF receipt. The routing sheet is a new streamlined process for debris generated for off-site shipment.

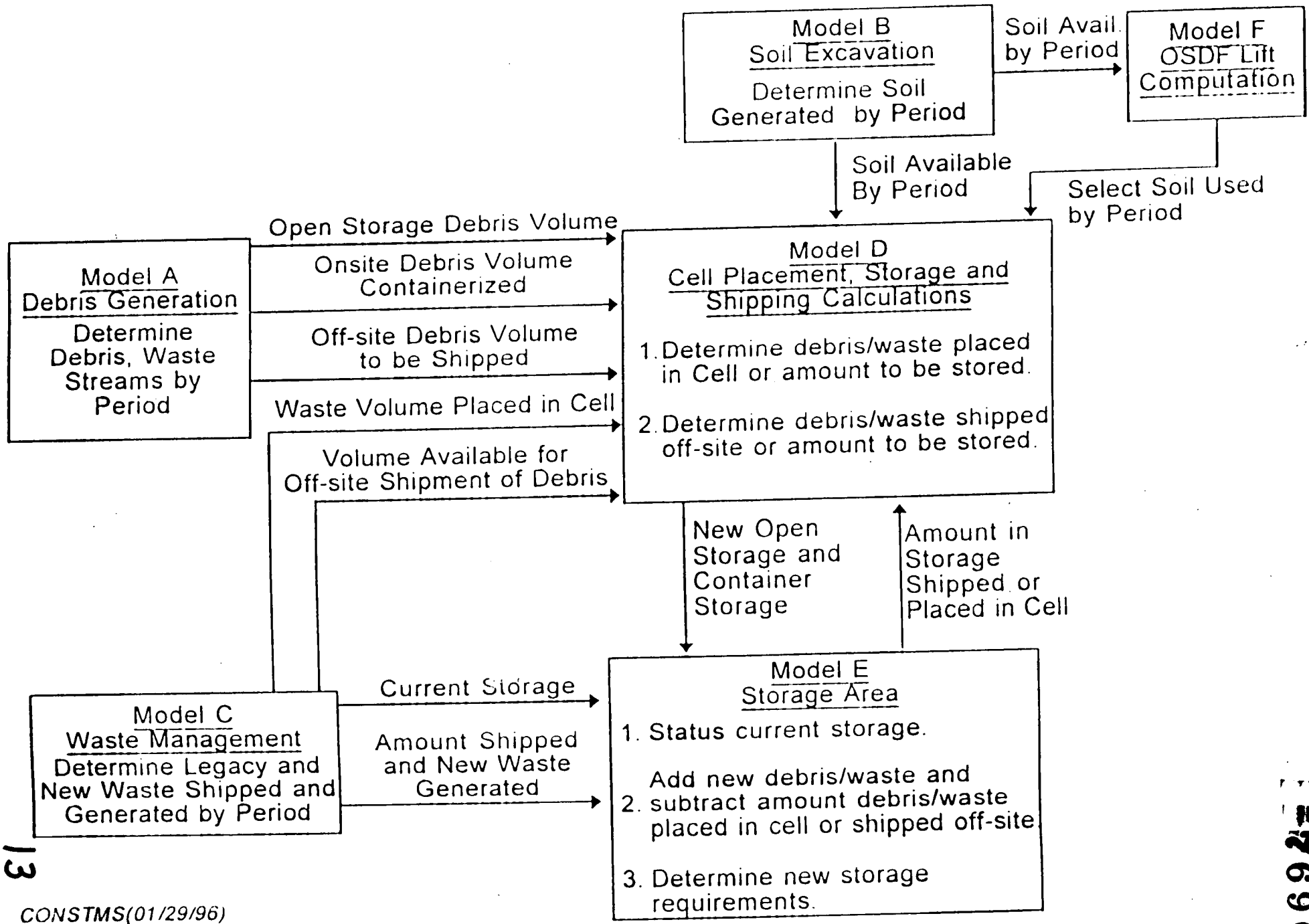
Documents to Supersede RvA 17

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 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



CONSTMS(01/29/96)

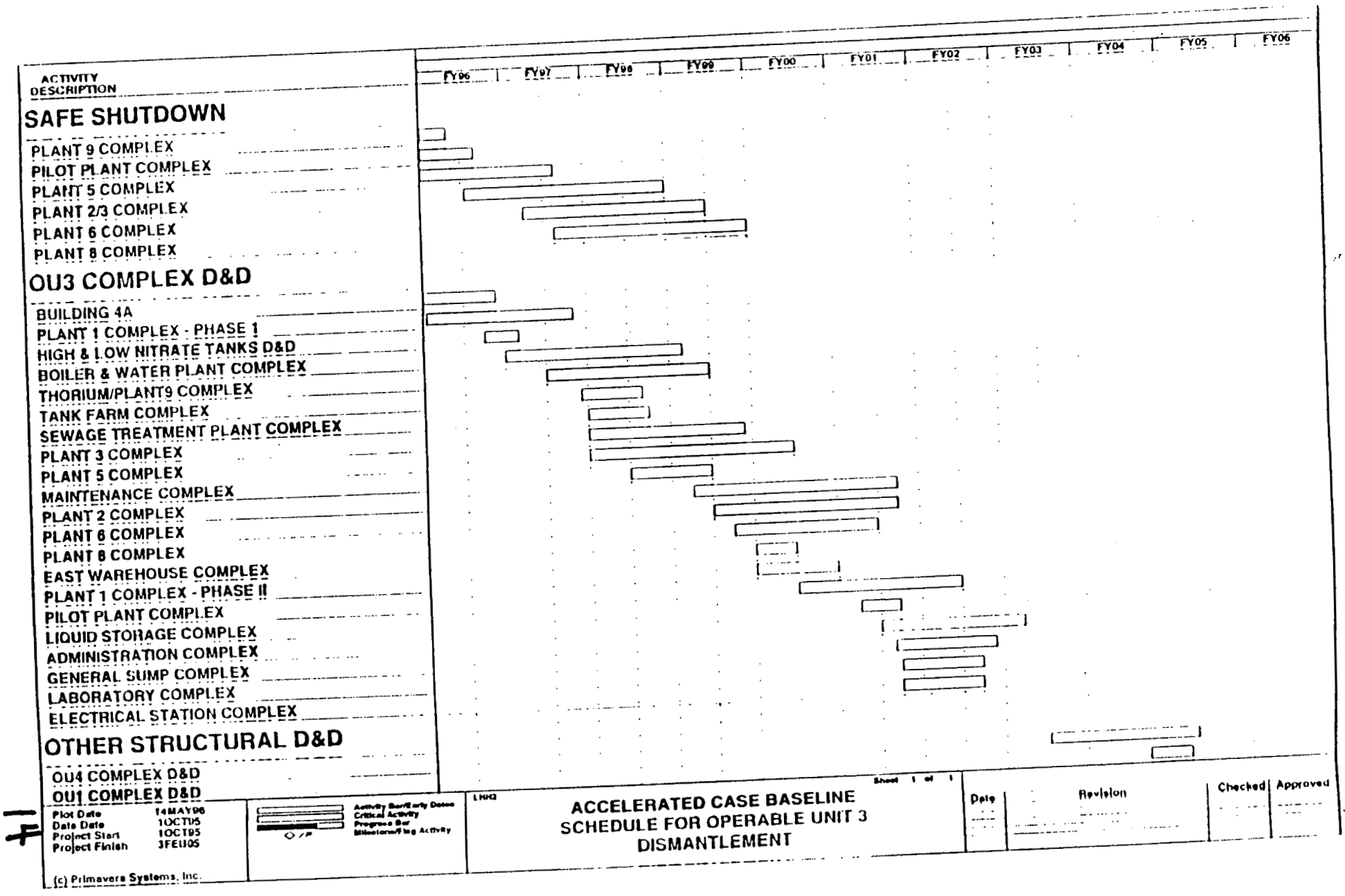

ACTIVITY DESCRIPTION
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY04
FY05
FY06
SAFE SHUTDOWN
PLANT 9 COMPLEX
PILOT PLANT COMPLEX
PLANT 5 COMPLEX
PLANT 2/3 COMPLEX
PLANT 6 COMPLEX
PLANT 8 COMPLEX
OU3 COMPLEX D&D
BUILDING 4A
PLANT 1 COMPLEX - PHASE I
HIGH & LOW NITRATE TANKS D&D
BOILER & WATER PLANT COMPLEX
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
(c) Primavera Systems, Inc.
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Hog Activity
LHH2
Sheet 1 of 1
ACCELERATED CASE BASELINE
SCHEDULE FOR OPERABLE UNIT 3
DISMANTLEMENT
Date
Revision
Checked
Approved

TABLE 1, MODEL E - WASTE MANAGEMENT
CONSTRUCTION PLANT 4 PAD AREA USAGE
10 YEAR PLAN, REV. 2a - 05/22/96

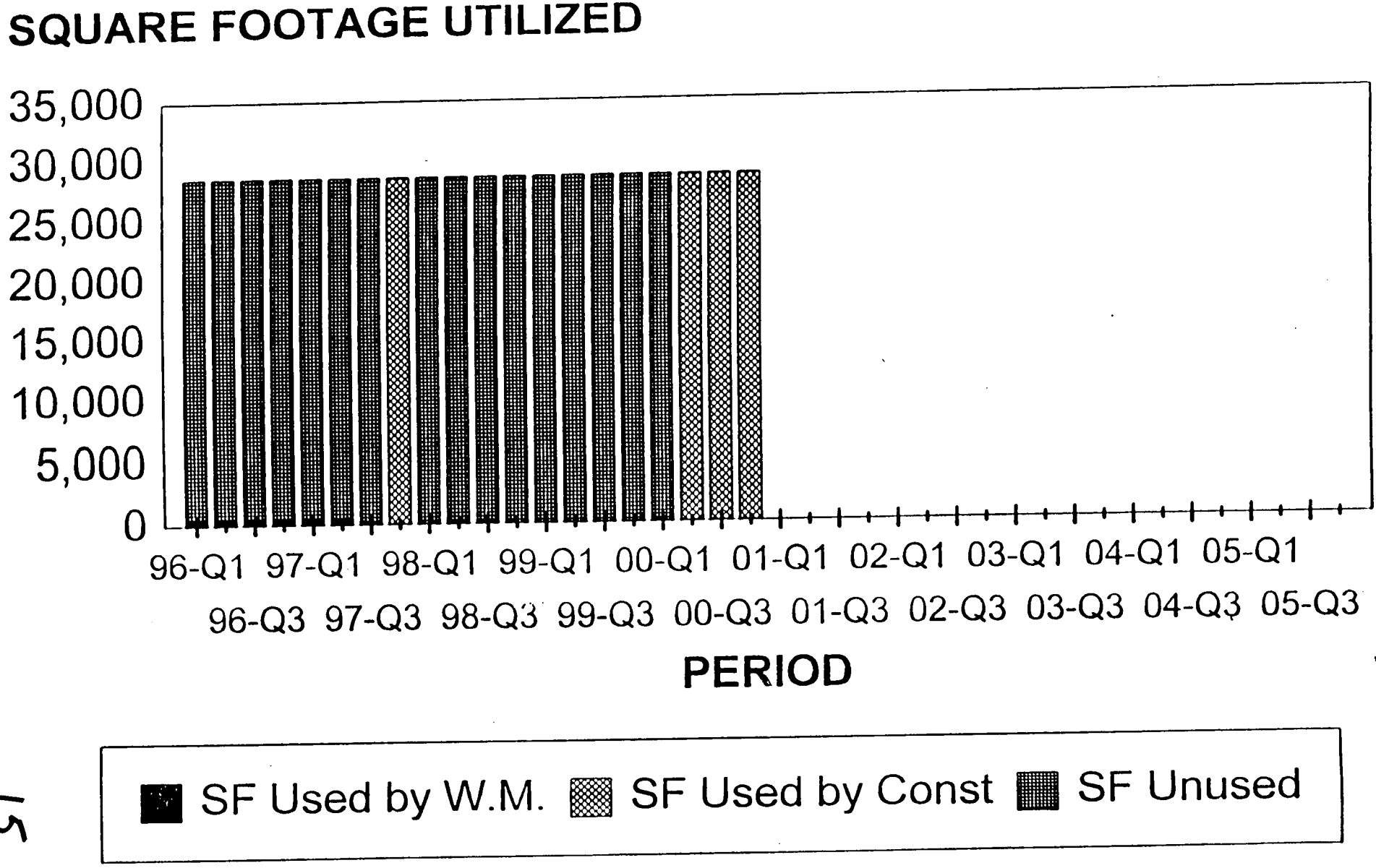


TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 7 PAD AREA USAGE

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

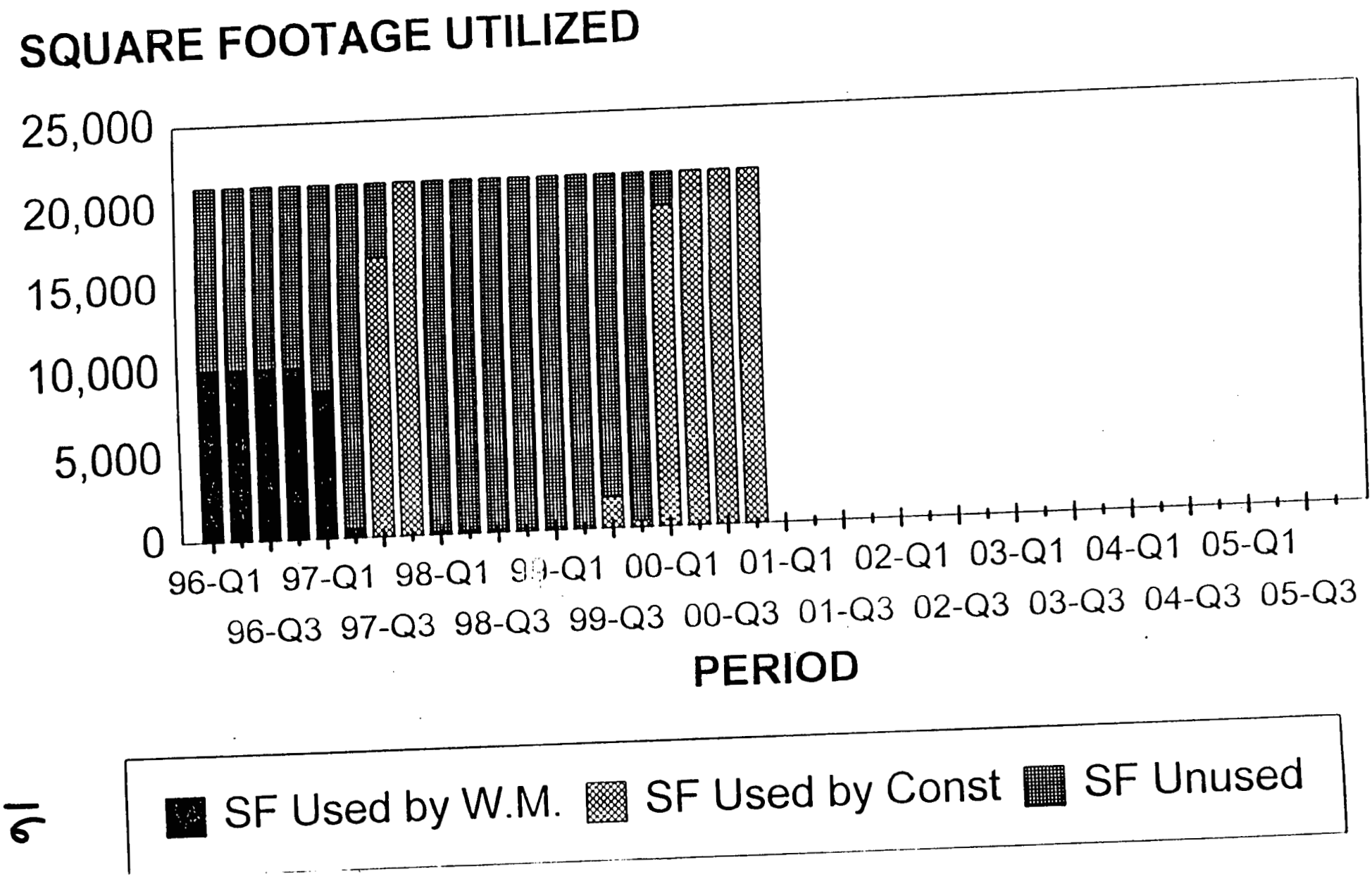


TABLE 1, MODEL E - WASTE MANAGEMENT CONSTRUCTION PLANT 8 PAD AREA USAGE

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

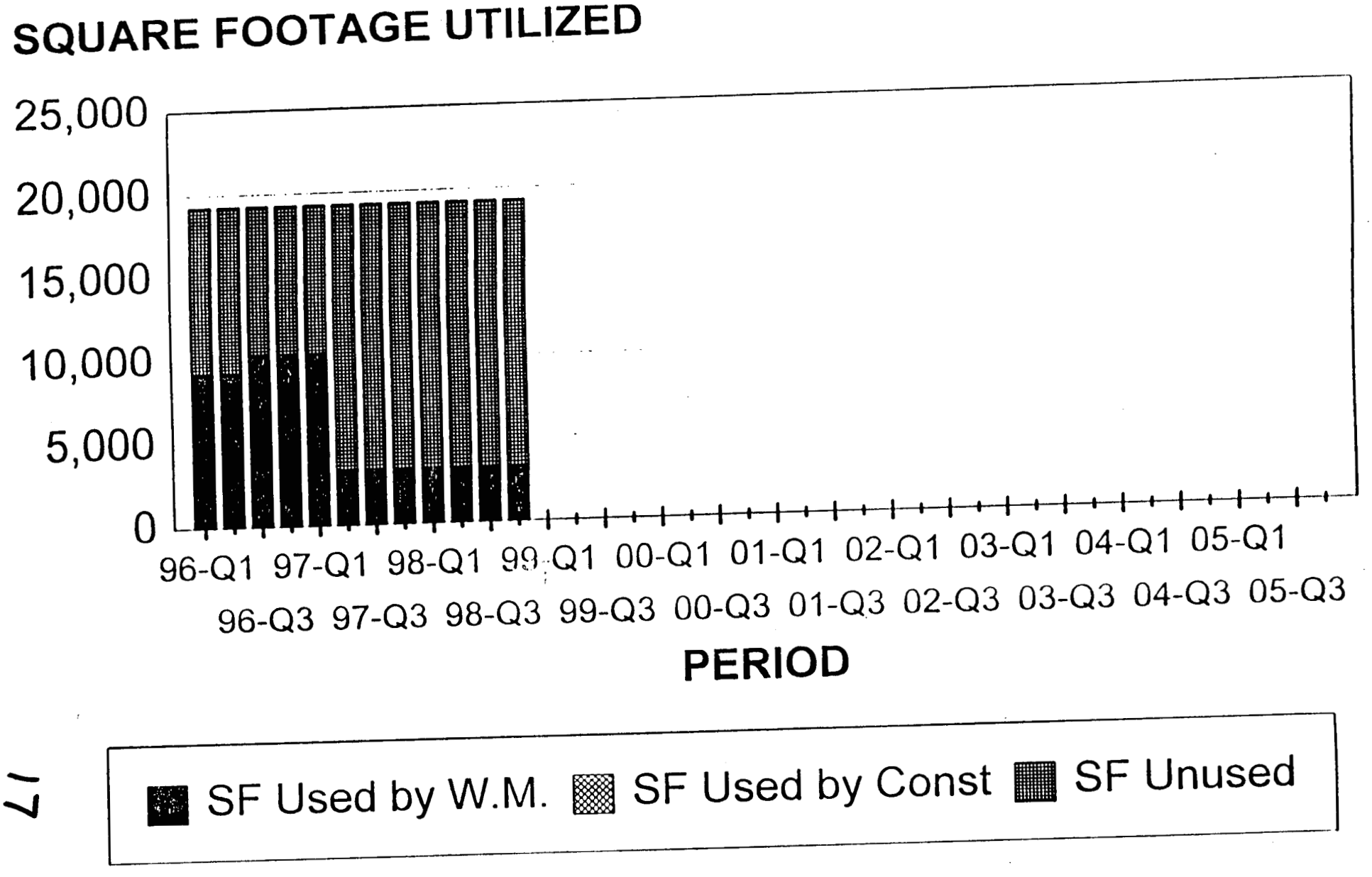
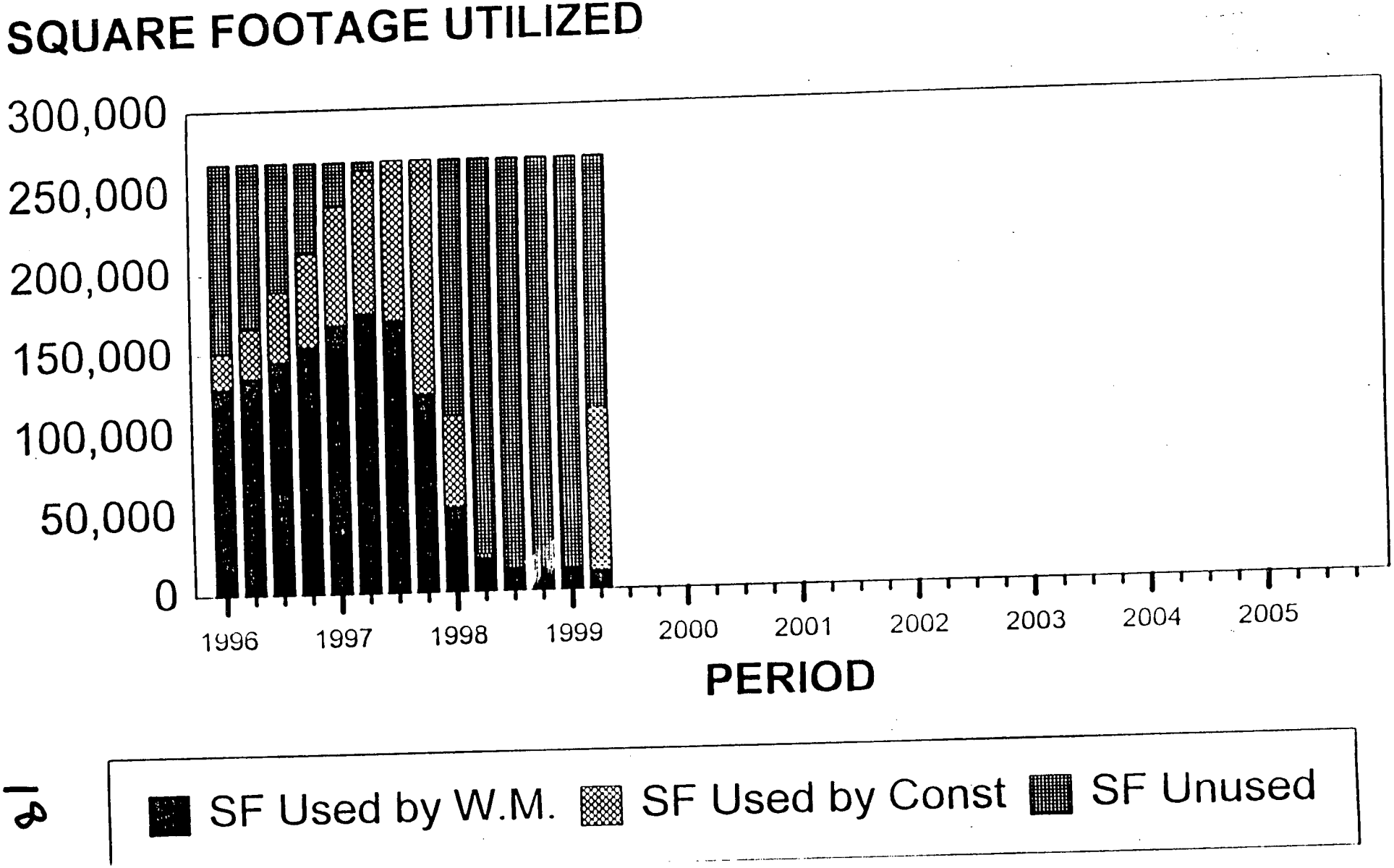


TABLE 1, MODEL E - WASTE MANAGEMENT/ CONSTRUCTION PLANT 1 PAD AREA USAGE

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



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	7.6	36.5	12.2	12.2	0.0	0.0	0.0	0.0	0.0
	3	147.1	17.6	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

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	ROB	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	9,554
	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
	3	0.0	0.0	0.0	0.0	0.0	0
	4	0.0	0.0	0.0	0.0	0.0	0

FOR INFORMATION ONLY

7690

STATE OF OHIO NORTH (NAD 83)

N

PROPOSED OU 1 OVERFLOW LAYDOWN AREA

3/97 PROPOSED OU 1 TREATMENT FACILITY

FUTURE OU 1 LAYDOWN AREA

4/1/96 PROPOSED RR SPUR

10/1/96 NEW RR TRACKS

11/97 NEW GRAVEL ROAD

4/97 ON-SITE DISPOSAL FACILITY (OSDF) (SEE NOTE BELOW)

EXISTING ROADWAY TO BE REMOVED DURING CONSTRUCTION OF OSDF

OU 2 RA-WORK PLAN GRADING PROJECT CONTINGENCY AREA

OU 2 RA-WORK PLAN GRADING PROJECT INITIAL AREA 6/96

10/96 RELOCATED NORTH ENTRANCE ROAD PHASE 1

7/1/98 PROPOSED OU 1 DRIED WASTE RAIL CAR LOAD-OUT FACILITY

OU 4 FERNALD RESIDUES VITRIFICATION PILOT PLANT

RCRA SOIL AREA

3/96 OU 4 FERNALD RESIDUES VITRIFICATION PLANT

OU 4 SWM DETENTION BASIN & TRAILER COMPLEX

NEW BOILER HOUSE

OU 5 AWWT SLURRY DEWATERING FACILITY

7/96 PROPOSED SEWAGE TREATMENT PLANT

10/96 PROPOSED NUCLEAR MATL. STORAGE FACILITY

CONTINGENCY BORROW AREA (POST OU 2 REMEDIATION)

SOUTH FIELD BORROW AREA (POST OU 2 REMEDIATION)

TSS FOR STORING WELL DRILLING AND SAMPLING EQUIPMENT

TSS FOR SALT, SAND STORAGE

WEST FIELD BORROW AREA

EAST FIELD BORROW AREA

100' EASEMENT CG&E

SOUTH ENTRANCE ROAD

3/96 OU 5 SOUTHFIELD EXTRACTION SYSTEM

CONTINGENCY CELL-OSDF

CELL 1 | CELL 2 | CELL 3 | CELL 4 | CELL 5 | CELL 6 | CELL 7 | CELL 8 | CELL 9

RCRA SOIL AREA

OU 2 RA-WORK PLAN GRADING PROJECT CONTINGENCY AREA

NORTH ENTRANCE ROAD PHASE 2

50' R/W FOR 20"ø MIDVALLEY PIPELINE

RT. 126

RT. 128

C&O. RR

PADDY'S RUN RD.

WILLEY RD.

SP1 SP2 SP3 SP4 SP5

FEMP SITE IDENTIFICATION

TS-4 TENSION SUPPORT STRUCTURE *4
TS-5 TENSION SUPPORT STRUCTURE *5
TS-6 TENSION SUPPORT STRUCTURE *6
TS-7 SIZE REDUCTION TENSION SUPPORT STRUCTURE *7
1A PREPARATION PLANT
1B PLANT 1 STORAGE BLDG.
1C PLANT 1 ORE SILOS (REMOVED)
2A ORE REFINERY PLANT
2B GENERAL/REFINERY SUMP CONTROL BLDG.
2C BULK LIME HANDLING BLDG.
2E METAL DISSOLVER BLDG.
2E NFS STORAGE & PUMP HOUSE
2F COLD SIDE ORE CONVEYOR
2G HOT SIDE ORE CONVEYOR
2H CONVEYOR TUNNEL (FROM PLANT 1)
3A MAINTENANCE BLDG.
3B OZONE BLDG.
3C NAR CONTROL HOUSE
3D NAR TOWERS
3E HOT RAFFINATE BLDG.
3F HARSHAW SYSTEM
3G REFRIGERATION BLDG.
3H REFINERY SUMP
3J COMBINED RAFFINATE TANKS
3K OLD COOLING WATER TOWER
3L ELECTRICAL POWER CENTER BLDG.
4A GREEN SALT PLANT
4B PLANT 4 WAREHOUSE
4C PLANT 4 MAINTENANCE BLDG. (REMOVED)
5A METALS PRODUCTION PLANT
5B PLANT 5 INGOT PICKLING
5C PLANT 5 ELECTRICAL SUBSTATION
5D WEST DEMBY BREAKOUT/SLAG MILLING
5E PLANT 5 FILTER BLDG.
5F PLANT 5 COVERED STORAGE PAD
5G PLANT 5 INGOT STORAGE SHELTER
6A METALS FABRICATION PLANT
6B PLANT 6 COVERED STORAGE AREA
6C PLANT 6 ELECTROSTATIC PRECIPITATOR (SOUTH)
6D PLANT 6 ELECTROSTATIC PRECIPITATOR (CENTRAL)
6E PLANT 6 ELECTROSTATIC PRECIPITATOR (NORTH)
6F PLANT 6 SALT OIL HEAT TREAT BLDG.
6G PLANT 6 SUMP BLDG.
7A PLANT 7 (REMOVED)
7B PLANT 7 OVERHEAD CRANE (REMOVED)
8A RECOVERY PLANT
8B PLANT 8 MAINTENANCE BLDG.
8C ROTARY KILN/DRUM RECONDITIONING
8D PLANT 8 RAILROAD FILTER BLDG.
8E DRUM CONVEYOR SHELTER
8F PLANT 8 OLD DRUM WASHER
9A SPECIAL PRODUCTS PLANT
9B PLANT 9 SUMP TREATMENT FACILITY
9C PLANT 9 DUST COLLECTOR
9D PLANT 9 SUBSTATION
9E PLANT 9 CYLINDER SHED
9F PLANT 9 ELECTROSTATIC PRECIPITATOR
10A BOILER PLANT
10B BOILER PLANT MAINTENANCE BLDG.
10C WET SALT STORAGE BIN
10D CONTAMINATED OIL/GRAPHITE BURN PAD
10E UTILITIES HEAVY EQUIP. BLDG.
10F SOUTHWEST BOILER HOUSE (PROPOSED)
11 SERVICE BLDG.
12A MAIN MAINTENANCE BLDG.
12B CYLINDER STORAGE BLDG.
12C LUMBER STORAGE BLDG.
12D MAINTENANCE BLDG. WAREHOUSE
13A PILOT PLANT WET SIDE
13B PILOT PLANT MAINTENANCE BLDG.
13C SUMP PUMP HOUSE
13D PILOT PLANT THORIUM TANK FARM
14A ADMINISTRATION BLDG.
14B BLDG. 14 EOC GENERATOR SET
15A LABORATORY
15B LABORATORY CHEMICAL STORAGE BLDG.
16A MAIN ELECTRICAL STATION
16B ELECTRICAL SUBSTATION
16C ELECTRICAL PANELS & TRANSFORMER
16D MAIN ELECTRICAL SWITCH HOUSE
16E MAIN ELECTRICAL TRANSFORMERS
16F TRAILER SUBSTATION *1
16G TRAILER SUBSTATION *2
16H 10 PLEXS NORTH SUBSTATION
16J 10 PLEXS SOUTH SUBSTATION
18A BDN SURGE LAGOON
18B GENERAL SUMP
18C COAL PILE RUNOFF BASIN
18D BIODENITRIFICATION TOWERS
18E STORM WATER RETENTION BASINS
18F PIT *5 SLUICE GATE
18G CLEARWELL PUMP HOUSE
18H BDN EFFLUENT TREATMENT FACILITY
18J METHANOL TANK
18K LOW NITRATE TANK
18L HIGH NITRATE TANK
18M HIGH NITRATE STORAGE TANK
18N WASTE PIT AREA STORM WATER RUNOFF CONTROL
18P DISSOLVED OXYGEN BLDG.
18Q SOUTH PLUME INTERIM TREATMENT BLDG.
18R OUTFALL LINE PIT
18S RECOVERY WELL SYSTEM CONTROL BLDG.
18T PUBLIC WATER SUPPLY METER HOUSE
19A MAIN TANK FARM
19B PILOT PLANT AMMONIA TANK FARM
19C TANK FARM CONTROL HOUSE
19D OLD NORTH TANK FARM
19E TANK FARM LIME SUTTER BLDG.
20A PUMP STATION & POWER CENTER
20B WATER PLANT
20C COOLING TOWERS
20D ELEVATED POTABLE STORAGE TANK
20E WELL HOUSE *1
20F WELL HOUSE *2
20G WELL HOUSE *3
20H PROCESS WATER STORAGE TANK
20J LIME SLURRY PITS
22A GAS METER BLDG.
22B STORM SEWER LIFT STATION
22C TRUCK SCALE
22D SCALE HOUSE & WEIGH SCALE
22E UTILITY TRENCH TO PIT AREA
22F MAIN GAS METER
23 METEOROLOGICAL TOWER
24A RAILROAD SCALE HOUSE
24B RAILROAD ENGINE HOUSE
25A CHLORINATION BLDG.
25B MH. *175/EFF. LINE/SAMPLING BLDG.
25C SEWAGE LIFT STATION BLDG.
25D U.V. DISINFECTION BLDG.
25E DIGESTER & CONTROL BLDG.
25F SLUDGE DRYING BEDS
25G PRIMARY SETTLING BASINS
25H TRICKLING FILTERS
25J 10 PLEXS SEWAGE LIFT STATION
26A PUMP HOUSE-HP FIRE PROTECTION
26B ELEVATED WATER STORAGE TANK
26C MAIN ELECTRICAL STRAINER HOUSE
28A SECURITY BLDG.
28B HUMAN RESOURCES BLDG.
28D GUARD POST ON WEST END OF "2ND" STR.
28E GUARD POST AT T81
28F SKEET RANGE BLDG.
28G GUARD POST NORTHWEST OF BLDG. 45
28H GUARD POST SOUTH OF K-65 AREA
30A CHEMICAL WAREHOUSE
30B DRUM STORAGE WAREHOUSE
30C OLD TEN TON SCALE (REMOVED)
31A ENGINE HOUSE/GARAGE
31B OLD TRUCK SCALE
32A MAGNESIUM STORAGE BLDG.
32B BLDG. 32 COVERED LOADING DOCK
34A K-65 STORAGE TANK (NORTH)
34B K-65 STORAGE TANK (SOUTH)
34C RTS BLDG.
35A METAL OXIDE STORAGE TANK (NORTH)
35B METAL OXIDE STORAGE TANK (SOUTH)
37 PILOT PLANT ANNEX
38A PROPANE STORAGE
38B CYLINDER FILLING STATION
39A INCINERATOR BLDG.
39B WASTE OIL DECANT SHELTER
39C INCINERATOR SPRINKLER RISER HOUSE
39D SEWAGE TREATMENT PLANT INCINERATOR
44A TRAILER COMPLEX (6-PLEX)
44C TRAILER COMPLEX (7-PLEX S.)
44D TRAILER COMPLEX (7-PLEX N.)
44E TRAILER COMPLEX (10 PLEX)
45A CONSTRUCTION DIVISION BLDG.
45B UTILITY SHED EAST OF RUST TRAILERS
46 HEAVY EQUIPMENT BLDG.
51 ADVANCED WASTEWATER TREATMENT FACILITY (AWWTF)
53A HEALTH & SAFETY BLDG.
53B IN-VIVO BLDG.
54A SIX TO FOUR REDUCTION FACILITY *1
54B PILOT PLANT WAREHOUSE
54C PILOT PLANT DISSOCIATOR SHELTER
55A SLAG RECYCLING BLDG.
55B SLAG RECYCLING PIT/ELEVATOR
56A CP STORAGE WAREHOUSE
56B STORAGE SHED (WEST)
56C STORAGE SHED (EAST)
60 QUONSET HUT *1
61 QUONSET HUT *2
62 QUONSET HUT *3
63 KC-2 WAREHOUSE
64 THORIUM WAREHOUSE
65 (OLD) PLANT 5 WAREHOUSE
66 DRUM RECONDITIONING BLDG.
67 PLANT 1 THORIUM WAREHOUSE
68 PILOT PLANT WAREHOUSE
69 DECONTAMINATION BLDG.
71 GENERAL N-PROCESS WAREHOUSE
72 DRUM STORAGE BUILDING
73A FIRE BRIGADE TRAINING CENTER BLDG. (REMOVED)
73B FIRE TRAINING POND (REMOVED)
73C FIRE TRAINING TANK (REMOVED)
73D FIRE TRAINING BURN TROUGH (REMOVED)
73E CONFINED SPACE BURN TANK (REMOVED)
74A PLANT 2 EAST PAD
74B PLANT 2 WEST PAD
74C PLANT 8 EAST PAD
74D PLANT 8 WEST PAD
74E PLANT 4 PAD
74F PLANT 7 PAD
74G PLANT 5 EAST PAD
74H PLANT 5 SOUTH PAD
74J PLANT 6 PADS
74K PLANT 9 PAD
74L BUILDING 65 WEST PAD
74M BUILDING 64 EAST PAD & R.R. DOCK
74N BUILDING 12 NORTH PAD
74P DECONTAMINATION PAD
74Q PLANT 8 OLD METAL DISSOLVER PAD
74R PLANT 8 NORTH PAD
74S BUILDING 65 WEST PAD
74T PLANT 1 STORAGE PAD
74U PILOT PLANT PAD
74V LABORATORY PAD
74W INCINERATOR BLDG. PAD
77 FINISHED PRODUCTS WAREHOUSE (4A)
78 D & D BUILDING
79 PLANT 6 WAREHOUSE
80 PLANT 8 WAREHOUSE
81 PLANT 9 WAREHOUSE
82A RECEIVING/INCOMING MAT'LS. INSP.
82B FUEL LOADING/UNLOADING FACILITY
83 CLEARWELL LINE
89 PARKING LOTS
94A CRU 4 VITRIFICATION PILOT PLANT
T76 CRU 1 & SAFE SHUTDOWN
T77 CRU 4 OFFICES
T80 CRU 5 OFFICES
T81 CRU 3 OFFICES

LEGEND

SYMBOL	TITLE
	WASTE HAUL ROAD - NEW SURFACE
	WASTE HAUL ROAD - GRAVEL SURFACE
	EXISTING GRAVEL ROAD -
	UPGRADED GRAVEL ROAD -
	NEW GRAVEL ROAD -
	NEW ENTRANCE ROAD (BIT. PAVE.)-
	PHASE II ENTRANCE ROAD (BIT. PAVE.)-
	EXISTING PAVED ROADWAY -
	EXISTING PAVED ROADWAY -
	RAIL (OU 1)

SYMBOL	TITLE
	RA-WORK PLAN GRADING PROJECT INITIAL AREA
	RA-WORK PLAN GRADING PROJECT CONTINGENCY AREA
	SOIL PILE AREA (SP1 -- SP5)
	RCRA CHARACTERISTIC SOIL AREAS (SUMP PUMP, AREA NEAR KC-2 WHSE, TRAP RANGE, FILL MT'L WEST OF SILOS, SCRAP METAL PILE AREA & AREA NORTH OF MAINT BLDG)

NOTE: ON-SITE DISPOSAL FACILITY COLOR SCHEME REFERS TO CONSTRUCTION OF CELL LINERS ONLY

DATES = CONSTRUCTION START DATE

PROPOSED DISPOSAL FACILITY CONSTRUCTION AND BUILDING D&D ACTIVITIES

1995		2001			
1996		2002			
1997		2003			
1998		2004			
1999		2005			
2000					

SCALE 0 200' 400' 800'

THESE DESIGNS MAY BE MODIFIED ONLY BY THE GUIDELINES DICTATED IN THE SITE PROCEDURE ED-12-5005 "LAND USE AUTHORITY"

FOR INFORMATION ONLY

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					00X-5500-X-02046
					00X-5500-X-02045
2	ADDED RA-WORK PLAN, SPA & RCRA SOIL AREAS ETC.	2-08	W. LIU	J.E.P.	00X-5500-X-02044
1	ADDED SITE D&D FACILITIES	11-17	W. LIU	J.E.P.	00X-5500-X-02043

FORMAT REVISED 8/7/95

NOTE: FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

PERFORMANCE GRADE 1 2 3 4 (5)

BY: D. G. LUNSFORD DATE: 10/12/95

APPROVALS						
REAL PROPERTY	D. J. DRAVLAND	10/11/95	SAFETY ENG.		
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			Q.A.		
ENGINEER			FIRE PROTECT.	S. J. WENTZEL	10/11/95
INSTRUMENT			WASTE MANAGE	G.L.H./M.L.WEST	10/11/95
MECHANICAL			SECURITY		
E.E.T.	H. ROBERTSON	10/09/95	CRU		
CHECKED	P. PATEL	10/10/95	SITE INTEGRATION	G. J. KRIEGER	10/11/95
APPROVED	R. P. HECK	10/11/95	CADD	G. E. PAUL	10/11/95

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
FERMCO
Fernald
Environmental Management Project
U.S. DEPARTMENT OF ENERGY

LAND USE AUTHORITY
MASTER PLOT 21
OVERALL PLAN

RES 2567/P099 TASK 14		
DATE 10-03-95	00X-5500-X-02042	2
DRAWN BOB MOGILNICKI		

FILE NAME: /MODEL/FFCSMAP.DGN