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NAS JACKSONVILLE
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REVISED CLOSURE PLAN FOR DOMESTIC SLUDGE DRYING BEDS AND POLISHING POND NAS JACKSONVILLE FL

5/31/1990

NAS JACKSONVILLE

REVISED CLOSURE PLAN
DOMESTIC SLUDGE DRYING BEDS
AND POLISHING POND

NAVAL AIR STATION
JACKSONVILLE, FLORIDA

Prepared For:

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

CONTRACT NO. N62467-87-D-0254

Original Prepared By:

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ENVIRONMENTAL ENGINEERING DIVISION
PUBLIC WORKS DEPARTMENT
NAVAL AIR STATION JACKSONVILLE, FL

May 31, 1990

PART I

SECTION I.A GENERAL INFORMATION

This document has been prepared as supporting information for Naval Air Station (NAS) Jacksonville's application for a hazardous waste facility closure permit for its domestic sludge drying beds and polishing pond.

NAS Jacksonville is owned and operated by the United States Navy and Captain Kevin F. Delaney is the current Commanding Officer. NAS Jacksonville began its training and maintenance operations in 1941 at the intersection of U.S. Highway 17 and Yorktown Avenue, on the St. John's River in Jacksonville.

NAS Jacksonville operates hazardous waste management units under the EPA/DER I.D. # FL 6170024412. The contact person for NAS Jacksonville's hazardous waste programs is Mr. Jerry Wallmeyer, Environmental Director, who can be reached at:

NAS Jacksonville
Public Works Department
P.O. Box 5 Code 184
Jacksonville, FL 32212-5000

Telephone: (904) 772-2717

A list of the existing and pending environmental permits held by NAS Jacksonville is included as Attachment I.A-1.

ATTACHMENT I.A-1

EXISTING ENVIRONMENTAL PERMITS
NAS JACKSONVILLE

WATER USE PERMITS

1. WATER COMSUMPTIVE USE PERMIT NO. 2-031-0014UNMGF
   ISSUED BY: ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (FOR 10 NAS JAX WELLS) ON 11 AUG 1987
   EXPIRES: 11 AUG 1990

WASTEWATER DISCHARGE PERMITS

2. SEWAGE TREATMENT PLANT (BLDG 826)
   PERMIT NO. D016-87083
   ISSUED BY: FDER ON 8 AUG 1984
   EXPIRES: 8 FEB 1989

3. SEWAGE TREATMENT PLANT (BLDG 826)
   NPDES PERMIT NO.
   ISSUED BY: U.S. EPA ON 9 MAY 1988
   EXPIRES: 8 MAY 1993

AIR POLLUTION PERMITS NAS JAX

4. STEAM POWER PLANT #1 (BLDG 104)
   PERMIT NO. A016-69565
   ISSUED BY: FDER ON 28 JUN 1984
   EXPIRES: 31 MAY 1989

5. STEAM POWER PLANT #2 (BLDG 650)
   PERMIT NO. A016-74113
   ISSUED BY: FDER ON 28 JUN 1984
   EXPIRES: 31 MAY 1989

6. STEAM POWER PLANT #3 (BLDG H-2032)
   PERMIT NO. A016-78883
   ISSUED BY: FDER ON 28 JUN 1984
   EXPIRES: 31 MAY 1989

7. PATHOLOGICAL WASTE INCINERATOR (BLDG 2080)
   PERMIT NO. A016-78885
   ISSUED BY: FDER ON 24 FEB 1984
   EXPIRES: 31 JAN 1989

8. CLASSIFIED WASTE INCINERATOR (BLDG 877)
   PERMIT NO. A016-78884
   ISSUED BY: FDER ON 24 FEB 1984
   EXPIRES: 31 JAN 1989

9. FUEL OIL STORAGE TANK (BLDG 1982)
PERMIT NO. A016-63217
ISSUED BY: FDER ON 12 JAN 1983
EXPIRES: 30 NOV 1987

AIR POLLUTION PERMITS NADEP

10. PAINT FINISH HANGAR (BLDG 668)
PERMIT NO. A016-84403
ISSUED BY: FDER ON 26 JUL 1984
EXPIRES: 31 MAY 1989

11. PAINT FINISH HANGAR (BLDG 122)
PERMIT NO. A016-84426
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

12. WARWICK ALUMINUM FURNACE (BLDG 840)
PERMIT NO. A016-84407
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

13. WARWICK KIRKSITE FURNACE (BLDG 840)
PERMIT NO. A016-84424
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

14. LARGE SANDBLAST BOOTH (BLDG 101-N)
PERMIT NO. A016-84422
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

15. CHROMIC ACID TANKS (BLDG 101)
PERMIT NO. A016-84419
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

16. CLEANING SHOP SANDBLAST BOOTH (BLDG 101)
PERMIT NO. A016-84417
ISSUED BY: FDER ON 26 JUL 1984
EXPIRES: 31 MAY 1989

17. CLEANING SHOP SEEDBLASTER (BLDG 101)
PERMIT NO. A016-84410
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

18. GLASS BEAD BLASTER (BLDG 101-S)
PERMIT NO. A016-84423
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

20. FIVE PAINT BOOTHS (BLDG 101-N)
PERMIT NO. A016-84393
ISSUED BY: FDER ON 13 JUN 1984
EXPIRES: 31 MAY 1989

21. ENGINE TEST CELLS 7-12, A&B
PERMIT NO. A016-37181
ISSUED BY: FDER ON 28 MAY 1986
EXPIRES: 30 APR 1991

22. VAPOR DEGREASER (UNNUMBERED, SHOP 96226)
PERMIT NO. A016-74385
ISSUED BY: FDER ON 28 JUN 1984
EXPIRES: 31 JAN 1989

23. VAPOR DEGREASER (TANK 76A, SHOP 96225)
PERMIT NO. A016-78587
ISSUED BY: FDER ON 29 JUL 1984
EXPIRES: 31 JAN 1989

24. VAPOR DEGREASER (TANK 10, SHOP 96225)
PERMIT NO. A016-74382
ISSUED BY: FDER ON 29 JUN 1984
EXPIRES: 31 JAN 1989

25. VAPOR DEGREASER (TANK 37, SHOP 96225)
PERMIT NO. A016-78588
ISSUED BY: FDER ON 29 JUN 1984
EXPIRES: 31 JAN 1989

HAZARDOUS WASTE FACILITY PERMITS

26. OPERATION PERMIT
INDUSTRIAL SLUDGE DRYING BEDS
PERMIT NO. HO16-119108
ISSUED BY: FDER ON 15 JUN 1987
EXPIRES: 8 NOV 1988

27. CONSTRUCTION PERMIT
OTTO FUEL STORAGE BUILDING
PERMIT NO. HC16-129528
ISSUED BY: FDER

28. RCRA PART B PERMIT APPLICATION
CONTAINER STORAGE BLDG 144
PERMIT NO. HO 16-119108

29. HSWA PERMIT
PERMIT NO. F16170024412
ISSUED BY: EPA ON 19 JUN 1987
EXPIRES: 19 JUN 1997

30. CLOSURE PERMIT
OTTO FUEL STORAGE FACILITY, POLISHING POND, AND DOMESTIC SLUDGE DRYING BEDS
PERMIT NO. HF16-144281
ISSUED BY: FDER

SECTION I.B SITE INFORMATION

I.B.1 FACILITY LOCATION

NAS Jacksonville is located in Duval County, Florida, approximately nine miles south of the central business district of the City of Jacksonville. NAS Jacksonville is bounded on the west by U.S. Highway 17 and on the east by the St. John's River as depicted in the vicinity map shown in Figure I.B-1. NAS Jacksonville is located at latitude 30 , 13', 30" and longitude 81 , 41', 00".

I.B.2 FACILITY AREA

NAS Jacksonville occupies a total land area of approximately 3,800 acres.

I.B.3 PHOTOGRAPHS

Figure I.B-2 presents recent photographs of both the domestic sludge drying beds and the polishing pond.

I.B.4 TOPOGRAPHIC MAP

Figure I.B.4-1 is a USGS Topographic Quadrangle Map for the area of NAS Jacksonville which includes the following features:

- Map Scale and Date
- Map Orientation
- Surface Waters
- Facility Boundaries
- Drinking Water Wells
- Discharge Structures

NAS Jacksonville operates no injection wells or intake structures. Information concerning the location of the 100-year floodplain and surrounding land uses is included in Sections II.A.3 and I.C.4, respectively.

I.B.5 100-YEAR FLOODPLAIN

Both the domestic sludge drying beds and the polishing pond are located outside the 100-year floodplain.

SECTION I.C LAND USE INFORMATION

I.C.1 ZONING
There is no zoning on NAS Jacksonville.

I.C.2 ZONING CHANGES
Zoning changes are not applicable since there is no zoning on NAS Jacksonville.

I.C.3 PRESENT LAND USE
The present use of the facility is a military reservation.

I.C.4 SURROUNDING LAND USES
The land uses in the areas surrounding NAS Jacksonville are primarily residential, with some light industrial and commercial.

PART II

SECTION II.A GENERAL

II.A.1 TOPOGRAPHIC MAPS

(a) Map Features
A topographic map showing a distance of 1000 feet around the domestic sludge drying beds and the polishing pond are included as Figures II.A.1-1 and II.A.1-2 respectively. These maps include the following features except where noted as not applicable:

* Map Scale and Date
* 100-YEAR Flooplain (See Section II.A.3)
* Map Orientation
* Access Control
* Injection (N/A) and Withdrawal Wells
* Buildings and Other Structures
* Contours Sufficient to Show Surface Drainage
* Loading and Unloading Areas (N/A)
* Drainage or Flood Control Barriers (N/A)
* Hazardous Waste Units
* Runoff Control System (N/A)

(b) Wind Rose
A Wind Rose indicating the local prevailing wind speed and direction, is included as Figure II.A.1-3.

(c) Traffic Information
There is no transportation of hazardous wastes at the domestic sludge drying beds or the polishing pond, other than dewatered sludge, which is transported off-site via the patrol road shown on Figure II.A.1-1.

II.A.2 FINANCIAL RESPONSIBILITY INFORMATION

NAS Jacksonville, being owned and operated by the Federal Government, is exempt from the Financial Responsibility requirements of the section per 40 CFR 264.140 (c).

II.A.3 100-YEAR FLOODPLAIN INFORMATION

Although a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) is not available for areas encompassing the domestic sludge drying beds and the polishing pond, the U.S. Army Corps of Engineers (COE) has established that these surface impoundments are not located within the 100-year floodplain using methods equivalent to those used by FEMA to establish the FIRM's.

The COE has established the 100-year flood elevation in areas bordering the Ortega and St. John's Rivers to be 6 feet above mean sea level (msl) through use of high-water profiles of the

lower St. John's River and FIRM's from areas surrounding NAS Jacksonville. However, the domestic sludge drying beds and the polishing pond are both located at approximately 16 to 18 feet msl, as shown in the United States Geological Survey (USGS) Topographic Quadrangle for Orange Park, FL of 1981 included as Figure I.B.4-1.

A copy of a the high-water profile diagram and the FIRM used by the COE to make this determination is included as Figure II.A.3-2. Also included as Attachment II.A-1 is a letter from the Jacksonville District COE to document that these impoundments are outside the 100-year floodplain and that methods equivalent to those used by FEMA were used to make this determination.

II.A.4 FACILITY SECURITY INFORMATION

(a) Station Security

Overall security for NAS Jacksonville is the responsibility of the station Security Officer. Access to NAS Jacksonville is gained through several gates along U.S. Highway 17, with the main entrance at the intersection of Yorktown Avenue. The main entrance is staffed 24 hours a day by security police. A pass issued by the station Security Office is required for entry onto the station. Additionally, the recently instituted flightline security system requires possession of a flightline security badge to gain access to the wastewater treatment plant area. Other primary entrances are manned by security police when they are open. All other gates are routinely closed and locked, and may be used for access to the station only when authorized by the Station Security Officer.

In addition to the gate security police, the Station Security Officer or other security personnel patrol the station 24 hours a day, 7 days a week. All security patrols are equipped with two-way radios and the entire station is equipped with an telephone system for off-station communication.

(b) Contingency Plan

A Contingency Plan is not required for the domestic sludge drying beds or the polishing pond since both units have been permanently removed from service and will be closed in accordance with this plan.

(c) Safety Procedures

A description of the procedures, structures and equipment used to maintain safe and accident-free operations at the domestic sludge drying beds or the polishing pond is not required, since both units have been permanently removed from service and will be closed in accordance with this plan.

(d) Preparedness and Prevention Procedures
Preparedness and Prevention are not required for the domestic sludge drying beds or the polishing pond since both units have
FIGURE II.A.3-2

SECTION II.D SURFACE IMPOUNDMENTS

II.D.1 HAZARDOUS WASTE PLACED IN SURFACE IMPOUNDMENT

The following table provides a list of the hazardous wastes placed into the surface impoundments to be closed via this closure plan.

Waste Description	Hazardous Waste ID No.	Hazardous Characteristics	Basis for Designation
Domestic Wastewater Sludge	F006/F019	Toxic	Cd, Cr, Ni, & Cyanide
Domestic Wastewater Effluent (to polishing pond)	F006/F019	Toxic	Cd, Cr, Ni, & Cyanide

II.D.2 DESIGN AND OPERATION OF SURFACE IMPOUNDMENTS

(a) Wastewater Treatment Plant Operation

NAS Jacksonville operates a wastewater treatment plant (WWTP) under the provisions of a National Pollutant Discharge Elimination System (NPDES; Permit # FL 0000957) and a Florida Department of Environmental Regulation (FDER) operating permit (Permit # D016-158162). This treatment plant provides secondary treatment for an average flow of 1.505 million gallons per day (MGD) domestic sanitary sewage and 0.85 MGD industrial wastewater. Industrial wastewater is generated from rinsewaters from electroplating, paint stripping and parts cleaning operations conducted at NAS Jacksonville.

Effluent and sludges generated from the Industrial Wastewater Treatment Plant (IWTP) are classified as F006 and F019, listed hazardous wastes. The industrial and domestic WWTP's are operated in series with the effluent from the industrial WWTP being discharged into the headworks of the domestic WWTP. After secondary treatment through the domestic activated sludge final clarification process, the treated wastewater is discharged through chlorinators to the St. John's River. However, prior to the polishing pond being taken out of service, treated wastewater from the domestic WWTP was discharged to the polishing pond which provided additional clarification. The domestic WWTP's sludge drying beds received sludge from the aerobic digester. In the domestic sludge drying beds, sludge was dewatered by gravity and the effluent collected via an underdrain system was returned to the headworks of the domestic WWTP. The sun dried sludge was

collected and taken to an approved landfill for disposal. Since the effluent from the IWTP is classified as F006/F019, the domestic sludge and effluent are also F006/F019 via the mixture rule defined in 40 CFR 261.3 (a)(2)(iv). In addition, the domestic sludge drying beds and the polishing pond also meet the definition of surface impoundment as defined in 40 CFR 260.10. Figure II.D.1-1 provides a schematic diagram for the NAS Jacksonville WWTP.

(b) Wastewater Treatment Plant Design
The domestic sludge drying beds were constructed in 1970 to receive sludge from the aerobic digester. The system consists of five (5) beds, each measuring 50' by 50'. The 3' high side containment walls and outside dikes are constructed of 8" concrete block and are reinforced with wire tier ties. To prevent overtopping, sludge was introduced into each bed to a depth of approximately 12" via a manually operated valve. The domestic sludge drying beds are unlined. The sludge was gravity dewatered and effluent was collected by an underdrain system that consists of three (3), 6" vitrified clay drain lines in each bed. The beds are underlain by 7" of sand, 3" of fine gravel and 6" to 12" of course gravel. A plan view and cross section of a typical bed are presented in Figures II.D.2-1 and II.D.2-2, respectively. Dried sludge was manually removed from the beds by shoveling. During its operation, it is estimated that 300 cubic yards per year of dried sludge were removed from the drying beds.

The polishing pond was built in 1970 to provide additional settling for 2.36 million gallons per day (MGD) of combined domestic and industrial wastewater treated effluent, prior to chlorination and discharge to the St. John's River. Under design conditions the polishing pond has a surface area of 3.8 acres, an average depth of 3.5 feet, and a total volume of approximately 3.7 million gallons. The polishing pond is unlined and is constructed of earthen dikes. A plan view and cross section of the polishing pond are presented in Figures II.D.2-3 and II.D.2-4, respectively. Polishing pond influent can be routed directly to the St. John's River without entering the polishing pond or chlorination contact chamber, or can be routed through the chlorination contact chamber only, through the use of two diversion valves located at the pond.

(c) Other Pertinent Data Regarding Surface Impoundment Operation
A Notice of Violation (NOV) dated 7 July 1987 was issued by the U.S. Environmental Protection Agency (EPA), Region IV, which required NAS Jacksonville to immediately cease the introduction of hazardous waste into the polishing pond and the domestic sludge drying beds. The polishing pond and domestic sludge drying beds were permanently removed from service May 23 and June 10, 1987, respectively. Therefore, NAS Jacksonville is in compliance with the NOV and now plans to perform RCRA closures of these two impoundments.

II.D.3 INSPECTION PLAN
The requirements of 40 CFR 264.15 and 264.226 (a) and (b) are not applicable to this closure plan, since the domestic sludge drying beds and the polishing pond have been permanently removed from service.

II.D.4 DIKE STRUCTURAL INTEGRITY
The requirements of 40 CFR 264.226 (c) are not applicable to this closure plan, since the domestic sludge drying beds and the polishing pond have been permanently removed from service.

II.D.5 REMOVING SURFACE IMPOUNDMENT FROM SERVICE

(a) Domestic Sludge Drying Beds
The domestic sludge drying beds were permanently removed from service on June 10, 1987 by closing and "locking out" the manually operated bed filling valves shown in Figure II.D.2-1.

(b) Polishing Pond
The polishing pond was permanently removed from service on May 23, 1987 by closing and "locking out" the manually operated divert valve in the diversion box shown in Figure II.D.2-3. The closing of this three-way valve diverts flow around the polishing pond and directly into the chlorine contact chamber.

II.D.6 SURFACE IMPOUNDMENT CLOSURE
The requirements of 40 CFR Subpart G are submitted under Part II, Section K of this closure plan.

II.D.7 MANAGEMENT OF IGNITABLE OR REACTIVE WASTES
The requirements of 40 CFR 264.17 and 264.229 are not applicable to this closure plan since NAS Jacksonville did not manage ignitable or reactive hazardous wastes in the domestic sludge drying beds or the polishing pond.

II.D.8 MANAGEMENT OF INCOMPATIBLE WASTES
The requirements of 40 CFR 264.17 and 264.230 are not applicable to this closure plan since NAS Jacksonville did not manage incompatible hazardous wastes in the domestic sludge drying beds or the polishing pond.

II.D.9 NOTICE IN DEED
A copy of the Notice in Deed as required by 40 CFR 264.119 will be submitted to the local zoning authority and to the Regional Administrator within 60 days after certification of closure.

II.D.10 MANAGEMENT OF F020, F021, F022, F023, F026 & F027
The requirements of 40 CFR 264.231 are not applicable to this closure plan since NAS Jacksonville did not manage hazardous waste No.'s F020, F021, F022, F023, F026, or F027 in the domestic sludge drying beds or the polishing pond.

II.D.11 GROUNDWATER PROTECTION
The requirements of 40 CFR 264 Subpart F are submitted under Part II, Section M of this closure plan.

II.D.12 EXPOSURE INFORMATION
This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.E WASTE PILES

This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.F LAND TREATMENT

This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.G LANDFILLS

This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.H INCINERATORS

This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.I MISCELLANEOUS UNITS

This section is not applicable to closure of the domestic sludge drying beds and the polishing pond.

SECTION II.J RESERVED

SECTION II.K CLOSURE

This Closure Plan has been prepared to satisfy the requirements of 40 CFR 264 Subpart G and is applicable to the domestic sludge drying beds and the polishing pond components of the NAS Jacksonville WWTP.

II.K.1 CLOSURE PERFORMANCE STANDARD
Closure of the polishing ponds and domestic sludge drying beds will be accomplished in a manner that will control, minimize or eliminate, to the extent necessary to protect human health and the environment, post closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, and decomposition products to the groundwater, surface waters or to the atmosphere, as required by 40 CFR 264.111. Closure will also meet the requirements of 40 CFR 264.228.

II.K.2 CLOSURE PLAN
(a) Description of Closure
Since neither the domestic sludge drying beds nor the polishing pond can be clean closed, it is the intent of NAS Jacksonville to closed these units in accordance with 40 CFR 264.228.

(b) Partial and Final Closure final
This closure will represent ~~partial~~ closure of the domestic sludge drying beds and polishing pond.

(c) Maximum Waste Inventory
The maximum inventory of hazardous waste ever onsite at the domestic sludge drying beds and the polishing pond is estimated to be 12,500 cubic feet and 3.7 million gallons, respectively. All solid wastes including sludge, structures, and contaminated soil will be removed by heavy equipment appropriate for the task. All solid wastes removed or excavated from the domestic sludge drying beds or polishing pond will be transported via truck to a RCRA permitted facility that is licensed to landfill F006/F019 wastes. A facility for this disposal cannot be specified due to the requirements of the Navy's contracting procedures. All liquid wastes, including supernate from the polishing pond, rinsewaters, and steam cleaning condensate will be sucked into vacuum trucks or collected in drums and introduced into the headworks of the domestic wastewater treatment plant. okay with NPDES?

(d) Closure Implementation
This section describes the physical steps that will be implemented to perform partial closure of the domestic sludge drying beds and the polishing pond in accordance with 264.228.

General
All construction shall be in accordance with the final design and specifications presented in the closure plan.

↑ expand, briefly describe.

Construction activities shall be monitored by the Registered Professional Engineer retained to certify closure, or his on-site representative.

Upon completion of construction, the engineer shall prepare as-built drawings and a final construction report. The report will contain a description of cover construction activities, summarize quality assurance data, and certify whether construction was performed in accordance with the closure plan.

Earthwork
Prior to construction, borrow soils for the low permeability clay cover layer shall be identified and tested to confirm that they are capable of being placed to achieve the desired permeability.

On-site geotechnical personnel shall monitor fill placement and compaction to assure that they meet the required specifications. Personnel shall maintain a daily record of fill placement activities including: (A) weather conditions; (B) compaction equipment and methodology; (C) limits of fill placement; (D) observations regarding fill materials and placement; and (E) results of compaction testing.

500 for leaching pond, 50 yd^3 for drainage beds
The compacted in-situ moisture-density relationships of each fill lift shall be tested to assure compliance with specifications, prior to the placement of additional lifts. ASTM-approved in-situ methods (i.e.,) nuclear density gauge, sand cone, drive cylinder, etc.) will be incorporated with tests taken for every 50 cubic yards of material placed. At least one test per day will be conducted on each compacted soil lift, even ~~of~~ less that 50 cubic yards of material is placed. Additional moisture/density tests shall be obtained whenever.

conflicts with spec

* lift thickness is greater than specified
* rollers become dirt clogged during compaction
* the degree of compaction is doubtful
* fill materials do not appear uniform

If the moisture/density testing results indicate that the compacted soil lift does not meet the density specifications, the material will be reworked to achieve the minimum specified density. If the moisture/density testing results indicate that the soil was not placed within the moisture limits specified, the material will be removed and replaced, or modified (by wetting or drying), to meet the specifications.

delete
Fill Materials - change title
During construction, supplementary soil compaction curves and classifications tests shall be performed on field density

samples. Approximately one test (each) will be performed for every 1,000 cubic yards of material placed, or a minimum of three samples. Additional soil compaction curves will be obtained whenever a significant change in materials is suspected. Compaction testing shall be performed to ASTM D-698, or ASTM D-1577, whichever is applicable. Classification testing shall include Atterberg Limits Testing (ASTM D-4318) and particle-size analysis (ASTM D-422), as necessary for classification.

Permeability testing shall be conducted on at least three samples of soil recovered from the low permeability clay layer to assure that the material achieves the specified permeability. Permeability testing shall be performed on fine-grained material samples using the falling-head test method, or the triaxial chamber back-pressure method.

At least three representative samples of the coarse drainage material shall undergo particle-size analysis and constant-head permeability testing to assure compliance with the specifications. Particle-size analyses shall be performed in accordance with ASTM D-422, and permeability testing in accordance with ASTM D-2434.

Surveying
The thickness of the cover materials, cover grades, and construction limits shall be documented by establishing a 50-foot survey grid covering the construction area. At various times during construction, elevations at each grid point will be determined to the nearest 0.1 foot, utilizing a rod and level, and referenced to the site benchmark. The site benchmark will be reference to an established USGS elevation benchmark. The surface elevations shall be determined, at a minimum: (A) immediately prior to the construction of the low-permeability clay layer; (B) immediately following the construction of the low permeability clay layer; (C) immediately following the placement of the coarse drainage layer; (D) immediately following construction of the vegetative cover layer; and (E) at other times as necessary for elevation control.

HDPE Liner
Prior to installation, the liner manufacturer shall provide the owner with quality control certificates pertaining to raw materials, manufactured liner rolls, and compliance to applicable ASTM requirements. The Owner shall review the test results for completeness and for compliance with the required minimum properties for both the raw materials and manufactured liner rolls. Materials and rolls which are in non-compliance with the minimum required properties shall be rejected.

The liner installer shall provide the certification of acceptance of surface preparation to the Owner prior to any liner installation. Thereafter, the installer shall provide the Owner

written acceptance daily for the surface to be covered by liner in that day's operation.

Each day prior to liner welding, a test weld 3 feet long from each welding machine shall be run under the same conditions as exist for the liner welding. The test weld shall be marked with date, ambient temperature, and welding machine number. Samples of welds 1/2 inch to 1-inch wide shall be cut from the test weld and pulled in shear and peel. The tensile yield of strength of the seam should be a minimum of 85 percent of the tensile yield and break strength of the parent material. Test procedures and performance shall be as recommended in the NSF Standards for Flexible Membrane Liners. Additionally, random weld samples will be removed from the installed welded liner at an average frequency of 1 sample per 2000 feet of weld, taken from the locations designated by the Owner or his representative. A minimum of three samples per day shall be tested to determine seam tensile properties and peel strength.

The liner fabricator shall provide the Owner with daily reports addressing: (A) the total amount of liner seamed; (B) identification of rolls and fabricated blankets; (C) quality control tests of materials used during the day; (D) seaming equipment and products used; (E) names of seamers; and (F) seam testing performed.

The liner installer shall provide the Owner with daily reports of (A) the total amount and location of liner placed; (B) total amount and location of seams completed and seamer and units used; (C) changes in layout drawings; (D) results of test seams; (E) location and results of non-destructive testing; (F) location and results of repairs; and (G) location of destructive test samples.

A quality-control technician shall provide the owner with daily reports describing (A) liner placement and seaming methodology, and work accomplished; (B) weather conditions; (C) results of the inspection of the liner and each seam, and the location of each observed defect; (D) repairs made to each observed seam and material defect; (E) results of non-destructive testing conducted on each weld to ensure watertightness; (F) the location of the random weld samples removed for destructive testing; and (G) results of destructive testing on removed weld samples, if testing is conducted on-site.

Drainage Layer
Samples of drainage media (sand) will be collected from potential supplies before cap construction has begun. The samples will be tested for both permeability and grain size distribution. At least 3 additional samples of the drainage media will be collected at the time of delivery and tested for grain size distribution. The drainage media will be rejected if it falls outside the material specifications, or if the grain size

9- 12" drainage layer
12" topsoil

distribution is inconsistent with that of the material originally tested.

A quality assurance technician will observe installation of the drainage media to document proper placement. The technician shall not approve the installation of drainage media that is out of specification, is visibly dirty, or is less than ~~12~~ 9 inches thick. State/EPA recommends 12" to prevent clogging

II.K.4 CLOSURE SCHEDULES

Closure will be conducted in accordance with this plan upon ~~issuance of~~ modification of the permit. Closure will be completed when the conditions of the permit are met. If it is possible, NAS Jacksonville would like to perform closure of the domestic sludge drying beds and the polishing pond in conjunction with closure of the permitted industrial sludge drying beds. This would be both economically and contractually attractive to the NAS Jacksonville. ~~In order to expedite the closure of these facilities, NAS Jacksonville anticipates the preparation of a scope of work and a closure design that will allow for "clean" closure and capping of the impoundments, if necessary, to be performed under one contract.~~

At the appropriate times during the closure activities, an independent registered professional engineer will certify each phase of closure as follows:

* Initial inspection of the units and certify that the final volume of waste has been received.
* Completion of removal of all existing hazardous wastes or such wastes as are feasible to remove.
* Final Certification of closure.

Table II.K.4-1 is an anticipated closure schedule for both the domestic sludge drying beds and the polishing pond. As indicated in Table II.K.4-1, the Navy contracting process, by itself, takes longer than 180 days to complete. NAS Jacksonville feels that closure of these impoundments will, by necessity, take an estimated 390 days from issuance of closure permits to complete. Therefore, NAS Jacksonville would like to submit a request for an extension to the closure period.

II.K.5 CERTIFICATION OF CLOSURE

Within 30 days of completion of closure of each surface impoundment, the NAS Jacksonville will submit to the Regional Administrator, by registered mail, a certification that the impoundment has been closed in accordance with the specifications in the approved closure plan and 40 CFR Subpart G - Closure and Post-Closure. The certification of closure will be signed by the operator of NAS Jacksonville and an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification will be will be in permit

TABLE II.K.4-1

CLOSURE SCHEDULE
DOMESTIC SLUDGE DRYING BEDS
POLISHING POND
NAS JACKSONVILLE, FL

ITEM	ESTIMATED DATE OF COMPLETION[a]
SUBMITTAL OF 100% DESIGN PLANS, SPECIFICATIONS AND REVISED CLOSURE PLAN	May 31, 1990
REVIEW COMMENT RESPONSE MEETING	Jun. 25, 1990
SUBMITTAL OF FINAL CLOSURE PLANS AND SPECS.	Jul. ~~15~~ 17, 1990
USEPA/FDER APPROVAL OF CLOSURE PLAN	Jul. 31, 1990
CLOSURE CONSTRUCTION CONTRACT AWARD	~~Sep. 15, 1990~~
DSDB EXCAVATE, BACKFILL, COMPLETE CAP	~~Dec. 31, 1990~~
POLISHING POND STABILIZE RESIDUALS, BACKFILL, COMPLETE CAP	~~May 31, 1991~~

NOTE:
a - Schedule reproduced form April 13, 1990 letter from NAS Jacksonville to Jacksonville, FL Regional Office of FDER.

Ignore change all Regional Administrator to Director

furnished to the ~~Regional Administrator~~ Department upon request, however the financial assurance requirements for closure are not applicable since this is a federal facility, exempted from financial assurance requirements by 40 CFR 264.140(a).

II.K.6 SURVEY PLAT

No later than the submission of the certification of closure, the owner will submit to the authority with jurisdiction over land use, and to the ~~Regional Administrator,~~ a survey plat indicating the location and dimensions of the closed surface impoundments with respect to permanently positioned bench marks. This plat will be prepared and certified by a professional land surveyor. The plat will contain a note, prominently displayed, which states the owner's obligation to restrict disturbance of the unit.

II.K.7 POST-CLOSURE CARE AND USE OF THE PROPERTY

Post-closure care will consist of maintaining the integrity of the final cover, in addition to the maintenance and monitoring of the groundwater monitoring system. The closure site(s) will not be utilized for any other purpose.

II.K.8 POST-CLOSURE PLAN

Maintenance and monitoring of the groundwater monitoring system will consist of complying with all the requirements of Section M - Groundwater Protection, of this plan. There will be no future hazardous waste activities performed at the closed sites. The facility contact responsible for the supervision of post-closure care activities is:

Mr. Jerry Wallmeyer
Environmental Division Director
Public Works Department
NAS Jacksonville
Code 184, Box 5
Jacksonville, FL 32212-5000

Since the closed sites will not be constantly manned, and no tanks, pumps, or other equipment will be operating onsite, post-closure care will be minimal, limited to routine inspection, maintenance, and monitoring. Routine post-closure inspections will be performed as outlined in Table II.K.8-1 which presents a list of the maintenance and monitoring activities. Any out of the order conditions will be reported and recorded on an inspection log sheet maintained with a copy of this plan at Environmental Division office.

Specify by height →

Maintenance of the impermeable cap and ground cover after establishment of adequate vegetation will be on an as-needed basis. Ground cover maintenance will consist primarily of mowing in order to control the growth of inappropriate vegetation and promote rapid run-off. The entire area will be mowed at least once per quarter and fertilizer will be applied as necessary to sustain a sufficient vegetation cover. Should routine inspections note any erosion or cracking of the soil, such will

TABLE II.K.8-1

POST-CLOSURE INSPECTION SCHEDULE

ITEM	FREQUENCY
Site Security	
Warning Signs	Monthly
Final Cap	
Subsidence	Monthly
Erosion	Monthly
Vegetation Stress	Monthly
Rodents Damage	Monthly
Groundwater Monitoring System	
Well Casing Integrity	Monthly
Well Caps & Locks	Monthly
Well Concrete Base	Monthly

be filled immediately with topsoil, compacted, and the affected area re-seeded. It is fully anticipated that rodents will enter the site at various times during the post-closure care period and attempt to establish burrows, which could jeopardize the integrity of the clay cap. Whenever a burrow is detected during routine inspection, a suitable rodenticide will be place in the burrow and the burrow will be backfilled with topsoil. Routine inspections will also include an examination for signs of seepage or leaching. Should any be found that cannot be corrected through routine maintenance, the FDER will be notified and plans for correction of the situation will be made.

II.K.10 POST CLOSURE NOTICES

No later than 60 days after certification of closure, the owner will record, in accordance with state law, a notation on the deed to the property or on some other instrument which is normally examined during title search that will in perpetuity notify any potential user of the property that:

* The land has been used to manage hazardous wastes; and
* Its use is restricted under 40 CFR 264 Subpart G regulations;
* The survey plat of the units has been filed with the authority with jurisdiction over land use and the Regional Administrator; and
* Certification signed by the owner that he has recorded the notations specified above and a copy of the document in which the notation was placed has been submitted to the Regional Administrator.

II.K.11 CERTIFICATION OF POST CLOSURE CARE COMPLETION

No later than 60 days after completion of the post-closure care period for each closed surface impoundment, the owner shall submit to the Regional Administrator, by registered mail, certification that the post closure-care period for each impoundment was performed in accordance with the approved post closure plan and 40 CFR 264 Subpart G - Closure and Post Closure. The certification will be signed by the owner and an independent registered Professional Engineer. Documentation supporting the independent Engineer's certification will be furnished to the Regional Administrator upon request.

II.K.12 FINANCIAL REQUIREMENTS

40 CFR 264.140, applicability, exempts the Federal Government from the requirement of the financial requirements Subpart.

NOTE: PAGES 51 THROUGH 60 ARE INTENTIONALLY BLANK

SECTION II.L COMPLIANCE SCHEDULE

NAS Jacksonville does not wish to establish a compliance schedule for achieving compliance with any standards that have not been met at this time.

SECTION II.M GROUNDWATER PROTECTION

II.M.1 INTRODUCTION

This section presents an overview of the geologic and hydrogeologic setting of the NAS-Jacksonville site as well as specific data for the domestic sludge drying beds and the polishing pond in accordance with 40 CFR 264 Subpart F.

As required in 40 CFR 264.90 the owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste must implement a groundwater monitoring program.

Three groundwater monitoring wells were installed in March of 1984 to monitor groundwater quality at the polishing pond. Analytical results from the initial round of sampling of these three wells in May of 1984 are included as Table II.M.1-1. Well construction details and lithologic logs for each well are included later in this section.

Five additioanl wells were installed around the polishing pond and six wells were installed around the domestic sludge drying beds in May of 1989.

A full detection monitoring program as required by 40 CFR 264.98 was established at both the polishing pond and the domestic sludge drying beds. This program will be described in detail later in this section.

II.M.2 SUMMARY OF WATER BEARING UNITS

The major hydrogeologic units under NAS-Jacksonville are the Post Miocene Surficial Aquifer, the shallow rock aquifer, confining units of the Hawthorn Formation, and the thick Floridan Aquifer as shown in Figure II.M.2-1.

The deep artesian Floridan Aquifer is the chief source of private and public water supply systems in the Jacksonville area. Additional water for domestic use at NAS Jacksonville and surrounding areas is drawn from the shallow rock aquifer and from the porous limestone units of the Hawthorn Formation.

The Surficial Aquifer is predominantly sands. The upper portion is unconfined or under water table conditions. Clay layers could exist in the middle and lower zones of the Surficial Aquifer that could cause confined or artesian conditions in those areas.

The Hawthorn Formation is even more complex than shown on the generalized Geologic Column in Figure II.M.2-1. The alternating clay, sand, and limestone deposits document numerous periods of land emergence and submergence. The probability of sand filled buried river channels cut into the clay or even limestone during

NOTE: PLEASE RETAIN TABLE II.M.1-1 AT THIS LOCATION

NOTE: PLEASE RETAIN FIGURE II.M.2-1 AT THIS LOCATION

emergent periods is high. It is not unusual for one river channel to erode deep enough to cut into a deeper, older buried river channel and thus become hydraulically connected. Later, when the Hawthorn Formation was buried, some of the sand filled channels remained isolated in a clay matrix while others are interconnected to varying degrees. However, on a regional scale, the Hawthorn Formation is predominantly clay and acts as a confining layer allowing confined or artesian conditions to exist in the Floridan Aquifer.

The Floridan Aquifer is composed of the Ocala Group of carbonates, the Avon Park Limestone and the Lake City Limestone. This very productive and regionally extensive unit is the major drinking water aquifer in Northeast Florida.

II.M.3 AQUIFER CHARACTERISTICS

The shallow water producing zones occur primarily in porous limestone units above the Hawthorn Formation. Smaller amounts of water are produced from scattered deposits of sand, silts, clays, and shell. Recharge to all shallow zones is by direct rainfall and possibly by upward migration of water from the deeper artesian Floridan Aquifer. Reportedly, (Leve and Goolsby, 1969) approximately 45,000 to 50,000 domestic wells obtain 10 to 25 MGD from this series of shallow zones.

The primary water supply unit is the Floridan Aquifer. It consists of a series of limestone and dolomite zones which produce water under varying artesian pressure.

Aquifer tests by Leve (1968) are summarized below:

	Low	Avg.	High
Coefficient of Transmissibility	$50,000_{-4}$	$275,000_{-4}$	$1,000,000_{-2}$
Coefficient of Storage	1.5×10^{-4}	9.4×10^{-4}	1.6×10^{-2}

The recharge zone of the Floridan Aquifer is located approximately 30 miles west of the NAS-Jacksonville along the Ocala uplift. Recharge also occurs through limestone sinkholes. Groundwater flow direction under NAS-Jacksonville is approximately due east across the facility.

II.M.4 GEOLOGY AND LOCAL PHYSIOGRAPHIC FEATURES

The Jacksonville, Florida NAS is located on the Coastal Plain physiographic province. This region has been subjected to numerous periods of uplift and submergence over geologic time. During periods of uplift, a broad system of rivers flowed over what is now the NAS site depositing sand in the river channels and clay in backwater areas. During periods of submergence, sand and other coarse grained materials dropped out at stream mouths far inland. Only a chemical precipitate, calcium carbonate

(limestone), was deposited on the area now occupied by the NAS site during those periods. During periods of partial submergence or moderate uplift, offshore bars and beach sand deposits developed. The type and size of the sand deposit depended on the water depth, sediment source and wave intensity during the depositional period.

At NAS-Jacksonville current land surface elevations are about 20 ft. above mean sea level, gradually sloping in all directions away from the facility. The domestic sludge drying beds and the polishing pond are located approximately three-tenths of a mile north of the east/west landing strip, as shown in Figure II.M.4-1. This figure also depicts NAS-Jacksonville property boundaries, waste management areas, the point of compliance as defined in 40 CFR 264.95, and well locations (actual and proposed).

II.M.5 CONTAMINATION PLUME

II.M.6 GENERAL GROUNDWATER MONITORING REQUIREMENTS
As required in 40 CFR 264.97 the owner or operator must develop a groundwater monitoring system in order to comply with 264.98. To comply with this standard, the following groundwater monitoring program was implemented.

II.M.7 SAMPLING AND ANALYSIS PROCEDURES
(a) Equipment
The necessary sampling equipment needed are as follows:

(1) Several gallons of distilled water and wash bottle
(2) Clean rags and plastic sheeting
(3) Bottom filling PVC bailer and 100' nylon rope (or) peristaltic pump
(4) Graduated bucket
(5) 4 pre-cleaned, amber sample bottles with teflon lined lids per sampling well, bottle labels and waterproof marking pen
(6) 100' fiberglass or plastic measuring tape with weighted bottom (or) water level indicator consisting of an ammeter, electrode, and 100' cable
(7) pH meter
(8) Thermometer
(9) Specific conductivity meter
(10) Preservatives for water samples
(11) Field data forms, clipboard, pen and
(12) Optional: ice chest and ice or freezer packs

(b) Procedures for Measuring Well Depth
The depths of each well is known from the well construction logs.

NOTE: PLEASE RETAIN FIGURE. II.M.4-1 AT THIS LOCATION

(c) Measuring Water Levels
(1) Place plastic sheeting around well to protect sampling equipment from potential contamination.

(2) After unscrewing outer casing cap, measure the depth to water in the well. All measurements are made from top of PVC casing.

Using the water level indicator, drop the probe down the center of the casing and allow cord to go untangled down the well. When ammeter indicates a closed electrical circuit, determine depth to water from top of PVC casing. Record depth to water on field data form (Figure II.M.7-1). Subtract this value from elevation at top of PVC casing to find elevation of water level,

(or)

Using a fiberglass or plastic 100-ft tape with sandpaper backing on first five feet, drop weighted tape down center of casing. After water is encountered in well, record measurement of tape at top of casing, wind up tape and record the measurement where tape is wet. Subtract the "wet" measurement from the "held" measurement to determine the depth to water. Subtract this value from the elevation at top of PVC casing to find elevation of water level.

The water-level measurements must be obtained at each sampling point every time water samples are collected. This information must be recorded and sent to the EPA Regional Administrator with the annual report.

(3) Clean water level indicator or tape bottom with distilled water and wipe dry with clean rag.

(d) Well Evacuation Procedures
(1) Remove at least three well volumes of standing water using either the peristaltic pump or a hand bailer.

To find the volume of standing water in the well, use the following calculation:

$$V = \pi r^2 h$$

where V = volume (ft^3)
π = 3.14
r = radius or monitor well casing (ft)
h = height or standing water in well (ft)

NOTE: PLEASE RETAIN FIGURE II.M.7-1 AT THIS LOCATION

The height of standing water in the well is found by subtracting the depth to water measurement from the total depth of the well.

It is generally recommended to remove three to five well volumes of water from the well as well as stabilize pH and specific conductivity to insure an accurate sample of groundwater quality but this may not be possible if the wells are low yielding. At the least, the well should be pumped or bailed to dryness before sampling. If wells are pumped dry, they will be allowed to recover and then sampled. Use graduated bucket to measure volume of water removed from the well.

(2) Clean bailer or pump with distilled water before use in other wells to prevent possible cross contamination of groundwater in the monitor wells. If the organic parameters are a major focus of concern, one should Teflon bailers and wash with acetone or hexane after sample collection.

(e) Sample Collection Procedures
(1) Allow well to recharge sufficiently to obtain samples. In some wells, this may require waiting a few minutes to a few hours; in other wells recovery time may be extremely slow and sampling may not be possible until after 24 hours.

(2) Analyses of pH, temperature, and specific conductance should be made in the field at the time of sampling because these parameters change rapidly and a laboratory analysis might not be representative of the true groundwater quality. Remove enough water from well to determine temperature of water specific conductivity, and pH. Record values on field data sheet form and discard water in a manner so as to avoid potential contamination.

(3) Rinse sample bottle with sampled groundwater <u>except</u> metals sample bottles and the organic halogen sample bottle and discard water in a manner so as to avoid potential contamination.

(4) Transfer water from well sampling device to sample bottlers provided by the laboratory. Care should be taken not to agitate sample in order to limit amount of add oxygen to water sample. Minimize the number of containers used in order to limit the addition of outside contaminant. Sample bottles should be prepared as specified by future EPA regulations, the 1974 and 1979 EPA "Manual of Methods for Chemical Analysis of Water and Wastes" (EPA 625/6-74-003 and EPA 600/4-79-020), or as specified within this plan.

(5) The sample volumes may be increased or decreased as necessary depending on future EPA guidelines and laboratory needs. This information is based upon several EPA publications (EPA 625-6-74-003, EPA 600/4-79-020, EPA 600/4-76-049, and

EPA 530/SW-611), and verbal communications with EPA support laboratories.

(f) Sample Preservation and Shipment
Many chemical parameters are unstable in water and may change drastically before analysis if the sample is not "fixed" or preserved at the time of sampling. The laboratory performing the analyses will either provide the proper bottles containing any necessary preservatives or instructions as to which bottles should be preserved at the time of sampling according to EPA guidelines. The procedures for sample preservation and shipment are outlined below.

(1) Add appropriate preservatives to sample bottles.

(2) Seal sample bottle caps and label bottle. Labels should show sample number, date, sample source, preservative added, if any, and analysis to be performed.

(3) Enter all pertinent information on field data sheets and chain of custody form.

(4) Transfer samples to ice chest for shipment to laboratory.

(5) Clean all equipment with distilled water and wipe with clean rags. Proceed to next sampling point.

(6) Shipment of samples to laboratories to perform analyses should be performed with as few transfers as possible. All samples must remain cooled at 4° C during shipment. Additional information concerning sampling can be found in EPA 600/4-79-049, "Handbook for Sampling and Sample Preservation of Water and Wastewater".

(g) Analytical Procedures
During the first monitor year, NAS Jacksonville must sample groundwater at the disposal site on a quarterly basis and perform laboratory analyses for the parameters listed in Table II.M.8-1. A descrption of the analytical test methods listed in Table II.M.8-1 can be found in the sixteenth edition of Standard Methods for Examination of Water and Wastewater. All analyses of groundwater samples collected in conjunction with the groundwater monitoring programs for the closure of the polishing pond and the domestic sludge drying beds will be performed on unfiltered samples. The samples will be analyzed by the most recent EPA-accepted method by a qualified laboratory. This laboratory will be required by contract to meet, at a minimum, all of the Quality Assurance procedures outlined in Part I, Chapter 1 of SW-846, and the requirements of DER-QA-001/85.

(h) Chain Of Custody Control

NAS Jacksonville must demonstrate the reliability of data by providing the chain of possession and custody of any groundwater samples collected at NAS Jacksonville. There are two steps in the chain of custody procedure: the collection of samples in the field, and the transfer of samples to outside laboratories. A general practice of minimal transfers of sample bottles and good record keeping should provide adequate chain of custody control.

II.M.8 DETECTION MONITORING PROGRAM

In order to comply with 40 CFR 264.98 the owner or operator of a regulated hazardous waste unit must at a minimum meet the following requirements: monitor for indicator parameters specified by the Regional Administrator, develop a proposed groundwater monitoring system at the compliance point as specified in 40 CFR 264.95, establish background values for each monitoring parameter or constituent, and describe statistical comparison procedures to be utilized in evaluating groundwater monitoring data.

Table II.M.8-1 presents the groundwater quality parameters which will be monitored at NAS Jacksonville on a quarterly basis during the first year of monitoring to provide a reliable indication of groundwater quality. The quarterly monitoring will continue until the Regional Administrator approves the discontinuation of the groundwater monitoring program.

The proposed groundwater monitoring plan in accordance with 40 CFR 264.97 including a description of sampling and analysis procedures that are designed to ensure reliable groundwater monitoring results below the waste management area are detailed in the previous section, General Groundwater Monitoring Requirements.

Quarterly samples of the proposed upgradient wells will form the data base for background groundwater quality values for each parameter or constituent specified. A minimum of one (1) sample from each well and a minimum of four (4) samples from the entire system will be collected to determine background each time the system is sampled. At least four portions from a sample at each well at the compliance point will be collected to determine whether the difference between the mean of the constituent and the background value for the constituent is significant at the 0.05 level using the Cochran's Approximation to the Behrens-Fisher Student's t-test. If the test indicates that the difference is significant, the sampling procedures and calculations will be repeated. If the second round of analyses is determined to be significantly different, it will be concluded that a statistically significant change has occurred.

NOTE: PLEASE RETAIN TABLE II.M.8-1 AT THIS LOCATION

If it is determined that there is a statistically significant increase for any of the constituents specified in Table II.M.8-1 at any monitoring well at the compliance point, the following actions will be taken:

Within 7 days of initial determination of significant increase in downgradient wells notify the EPA Regional Administrator. The notification must indicate what parameters have shown statistically significant increases.

Immediately sample the groundwater in all monitoring wells and determine whether constituents listed in 40 CFR 264 Appendix IX are present, and if so, at what concentration.

Establish a background value for each additional constituent found from Appendix IX of Part 264 that has been found at the compliance point.

Within 180 days, submit to the Regional Administrator: all data necessary to justify any variance sought under 40 CFR 264.94, and an engineering feasibility plan for corrective action in accordance with Part 264.100.

NOTE: PAGES 75 THROUGH 81 ARE INTENTIONALLY BLANK

PSC 41

3 LAND OWNER

THIS IS TO CERTIFY THAT I, AS LAND OWNER, UNDERSTAND THAT THIS APPLICATION IS SUBMITTED FOR THE PURPOSE OF OBTAINING A PERMIT TO CONSTRUCT, OPERATE, OR CLOSE A HAZARDOUS WASTE MANAGEMENT FACILITY ON THE PROPERTY AS DESCRIBED. FOR HAZARDOUS WASTE DISPOSAL FACILITIES, I FURTHER UNDERSTAND THAT I AM RESPONSIBLE FOR PROVIDING THE NOTICE IN THE DEED TO THE PROPERTY REQUIRED BY 40 CFR §264.119 AND §265.119, AS ADOPTED BY REFERENCE IN CHAPTER 17-30, FAC.

Kevin F Delaney

SIGNATURE OF THE FACILITY OWNER OR AUTHORIZED REPRESENTATIVE*

Kevin F. DeLaney, CAPT. USN, COMMANDING OFFICER

NAME AND TITLE (PLEASE TYPE OR PRINT)

DATE: May 31, 1990 TELEPHONE NO. (904) 772-2114

*ATTACH A LETTER OF AUTHORIZATION

4. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (WHERE REQUIRED BY CHAPTER 471, F.S.)

THIS IS TO CERTIFY THAT THE ENGINEERING FEATURES OF THIS HAZARDOUS WASTE MANAGEMENT FACILITY HAVE BEEN DESIGNED/EXAMINED BY ME AND FOUND TO CONFORM TO ENGINEERING PRINCIPLES APPLICABLE TO SUCH FACILITIES. IN MY PROFESSIONAL JUDGMENT, THIS FACILITY, WHEN PROPERLY CONSTRUCTED, MAINTAINED AND OPERATED, OR CLOSED, WILL COMPLY WITH ALL APPLICABLE STATUTES OF THE STATE OF FLORIDA AND RULES OF THE DEPARTMENT OF ENVIRONMENTAL REGULATION.

SIGNATURE _____ MAILING ADDRESS ENSAFE

NAME James N. Speakman (PLEASE TYPE) P.O. Box 341315 (STREET OR P.O. BOX)

Memphis (CITY) TN (STATE) 38184 (ZIP)

(901) 372-7962 (TELEPHONE NO.) May 31, 1990 (DATE)

FLORIDA REGISTRATION NUMBER: 41460

(Please Affix Seal)

JAMES N. SPEAKMAN CERTIFICATE NO. 41460 STATE OF FLORIDA REGISTERED ENGINEER