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CLOSURE ACTIVITIES REPORT AND CERTIFICATION FOR BUILDING 79A CNC CHARLESTON SC

2/1/1996

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CLOSURE ACTIVITIES REPORT AND CERTIFICATION FOR BUILDING 79A

CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Rust Environment & Infrastructure

CLOSURE ACTIVITIES REPORT
AND CERTIFICATION FOR
BUILDING 79A

CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Rust Project No. 34305.000
February 1996

Prepared For

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Charleston, South Carolina
and
ENVIRONMENTAL DIVISION
CLOSURE ENGINEERING AND PLANNING DEPARTMENT
CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
North Charleston, South Carolina 29406
803/572-5600

PART 1

TABLE OF CONTENTS

I. INTRODUCTION

This report has been prepared to present the results of closure, sampling, analysis, disposal, and documentation activities conducted by the United States Navy in an effort to "clean close" Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. The closure efforts were performed in accordance with procedures required by the State of South Carolina Department of Health and Environmental Control (SCDHEC), as described in the approved closure plan and its approved amendments. The Environmental Closure Procedure No. 13 Rev. B, titled "CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222" was written pursuant to Consent Order 94-16-HW (signed May 9, 1994) and is included as Appendix A along with any revisions. Drawings showing the location of the cleaned areas within Building 79A are included as Figures 1 and 2.

II. CLOSURE ACTIVITIES

Closure procedures described in the approved closure plan were implemented by Charleston Naval Shipyard employees. These commenced on January 7, 1996 with cleaning and sampling activities. Mr. Robert Borowski, P.E. of Rust Environment and Infrastructure (Rust) was present on site to provide independent observation and documentation of closure activities. Dr. James L. Brickell, P.E. was present during all subsequent closure activities as noted in the "Observation Log". A copy of the "Observation Log" is included as Appendix B.

Cleaning activities generally included applying detergent to the surface and scrubbing it with a brush. The area was then rinsed with a pressure washer to remove any dislodged material. A final rinse was performed and a sample collected from the rinse water. The sample was analyzed for cadmium, chromium, mercury, lead and silver. "Background" samples were also collected and analyzed for parameters listed above from the clean wash water and the wash water after the detergent was added.

III. ANALYTICAL RESULTS

Samples were collected as described in the closure plan at the locations shown in Figures 1 and 2. Analytical results relating to these samples are summarized in Table 1. Analytical results show that the final rinse water concentrations of cadmium, chromium, mercury, lead and silver were not detected at a minimum detectable level of 0.100 mg/l. Copies of analytical reports are included as Appendix C.

Upon review of the analytical reports, it appears that some of the dates samples were taken were entered incorrectly on the Chain of Custody form. The dates the samples were taken, as reported in the Engineer's Field Observation Log (Appendix B) are as follows:

SAMPLE ID	DATE
TCG0286-6-1	1/7/96
TCG0286-6-2	1/7/96
TCG0286-6-3	1/9/96
TCG0286-6-4	1/10/96
TCG0286-6-5	1/11/96
TCG0286-6-6	1/11/96
TCG0286-6-7	1/11/96

A memo addressing the sample dates entered on the Chain of Custody form is included as part of Appendix C.

IV. STORAGE/REMOVAL OF WASH AND RINSE WATER

Wash and rinse water was labeled and stored in Building 79A, in accordance with the Closure Procedure until analytical results were available. Analytical results indicated that wash and rinse water collected from cleanup activities was non-hazardous. The non-hazardous water will be disposed of in accordance with the Closure Procedures, Section 4.3.9.

V. CERTIFICATION

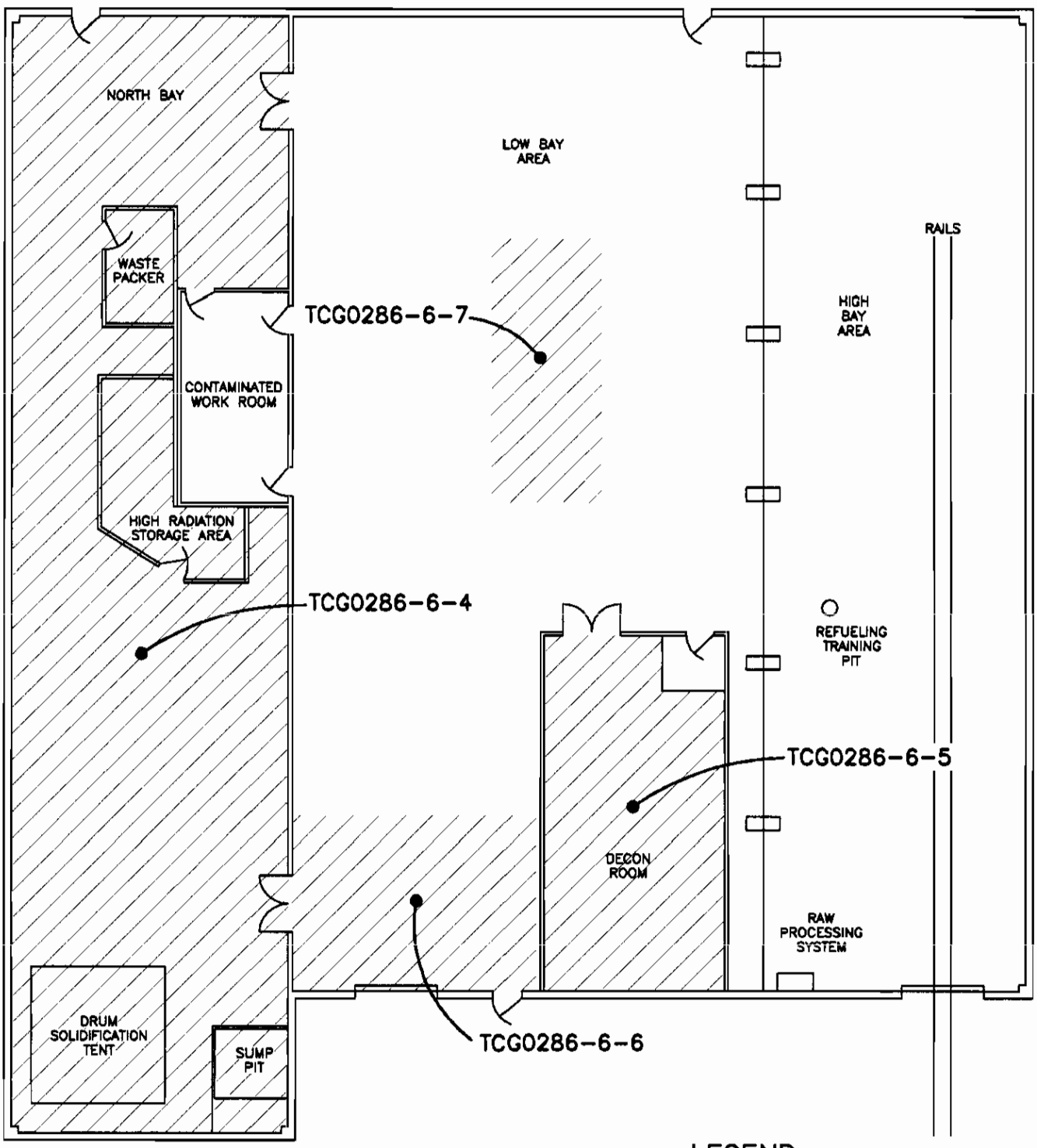
I certify under penalty of law that this document and supporting documentation consisting of my Observation Log has been prepared to document the closure actions taken in an effort to "clean close" the waste storage areas of Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. Based on my observations of the persons directly responsible for gathering the data evaluated, the data evaluated is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified By: _____ Date: 2/14/96
James L. Brickell, South Carolina PE #17119
Rust Environment and Infrastructure, Inc.

Certified By: _____ Date: 2/26/96
Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
BUILDING 79A
CHARLESTON NAVAL SHIPYARD

Date	Sample No.	Description	Parameter	Concentration
1/7/96	TCG0286-6-1	Clean Water	Mercury	<0.1 mg/L
			Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.42
1/7/96	TCG0286-6-2	Clean Water	Mercury	<0.1 mg/L
		With Detergent	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.4
1/9/96	TCG0286-6-3	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		East End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.8
1/10/96	TCG0286-6-4	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		West End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76
1/11/96	TCG0286-6-5	Rinse Water	Mercury	<0.1 mg/L
		Decon Room	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	9.88
1/11/96	TCG0286-6-6	Rinse Water	Mercury	<0.1 mg/L
		Area Adjacent	Silver	<0.1 mg/L
		to Decon Room	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.99
1/11/96	TCG0286-6-7	Rinse Water	Mercury	<0.1 mg/L
		Low Bay Area	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76



LEGEND

AREAS SUBJECT TO RCRA CLOSURE

NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

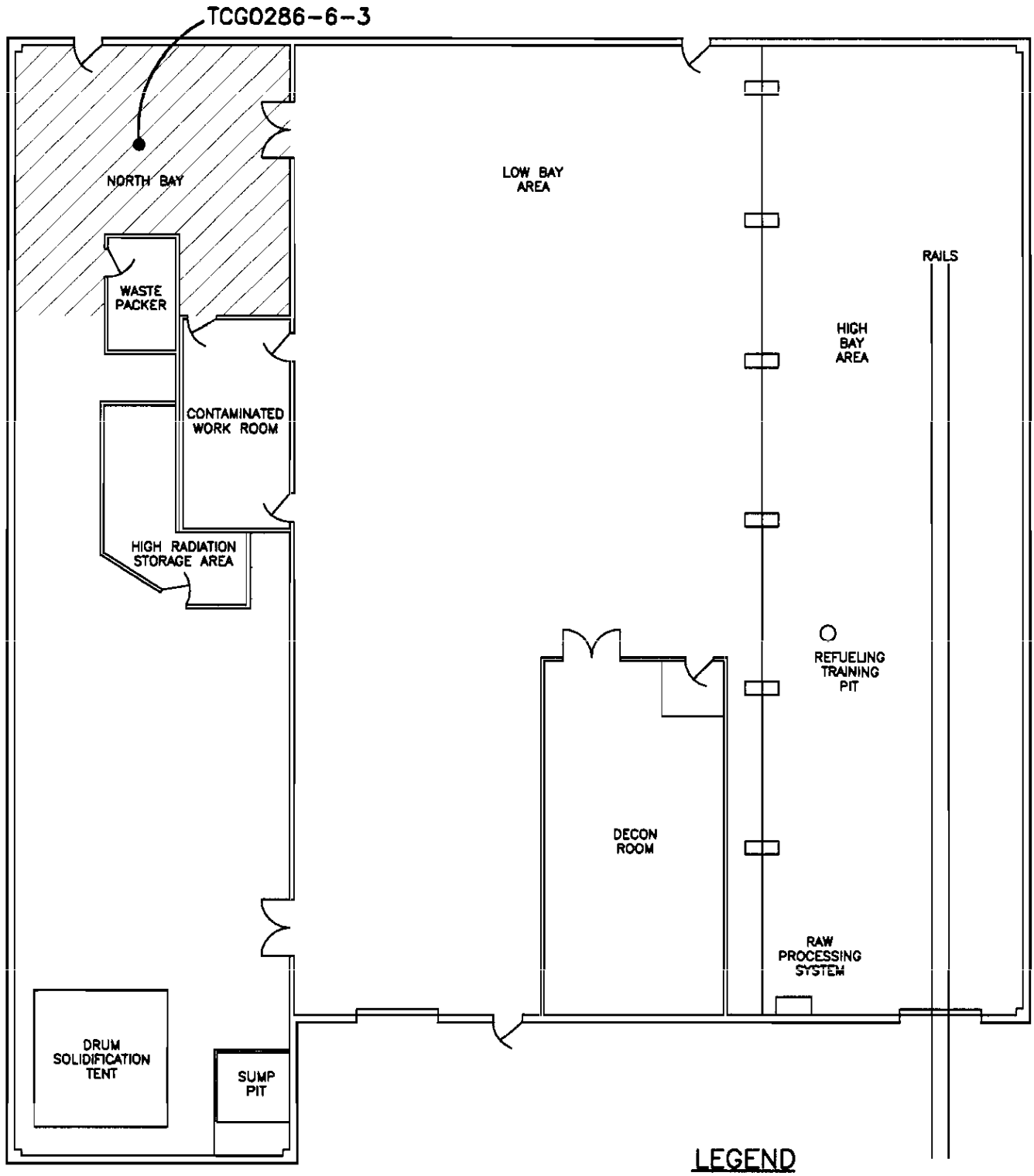
FIGURE 1

BUILDING 79A – RCRA CLOSURE SAMPLING LOCATIONS

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996

DWG: P:\CADD\34305\34305N07 PLOTTED: 02/08/96



NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 2

BUILDING 79A(< 90 DAY ACCUMULATION) SAMPLING LOCATION

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996

APPENDIX A

Environmental Closure Procedure #13 Rev. B
"CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222"

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

CERTIFIED MAIL

105 H
.1
.2 copy
.01 file

June 13, 1995

Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard
Charleston, SC 29408-5100

Re: Closure Plan for Buildings 79A, 222, and 101
Mixed Waste Treatment Units & Storage Areas
Charleston Naval Shipyard
SCD 170 022 560

Dear Captain Nold:

The South Carolina Department of Health and Environmental Control (Department) has completed the review of the Charleston Naval Shipyard's revised RCRA closure plan for the mixed waste treatment units and storage areas. The submittal of this closure plan is a requirement of the fully executed Consent Order 94-16-HW, signed by the Commissioner on May 9, 1994.

The Department by virtue of this letter hereby gives its approval of the closure plan for implementation. The Charleston Naval Shipyard (CNSYD) must close the above referenced areas in accordance with the requirements of R.61-79.265 and the revised closure plan dated June 7, 1995. Certification of closure by the CNSYD and an independent registered professional engineer shall be submitted to the Department within sixty days upon completion of each building's closure as outlined in the closure plan.

If you should have any questions concerning this matter or the requirements of the closure plan, please contact David Walton at (803) 896-4178.

Sincerely,

John Litton

John Litton, P.E., Manager
Hazardous Waste Permitting Section
Bureau of Solid & Hazardous Waste Management

cc: Joe Bowers, Hydrogeology
Rick Richter, Trident EQC
Kim Hagan, Enforcement
Channing Bennett, EPA Region IV
Doyle Brittain, EPA Region IV
Bobby Dearhart, COMNAVBASE
N.F. Johnson, NAVBASE

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

CERTIFIED MAIL
Return Receipt Requested

November 27, 1995

Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard
Charleston, South Carolina 29408-5100

RE: Final Closure Plan for Building 79A, 222, and 101

Charleston Naval Shipyard
SC0 170 022 560

Dear Captain Nold:

The South Carolina Department of Health and Environmental Control (Department) is in receipt of the requests, by Charleston Naval Shipyard (CNSY), for two minor modifications to their Closure Plan for Buildings 79A, 222, and 101 (effective June 13, 1995). This Closure Plan was submitted pursuant to Consent Order 94-16-HW (signed May 9, 1994).

The modification request received on November 14, 1995 consists of a revision to the closure schedule. The proposed revision to the schedule for building 101 closure extends the sampling and decontamination step of building 101 closure from 20-80 days to 20 - 140 days. As long as the final closure date of building 101 is not affected by the revision, the Department approves the revision to the schedule.

The second modification was received on November 27, 1995 consists of using a pressure spray for washing and a wet vacuum for the collection of water, instead of using a soap and water solution with a mop and squeeze bucket. As long as the clean-up values established in the closure plan will not be modified, the Department concurs with the changes in the closure plan.

ENCL: (1)

If you have any questions concerning this matter please contact Jeannie Olano at (803)896-4180.

Sincerely,

John Litton, P.E., Section Manager
Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management

cc: Jim Barkesdale, USEPA - Region IV
Pano Kordonis, Southern Division Engineering Command
Rick Richter, Trident District

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

Ser 106C/121
15 December 1995

MEMORANDUM

From: Environmental Closure Division (Code 106C), Charleston Naval Shipyard (CNSY)
To: Rust Environment and Infrastructure (Attention: Mr. Robert Borowski)

Subj: **Certification of Closure of Building 101**

Encl: (1) Certified SCDHEC letter of 27 Nov 95
(2) Certificate of Analysis from General Engineering Laboratories (dated 7 Dec 1995)
(3) Code 106 Memo Ser 106.2/0835 (dated 15 Dec 1995)

This letter is written to forward closure information for Charleston Naval Shipyard (CNS) Building 101 and to request Rust Environment and Infrastructure complete a certificate of closure for this building. The building has been cleaned in accordance with the SCDHEC approved closure plan of 7 June 1995 as incorporated into the CNS Environmental Closure Procedure #13 dated 14 July 1995; and as allowed to be modified per SCDHEC letter, Enclosure No. 1.

Enclosure No. 2 gives the sample results of the most recent cleaning of Building 101. The contaminants of concern for this building were Chromium and Lead. The lab results show that the level of Chromium contamination is less than 100 ug/l, which is that of the clean water used for the background sample. The level of Lead contamination is 101 ug/l. This is less than the Practical Quantification Limit (PQL) of 140 ug/l for the analysis of lead via SW 846, Method 6010. Enclosure No. 2 provides sample results using an analysis method listed as EPA Method 200.7. CNS considers EPA Method 200.7 technically equivalent to SW 846, Method 6010, as supported in Enclosure No. 3.

Additionally, CNS has conferred with SCDHEC on the issue of acceptable closure of Building 101. CNS had a conference with SCDHEC (Jeannie Olano and John Litton) on 11 November 1995 and during this conference, an analysis result less than the PQL was discussed as an acceptable result. Based on the above and attached information, CNS considers the closure actions in Building 101 complete. If you have any questions contact Jim Ritchie or Gerald Teaster at 743-6777 for more information.

F. T. Perry

A. T. Webb,
Concurrence, C106.2

Copy to:
Code 106.2, Code 106C.2, Pano Kordonis (SOUTHDIV- NAVFAC)
Code 2300, NRRO

MEMORANDUM

5090
Ser 106.2/0835
15 December 1995

From: CODE 106.2
To: CODE 106C

Subj: TEST METHODS FOR BUILDING 101 RCRA CLOSURE

Ref: (a) EPA Method 200.7
(b) SW 846 Method 6010

1. The testing requirements of reference (a), "Inductively Coupled Plasma...Analysis of Water and Waste" are technically equivalent to the analytical methods specified in reference (b).

2. The difference is solely found in the scope of the procedure. Reference (a) outlines sample preparation, standardization, instrument calibration and analysis methods. Reference (b) provides only analysis and quality control instructions.

A. T. Webb
Head, Environmental Division

Copy to:

106, 106.21, FXD, 106.2DF

ENCL: (3)

Environmental Closure Procedure #13
Rev. B

Title: Closure of Mixed Waste Sites in Bldgs. 79A, 101 and 222

Revisions

Rev	Description	Prepared By	Approv./Date
B	Purpose - This revision being done to remove requirement for actual mopping . Cleanup will be done by pressure spraying and wet vacuuming. Authority - From DHEC as described in Attachment B Added sheet 1- B "Revisions" for Revision B Sheet 2 - Added Attachment B; deleted reference to mopping in Outline Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraph 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 10 - Revised paragraph 4.3.8	D.J. Drantz 11/29/95	106C JOBerry Date 11/29/95 Concurrence 106.2 26 Date 11/29/95

Revisions

Rev	Description	Prepared By	Approv./Date
A	Purpose - This revision is being done to: (a). Allow a different approach to achieve the cleanliness specified in the closure plan. (b). Removes the local requirement for washing the walls. (c). Remove requirement to only use 30 gallon drums. Added sheet 1-A "Revisions" Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraphs 4.3.3 and 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 11 - Revised paragraphs 4.3.8 and 4.4.4.1, deleted paragraph 4.4.4.2	G. Toaston 11/9/95	106 C. Berry Date 11/9/95 Concurrence 106.2 Date 11/9/95

Table of Contents

Attachment A - Closure Plan incorporated in C105 Document , 9900 Ser 105.2/101 dated 07/Jun/95 as approved by South Carolina DHEC Certified Mail of June 13, 1995

Attachment B - Modification to Closure Plan by CNSY Letter 5090 Ser 106.21/0800 dated 27 Nov. 95 and as discussed with DHEC at meeting on 11/21/95.

OUTLINE

This is a general procedure for final cleaning , sampling and certified closure of three buildings that were once used for mixed waste treatment units and storage areas. The buildings are 79A, 101 and 222. **This ECP is NOT the procedure to clean the building from nuclear contamination.** This procedure is intended to give the buildings a final cleaning to remove potentially hazardous metals and flammable materials from exposed floor surfaces. All work described by this ECP will be done after final nuclear closure of each building, including all applicable radiological surveys and clearance from radiological controls. The actual work described by this ECP will be performed and controlled using Task Group Instructions (TGI's).

1.0 REFERENCES

1.1 CNSYDINST P-5100.1C, "Safety Manual"

1.2 CNSYDINST P-5100.43A, "Manual for Control of Work in Confined Spaces and/or Hazardous Atmospheres"

1.3 USEPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991 (ECBSOPQAM)

1.4 Public Works Dwg.H79 -7 " Ordnance Shop and Storehouse"

1.5 Public Works Dwg.H79-401 "Building 79A, Nuclear Service Building"

1.6 Public Works Dwg.H101-32 "Contaminated Storage Warehouse Floor Plan, Elevations & Details, Architectural"

1.7 Public Works Dwg.H222-81 "Nuclear Refueling Radcon Facility, Basement Floor Plan- Block "B", Architectural"

1.8 Public Works Dwg.H222-82 "Nuclear Refueling Radcon Facility, First Floor Plan- Block "B", Architectural"

1.9 Draft of Final RCRA Facility Assessment, Naval Base Charleston, Dated 6 June , 1995; Prepared by Ensafe/Allen & Hoshall

1.10 South Carolina Hazardous Waste Management Regulation R.61-79.261, "Identification and Listing of Hazardous Waste"

1.11 Charleston Naval Shipyard Comprehensive Health and Safety Plan of March 1995 prepared by Environmental Engineering and Remediation Division of the Engineering and Planning Department

1.12 USEPA, Test Methods for Solid Waste, SW-846

2.0 GENERAL REQUIREMENTS

2.1 This procedure shall be invoked by a technical work document (TWD) prior to use. Activities of this process are not expected to exceed the action level of toxic contaminants, but do pose the possibility of skin and eye irritation from dust or splashing from liquids being repackaged for sampling and disposal. Personnel and equipment decontamination procedures shall be based on the guidelines of Section 7.0 of reference 1.11.

2.2 Surface or constituent contaminant hazards found which are associated with this ECP are lead, cadmium, chromium, silver and mercury. These metals are toxic and cadmium and chromium pose carcinogenic hazards. Personnel using this procedure shall complete Hazardous Communication Training per reference 1.1, Article 1201, Enclosure 4 , particularly HMTM's #2, particulates (examples - silica, lead, cadmium, chromium, etc); #10,flammable liquids and #13, hazardous waste minimization. The 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response - "HAZWOPER" (per 29 CFR 1910.120) is also be required per Attachment A. Training shall include Federal STD 1910.1025 Lead, 1910.1027 Cadmium, Appendices A or A and B. Personnel using this procedure are also required to complete "Asbestos Awareness Training" per YE5001.

2.3 Workers involved in the cleaning and sampling operations in these three buildings shall be in the medical surveillance program per Article 143 (current revision to NAVHOSPINST 6120.2) of reference 1.1 as Hazardous Waste Workers. Hazard Worker medical (711-B27) shall be provided. Baseline physicals for mercury, chromium, lead, and cadmium, shall have been performed if Action Level is exceeded for greater than 30 days per year and is recommended for this project.

2.4 Work to be done in spaces four feet or more below the floor level shall not proceed until the space has been certified as gas free. Contact Public Works, C453.30 (3-1070) for this service. Confined space entry training shall be complete and documented (Provided by Code 900). This requirement applies to cleaning the pit in Building 79A as shown on Figure 1 of Attachment A and reference 1.5.

2.5 Emergency notification: If any situation or unplanned occurrence requires emergency assistance, including any hazardous substance spill, the site supervisor shall contact the Chief-of -the- Watch (3-6444) to activate the proper NAVBASE response. In the event of an emergency which necessitates the evacuation of the site, the alarm procedures of Section 10.4 of reference 1.11 shall be followed.

2.6 Note that this ECP concerns Building 79A, not Building 79. Building 79 was constructed in 1943 and is shown on reference 1.4. Building 79A was built as an annex to Building 79 in 1967 and is shown on reference 1.5. Building 101 is shown on reference 1.6. The affected areas of Building 222 are shown on references 1.7 and 1.8. The cleanup efforts for the three buildings are based on the requirements of Attachment A. This procedure applies only to a portion of each of the three buildings. Site control measures for each area will be implemented based on the guidelines of reference 1.11. The areas that require cleaning in accordance with this ECP are shown in Attachment A as follows:

a. Building 79A -
Figure 1, page 9 - approximately 5,200 sq. ft. of floor space
Figure 2, page 10 - approximately 1,000 sq. ft. of floor space
(Inspection of this building reveals that the three interior walls surrounding the "Contaminated Work Room" and all four walls of the "Decon Room" as shown on both Figures 1 and 2 have been removed.)

b. Building 101 -
Figure 5, page 13 - approximately 700 sq. ft. of floor space

c. Building 222 -
Figure 3, page 11 - approximately 1,500 sq. ft. of floor space
Figure 4, page 12 - approximately 1,400 sq. ft. of floor space

(Total, all three buildings - approximately 9,800 sq. ft.)

3.0 PROCEDURE OUTLINE

3.1 Preliminary preparations include inspection of the work site, training and indoctrination of the crew, determination of PPE and inspection of equipment.

3.2 De-energize electrical circuits using lockout, tagout of reference 1.1, Article 154, if any are affected or constitute a safety hazard. Note: permanent ventilation shall not be disconnected or removed with out specific written instructions.

3.3 The applicable areas of the three buildings shall be cleaned with detergent and water using pressure sprayers, brushes, and wet vacuuming. Final rinsewater from this cleaning operation shall be collected and sampled for the materials of concern. The cleaning operation shall be repeated until the final rinsewater is determined to be at an acceptable level of purity. Contaminated rinsewater may be required to be disposed of as hazardous waste depending on sample results. The buildings must then be certified as clean.

4.0 PROCEDURE

4.1 Preparation for Cleaning

4.1.1 A supervisor who is competent to handle hazardous materials and knowledgeable of references 1.1 and 1.2 shall be placed in charge of the operation. The Supervisor shall determine any conditions that may affect the cleaning and disposal operations. Obtain the Material Safety Data Sheets (MSDS) for the products of concern. These are: cadmium, chromium, lead, silver and mercury. In addition, MSDS's shall also be obtained for those substances that may be encountered: sand (silica), arsenic, nickel, and copper. All of the MSDS's shall be reviewed and made available on-site during cleaning and disposal operations. Any unknowns should be brought to the attention of C106.21.

4.1.2 Before starting the cleanup in accordance with this ECP, Industrial Hygienists from Code 106.15 and Code 024.2 (Naval Hospital) shall be notified. Additionally, NAVHOSP Code 024.2 will brief workers prior to starting work. Supervisory job by job briefings per paragraph 4.1.5 will continue for subsequent tasks as required. Problems and questions which arise on PPE and respiratory protection shall be directed to Code 106.15 (3-5848) and Code 024.2 (3-6100) respectively.

4.1.3 The supervisor shall check the job site to determine whether it is safe to perform the cleaning operations. Any circumstance which may result in unsafe work conditions shall be brought to the attention of the Environmental Division, Closure Engineering and Planning Department , Code 106C.2 (3-6482) prior to beginning any work.

4.1.4 Note that this procedure will involve the application of water to the floors of the buildings involved. Insure that any electrical connections to electrical equipment, including switches and receptacles, that might be affected by this water and the cleaning or disposal operations being worked have been disconnected or tagged and locked out. As part of these precautions, insure that any electrical connections or equipment that might come into contact with the water or brushes also be disconnected or tagged and locked out. Inspection of Building 79A has revealed that there are numerous electrical cables and conduit that have been cut off at floor level. The bare wire ends of these cables are showing. Every precaution shall be taken to insure that all circuits relating to these wires have been disconnected or tagged and locked out before proceeding with this ECP.

4.1.5 Vigilance is required on the part of everyone engaged in the cleaning, sampling and disposal work. Training for all persons involved in cleaning and disposal shall include a job by job briefing by the supervisor on the health hazards from the chemicals in the area cleaned.

4.1.6 The supervisor shall instruct workers in the proper use of all equipment, as well as safety precautions, emergency procedures and the location of emergency showers, eyewash stations and cleaning facilities. Workers shall inspect all equipment used for cleaning and disposal operations to ensure that it is free of defects and adequate for its intended purpose.

4.2 Personal Protective Equipment (PPE)

The following PPE and respiratory controls are provided for the work of this procedure.

4.2.1 The basic PPE requirements are Level D as listed below for general cleaning and disposal of material in the three buildings:

a. One piece coveralls with joints secured. Disposable TYVEK recommended.
b. Gloves (disposable)
c. Head cover (disposable)
d. Shoe covers (disposable)
e. Safety glasses or greater; face shield is required for washing the walls

4.2.2 This list of PPE is in addition to other safety equipment such as hard hats, hearing protection, etc. PPE should be inspected before each use to ensure that it is approved, in satisfactory condition, and suitable for intended use. Employees shall be trained in proper use and limitations of PPE.

4.3 Cleanup and Disposal Tasks

4.3.1 Prior to any sampling and decontamination operations of the subject areas to be closed, all construction joints and holes in the concrete flooring slabs must be properly sealed to prevent any contaminated rinsewater from migrating to underlying soils or to the floor below. This includes plugging all pipes and conduits that are open at the floor level. The sealant used must be an inert, non- toxic material such as silicon caulking.

4.3.2 All closure equipment and containers needed to accomplish this ECP shall be cleaned in accordance with reference 1.3 prior to use.

4.3.3 A sample of the water source to be used for the cleaning and decontamination shall be collected and used as the reference background sample. When this sample must be collected from a continuous supply, as for a pressure sprayer, it shall be collected as a composite sample during the spraying operation. This background sample shall be analyzed in accordance with the procedures set forth in reference 1.12 , USEPA, Test Methods for, Solid Waste, SW-846 as outlined below.

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010

4.3.4 The floor of the subject areas in each of the three buildings shall be cleaned using the following sequence. Exceptions to this sequence are allowed if the end result remains the same.

a. The floor shall be carefully vacuumed with a HEPA vacuum to remove any surface dust and debris. Special care should be taken to avoid tracking dust on to the clean surface. Special precautions should also be made to avoid dragging dust on to the cleaned surface with electrical cables or pressure washing hose.

b. The area shall be thoroughly scrubbed using brushes and detergent and water. A commercial cleaning detergent, such as "Ledizolv", may be used for removal of lead from the surface if required. The scrubbing may be done manually or with powered brushes (all brushes shall have non-metallic bristles). After being thoroughly scrubbed, the area shall be pressure sprayed. If the commercial cleaning detergent is

used, the solution shall be allowed to soak into the surface for 15 minutes before pressure spraying. The dirty water from the brushing and spraying shall be collected by a wet vacuum and stored for sampling and disposal as described in 4.3.9. The insides of the wet vacuum cleaner canister and hoses shall be thoroughly cleaned and flushed with water after this step. It is important that all possible sources of contamination be removed from the vacuum before progressing to step c.

c. The final rinsing of the area shall be done with a power sprayer using clean water. Ensure that the entire area is thoroughly rinsed with a liberal amount of water. The rinsewater from this operation shall be collected by wet vacuuming into a separate, clean container from part b. above. This final rinsewater shall then be sampled to determine area cleanliness in accordance with paragraph 4.3.8. The rinsewater container shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.5 The dirty rinsewater, collected by the wet vacuum in step b, paragraph 4.3.4, shall be collected and containerized in drums. This containerized rinsewater and all cleaning equipment containing rinsewater residue shall be stored in a secure and environmentally acceptable location within the building. This dirty rinsewater shall be sampled for disposal as described in paragraph 4.3.9. The rinsewater containers shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.6 The containers of rinsewater in each location shall be sampled in accordance with reference 1.3. The reporting, records management and quality control procedures for the sampling and analysis shall also be per reference 1.3.

4.3.7 The constituent analysis of the final rinsewater samples (from step c. of paragraph 4.3.4) shall be in accordance with the procedures set forth in reference 1.12, USEPA, Test Methods for Solid Waste, SW-846. The requirements for the constituent analysis procedures to be done on a rinsewater sample(s) are shown on pages 7 and 8 of Attachment A. These requirements are as follows:

4.3.7.1 Bldg 79A - (First Area) There are two different requirements for cleaning and sampling in this building. The first area to be cleaned is shown on Figure 2, Attachment A, and is the "less than 90 day accumulation area". The rinsewater from cleaning this small area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.2 Bldg 79A - (Second Area) The final area to be cleaned in this building is shown on Figure 1, Attachment A, and is the remainder of the building subject to RCRA closure. (Note that this area includes that previously cleaned in paragraph 4.3.7.1. Repeat cleaning of that area is not required.) The rinsewater from cleaning this area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.3 Bldg 101 - The area to be cleaned is shown on Figure 5, Attachment A. Rinsewater from cleaning this area shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Ignitability Analysis	1010, 1020

4.3.7.4 Bldg 222 - The areas to be cleaned are shown on Figures 3 and 4 of Attachment A. Rinsewater from cleaning these areas shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Ignitability Analysis	1010, 1020

4.3.8 The results of the final rinsewater analysis, for each area in each building, (step c. of paragraph 4.3.4) shall be compared against the background sample taken in Paragraph 4.3.3. If the sample for an area shows no hazardous constituents above levels present in the background sample or is less than the laboratory Practical Quantification Limit (PQL) , the area shall be considered clean. If hazardous constituents are still present in the sample above background, the entire spraying, brushing, rinsewater collecting and sampling procedure cycle must be repeated, for that area, until the final result is satisfactory.

4.3.9 All collected rinsewater found to be contaminated above the regulatory levels as defined in R.61-79.261, reference 1.10, shall be disposed of as hazardous waste. Code 106.2 will review the concentration of contaminants of all rinsewater found to be contaminated below this regulatory level for possible disposal in the North Charleston sanitary sewer system. Discharge of this rinsewater to the sanitary system shall not be done until directed by Code 106.24 (3-5519) in conjunction with the Publicly Owned Treatment Works (POTW) of the North Charleston Sewer District.

4.4 Related Cleanup Action

4.4.1 Tools, equipment, and other non-expendable items used in the cleaning, sampling and disposal of hazardous wastes will be washed/rinsed and maintained for further use. Rinse water shall be sampled and the results furnished to C106.24 for determination of disposal method.

4.4.2 Expendable items, damaged PPE and damaged or deteriorated cleaning tools and equipment, etc. used with hazardous wastes shall also be disposed of as hazardous waste.

4.4.4 Drums

4.4.4.1 Approved drums for containing the rinsewater can be obtained through Code 106.25. Notification should be made as early as possible to ensure that there are enough drums available prior to starting work.

(Paragraph 4.4.4.2 deleted in revision A.)

4.4.4.3 As rinsewater drums are filled, or as an area is finished, the drums shall be transferred to an approved site within the building and handled as described in paragraph 4.3.5. If the drums are determined to contain hazardous waste, per sampling, they shall be labeled with a hazardous waste label and completed form 1348. Code 106.25 shall be notified to coordinate pick up and disposal. Drums found to contain non-hazardous rinsewater shall be disposed of as stated in Paragraph 4.3.9.

5.0 CLOSURE CERTIFICATION

5.1 A formal certification of closure will be required for each building after it is cleaned. The results of all testing for each of the buildings shall be furnished to Southern Division, Naval Facilities Engineering Command. A Registered Professional Engineer (PE) from there will inspect the facilities, review the test results and, if all the criteria are met, certify closure of the facility.

5.2 The Shipyard Commander must also certify closure of each facility.

5.3 The certification by the PE and the Shipyard Commander must occur within 60 days of the closure of each facility.

Attachment A - Code 105 Directive

The following Code 105 memo, 9900 Ser 105.2/101 dated 07 June, 1995 (page A-I), as approved by South Carolina DHEC Certified Mail of June 13, 1995 (page A-II), was used as guidance and authority to prepare this Environmental Closure Procedure. Included in this memo is the Shipyard Closure Plan for Buildings 79A, 101, and 222 (pages 1 through 13).

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
NAVAL BASE
CHARLESTON, S.C. 29408-6100

ATTACHMENT "A"

9900
105.2/101
07 JUN 1995

David Walton
Division of Hazardous & Infectious Waste
Bureau of Solid & Hazardous Waste
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, S.C., 29201

Re: Revision of Closure Plan for Mixed Waste
Treatment Units and Storage Areas
Charleston Naval Shipyard
Charleston County
SCD 170 022 560

Dear Mr. Walton,

This letter provides a revised closure plan for the mixed waste treatment units and storage areas at Charleston Naval Shipyard as requested in the South Carolina Department of Health and Environmental Control (SCDHEC) letter dated 9 May 1995. All comments noted in the above stated SCDHEC letter have been addressed in the revision.

If you have any questions regarding this submittal, please contact A. T. Gerken at (803) 743-3130.

Sincerely,

N. F. JOHNSON
Director of Radiological Controls
By Direction of Commander of
Charleston Naval Shipyard

Enclosure: Closure Plan for the Building 79A, 222, and 101
Mixed Waste Treatment Units and Storage Areas
(PAGE 1 THROUGH 13)

Attachment B - Modification to Closure Plan

The following Code 106 memo, 9900 Ser 106.21/0800 dated 27 Nov. 1995, as discussed with South Carolina DHEC in meeting on 11/21/95, was used as guidance and authority to prepare this revision to Environmental Closure Procedure #13.

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

5090
Ser 106.21/0800
27 NOV 1995

Mr. G. Randall Thompson
Director, Division of Hazardous and
Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Closure of Charleston Naval Complex Mixed Waste Sites in Buildings 222, 101 and 79A

Dear Mr. Thompson,

Based on the meeting between Charleston Naval Shipyard (CNSY) and South Carolina DHEC on 21 November 1995, this letter is being sent to request a minor modification to the closure plan of the mixed waste sites in Building 222, 101 and 79A.

Currently the closure plan states in step 6: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be wiped down with a soap and water solution using a mop and squeeze bucket." CNSY proposes to change this statement to read: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be washed with a detergent and water solution and rinsed as necessary using water."

This modification is requested to allow for the use of pressure spray for washing and wet vacuuming for collection of water. All equipment and containers used shall be cleaned in accordance with step 4 of the closure plan including any wet vacuums used.

Sincerely,

W. F. NOLD
Captain USN
Commander,
Charleston Naval Shipyard

Copy to:
100, 105
EPA; J. Franzmathes, D. Brittain
N4BEC; E. Dearhart, D. Fontenot
SOUTHNAVFACENGCOM; M. Hunt (1877), P. Kordonis (1825)
SCDHEC; Ann Ragan, Jeannie Clano

APPENDIX B

ENGINEER'S FIELD OBSERVATION LOG

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard

Project: Closure certification for 79A

Project No.: 34305000

Report No.: 1

Page 1 of 1

Date: 1/7/96

Weather: A.M. Overcast P.M. Overcast

Temp.(°F): High 45 Low 35 Rain X

Contractor(s) Shipyard Detachment personnel

Contractor Super(s) John Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
shipyard personnel	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
steam, pressure washer	10 gal/100 psi	-	1EA

Visitors — Representing

Daily Notations: STARTED CLEANING PROCEDURES APPROXIMATELY 10:00 AM. TOOK SAMPLES OF CLEAN H_2O AND CLEAN H_2O w/DETERGENT. BRUSHED SOAPY SOLUTION ON FLOOR SURFACE ALONG WITH WALLS OF SUMP PIT LOCATED ON SOUTHERN END OF BUILDING. BRUSHED ENTIRE WEST ROOM WITH SOAPY DETERGENT. RINSED SOAPY WATER OFF FLOOR SURFACE USING A PRESSURE WASHER AND STEAM. COLLECTED APPROXIMATELY 150 GALLONS OF WATER FROM RINSING OPERATIONS. WATER LOOKED DIRTY AFTER 2 PASSES. FINISHED CLEANING OPERATIONS AROUND 2 PM. LEFT SITE.

Signature: [signature]

White Copy - Library File Yellow Copy - Owner Pink Copy - Employee's Field File

Rev. 3/93

F201/CRS

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 1

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/9/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 30°F Low 25°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H. Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray / Wet Vac			

Visitors	Representing
Kenny Norman	ENV. Detachment

Daily Notations: Arrived CNSY 0845. The North Bay had been previously scrubbed and rinsed on Sunday 1/7/95. The crew pressure sprayed the bay with clean water and wet-vacced the rinsate. For the final rinse, the wet-vac was cleaned with water, and then the rinse water was vacuumed. Rinsate from the "Less than 90 day accumulation area" was collected from the wet-vac bucket with a glass extraction tube to fill a 1.0 liter plastic bottle. The remainder of the bay will be final rinsed and sampled tomorrow. Departed CNSY at 1145.

Signature: [signature]

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RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 2

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/10/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray - Wet Vac			

Visitors: Kenny Norman

Representing: Env. Detachment

Daily Notations: Arrived CNSY 0900. Prior to final rinsing the remainder of the North Bay, it was dry-vacced to remove paint chips that had fallen from the ceiling. The remainder of the North Bay was then rinsed and sampled as reported in Report #1. The Decon Room and area adjacent to the decon room were the mopped and scrubbed with a detergent solution, and rinsed with the pressure washer and placed into drums. Final rinse and sampling of these areas, along with mopping, scrubbing, rinsing and sampling of the low bay area will be done tomorrow. Departed CNSY at 1545.

Signature: J. H Brunkold

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RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 3

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/18/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
2 Wet Vac / Pressure spray			

Visitors Representing

Daily Notations: Arrived CNSY 10:00 a.m. The low bay area was mopped and scrubbed with detergent solution. This area, along with the decon room and area adjacent to the decon room were rinsed several times. All three areas were sampled from the final rinse water similar to that described in report #1. All rinsate was stored in drums, and each area's rinsate was kept separate from each other by using dedicated drums for each area. The drums were marked by area of rinsate origin, and samples are to be taken from these drums and analyzed to determine the proper method of rinsate disposal.

Signature:

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APPENDIX C

ANALYTICAL RESULTS FOR BUILDING 79A

February 20, 1996

MEMO TO FILE

Subj: Sample Dates on Chain-of-Custody form

Complete custody was maintained for all samples from Building 79A at all times. The sample containers were labeled and the samples were stored in a secure location immediately after they were taken. The chain-of-custody form was not filled out until just prior to sending the samples to the lab for analysis. At that time incorrect dates were inadvertently entered on the chain-of-custody form. The dates were never off by more than one day and all samples were analyzed within the allowed holding times for the procedures performed.

K. B. Norman
Code 300C.9 Remediation Project, APS

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-1 Clean Water
Lab ID	: 9601252-01
Matrix	: WasteH2O
Date Collected	: 01/08/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1324	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.42	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2004	78845
pH Temperature		12.8	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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CERTIFICATE OF ANALYSIS

Client:	Navy Public Works Center-Chas. Zone
	Charleston Naval Shipyard
	Code 106.24, Bldg.234
	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-1

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-2 clean water w/detergent
Lab ID	: 9601252-02
Matrix	: WasteH2O
Date Collected	: 01/08/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1329	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.40	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2008	78845
pH Temperature		12.4	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-2

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-3 Rinse water North Bay - Eastend
Lab ID : 9601252-03
Matrix : WasteH2O
Date Collected : 01/08/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1333	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.80	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2010	78845
pH Temperature		11.0	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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GENERAL ENGINEERING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client:	Navy Public Works Center-Chas. Zone Charleston Naval Shipyard Code 106.24, Bldg.234 Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-3

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-4 Rinse Water North Bay - West end
Lab ID : 9601252-04
Matrix : WasteH2O
Date Collected : 01/09/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1338	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		8.76	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2011	78845
pH Temperature		12.6	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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GENERAL ENGINEERING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client:	Navy Public Works Center-Chas. Zone
	Charleston Naval Shipyard
	Code 106.24, Bldg.234
	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-4

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

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GENERAL ENGINEERING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-5 Rinse water Decon Room
Lab ID	: 9601252-05
Matrix	: WasteH2O
Date Collected	: 01/10/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1342	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.88	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2012	78845
pH Temperature		11.5	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550 78883
TRACE	EPA 3005	SJ	01/13/96	1430 78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-5

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-6 Rinsewater Area Adjacent to Decon Room.
Lab ID : 9601252-06
Matrix : WasteH2O
Date Collected : 01/11/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1347	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.99	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2014	78845
pH Temperature		12.7	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-6

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-7 Rinsewater Low Bay Area.
Lab ID : 9601252-07
Matrix : WasteH2O
Date Collected : 01/11/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1352	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.66	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2015	78845
pH Temperature		13.1	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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CERTIFICATE OF ANALYSIS

Client:	Navy Public Works Center-Chas. Zone Charleston Naval Shipyard Code 106.24, Bldg.234 Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-7

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Analytical Report Specialist

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General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29414
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client Name/Facility Name: CNSY

Collected by/Company: CNSY K.B. Norman 8401 Ext 116

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify (SEE REMARKS)	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	FLASHPOINT, EXPLOSIVITY	Remarks
TCG0286-6-1	1/8/96	1100					1	X						X									X	CLEAN WATER
TCG0286-6-2	1/8/96	1100					1	X						X									X	CLEAN WATER W/ DETERGENT
TCG0286-6-3	1/8/96	1400					1	X						X									X	RINSE WATER NORTH BAY - EAST END
TCG0286-6-4	1/9/96	0900					1	X						X									X	RINSE WATER NORTH BAY - WEST END
TCG0286-6-5	1/10/96	1100					1	X						X									X	RINSE WATER DECON ROOM
TCG0286-6-6	1/11/96	1300					1	X						X									X	RINSE WATER AREA ADJACENT TO DECON RM
TCG0286-6-7	1/11/96	1400					1	X						X									X	RINSE WATER LOW BAY AREA

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

BLDG 79A

Remarks

METALS: LEAD
CHROMIUM
SILVER
MERCURY
CADMIUM

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K.B. Norman	1/12/96	0905	W.R. Hiers Jr.				

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:

CLOSURE ACTIVITIES REPORT
AND CERTIFICATION FOR
BUILDING 79A

CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Rust Project No. 34305.000
February 1996

Prepared For

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Charleston, South Carolina
and
ENVIRONMENTAL DIVISION
CLOSURE ENGINEERING AND PLANNING DEPARTMENT
CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
North Charleston, South Carolina 29406
803/572-5600

PART 2

TABLE OF CONTENTS

I. INTRODUCTION

This report has been prepared to present the results of closure, sampling, analysis, disposal, and documentation activities conducted by the United States Navy in an effort to "clean close" Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. The closure efforts were performed in accordance with procedures required by the State of South Carolina Department of Health and Environmental Control (SCDHEC), as described in the approved closure plan and its approved amendments. The Environmental Closure Procedure No. 13 Rev. B, titled "CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222" was written pursuant to Consent Order 94-16-HW (signed May 9, 1994) and is included as Appendix A along with any revisions. Drawings showing the location of the cleaned areas within Building 79A are included as Figures 1 and 2.

II. CLOSURE ACTIVITIES

Closure procedures described in the approved closure plan were implemented by Charleston Naval Shipyard employees. These commenced on January 7, 1996 with cleaning and sampling activities. Mr. Robert Borowski, P.E. of Rust Environment and Infrastructure (Rust) was present on site to provide independent observation and documentation of closure activities. Dr. James L. Brickell, P.E. was present during all subsequent closure activities as noted in the "Observation Log". A copy of the "Observation Log" is included as Appendix B.

Cleaning activities generally included applying detergent to the surface and scrubbing it with a brush. The area was then rinsed with a pressure washer to remove any dislodged material. A final rinse was performed and a sample collected from the rinse water. The sample was analyzed for cadmium, chromium, mercury, lead and silver. "Background" samples were also collected and analyzed for parameters listed above from the clean wash water and the wash water after the detergent was added.

III. ANALYTICAL RESULTS

Samples were collected as described in the closure plan at the locations shown in Figures 1 and 2. Analytical results relating to these samples are summarized in Table 1. Analytical results show that the final rinse water concentrations of cadmium, chromium, mercury, lead and silver were not detected at a minimum detectable level of 0.100 mg/l. Copies of analytical reports are included as Appendix C.

Upon review of the analytical reports, it appears that some of the dates samples were taken were entered incorrectly on the Chain of Custody form. The dates the samples were taken, as reported in the Engineer's Field Observation Log (Appendix B) are as follows:

SAMPLE ID	DATE
TCG0286-6-1	1/7/96
TCG0286-6-2	1/7/96
TCG0286-6-3	1/9/96
TCG0286-6-4	1/10/96
TCG0286-6-5	1/11/96
TCG0286-6-6	1/11/96
TCG0286-6-7	1/11/96

A memo addressing the sample dates entered on the Chain of Custody form is included as part of Appendix C.

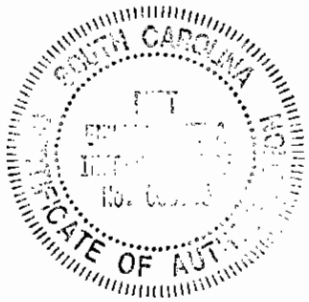
IV. STORAGE/REMOVAL OF WASH AND RINSE WATER

Wash and rinse water was labeled and stored in Building 79A, in accordance with the Closure Procedure until analytical results were available. Analytical results indicated that wash and rinse water collected from cleanup activities was non-hazardous. The non-hazardous water will be disposed of in accordance with the Closure Procedures, Section 4.3.9.

V. CERTIFICATION

I certify under penalty of law that this document and supporting documentation consisting of my Observation Log has been prepared to document the closure actions taken in an effort to "clean close" the waste storage areas of Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. Based on my observations of the persons directly responsible for gathering the data evaluated, the data evaluated is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified By: _____ Date: 2/14/96
James L. Brickell, South Carolina PE #17119
Rust Environment and Infrastructure, Inc.

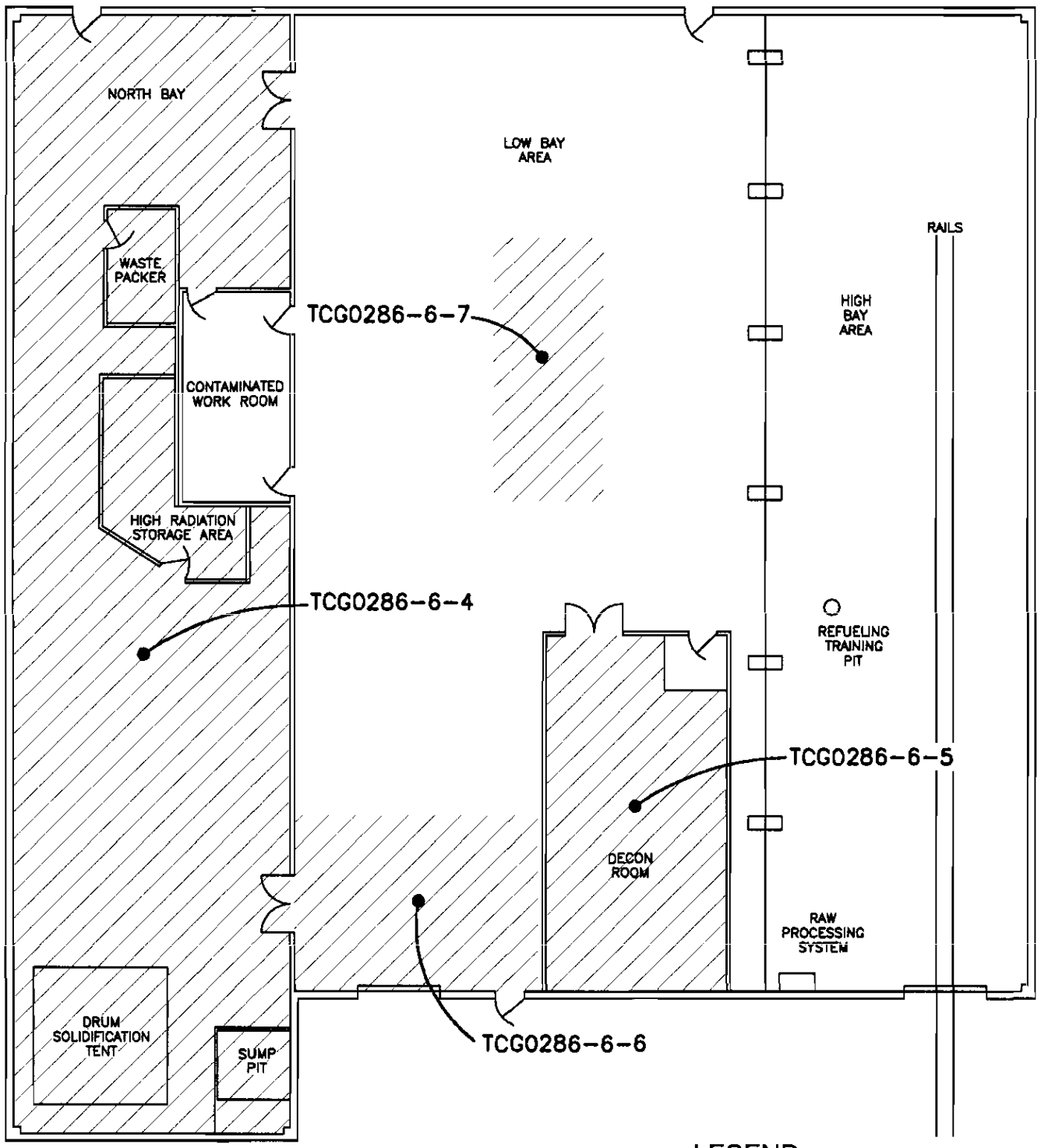


Certified By: _____ Date: _____
Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
BUILDING 79A
CHARLESTON NAVAL SHIPYARD

Date	Sample No.	Description	Parameter	Concentration
1/7/96	TCG0286-6-1	Clean Water	Mercury	<0.1 mg/L
			Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.42
1/7/96	TCG0286-6-2	Clean Water	Mercury	<0.1 mg/L
		With Detergent	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.4
1/9/96	TCG0286-6-3	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		East End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.8
1/10/96	TCG0286-6-4	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		West End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76
1/11/96	TCG0286-6-5	Rinse Water	Mercury	<0.1 mg/L
		Decon Room	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	9.88
1/11/96	TCG0286-6-6	Rinse Water	Mercury	<0.1 mg/L
		Area Adjacent	Silver	<0.1 mg/L
		to Decon Room	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.99
1/11/96	TCG0286-6-7	Rinse Water	Mercury	<0.1 mg/L
		Low Bay Area	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76

DWG: P:\CADD\34305\34305N06 PLOTTED: 02/08/96



LEGEND

AREAS SUBJECT TO RCRA CLOSURE

NOTE: NOT TO SCALE

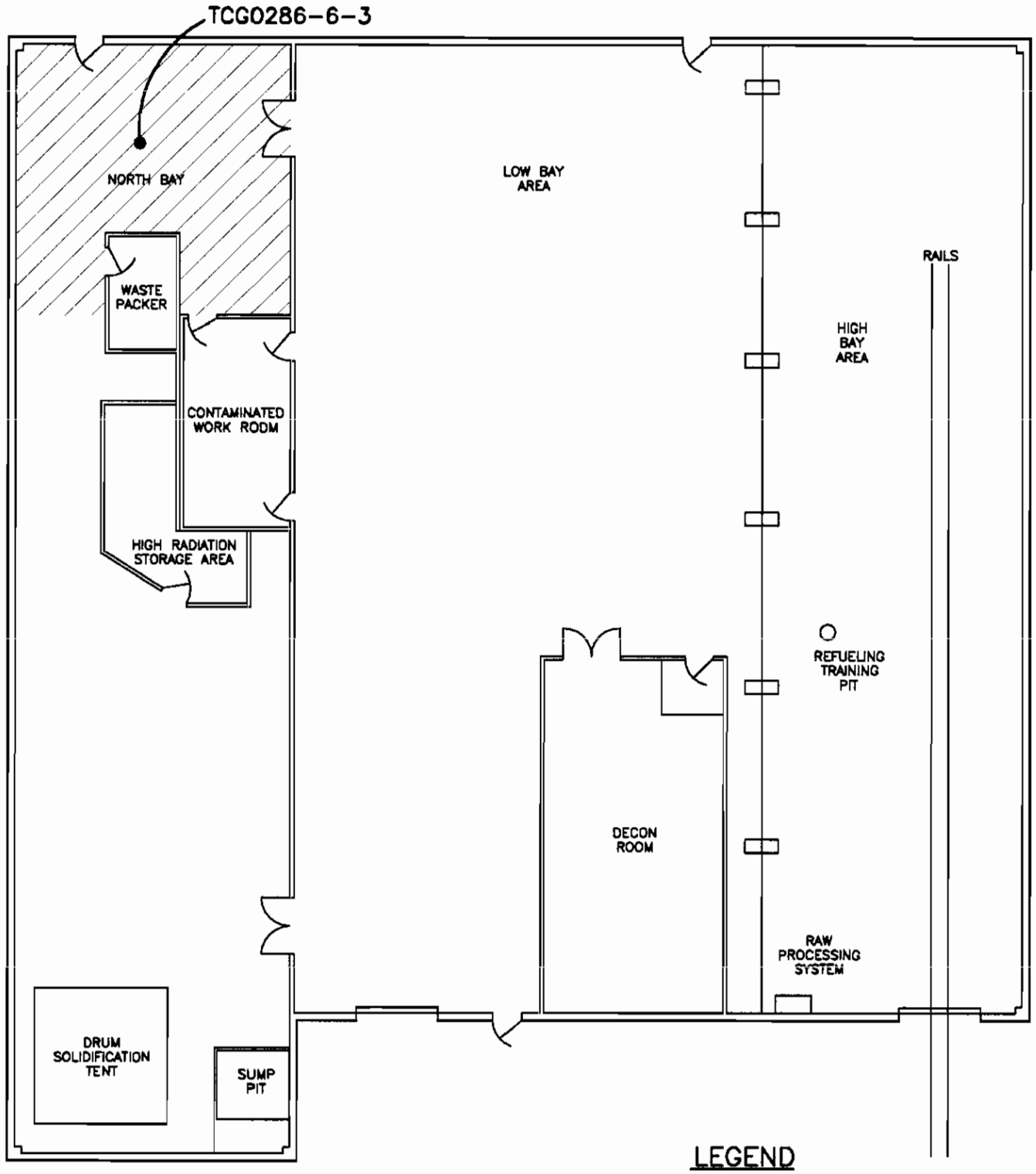
RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 1

BUILDING 79A – RCRA CLOSURE SAMPLING LOCATIONS

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996



NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 2

BUILDING 79A(< 90 DAY ACCUMULATION) SAMPLING LOCATION

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996

APPENDIX A

Environmental Closure Procedure #13 Rev. B
"CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222"

Environmental Closure Procedure #13
Rev. B

Title: Closure of Mixed Waste Sites in Bldgs. 79A, 101 and 222

Revisions

Rev	Description	Prepared By	Approv./Date
B	Purpose - This revision being done to remove requirement for actual mopping . Cleanup will be done by pressure spraying and wet vacuuming. Authority - From DHEC as described in Attachment B Added sheet 1- B "Revisions" for Revision B Sheet 2 - Added Attachment B; deleted reference to mopping in Outline Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraph 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 10 - Revised paragraph 4.3.8	D.J. Dean 11/29/95	106C JO Berry Date 11/29/95 Concurrence 106.2 [illegible] Date 11/29/95

Revisions

Rev	Description	Prepared By	Approv./Date
A	Purpose - This revision is being done to: (a). Allow a different approach to achieve the cleanliness specified in the closure plan. (b). Removes the local requirement for washing the walls. (c). Remove requirement to only use 30 gallon drums. Added sheet 1-A "Revisions" Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraphs 4.3.3 and 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 11 - Revised paragraphs 4.3.8 and 4.4.4.1, deleted paragraph 4.4.4.2	G. Toaston 11/9/95	106C Date 11/9/95 Concurrence 106.2 Date 11/9/95

Table of Contents

Attachment A - Closure Plan incorporated in C105 Document , 9900 Ser 105.2/101 dated 07/Jun/95 as approved by South Carolina DHEC Certified Mail of June 13, 1995

Attachment B - Modification to Closure Plan by CNSY Letter 5090 Ser 106.21/0800 dated 27 Nov. 95 and as discussed with DHEC at meeting on 11/21/95.

OUTLINE

This is a general procedure for final cleaning , sampling and certified closure of three buildings that were once used for mixed waste treatment units and storage areas. The buildings are 79A, 101 and 222. **This ECP is NOT the procedure to clean the building from nuclear contamination.** This procedure is intended to give the buildings a final cleaning to remove potentially hazardous metals and flammable materials from exposed floor surfaces. All work described by this ECP will be done after final nuclear closure of each building, including all applicable radiological surveys and clearance from radiological controls. The actual work described by this ECP will be performed and controlled using Task Group Instructions (TGI's).

1.0 REFERENCES

1.1 CNSYDINST P-5100.1C, "Safety Manual"

1.2 CNSYDINST P-5100.43A, "Manual for Control of Work in Confined Spaces and/or Hazardous Atmospheres"

1.3 USEPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991 (ECBSOPQAM)

1.4 Public Works Dwg.H79 -7 " Ordnance Shop and Storehouse"

1.5 Public Works Dwg.H79-401 "Building 79A, Nuclear Service Building"

1.6 Public Works Dwg.H101-32 "Contaminated Storage Warehouse Floor Plan, Elevations & Details, Architectural"

1.7 Public Works Dwg.H222-81 "Nuclear Refueling Radcon Facility, Basement Floor Plan- Block "B", Architectural"

1.8 Public Works Dwg.H222-82 "Nuclear Refueling Radcon Facility, First Floor Plan- Block "B", Architectural"

1.9 Draft of Final RCRA Facility Assessment, Naval Base Charleston, Dated 6 June , 1995; Prepared by Ensafe/Allen & Hoshall

1.10 South Carolina Hazardous Waste Management Regulation R.61-79.261, "Identification and Listing of Hazardous Waste"

1.11 Charleston Naval Shipyard Comprehensive Health and Safety Plan of March 1995 prepared by Environmental Engineering and Remediation Division of the Engineering and Planning Department

1.12 USEPA, Test Methods for Solid Waste, SW-846

2.0 GENERAL REQUIREMENTS

2.1 This procedure shall be invoked by a technical work document (TWD) prior to use. Activities of this process are not expected to exceed the action level of toxic contaminants, but do pose the possibility of skin and eye irritation from dust or splashing from liquids being repackaged for sampling and disposal. Personnel and equipment decontamination procedures shall be based on the guidelines of Section 7.0 of reference 1.11.

2.2 Surface or constituent contaminant hazards found which are associated with this ECP are lead, cadmium, chromium, silver and mercury. These metals are toxic and cadmium and chromium pose carcinogenic hazards. Personnel using this procedure shall complete Hazardous Communication Training per reference 1.1, Article 1201, Enclosure 4 , particularly HMTM's #2, particulates (examples - silica, lead, cadmium, chromium, etc); #10,flammable liquids and #13, hazardous waste minimization. The 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response - "HAZWOPER" (per 29 CFR 1910.120) is also be required per Attachment A. Training shall include Federal STD 1910.1025 Lead, 1910.1027 Cadmium, Appendices A or A and B. Personnel using this procedure are also required to complete "Asbestos Awareness Training" per YE5001.

2.3 Workers involved in the cleaning and sampling operations in these three buildings shall be in the medical surveillance program per Article 143 (current revision to NAVHOSPINST 6120.2) of reference 1.1 as Hazardous Waste Workers. Hazard Worker medical (711-B27) shall be provided. Baseline physicals for mercury, chromium, lead, and cadmium, shall have been performed if Action Level is exceeded for greater than 30 days per year and is recommended for this project.

2.4 Work to be done in spaces four feet or more below the floor level shall not proceed until the space has been certified as gas free. Contact Public Works, C453.30 (3-1070) for this service. Confined space entry training shall be complete and documented (Provided by Code 900). This requirement applies to cleaning the pit in Building 79A as shown on Figure 1 of Attachment A and reference 1.5.

2.5 Emergency notification: If any situation or unplanned occurrence requires emergency assistance, including any hazardous substance spill, the site supervisor shall contact the Chief-of -the- Watch (3-6444) to activate the proper NAVBASE response. In the event of an emergency which necessitates the evacuation of the site, the alarm procedures of Section 10.4 of reference 1.11 shall be followed.

2.6 Note that this ECP concerns Building 79A, not Building 79. Building 79 was constructed in 1943 and is shown on reference 1.4. Building 79A was built as an annex to Building 79 in 1967 and is shown on reference 1.5. Building 101 is shown on reference 1.6. The affected areas of Building 222 are shown on references 1.7 and 1.8. The cleanup efforts for the three buildings are based on the requirements of Attachment A. This procedure applies only to a portion of each of the three buildings. Site control measures for each area will be implemented based on the guidelines of reference 1.11. The areas that require cleaning in accordance with this ECP are shown in Attachment A as follows:

a. Building 79A -
Figure 1, page 9 - approximately 5,200 sq. ft. of floor space
Figure 2, page 10 - approximately 1,000 sq. ft. of floor space
(Inspection of this building reveals that the three interior walls surrounding the "Contaminated Work Room" and all four walls of the "Decon Room" as shown on both Figures 1 and 2 have been removed.)

b. Building 101 -
Figure 5, page 13 - approximately 700 sq. ft. of floor space

c. Building 222 -
Figure 3, page 11 - approximately 1,500 sq. ft. of floor space
Figure 4, page 12 - approximately 1,400 sq. ft. of floor space

(Total, all three buildings - approximately 9,800 sq. ft.)

3.0 PROCEDURE OUTLINE

3.1 Preliminary preparations include inspection of the work site, training and indoctrination of the crew, determination of PPE and inspection of equipment.

3.2 De-energize electrical circuits using lockout, tagout of reference 1.1, Article 154, if any are affected or constitute a safety hazard. Note: permanent ventilation shall not be disconnected or removed with out specific written instructions.

3.3 The applicable areas of the three buildings shall be cleaned with detergent and water using pressure sprayers, brushes, and wet vacuuming. Final rinsewater from this cleaning operation shall be collected and sampled for the materials of concern. The cleaning operation shall be repeated until the final rinsewater is determined to be at an acceptable level of purity. Contaminated rinsewater may be required to be disposed of as hazardous waste depending on sample results. The buildings must then be certified as clean.

4.0 PROCEDURE

4.1 Preparation for Cleaning

4.1.1 A supervisor who is competent to handle hazardous materials and knowledgeable of references 1.1 and 1.2 shall be placed in charge of the operation. The Supervisor shall determine any conditions that may affect the cleaning and disposal operations. Obtain the Material Safety Data Sheets (MSDS) for the products of concern. These are: cadmium, chromium, lead, silver and mercury. In addition, MSDS's shall also be obtained for those substances that may be encountered: sand (silica), arsenic, nickel, and copper. All of the MSDS's shall be reviewed and made available on-site during cleaning and disposal operations. Any unknowns should be brought to the attention of C106.21.

4.1.2 Before starting the cleanup in accordance with this ECP, Industrial Hygienists from Code 106.15 and Code 024.2 (Naval Hospital) shall be notified. Additionally, NAVHOSP Code 024.2 will brief workers prior to starting work. Supervisory job by job briefings per paragraph 4.1.5 will continue for subsequent tasks as required. Problems and questions which arise on PPE and respiratory protection shall be directed to Code 106.15 (3-5848) and Code 024.2 (3-6100) respectively.

4.1.3 The supervisor shall check the job site to determine whether it is safe to perform the cleaning operations. Any circumstance which may result in unsafe work conditions shall be brought to the attention of the Environmental Division, Closure Engineering and Planning Department , Code 106C.2 (3-6482) prior to beginning any work.

4.1.4 Note that this procedure will involve the application of water to the floors of the buildings involved. Insure that any electrical connections to electrical equipment, including switches and receptacles, that might be affected by this water and the cleaning or disposal operations being worked have been disconnected or tagged and locked out. As part of these precautions, insure that any electrical connections or equipment that might come into contact with the water or brushes also be disconnected or tagged and locked out. Inspection of Building 79A has revealed that there are numerous electrical cables and conduit that have been cut off at floor level. The bare wire ends of these cables are showing. Every precaution shall be taken to insure that all circuits relating to these wires have been disconnected or tagged and locked out before proceeding with this ECP.

4.1.5 Vigilance is required on the part of everyone engaged in the cleaning, sampling and disposal work. Training for all persons involved in cleaning and disposal shall include a job by job briefing by the supervisor on the health hazards from the chemicals in the area cleaned.

4.1.6 The supervisor shall instruct workers in the proper use of all equipment, as well as safety precautions, emergency procedures and the location of emergency showers, eyewash stations and cleaning facilities. Workers shall inspect all equipment used for cleaning and disposal operations to ensure that it is free of defects and adequate for its intended purpose.

4.2 Personal Protective Equipment (PPE)

The following PPE and respiratory controls are provided for the work of this procedure.

4.2.1 The basic PPE requirements are Level D as listed below for general cleaning and disposal of material in the three buildings:

a. One piece coveralls with joints secured. Disposable TYVEK recommended.
b. Gloves (disposable)
c. Head cover (disposable)
d. Shoe covers (disposable)
e. Safety glasses or greater; face shield is required for washing the walls

4.2.2 This list of PPE is in addition to other safety equipment such as hard hats, hearing protection, etc. PPE should be inspected before each use to ensure that it is approved, in satisfactory condition, and suitable for intended use. Employees shall be trained in proper use and limitations of PPE.

4.3 Cleanup and Disposal Tasks

4.3.1 Prior to any sampling and decontamination operations of the subject areas to be closed, all construction joints and holes in the concrete flooring slabs must be properly sealed to prevent any contaminated rinsewater from migrating to underlying soils or to the floor below. This includes plugging all pipes and conduits that are open at the floor level. The sealant used must be an inert, non- toxic material such as silicon caulking.

4.3.2 All closure equipment and containers needed to accomplish this ECP shall be cleaned in accordance with reference 1.3 prior to use.

4.3.3 A sample of the water source to be used for the cleaning and decontamination shall be collected and used as the reference background sample. When this sample must be collected from a continuous supply, as for a pressure sprayer, it shall be collected as a composite sample during the spraying operation. This background sample shall be analyzed in accordance with the procedures set forth in reference 1.12 , USEPA, Test Methods for, Solid Waste, SW-846 as outlined below.

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010

4.3.4 The floor of the subject areas in each of the three buildings shall be cleaned using the following sequence. Exceptions to this sequence are allowed if the end result remains the same.

a. The floor shall be carefully vacuumed with a HEPA vacuum to remove any surface dust and debris. Special care should be taken to avoid tracking dust on to the clean surface. Special precautions should also be made to avoid dragging dust on to the cleaned surface with electrical cables or pressure washing hose.

b. The area shall be thoroughly scrubbed using brushes and detergent and water. A commercial cleaning detergent, such as "Ledizolv", may be used for removal of lead from the surface if required. The scrubbing may be done manually or with powered brushes (all brushes shall have non-metallic bristles). After being thoroughly scrubbed, the area shall be pressure sprayed. If the commercial cleaning detergent is

used, the solution shall be allowed to soak into the surface for 15 minutes before pressure spraying. The dirty water from the brushing and spraying shall be collected by a wet vacuum and stored for sampling and disposal as described in 4.3.9. The insides of the wet vacuum cleaner canister and hoses shall be thoroughly cleaned and flushed with water after this step. It is important that all possible sources of contamination be removed from the vacuum before progressing to step c.

c. The final rinsing of the area shall be done with a power sprayer using clean water. Ensure that the entire area is thoroughly rinsed with a liberal amount of water. The rinsewater from this operation shall be collected by wet vacuuming into a separate, clean container from part b. above. This final rinsewater shall then be sampled to determine area cleanliness in accordance with paragraph 4.3.8. The rinsewater container shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.5 The dirty rinsewater, collected by the wet vacuum in step b, paragraph 4.3.4, shall be collected and containerized in drums. This containerized rinsewater and all cleaning equipment containing rinsewater residue shall be stored in a secure and environmentally acceptable location within the building. This dirty rinsewater shall be sampled for disposal as described in paragraph 4.3.9. The rinsewater containers shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.6 The containers of rinsewater in each location shall be sampled in accordance with reference 1.3. The reporting, records management and quality control procedures for the sampling and analysis shall also be per reference 1.3.

4.3.7 The constituent analysis of the final rinsewater samples (from step c. of paragraph 4.3.4) shall be in accordance with the procedures set forth in reference 1.12, USEPA, Test Methods for Solid Waste, SW-846. The requirements for the constituent analysis procedures to be done on a rinsewater sample(s) are shown on pages 7 and 8 of Attachment A. These requirements are as follows:

4.3.7.1 Bldg 79A - (First Area) There are two different requirements for cleaning and sampling in this building. The first area to be cleaned is shown on Figure 2, Attachment A, and is the "less than 90 day accumulation area". The rinsewater from cleaning this small area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.2 Bldg 79A - (Second Area) The final area to be cleaned in this building is shown on Figure 1, Attachment A, and is the remainder of the building subject to RCRA closure. (Note that this area includes that previously cleaned in paragraph 4.3.7.1. Repeat cleaning of that area is not required.) The rinsewater from cleaning this area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.3 Bldg 101 - The area to be cleaned is shown on Figure 5, Attachment A. Rinsewater from cleaning this area shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Ignitability Analysis	1010, 1020

4.3.7.4 Bldg 222 - The areas to be cleaned are shown on Figures 3 and 4 of Attachment A. Rinsewater from cleaning these areas shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Ignitability Analysis	1010, 1020

4.3.8 The results of the final rinsewater analysis, for each area in each building, (step c. of paragraph 4.3.4) shall be compared against the background sample taken in Paragraph 4.3.3. If the sample for an area shows no hazardous constituents above levels present in the background sample or is less than the laboratory Practical Quantification Limit (PQL) , the area shall be considered clean. If hazardous constituents are still present in the sample above background, the entire spraying, brushing, rinsewater collecting and sampling procedure cycle must be repeated, for that area, until the final result is satisfactory.

4.3.9 All collected rinsewater found to be contaminated above the regulatory levels as defined in R.61-79.261, reference 1.10, shall be disposed of as hazardous waste. Code 106.2 will review the concentration of contaminants of all rinsewater found to be contaminated below this regulatory level for possible disposal in the North Charleston sanitary sewer system. Discharge of this rinsewater to the sanitary system shall not be done until directed by Code 106.24 (3-5519) in conjunction with the Publicly Owned Treatment Works (POTW) of the North Charleston Sewer District.

4.4 Related Cleanup Action

4.4.1 Tools, equipment, and other non-expendable items used in the cleaning, sampling and disposal of hazardous wastes will be washed/rinsed and maintained for further use. Rinse water shall be sampled and the results furnished to C106.24 for determination of disposal method.

4.4.2 Expendable items, damaged PPE and damaged or deteriorated cleaning tools and equipment, etc. used with hazardous wastes shall also be disposed of as hazardous waste.

4.4.4 Drums

4.4.4.1 Approved drums for containing the rinsewater can be obtained through Code 106.25. Notification should be made as early as possible to ensure that there are enough drums available prior to starting work.

(Paragraph 4.4.4.2 deleted in revision A.)

4.4.4.3 As rinsewater drums are filled, or as an area is finished, the drums shall be transferred to an approved site within the building and handled as described in paragraph 4.3.5. If the drums are determined to contain hazardous waste, per sampling, they shall be labeled with a hazardous waste label and completed form 1348. Code 106.25 shall be notified to coordinate pick up and disposal. Drums found to contain non-hazardous rinsewater shall be disposed of as stated in Paragraph 4.3.9.

5.0 CLOSURE CERTIFICATION

5.1 A formal certification of closure will be required for each building after it is cleaned. The results of all testing for each of the buildings shall be furnished to Southern Division, Naval Facilities Engineering Command. A Registered Professional Engineer (PE) from there will inspect the facilities, review the test results and, if all the criteria are met, certify closure of the facility.

5.2 The Shipyard Commander must also certify closure of each facility.

5.3 The certification by the PE and the Shipyard Commander must occur within 60 days of the closure of each facility.

Attachment A - Code 105 Directive

The following Code 105 memo, 9900 Ser 105.2/101 dated 07 June, 1995 (page A-I), as approved by South Carolina DHEC Certified Mail of June 13, 1995 (page A-II), was used as guidance and authority to prepare this Environmental Closure Procedure. Included in this memo is the Shipyard Closure Plan for Buildings 79A, 101, and 222 (pages 1 through 13).

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
NAVAL BASE
CHARLESTON, S.C. 29408-6100

ATTACHMENT "A"

9900
105.2/101
07 JUN 1995

David Walton
Division of Hazardous & Infectious Waste
Bureau of Solid & Hazardous Waste
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, S.C., 29201

Re: Revision of Closure Plan for Mixed Waste
Treatment Units and Storage Areas
Charleston Naval Shipyard
Charleston County
SCD 170 022 560

Dear Mr. Walton,

This letter provides a revised closure plan for the mixed waste treatment units and storage areas at Charleston Naval Shipyard as requested in the South Carolina Department of Health and Environmental Control (SCDHEC) letter dated 9 May 1995. All comments noted in the above stated SCDHEC letter have been addressed in the revision.

If you have any questions regarding this submittal, please contact A. T. Gerken at (803) 743-3130.

Sincerely,

N. F. JOHNSON
Director of Radiological Controls
By Direction of Commander of
Charleston Naval Shipyard

Enclosure: Closure Plan for the Building 79A, 222, and 101
Mixed Waste Treatment Units and Storage Areas
(PAGE 1 THROUGH 13)

Attachment B - Modification to Closure Plan

The following Code 106 memo, 9900 Ser 106.21/0800 dated 27 Nov. 1995, as discussed with South Carolina DHEC in meeting on 11/21/95, was used as guidance and authority to prepare this revision to Environmental Closure Procedure #13.

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

5090
Ser 106.21/0800
27 NOV 1995

Mr. G. Randall Thompson
Director, Division of Hazardous and
Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Closure of Charleston Naval Complex Mixed Waste Sites in Buildings 222, 101 and 79A

Dear Mr. Thompson,

Based on the meeting between Charleston Naval Shipyard (CNSY) and South Carolina DHEC on 21 November 1995, this letter is being sent to request a minor modification to the closure plan of the mixed waste sites in Building 222, 101 and 79A.

Currently the closure plan states in step 6: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be wiped down with a soap and water solution using a mop and squeeze bucket." CNSY proposes to change this statement to read: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be washed with a detergent and water solution and rinsed as necessary using water."

This modification is requested to allow for the use of pressure spray for washing and wet vacuuming for collection of water. All equipment and containers used shall be cleaned in accordance with step 4 of the closure plan including any wet vacuums used.

Sincerely,

W. F. NOLD
Captain USN
Commander,
Charleston Naval Shipyard

Copy to:
100, 105
EPA; J. Franzmathes, D. Brittain
N4BEC; E. Dearhart, D. Fontenot
SOUTHNAVFACENGCOM; M. Hunt (1877), P. Kordonis (1825)
SCDHEC; Ann Ragan, Jeannie Clano

APPENDIX B

ENGINEER'S FIELD OBSERVATION LOG

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard

Project: Closure certification for 79A

Project No.: 34305200

Report No.: 1

Page 1 of 1

Date: 1/7/96

Weather: A.M. Overcast P.M. Overcast

Temp.(°F): High 45 Low 35 Rain X

Contractor(s) Shipyard Detachment personnel

Contractor Super(s) John Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
shipyard personnel	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
steam, pressure washer	10gal/min	-	1EA

Visitors — Representing

Daily Notations: STARTED CLEANING PROCEDURES APPROXIMATELY 10:00AM. TOOK SAMPLES OF CLEAN H_2O AND CLEAN H_2O w/DETERGENT. BRUSHED SOAPY SOLUTION ON FLOOR SURFACE ALONG WITH WALLS OF SUMP PIT LOCATED ON SOUTHERN END OF BUILDING. BRUSHED ENTIRE WEST ROOM W/ SOAPY DETERGENT. RINSED SOAPY WATER OFF FLOOR SURFACE USING A PRESSURE WASHER AND STEAM. COLLECTED APPROXIMATELY 150 GALLONS OF WATER FROM RINSING OPERATIONS. WATER LOOKED DIRTY AFTER 2 PASSES. FINISHED CLEANING OPERATIONS AROUND 2 PM. LEFT SITE.

Signature: Robert Bramlett

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Rev. 3/93

F201/CRS

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Project: Bldg 79A Closure Oversight

Project No.: 34305.000

Report No.: 1

Page 1 of 1

Date: 1/9/96

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 30°F Low 25°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H. Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray / Wet Vac			

Visitors	Representing
Kenny Norman	Env. Detachment

Daily Notations: Arrived CNSY 0845. The North Bay had been previously scrubbed and rinsed on Sunday 1/7/95. The crew pressure sprayed the bay with clean water and wet-vacced the rinsate. For the final rinse, the wet-vac was cleaned with water, and then the rinse water was vacuumed. Rinsate from the "Less than 90 day accumulation area" was collected from the wet-vac bucket with a glass extraction tube to fill a 1.0 liter plastic bottle. The remainder of the bay will be final rinsed and sampled tomorrow. Departed CNSY at 1145.

Signature:

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RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 2

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/10/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray - Wet Vac			

Visitors: Kenny Norman

Representing: Env. Detachment

Daily Notations: Arrived CNSY 0900. Prior to final rinsing the remainder of the North Bay, it was dry-vacced to remove paint chips that had fallen from the cieling. The remainder of the North Bay was then rinsed and sampled as reported in Report #1. The Decon Room and area adjacent to the decon room were the mopped and scrubbed with a detergent solution, and rinsed with the pressure washer and placed into drums. Final rinse and sampling of these areas, along with mopping, scrubbing, rinsing and sampling of the lows bay area will be done tomorrow. Departed CNSY at 1545.

Signature: [signature]

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RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 3

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/12/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
2 Wet Vac / Pressure spray			

Visitors Representing

Daily Notations: Arrived CNSY 10:00 a.m. The low bay area was mopped and scrubbed with detergent solution. This area, along with the decon room and area adjacent to the decon room were rinsed several times. All three areas were sampled from the final rinse water similar to that described in report #1. All rinsate was stored in drums, and each area's rinsate was kept separate from each other by using dedicated drums for each area. The drums were marked by area of rinsate origin, and samples are to be taken from these drums and analyzed to determine the proper method of rinsate disposal.

Signature:

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APPENDIX C

ANALYTICAL RESULTS FOR BUILDING 79A

February 20, 1996

MEMO TO FILE

Subj: Sample Dates on Chain-of-Custody form

Complete custody was maintained for all samples from Building 79A at all times. The sample containers were labeled and the samples were stored in a secure location immediately after they were taken. The chain-of-custody form was not filled out until just prior to sending the samples to the lab for analysis. At that time incorrect dates were inadvertently entered on the chain-of-custody form. The dates were never off by more than one day and all samples were analyzed within the allowed holding times for the procedures performed.

K. B. Norman
Code 300C.9 Remediation Project, APS

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-1 Clean Water
Lab ID : 9601252-01
Matrix : WasteH2O
Date Collected : 01/08/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1324	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.42	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2004	78845
pH Temperature		12.8	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

GENERAL ENGINEERING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-1

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

P O Box 30712 • Charleston, SC 29417 • (803) 556-8171 • Fax (803) 766-1178

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-2 clean water w/detergent
Lab ID : 9601252-02
Matrix : WasteH2O
Date Collected : 01/08/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1329	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.40	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2008	78845
pH Temperature		12.4	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550	78883
TRACE	EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

P O Box 30712 • Charleston, SC 29417 • (803) 556-8171 • Fax (803) 766-1178 *9601252-02*

GENERAL ENGINEERING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-2

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

P O Box 30712 • Charleston, SC 29417 • (803) 556-8171 • Fax (803) 766-1178

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-3 Rinse Water North Bay - Eastend
Lab ID	: 9601252-03
Matrix	: WasteH2O
Date Collected	: 01/08/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1333	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.80	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2010	78845
pH Temperature		11.0	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-3

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-4 Rinse Water North Bay - West end
Lab ID	: 9601252-04
Matrix	: WasteH2O
Date Collected	: 01/09/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1338	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		8.76	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2011	78845
pH Temperature		12.6	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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	Charleston Naval Shipyard
	Code 106.24, Bldg.234
	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-4

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-5 Rinse water Decon Room
Lab ID : 9601252-05
Matrix : WasteH2O
Date Collected : 01/10/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1342	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.88	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2012	78845
pH Temperature		11.5	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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	Charleston Naval Shipyard
	Code 106.24, Bldg.234
	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-5

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-6 Rinsewater Area Adjacent to Decon Room.
Lab ID : 9601252-06
Matrix : WasteH2O
Date Collected : 01/11/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1347	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.99	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2014	78845
pH Temperature		12.7	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550 78883
TRACE	EPA 3005	SJ	01/13/96	1430 78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-6

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-7 Rinsewater Low Bay Area.
Lab ID	: 9601252-07
Matrix	: WasteH2O
Date Collected	: 01/11/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1352	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.66	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2015	78845
pH Temperature		13.1	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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	Code 106.24, Bldg.234
	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-7

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29414
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client Name/Facility Name: CNSY

Collected by/Company: CNSY K.B. Norman 8401 Ext 116

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify (SEE REMARKS)	Pesticide	Herbicide	Total Phenol	Acid Extractables	BN Extractables	PCB's	Cyanide	Coliform - specify type	FLASHPOINT & REACTIVITY	Remarks
TCG0286-6-1	1/8/96	1100					1	X						X									X	CLEAN WATER
TCG0286-6-2	1/8/96	1100					1	X						X									X	CLEAN WATER W/ DETERGENT
TCG0286-6-3	1/8/96	1400					1	X						X									X	RINSE WATER NORTH BAY - EAST END
TCG0286-6-4	1/9/96	0900					1	X						X									X	RINSE WATER NORTH BAY - WEST END
TCG0286-6-5	1/10/96	1100					1	X						X									X	RINSE WATER DECON ROOM
TCG0286-6-6	1/11/96	1300					1	X						X									X	RINSE WATER AREA ADJACENT TO DECON RM
TCG0286-6-7	1/11/96	1400					1	X						X									X	RINSE WATER LOW BAY AREA
																								METALS: LEAD
																								CHROMIUM
																								SILVER
																								MERCURY
																								CADMIUM

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

BLDG 79A

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K.B. Norman	1/12/96	0905	W.R. Hiers Jr.				

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:

CLOSURE ACTIVITIES REPORT
AND CERTIFICATION FOR
BUILDING 79A

CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Rust Project No. 34305.000
February 1996

Prepared For

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Charleston, South Carolina
and
ENVIRONMENTAL DIVISION
CLOSURE ENGINEERING AND PLANNING DEPARTMENT
CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
North Charleston, South Carolina 29406
803/572-5600

PART 3

TABLE OF CONTENTS

I. INTRODUCTION

This report has been prepared to present the results of closure, sampling, analysis, disposal, and documentation activities conducted by the United States Navy in an effort to "clean close" Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. The closure efforts were performed in accordance with procedures required by the State of South Carolina Department of Health and Environmental Control (SCDHEC), as described in the approved closure plan and its approved amendments. The Environmental Closure Procedure No. 13 Rev. B, titled "CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222" was written pursuant to Consent Order 94-16-HW (signed May 9, 1994) and is included as Appendix A along with any revisions. Drawings showing the location of the cleaned areas within Building 79A are included as Figures 1 and 2.

II. CLOSURE ACTIVITIES

Closure procedures described in the approved closure plan were implemented by Charleston Naval Shipyard employees. These commenced on January 7, 1996 with cleaning and sampling activities. Mr. Robert Borowski, P.E. of Rust Environment and Infrastructure (Rust) was present on site to provide independent observation and documentation of closure activities. Dr. James L. Brickell, P.E. was present during all subsequent closure activities as noted in the "Observation Log". A copy of the "Observation Log" is included as Appendix B.

Cleaning activities generally included applying detergent to the surface and scrubbing it with a brush. The area was then rinsed with a pressure washer to remove any dislodged material. A final rinse was performed and a sample collected from the rinse water. The sample was analyzed for cadmium, chromium, mercury, lead and silver. "Background" samples were also collected and analyzed for parameters listed above from the clean wash water and the wash water after the detergent was added.

III. ANALYTICAL RESULTS

Samples were collected as described in the closure plan at the locations shown in Figures 1 and 2. Analytical results relating to these samples are summarized in Table 1. Analytical results show that the final rinse water concentrations of cadmium, chromium, mercury, lead and silver were not detected at a minimum detectable level of 0.100 mg/l. Copies of analytical reports are included as Appendix C.

Upon review of the analytical reports, it appears that some of the dates samples were taken were entered incorrectly on the Chain of Custody form. The dates the samples were taken, as reported in the Engineer's Field Observation Log (Appendix B) are as follows:

SAMPLE ID	DATE
TCG0286-6-1	1/7/96
TCG0286-6-2	1/7/96
TCG0286-6-3	1/9/96
TCG0286-6-4	1/10/96
TCG0286-6-5	1/11/96
TCG0286-6-6	1/11/96
TCG0286-6-7	1/11/96

A memo addressing the sample dates entered on the Chain of Custody form is included as part of Appendix C.

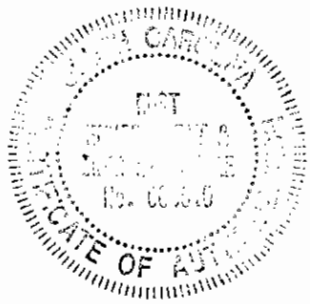
IV. STORAGE/REMOVAL OF WASH AND RINSE WATER

Wash and rinse water was labeled and stored in Building 79A, in accordance with the Closure Procedure until analytical results were available. Analytical results indicated that wash and rinse water collected from cleanup activities was non-hazardous. The non-hazardous water will be disposed of in accordance with the Closure Procedures, Section 4.3.9.

V. CERTIFICATION

I certify under penalty of law that this document and supporting documentation consisting of my Observation Log has been prepared to document the closure actions taken in an effort to "clean close" the waste storage areas of Building 79A of the Charleston Naval Shipyard, Charleston, South Carolina. Based on my observations of the persons directly responsible for gathering the data evaluated, the data evaluated is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified By: _____ Date: 2/14/96
James L. Brickell, South Carolina PE #17119
Rust Environment and Infrastructure, Inc.

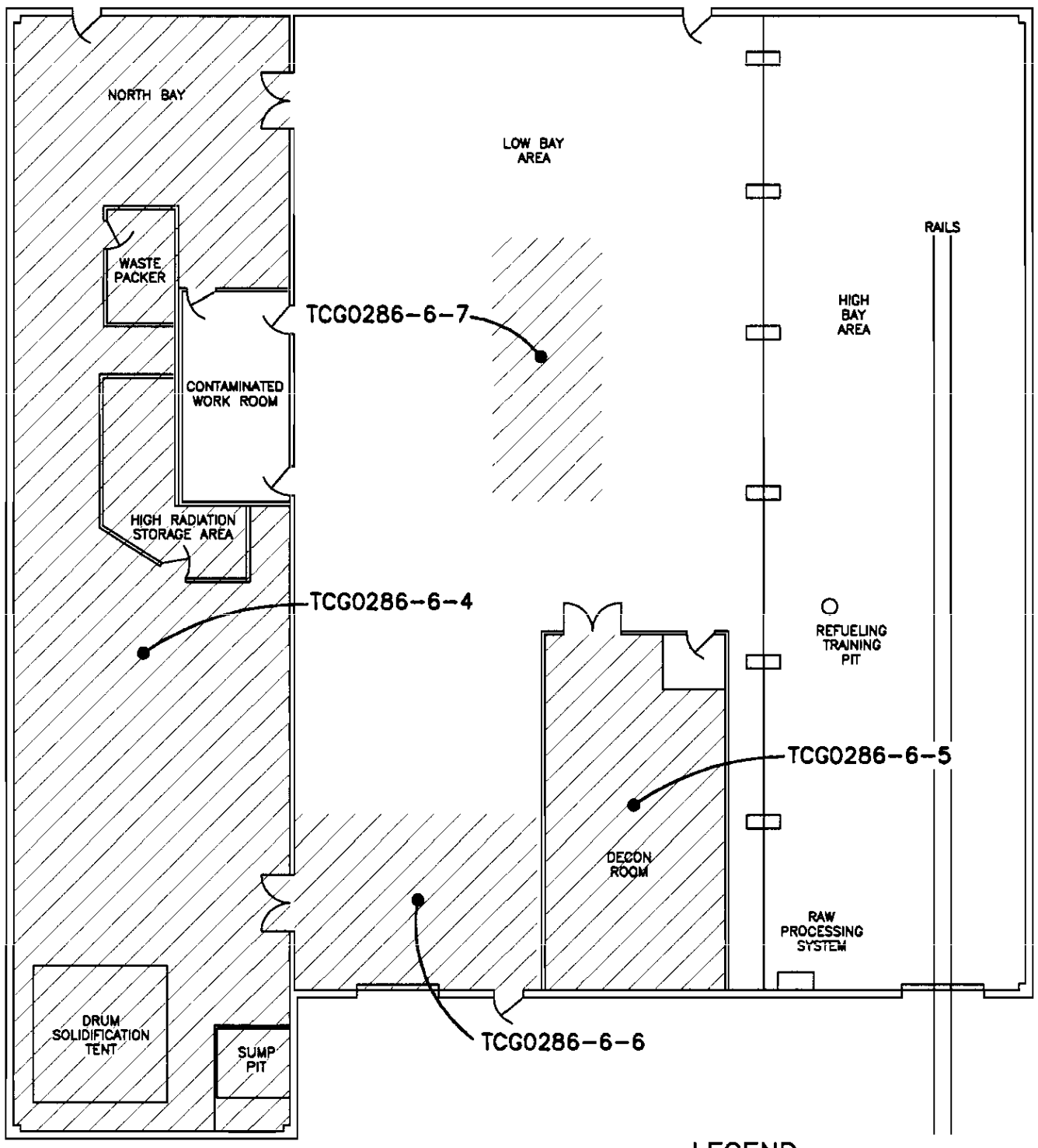


Certified By: _____ Date: 2/26/96
Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
BUILDING 79A
CHARLESTON NAVAL SHIPYARD

Date	Sample No.	Description	Parameter	Concentration
1/7/96	TCG0286-6-1	Clean Water	Mercury	<0.1 mg/L
			Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.42
1/7/96	TCG0286-6-2	Clean Water	Mercury	<0.1 mg/L
		With Detergent	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.4
1/9/96	TCG0286-6-3	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		East End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.8
1/10/96	TCG0286-6-4	Rinse Water	Mercury	<0.1 mg/L
		North Bay	Silver	<0.1 mg/L
		West End	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76
1/11/96	TCG0286-6-5	Rinse Water	Mercury	<0.1 mg/L
		Decon Room	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	9.88
1/11/96	TCG0286-6-6	Rinse Water	Mercury	<0.1 mg/L
		Area Adjacent	Silver	<0.1 mg/L
		to Decon Room	Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	7.99
1/11/96	TCG0286-6-7	Rinse Water	Mercury	<0.1 mg/L
		Low Bay Area	Silver	<0.1 mg/L
			Cadmium	<0.1 mg/L
			Chromium	<0.1 mg/L
			Lead	<0.1 mg/L
			pH	8.76

DWG: P:\CADD\34305\34305N06 PLOTTED: 02/08/96



LEGEND

AREAS SUBJECT TO RCRA CLOSURE

NOTE: NOT TO SCALE

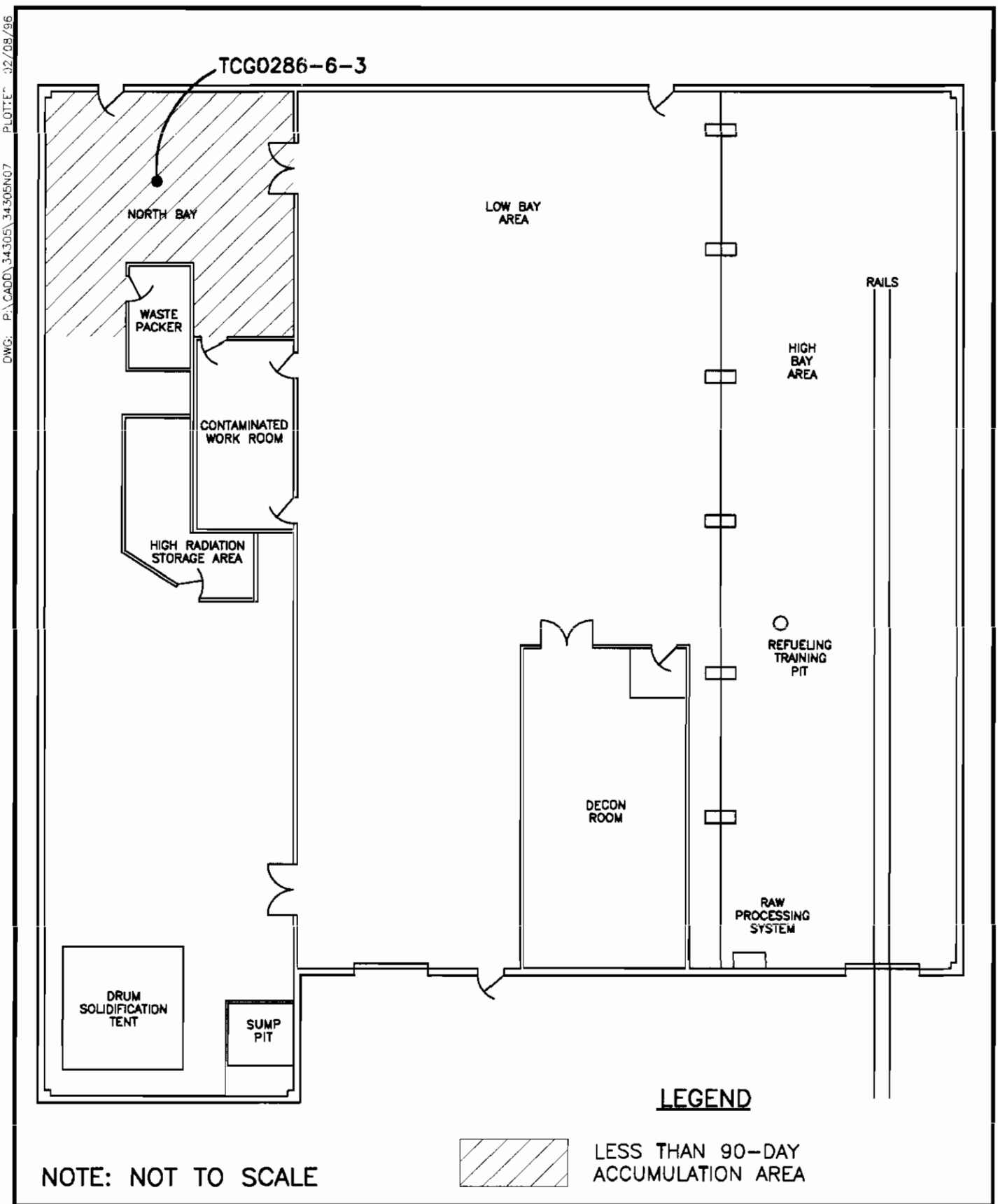
RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 1

BUILDING 79A – RCRA CLOSURE SAMPLING LOCATIONS

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996



NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 2

BUILDING 79A(< 90 DAY ACCUMULATION) SAMPLING LOCATION

CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 FEBRUARY, 1996

APPENDIX A

Environmental Closure Procedure #13 Rev. B
"CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222"

Environmental Closure Procedure #13
Rev. B

Title: Closure of Mixed Waste Sites in Bldgs. 79A, 101 and 222

Revisions

Rev	Description	Prepared By	Approv./Date
B	Purpose - This revision being done to remove requirement for actual mopping . Cleanup will be done by pressure spraying and wet vacuuming. Authority - From DHEC as described in Attachment B Added sheet 1- B "Revisions" for Revision B Sheet 2 - Added Attachment B; deleted reference to mopping in Outline Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraph 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 10 - Revised paragraph 4.3.8	D.J. Dantos 11/29/95	106C JDBerry Date 11/29/95 Concurrence 106.2 Date 11/29/95

Revisions

Rev	Description	Prepared By	Approv./Date
A	Purpose - This revision is being done to: (a). Allow a different approach to achieve the cleanliness specified in the closure plan. (b). Removes the local requirement for washing the walls. (c). Remove requirement to only use 30 gallon drums. Added sheet 1-A "Revisions" Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraphs 4.3.3 and 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 11 - Revised paragraphs 4.3.8 and 4.4.4.1, deleted paragraph 4.4.4.2	G. Teaston 11/9/95	106C Date 11/9/95 Concurrence 106.2 Date 11/7/95

Table of Contents

Attachment A - Closure Plan incorporated in C105 Document , 9900 Ser 105.2/101 dated 07/Jun/95 as approved by South Carolina DHEC Certified Mail of June 13, 1995

Attachment B - Modification to Closure Plan by CNSY Letter 5090 Ser 106.21/0800 dated 27 Nov. 95 and as discussed with DHEC at meeting on 11/21/95.

OUTLINE

This is a general procedure for final cleaning , sampling and certified closure of three buildings that were once used for mixed waste treatment units and storage areas. The buildings are 79A, 101 and 222. **This ECP is NOT the procedure to clean the building from nuclear contamination.** This procedure is intended to give the buildings a final cleaning to remove potentially hazardous metals and flammable materials from exposed floor surfaces. All work described by this ECP will be done after final nuclear closure of each building, including all applicable radiological surveys and clearance from radiological controls. The actual work described by this ECP will be performed and controlled using Task Group Instructions (TGI's).

1.0 REFERENCES

1.1 CNSYDINST P-5100.1C, "Safety Manual"

1.2 CNSYDINST P-5100.43A, "Manual for Control of Work in Confined Spaces and/or Hazardous Atmospheres"

1.3 USEPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991 (ECBSOPQAM)

1.4 Public Works Dwg.H79 -7 " Ordnance Shop and Storehouse"

1.5 Public Works Dwg.H79-401 "Building 79A, Nuclear Service Building"

1.6 Public Works Dwg.H101-32 "Contaminated Storage Warehouse Floor Plan, Elevations & Details, Architectural"

1.7 Public Works Dwg.H222-81 "Nuclear Refueling Radcon Facility, Basement Floor Plan- Block "B", Architectural"

1.8 Public Works Dwg.H222-82 "Nuclear Refueling Radcon Facility, First Floor Plan- Block "B", Architectural"

1.9 Draft of Final RCRA Facility Assessment, Naval Base Charleston, Dated 6 June , 1995; Prepared by Ensafe/Allen & Hoshall

1.10 South Carolina Hazardous Waste Management Regulation R.61-79.261, "Identification and Listing of Hazardous Waste"

1.11 Charleston Naval Shipyard Comprehensive Health and Safety Plan of March 1995 prepared by Environmental Engineering and Remediation Division of the Engineering and Planning Department

1.12 USEPA, Test Methods for Solid Waste, SW-846

2.0 GENERAL REQUIREMENTS

2.1 This procedure shall be invoked by a technical work document (TWD) prior to use. Activities of this process are not expected to exceed the action level of toxic contaminants, but do pose the possibility of skin and eye irritation from dust or splashing from liquids being repackaged for sampling and disposal. Personnel and equipment decontamination procedures shall be based on the guidelines of Section 7.0 of reference 1.11.

2.2 Surface or constituent contaminant hazards found which are associated with this ECP are lead, cadmium, chromium, silver and mercury. These metals are toxic and cadmium and chromium pose carcinogenic hazards. Personnel using this procedure shall complete Hazardous Communication Training per reference 1.1, Article 1201, Enclosure 4 , particularly HMTM's #2, particulates (examples - silica, lead, cadmium, chromium, etc); #10,flammable liquids and #13, hazardous waste minimization. The 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response - "HAZWOPER" (per 29 CFR 1910.120) is also be required per Attachment A. Training shall include Federal STD 1910.1025 Lead, 1910.1027 Cadmium, Appendices A or A and B. Personnel using this procedure are also required to complete "Asbestos Awareness Training" per YE5001.

2.3 Workers involved in the cleaning and sampling operations in these three buildings shall be in the medical surveillance program per Article 143 (current revision to NAVHOSPINST 6120.2) of reference 1.1 as Hazardous Waste Workers. Hazard Worker medical (711-B27) shall be provided. Baseline physicals for mercury, chromium, lead, and cadmium, shall have been performed if Action Level is exceeded for greater than 30 days per year and is recommended for this project.

2.4 Work to be done in spaces four feet or more below the floor level shall not proceed until the space has been certified as gas free. Contact Public Works, C453.30 (3-1070) for this service. Confined space entry training shall be complete and documented (Provided by Code 900). This requirement applies to cleaning the pit in Building 79A as shown on Figure 1 of Attachment A and reference 1.5.

2.5 Emergency notification: If any situation or unplanned occurrence requires emergency assistance, including any hazardous substance spill, the site supervisor shall contact the Chief-of -the- Watch (3-6444) to activate the proper NAVBASE response. In the event of an emergency which necessitates the evacuation of the site, the alarm procedures of Section 10.4 of reference 1.11 shall be followed.

2.6 Note that this ECP concerns Building 79A, not Building 79. Building 79 was constructed in 1943 and is shown on reference 1.4. Building 79A was built as an annex to Building 79 in 1967 and is shown on reference 1.5. Building 101 is shown on reference 1.6. The affected areas of Building 222 are shown on references 1.7 and 1.8. The cleanup efforts for the three buildings are based on the requirements of Attachment A. This procedure applies only to a portion of each of the three buildings. Site control measures for each area will be implemented based on the guidelines of reference 1.11. The areas that require cleaning in accordance with this ECP are shown in Attachment A as follows:

a. Building 79A -
Figure 1, page 9 - approximately 5,200 sq. ft. of floor space
Figure 2, page 10 - approximately 1,000 sq. ft. of floor space
(Inspection of this building reveals that the three interior walls surrounding the "Contaminated Work Room" and all four walls of the "Decon Room" as shown on both Figures 1 and 2 have been removed.)

b. Building 101 -
Figure 5, page 13 - approximately 700 sq. ft. of floor space

c. Building 222 -
Figure 3, page 11 - approximately 1,500 sq. ft. of floor space
Figure 4, page 12 - approximately 1,400 sq. ft. of floor space

(Total, all three buildings - approximately 9,800 sq. ft.)

3.0 PROCEDURE OUTLINE

3.1 Preliminary preparations include inspection of the work site, training and indoctrination of the crew, determination of PPE and inspection of equipment.

3.2 De-energize electrical circuits using lockout, tagout of reference 1.1, Article 154, if any are affected or constitute a safety hazard. Note: permanent ventilation shall not be disconnected or removed with out specific written instructions.

3.3 The applicable areas of the three buildings shall be cleaned with detergent and water using pressure sprayers, brushes, and wet vacuuming. Final rinsewater from this cleaning operation shall be collected and sampled for the materials of concern. The cleaning operation shall be repeated until the final rinsewater is determined to be at an acceptable level of purity. Contaminated rinsewater may be required to be disposed of as hazardous waste depending on sample results. The buildings must then be certified as clean.

4.0 PROCEDURE

4.1 Preparation for Cleaning

4.1.1 A supervisor who is competent to handle hazardous materials and knowledgeable of references 1.1 and 1.2 shall be placed in charge of the operation. The Supervisor shall determine any conditions that may affect the cleaning and disposal operations. Obtain the Material Safety Data Sheets (MSDS) for the products of concern. These are: cadmium, chromium, lead, silver and mercury. In addition, MSDS's shall also be obtained for those substances that may be encountered: sand (silica), arsenic, nickel, and copper. All of the MSDS's shall be reviewed and made available on-site during cleaning and disposal operations. Any unknowns should be brought to the attention of C106.21.

4.1.2 Before starting the cleanup in accordance with this ECP, Industrial Hygienists from Code 106.15 and Code 024.2 (Naval Hospital) shall be notified. Additionally, NAVHOSP Code 024.2 will brief workers prior to starting work. Supervisory job by job briefings per paragraph 4.1.5 will continue for subsequent tasks as required. Problems and questions which arise on PPE and respiratory protection shall be directed to Code 106.15 (3-5848) and Code 024.2 (3-6100) respectively.

4.1.3 The supervisor shall check the job site to determine whether it is safe to perform the cleaning operations. Any circumstance which may result in unsafe work conditions shall be brought to the attention of the Environmental Division, Closure Engineering and Planning Department , Code 106C.2 (3-6482) prior to beginning any work.

4.1.4 Note that this procedure will involve the application of water to the floors of the buildings involved. Insure that any electrical connections to electrical equipment, including switches and receptacles, that might be affected by this water and the cleaning or disposal operations being worked have been disconnected or tagged and locked out. As part of these precautions, insure that any electrical connections or equipment that might come into contact with the water or brushes also be disconnected or tagged and locked out. Inspection of Building 79A has revealed that there are numerous electrical cables and conduit that have been cut off at floor level. The bare wire ends of these cables are showing. Every precaution shall be taken to insure that all circuits relating to these wires have been disconnected or tagged and locked out before proceeding with this ECP.

4.1.5 Vigilance is required on the part of everyone engaged in the cleaning, sampling and disposal work. Training for all persons involved in cleaning and disposal shall include a job by job briefing by the supervisor on the health hazards from the chemicals in the area cleaned.

4.1.6 The supervisor shall instruct workers in the proper use of all equipment, as well as safety precautions, emergency procedures and the location of emergency showers, eyewash stations and cleaning facilities. Workers shall inspect all equipment used for cleaning and disposal operations to ensure that it is free of defects and adequate for its intended purpose.

4.2 Personal Protective Equipment (PPE)

The following PPE and respiratory controls are provided for the work of this procedure.

4.2.1 The basic PPE requirements are Level D as listed below for general cleaning and disposal of material in the three buildings:

a. One piece coveralls with joints secured. Disposable TYVEK recommended.
b. Gloves (disposable)
c. Head cover (disposable)
d. Shoe covers (disposable)
e. Safety glasses or greater; face shield is required for washing the walls

4.2.2 This list of PPE is in addition to other safety equipment such as hard hats, hearing protection, etc. PPE should be inspected before each use to ensure that it is approved, in satisfactory condition, and suitable for intended use. Employees shall be trained in proper use and limitations of PPE.

4.3 Cleanup and Disposal Tasks

4.3.1 Prior to any sampling and decontamination operations of the subject areas to be closed, all construction joints and holes in the concrete flooring slabs must be properly sealed to prevent any contaminated rinsewater from migrating to underlying soils or to the floor below. This includes plugging all pipes and conduits that are open at the floor level. The sealant used must be an inert, non- toxic material such as silicon caulking.

4.3.2 All closure equipment and containers needed to accomplish this ECP shall be cleaned in accordance with reference 1.3 prior to use.

4.3.3 A sample of the water source to be used for the cleaning and decontamination shall be collected and used as the reference background sample. When this sample must be collected from a continuous supply, as for a pressure sprayer, it shall be collected as a composite sample during the spraying operation. This background sample shall be analyzed in accordance with the procedures set forth in reference 1.12 , USEPA, Test Methods for, Solid Waste, SW-846 as outlined below.

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010

4.3.4 The floor of the subject areas in each of the three buildings shall be cleaned using the following sequence. Exceptions to this sequence are allowed if the end result remains the same.

a. The floor shall be carefully vacuumed with a HEPA vacuum to remove any surface dust and debris. Special care should be taken to avoid tracking dust on to the clean surface. Special precautions should also be made to avoid dragging dust on to the cleaned surface with electrical cables or pressure washing hose.

b. The area shall be thoroughly scrubbed using brushes and detergent and water. A commercial cleaning detergent, such as "Ledizolv", may be used for removal of lead from the surface if required. The scrubbing may be done manually or with powered brushes (all brushes shall have non-metallic bristles). After being thoroughly scrubbed, the area shall be pressure sprayed. If the commercial cleaning detergent is

used, the solution shall be allowed to soak into the surface for 15 minutes before pressure spraying. The dirty water from the brushing and spraying shall be collected by a wet vacuum and stored for sampling and disposal as described in 4.3.9. The insides of the wet vacuum cleaner canister and hoses shall be thoroughly cleaned and flushed with water after this step. It is important that all possible sources of contamination be removed from the vacuum before progressing to step c.

c. The final rinsing of the area shall be done with a power sprayer using clean water. Ensure that the entire area is thoroughly rinsed with a liberal amount of water. The rinsewater from this operation shall be collected by wet vacuuming into a separate, clean container from part b. above. This final rinsewater shall then be sampled to determine area cleanliness in accordance with paragraph 4.3.8. The rinsewater container shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.5 The dirty rinsewater, collected by the wet vacuum in step b, paragraph 4.3.4, shall be collected and containerized in drums. This containerized rinsewater and all cleaning equipment containing rinsewater residue shall be stored in a secure and environmentally acceptable location within the building. This dirty rinsewater shall be sampled for disposal as described in paragraph 4.3.9. The rinsewater containers shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.6 The containers of rinsewater in each location shall be sampled in accordance with reference 1.3. The reporting, records management and quality control procedures for the sampling and analysis shall also be per reference 1.3.

4.3.7 The constituent analysis of the final rinsewater samples (from step c. of paragraph 4.3.4) shall be in accordance with the procedures set forth in reference 1.12, USEPA, Test Methods for Solid Waste, SW-846. The requirements for the constituent analysis procedures to be done on a rinsewater sample(s) are shown on pages 7 and 8 of Attachment A. These requirements are as follows:

4.3.7.1 Bldg 79A - (First Area) There are two different requirements for cleaning and sampling in this building. The first area to be cleaned is shown on Figure 2, Attachment A, and is the "less than 90 day accumulation area". The rinsewater from cleaning this small area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.2 Bldg 79A - (Second Area) The final area to be cleaned in this building is shown on Figure 1, Attachment A, and is the remainder of the building subject to RCRA closure. (Note that this area includes that previously cleaned in paragraph 4.3.7.1. Repeat cleaning of that area is not required.) The rinsewater from cleaning this area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.3 Bldg 101 - The area to be cleaned is shown on Figure 5, Attachment A. Rinsewater from cleaning this area shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Ignitability Analysis	1010, 1020

4.3.7.4 Bldg 222 - The areas to be cleaned are shown on Figures 3 and 4 of Attachment A. Rinsewater from cleaning these areas shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Ignitability Analysis	1010, 1020

4.3.8 The results of the final rinsewater analysis, for each area in each building, (step c. of paragraph 4.3.4) shall be compared against the background sample taken in Paragraph 4.3.3. If the sample for an area shows no hazardous constituents above levels present in the background sample or is less than the laboratory Practical Quantification Limit (PQL) , the area shall be considered clean. If hazardous constituents are still present in the sample above background, the entire spraying, brushing, rinsewater collecting and sampling procedure cycle must be repeated, for that area, until the final result is satisfactory.

4.3.9 All collected rinsewater found to be contaminated above the regulatory levels as defined in R.61-79.261, reference 1.10, shall be disposed of as hazardous waste. Code 106.2 will review the concentration of contaminants of all rinsewater found to be contaminated below this regulatory level for possible disposal in the North Charleston sanitary sewer system. Discharge of this rinsewater to the sanitary system shall not be done until directed by Code 106.24 (3-5519) in conjunction with the Publicly Owned Treatment Works (POTW) of the North Charleston Sewer District.

4.4 Related Cleanup Action

4.4.1 Tools, equipment, and other non-expendable items used in the cleaning, sampling and disposal of hazardous wastes will be washed/rinsed and maintained for further use. Rinse water shall be sampled and the results furnished to C106.24 for determination of disposal method.

4.4.2 Expendable items, damaged PPE and damaged or deteriorated cleaning tools and equipment, etc. used with hazardous wastes shall also be disposed of as hazardous waste.

4.4.4 Drums

4.4.4.1 Approved drums for containing the rinsewater can be obtained through Code 106.25. Notification should be made as early as possible to ensure that there are enough drums available prior to starting work.

(Paragraph 4.4.4.2 deleted in revision A.)

4.4.4.3 As rinsewater drums are filled, or as an area is finished, the drums shall be transferred to an approved site within the building and handled as described in paragraph 4.3.5. If the drums are determined to contain hazardous waste, per sampling, they shall be labeled with a hazardous waste label and completed form 1348. Code 106.25 shall be notified to coordinate pick up and disposal. Drums found to contain non-hazardous rinsewater shall be disposed of as stated in Paragraph 4.3.9.

5.0 CLOSURE CERTIFICATION

5.1 A formal certification of closure will be required for each building after it is cleaned. The results of all testing for each of the buildings shall be furnished to Southern Division, Naval Facilities Engineering Command. A Registered Professional Engineer (PE) from there will inspect the facilities, review the test results and, if all the criteria are met, certify closure of the facility.

5.2 The Shipyard Commander must also certify closure of each facility.

5.3 The certification by the PE and the Shipyard Commander must occur within 60 days of the closure of each facility.

Attachment A - Code 105 Directive

The following Code 105 memo, 9900 Ser 105.2/101 dated 07 June, 1995 (page A-I), as approved by South Carolina DHEC Certified Mail of June 13, 1995 (page A-II), was used as guidance and authority to prepare this Environmental Closure Procedure. Included in this memo is the Shipyard Closure Plan for Buildings 79A, 101, and 222 (pages 1 through 13).

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
NAVAL BASE
CHARLESTON, S.C. 29408-6100

ATTACHMENT "A"

9900
105.2/101
07 JUN 1995

David Walton
Division of Hazardous & Infectious Waste
Bureau of Solid & Hazardous Waste
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, S.C., 29201

Re: Revision of Closure Plan for Mixed Waste
Treatment Units and Storage Areas
Charleston Naval Shipyard
Charleston County
SCD 170 022 560

Dear Mr. Walton,

This letter provides a revised closure plan for the mixed waste treatment units and storage areas at Charleston Naval Shipyard as requested in the South Carolina Department of Health and Environmental Control (SCDHEC) letter dated 9 May 1995. All comments noted in the above stated SCDHEC letter have been addressed in the revision.

If you have any questions regarding this submittal, please contact A. T. Gerken at (803) 743-3130.

Sincerely,

N. F. JOHNSON
Director of Radiological Controls
By Direction of Commander of
Charleston Naval Shipyard

Enclosure: Closure Plan for the Building 79A, 222, and 101
Mixed Waste Treatment Units and Storage Areas
(PAGE 1 THROUGH 13)

Attachment B - Modification to Closure Plan

The following Code 106 memo, 9900 Ser 106.21/0800 dated 27 Nov. 1995, as discussed with South Carolina DHEC in meeting on 11/21/95, was used as guidance and authority to prepare this revision to Environmental Closure Procedure #13.

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

5090
Ser 106.21/0800
27 NOV 1995

Mr. G. Randall Thompson
Director, Division of Hazardous and
Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Closure of Charleston Naval Complex Mixed Waste Sites in Buildings 222, 101 and 79A

Dear Mr. Thompson,

Based on the meeting between Charleston Naval Shipyard (CNSY) and South Carolina DHEC on 21 November 1995, this letter is being sent to request a minor modification to the closure plan of the mixed waste sites in Building 222, 101 and 79A.

Currently the closure plan states in step 6: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be wiped down with a soap and water solution using a mop and squeeze bucket." CNSY proposes to change this statement to read: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be washed with a detergent and water solution and rinsed as necessary using water."

This modification is requested to allow for the use of pressure spray for washing and wet vacuuming for collection of water. All equipment and containers used shall be cleaned in accordance with step 4 of the closure plan including any wet vacuums used.

Sincerely,

W. F. NOLD
Captain USN
Commander,
Charleston Naval Shipyard

Copy to:
100, 105
EPA; J. Franzmathes, D. Brittain
N4BEC; E. Dearhart, D. Fontenot
SOUTHNAVFACENGCOM; M. Hunt (1877), P. Kordonis (1825)
SCDHEC; Ann Ragan, Jeannie Clano

APPENDIX B

ENGINEER'S FIELD OBSERVATION LOG

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard

Project: Closure certification Ea. 79A

Project No.: 34305000

Report No.: 1

Page 1 of 1

Date: 1/7/95

Weather: A.M. OVERCAST P.M. OVERCAST

Temp.(°F): High 45 Low 35 Rain X

Contractor(s) Shipyard Detachment Personnel

Contractor Super(s) John Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
shipyard personnel	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
steam, pressure washer	100 gal/1000 psi	1	1 EA

Visitors — Representing

Daily Notations: STARTED CLEANING PROCEDURES APPROXIMATELY 10:00 AM. TOOK SAMPLES OF CLEAN H_2O AND CLEAN H_2O w/DETERGENT. BRUSHED SOAPY SOLUTION ON FLOOR SURFACE ALONG WITH WALLS OF SUMP PIT LOCATED ON SOUTHERN END OF BUILDING. BRUSHED ENTIRE WEST ROOM WITH SOAPY DETERGENT. RINSED SOAPY WATER OFF FLOOR SURFACE USING A PRESSURE WASHER AND STEAM VAC. COLLECTED APPROXIMATELY 152 GALLONS OF WATER FROM RINSING OPERATIONS. WATER LOOKED DIRTY AFTER 2 PASSES. FINISHED CLEANING OPERATIONS AROUND 2 PM. LEFT SITE.

Signature: Robert Brownlee

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Rev. 3/93

F201/CRS

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 1

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/9/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 30°F Low 25°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H. Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray / Wet Vac			

Visitors	Representing
Kenny Norman	Env. Detachment

Daily Notations: Arrived CNSY 0845. The North Bay had been previously scrubbed and rinsed on Sunday 1/7/95. The crew pressure sprayed the bay with clean water and wet-vacced the rinsate. For the final rinse, the wet-vac was cleaned with water, and then the rinse water was vacuumed. Rinsate from the "Less than 90 day accumulation area" was collected from the wet-vac bucket with a glass extraction tube to fill a 1.0 liter plastic bottle. The remainder of the bay will be final rinsed and sampled tomorrow. Departed CNSY at 1145.

Signature:

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Rev. 3/93

F201/CRS

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 2

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/10/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	5

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Pressure Spray - Wet Vac			

Visitors	Representing
Kenny Norman	Env. Detachment

Daily Notations: Arrived CNSY 0900. Prior to final rinsing the remainder of the North Bay, it was dry-vacced to remove paint chips that had fallen from the ceiling. The remainder of the North Bay was then rinsed and sampled as reported in Report #1. The Decon Room and area adjacent to the decon room were the mopped and scrubbed with a detergent solution, and rinsed with the pressure washer and placed into drums. Final rinse and sampling of these areas, along with mopping, scrubbing, rinsing and sampling of the low bay area will be done tomorrow. Departed CNSY at 1545.

Signature: [signature]

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Rev. 3/93

F201/CRS

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: NAVFAC

Report No.: 3

Project: Bldg 79A Closure Oversight

Page 1 of 1

Date: 1/12/96

Project No.: 34305.000

Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 40°F Low 30°F Rain None

Contractor(s) CNSY Personnel

Contractor Super(s) J. H Wilder

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
CNSY	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
2 Wet Vac / Pressure spray			

Visitors Representing

Daily Notations: Arrived CNSY 10:00 a.m. The low bay area was mopped and scrubbed with detergent solution. This area, along with the decon room and area adjacent to the decon room were rinsed several times. All three areas were sampled from the final rinse water similar to that described in report #1. All rinsate was stored in drums, and each area's rinsate was kept separate from each other by using dedicated drums for each area. The drums were marked by area of rinsate origin, and samples are to be taken from these drums and analyzed to determine the proper method of rinsate disposal.

Signature:

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APPENDIX C

ANALYTICAL RESULTS FOR BUILDING 79A

February 20, 1996

MEMO TO FILE

Subj: Sample Dates on Chain-of-Custody form

Complete custody was maintained for all samples from Building 79A at all times. The sample containers were labeled and the samples were stored in a secure location immediately after they were taken. The chain-of-custody form was not filled out until just prior to sending the samples to the lab for analysis. At that time incorrect dates were inadvertently entered on the chain-of-custody form. The dates were never off by more than one day and all samples were analyzed within the allowed holding times for the procedures performed.

K. B. Norman
Code 300C.9 Remediation Project, APS

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-1 Clean Water
Lab ID	: 9601252-01
Matrix	: WasteH2O
Date Collected	: 01/08/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1324	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.42	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2004	78845
pH Temperature		12.8	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-1

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-2 clean water w/detergent
Lab ID : 9601252-02
Matrix : WasteH2O
Date Collected : 01/08/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMI	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1329	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.40	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2008	78845
pH Temperature		12.4	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550 78883
TRACE	EPA 3005	SJ	01/13/96	1430 78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-2

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-3 Rinse water North Bay - Eastead
Lab ID : 9601252-03
Matrix : WasteH2O
Date Collected : 01/08/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1333	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.80	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2010	78845
pH Temperature		11.0	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-3

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-4 Rinse Water North Bay - West end
Lab ID	: 9601252-04
Matrix	: WasteH2O
Date Collected	: 01/09/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1338	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		8.76	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2011	78845
pH Temperature		12.6	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-4

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-5 Rinse water Decon Room
Lab ID	: 9601252-05
Matrix	: WasteH2O
Date Collected	: 01/10/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1342	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.88	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2012	78845
pH Temperature		11.5	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550 78883
TRACE	EPA 3005	SJ	01/13/96	1430 78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-5

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID	: TCG0286-6-6 Rinsewater Area Adjacent to Decon Room.
Lab ID	: 9601252-06
Matrix	: WasteH2O
Date Collected	: 01/11/96
Date Received	: 01/12/96
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1347	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		7.99	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2014	78845
pH Temperature		12.7	C	EPA 150.1/SW 846 9040				
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/15/96	1550	78883
TRACE				EPA 3005	SJ	01/13/96	1430	78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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	Charleston, South Carolina 29408-2020
Contact:	Mr. Matt Cissel
Project Description:	Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-6

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-7 Rinsewater Low Bay Area.
Lab ID : 9601252-07
Matrix : WasteH2O
Date Collected : 01/11/96
Date Received : 01/12/96
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/17/96	1130	78883
Silver	<	0.100	mg/l	EPA 200.7	WCC	01/17/96	1352	78847
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JEN	01/17/96	1400	79057
pH - 2 items								
pH		9.66	SU	EPA 150.1/SW 846 9040	JPA	01/12/96	2015	78845
pH Temperature		13.1	C	EPA 150.1/SW 846 9040				

The following prep procedures were performed:

Mercury	EPA 245.1	JL	01/15/96	1550 78883
TRACE	EPA 3005	SJ	01/13/96	1430 78847

Comments:
Revised report.

GEL Laboratory Certifications		EPI Laboratory Certifications	
AL - 41040	AZ - AZ0514	AL - 41050	AZ - AZ0514
CA - 2089	CT - PH-0169	CA - I-1023/2056	CT - PH-0175
DE - SC012	FL - E87156/87294	FL - E87472/87458	MS - 29417

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Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 22, 1996

Sample ID : TCG0286-6-7

GEL Laboratory Certifications		EPI Laboratory Certifications	
ME - SC012	MS - 10120	NY - 11502	RI - 138
NC - 233	NY - 11501	SC - 10582	TN - 02934
RI - 135	SC - 10120	UT - E-227	VA - 00111
TN - 02934	UT - E-251	WA - C225	NJ - 79002
VA - 00151	WA - C223	PA - 68-485	
WI - 999887790			

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Charleston, South Carolina 29414
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client Name/Facility Name: CNSY

Collected by/Company: CNSY — 8401 EXT 116 — K.B. Norman

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify (SEE REMARKS)	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	FLASHPOINT EXTINGUISHABILITY	Remarks
TCG0286-6-1	1/8/96	1100					1	X						X									X	CLEAN WATER
TCG0286-6-2	1/8/96	1100					1	X						X									X	CLEAN WATER W/ DETERGENT
TCG0286-6-3	1/8/96	1400					1	X						X									X	RINSE WATER NORTH BAY - EAST END
TCG0286-6-4	1/9/96	0900					1	X						X									X	RINSE WATER NORTH BAY - WEST END
TCG0286-6-5	1/10/96	1100					1	X						X									X	RINSE WATER DECON ROOM
TCG0286-6-6	1/11/96	1300					1	X						X									X	RINSE WATER AREA ADJACENT TO DECON RM
TCG0286-6-7	1/11/96	1400					1	X						X									X	RINSE WATER LOW BAY AREA
																								METALS: LEAD
																								CHROMIUM
																								SILVER
																								MERCURY
																								CADMIUM

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

BLDG 79A

Remarks

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K.B. Norman	1/12/96	0905	W.R. Hiers Jr.				

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:

CLOSURE ACTIVITIES REPORT AND CERTIFICATION FOR BUILDING 222

CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Rust Project No. 34305.000
February 1996

Prepared For

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Charleston, South Carolina
and
ENVIRONMENTAL DIVISION
CLOSURE ENGINEERING AND PLANNING DEPARTMENT
CHARLESTON NAVAL SHIPYARD
Charleston, South Carolina

Prepared By
RUST ENVIRONMENT AND INFRASTRUCTURE
2694 Lake Park Drive
North Charleston, South Carolina 29406
803/572-5600

PART 4

TABLE OF CONTENTS

I. INTRODUCTION

This report has been prepared to present the results of closure, sampling, analysis, disposal of cleaning water, and documentation activities conducted by the United States Navy in an effort to "clean close" Building 222 of the Charleston Naval Shipyard, Charleston, South Carolina. The closure efforts were performed in accordance with procedures required by the State of South Carolina Department of Health and Environmental Control (SCDHEC), as described in the approved closure plan and its approved amendments. To implement the closure plan, the Environmental Closure Procedure No. 13 Rev. B, titled "CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222" was written pursuant to Consent Order 94-16-HW (signed May 9, 1994) and is included as Appendix A along with any revisions. Drawings showing the locations of the cleaned areas within Building 222 are included as Figures 1and 2.

II. CLOSURE ACTIVITIES

Closure procedures described in the approved closure plan were implemented by Charleston Naval Shipyard employees. These commenced on December 16, 1995 with cleaning and sampling activities. Mr. Robert Borowski, P.E. of Rust Environment and Infrastructure (Rust) was present on site to provide independent observation and documentation of closure activities. Mr. Borowski was also present during all subsequent closure activities as noted in the "Observation Log". A copy of the "Observation Log" is included as Appendix B.

Cleaning activities generally included applying detergent to the surface and scrubbing it with a brush. The area was then rinsed with a pressure washer to remove any dislodged material. A final rinse was performed and a sample collected from the rinse water. The sample was analyzed for chromium, mercury, lead and silver. "Background" samples were also collected and analyzed for parameters listed above from the clean wash water and the wash water after the detergent was added.

Two sections of the floor in Room 112 of Building 222 had been removed, characterized and properly disposed of prior to cleaning.

III. ANALYTICAL RESULTS

Samples were collected as described in the closure plan at the locations shown in Figures 1 and 2. Analytical results relating to these samples are summarized in Table 1. Analytical results show that

the final rinse water concentration of chromium, mercury, lead and silver was equal to background level concentrations in the clean water after the initial cleaning in all areas except room 004. Room 004 was cleaned a second time and final rinse water concentrations of chromium, mercury, lead and silver were equal to background level concentrations in the clean water. Copies of the analytical reports are included as Appendix C. Upon review of the analytical results it was noted that some of the dates the samples were collected were incorrectly reported. The actual dates that samples were taken are those given in Table 1, consistent with activities described in the Engineer's Field Observation Log (Appendix B). A memo addressing the sample dates entered on the Chain of Custody form is included as part of Appendix C.

IV. STORAGE/REMOVAL OF WASH AND RINSE WATER

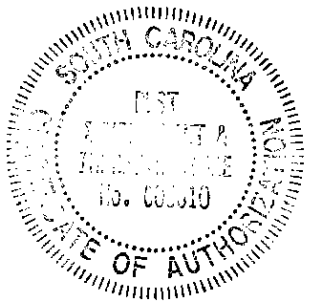
Wash and rinse water was labeled and stored in Building 222, in accordance with the Closure Procedure until analytical results were available. Analytical results indicated that wash and rinse water collected from cleanup activities was non-hazardous. The non-hazardous water will be disposed of in accordance with the Closure Procedures, Section 4.3.9.

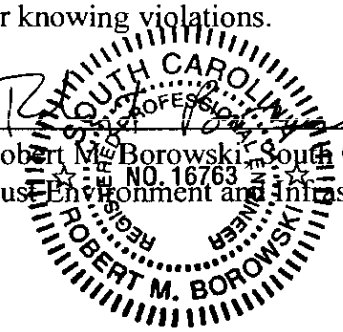
V. CERTIFICATION

I certify under penalty of law that this document and supporting documentation consisting of my Observation Log has been prepared to document the closure actions taken in an effort to "clean close" the waste storage areas of Building 222 of the Charleston Naval Shipyard, Charleston, South Carolina. Based on my observations of the persons directly responsible for gathering the data evaluated, the data evaluated is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified By: _____ Date: 2/13/96

Robert M. Borowski, South Carolina PE #16763
Rust Environment and Infrastructure, Inc.





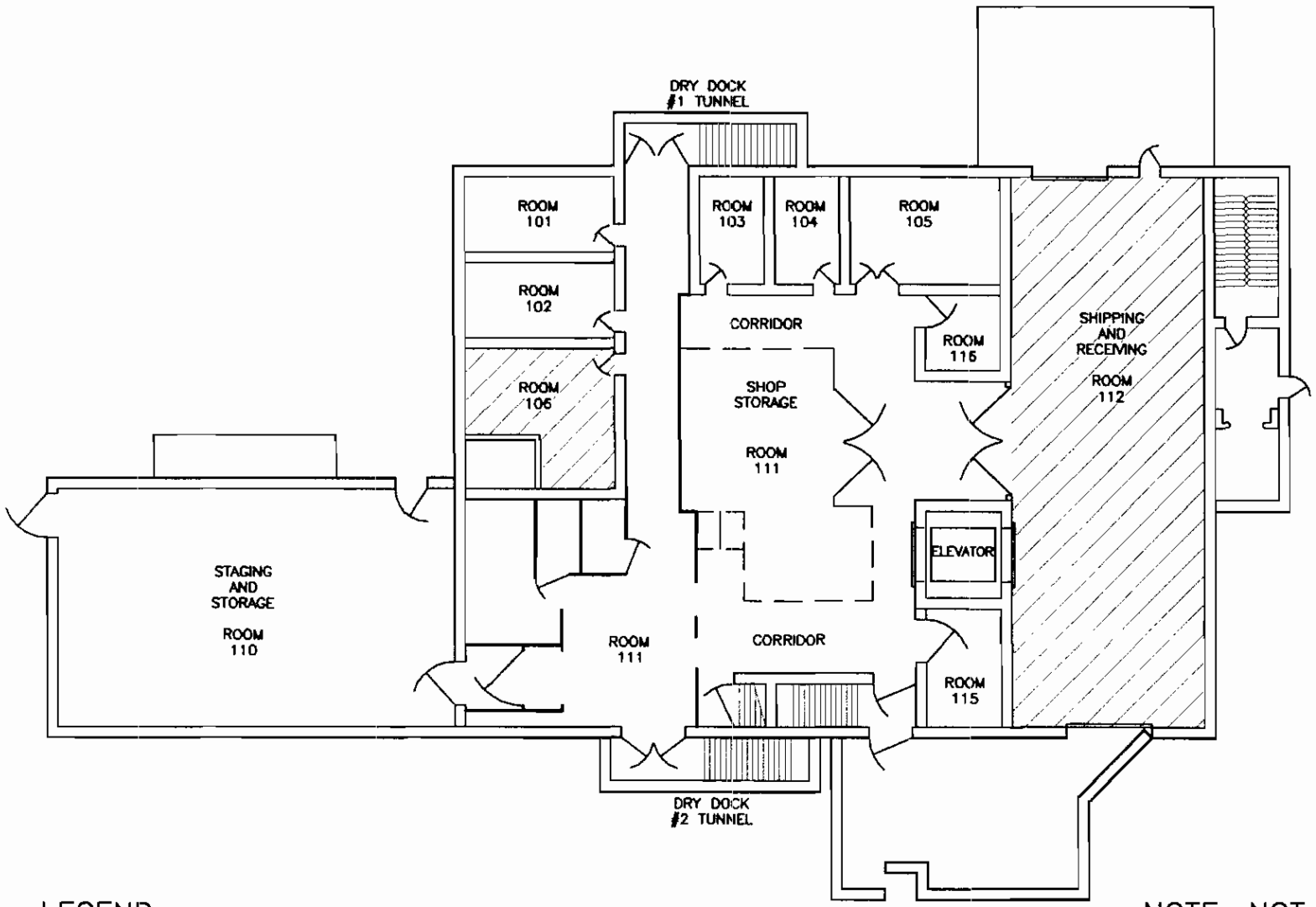
Certified By: _____ Date: _____

Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard

TABLE 1
SUMMARY OF ANALYTICAL RESULTS FOR BUILDING 222
Charleston Naval Shipyard, Charleston, South Carolina

DATE	SAMPLE NO.	DESCRIPTION	PARAMETER	CONCENTRATION (mg/l)
12/16/95	222001	Clean Water	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/16/95	222002	Soapy Water	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/16/95	222003	Rinse Water Room 112	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/17/95	222004	Rinse Water Room 106	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/17/95	222005	Rinse Water Room 004	Chromium	0.24
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/17/95	222006	Rinse Water Room 005, 006 & Adjacent Area	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
12/17/95	222007	Rinse Water Area Below Stairs	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
01/03/96	222008	Rinse Water Room 004 (2nd cleaning)	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
01/03/96	222009	Soapy Water	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1
01/03/96	222010	Clean Water	Chromium	<0.1
			Lead	<0.1
			Mercury	<0.1
			Silver	<0.1

DWG. P:\CADD\34305\34305N03 PLOTTED: 12/06/95



LEGEND

AREAS SUBJECT TO RCRA CLOSURE

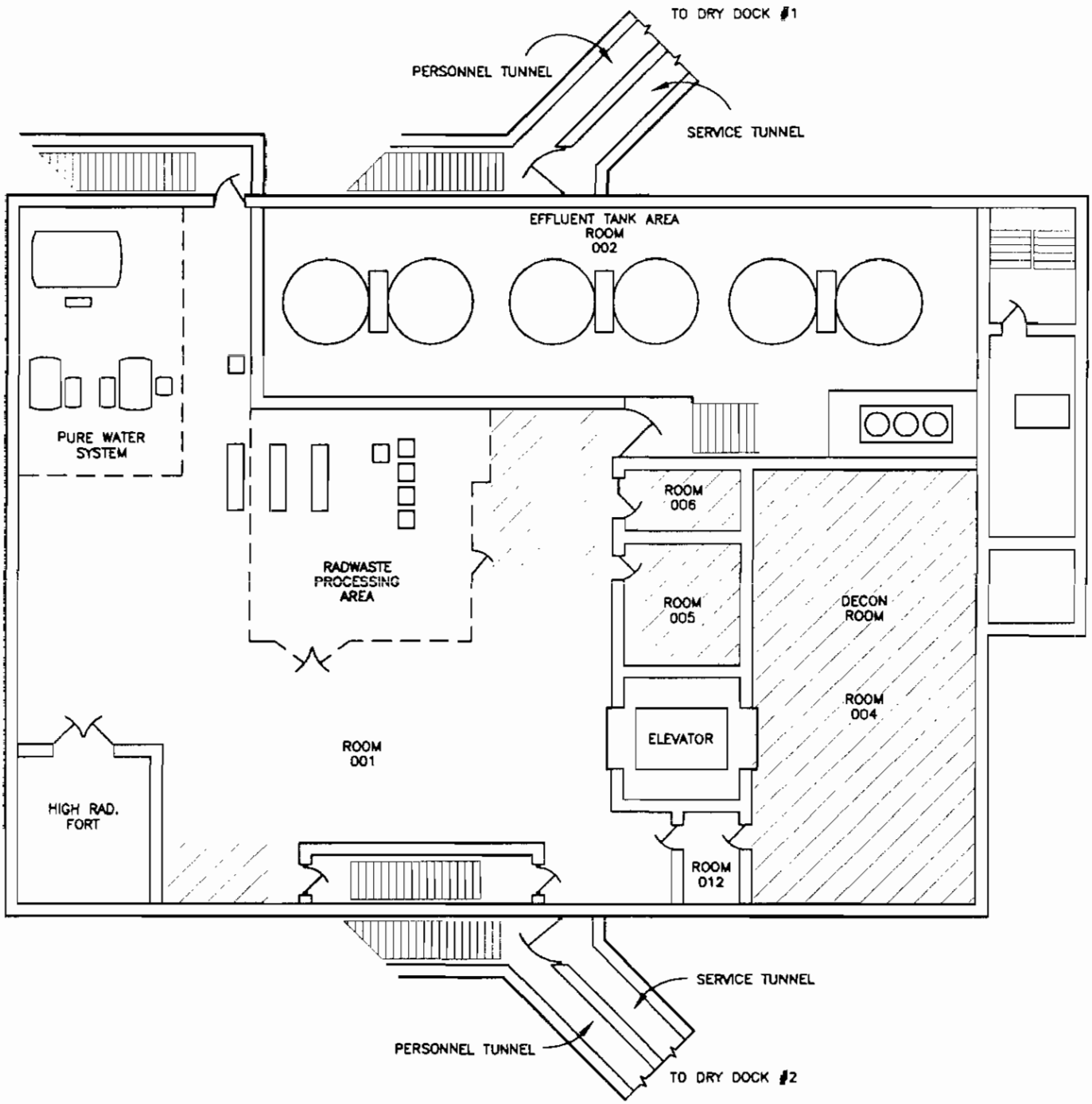
NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 1

BUILDING 222, FIRST FLOOR
RCRA CLOSURE
CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

RUST Project No. 34305.000 DECEMBER, 1995



LEGEND

AREAS SUBJECT TO RCRA CLOSURE

NOTE: NOT TO SCALE

RUST ENVIRONMENT & INFRASTRUCTURE

FIGURE 2

BUILDING 222, BASEMENT
RCRA CLOSURE
CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.

DECEMBER

APPENDIX A

Environmental Closure Procedure #13 Rev. B
"CLOSURE OF MIXED WASTE SITES IN BLDGS 79A, 101 AND 222"

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

CERTIFIED MAIL

105 H
.1
.2 copy
.01 file

June 13, 1995

Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard
Charleston, SC 29408-5100

Re: Closure Plan for Buildings 79A, 222, and 101
Mixed Waste Treatment Units & Storage Areas
Charleston Naval Shipyard
SCD 170 022 560

Dear Captain Nold:

The South Carolina Department of Health and Environmental Control (Department) has completed the review of the Charleston Naval Shipyard's revised RCRA closure plan for the mixed waste treatment units and storage areas. The submittal of this closure plan is a requirement of the fully executed Consent Order 94-16-HW, signed by the Commissioner on May 9, 1994.

The Department by virtue of this letter hereby gives its approval of the closure plan for implementation. The Charleston Naval Shipyard (CNSYD) must close the above referenced areas in accordance with the requirements of R.61-79.265 and the revised closure plan dated June 7, 1995. Certification of closure by the CNSYD and an independent registered professional engineer shall be submitted to the Department within sixty days upon completion of each building's closure as outlined in the closure plan.

If you should have any questions concerning this matter or the requirements of the closure plan, please contact David Walton at (803) 896-4178.

Sincerely,

John Litton

John Litton, P.E., Manager
Hazardous Waste Permitting Section
Bureau of Solid & Hazardous Waste Management

cc: Joe Bowers, Hydrogeology
Rick Richter, Trident EQC
Kim Hagan, Enforcement
Channing Bennett, EPA Region IV
Doyle Brittain, EPA Region IV
Bobby Dearhart, COMNAVBASE
N.F. Johnson, NAVBASE

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

CERTIFIED MAIL
Return Receipt Requested

November 27, 1995

Captain William F. Nold
Commanding Officer
Charleston Naval Shipyard
Charleston, South Carolina 29408-5100

RE: Final Closure Plan for Building 79A, 222, and 101

Charleston Naval Shipyard
SC0 170 022 560

Dear Captain Nold:

The South Carolina Department of Health and Environmental Control (Department) is in receipt of the requests, by Charleston Naval Shipyard (CNSY), for two minor modifications to their Closure Plan for Buildings 79A, 222, and 101 (effective June 13, 1995). This Closure Plan was submitted pursuant to Consent Order 94-16-HW (signed May 9, 1994).

The modification request received on November 14, 1995 consists of a revision to the closure schedule. The proposed revision to the schedule for building 101 closure extends the sampling and decontamination step of building 101 closure from 20-80 days to 20 - 140 days. As long as the final closure date of building 101 is not affected by the revision, the Department approves the revision to the schedule.

The second modification was received on November 27, 1995 consists of using a pressure spray for washing and a wet vacuum for the collection of water, instead of using a soap and water solution with a mop and squeeze bucket. As long as the clean-up values established in the closure plan will not be modified, the Department concurs with the changes in the closure plan.

ENCL: (1)

If you have any questions concerning this matter please contact Jeannie Olano at (803)896-4180.

Sincerely,

John Litton, P.E., Section Manager
Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management

cc: Jim Barkesdale, USEPA - Region IV
Pano Kordonis, Southern Division Engineering Command
Rick Richter, Trident District

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

Ser 106C/121
15 December 1995

MEMORANDUM

From: Environmental Closure Division (Code 106C), Charleston Naval Shipyard (CNSY)
To: Rust Environment and Infrastructure (Attention: Mr. Robert Borowski)

Subj: **Certification of Closure of Building 101**

Encl: (1) Certified SCDHEC letter of 27 Nov 95
(2) Certificate of Analysis from General Engineering Laboratories (dated 7 Dec 1995)
(3) Code 106 Memo Ser 106.2/0835 (dated 15 Dec 1995)

This letter is written to forward closure information for Charleston Naval Shipyard (CNS) Building 101 and to request Rust Environment and Infrastructure complete a certificate of closure for this building. The building has been cleaned in accordance with the SCDHEC approved closure plan of 7 June 1995 as incorporated into the CNS Environmental Closure Procedure #13 dated 14 July 1995; and as allowed to be modified per SCDHEC letter, Enclosure No. 1.

Enclosure No. 2 gives the sample results of the most recent cleaning of Building 101. The contaminants of concern for this building were Chromium and Lead. The lab results show that the level of Chromium contamination is less than 100 ug/l, which is that of the clean water used for the background sample. The level of Lead contamination is 101 ug/l. This is less than the Practical Quantification Limit (PQL) of 140 ug/l for the analysis of lead via SW 846, Method 6010. Enclosure No. 2 provides sample results using an analysis method listed as EPA Method 200.7. CNS considers EPA Method 200.7 technically equivalent to SW 846, Method 6010, as supported in Enclosure No. 3.

Additionally, CNS has conferred with SCDHEC on the issue of acceptable closure of Building 101. CNS had a conference with SCDHEC (Jeannie Olano and John Litton) on 11 November 1995 and during this conference, an analysis result less than the PQL was discussed as an acceptable result. Based on the above and attached information, CNS considers the closure actions in Building 101 complete. If you have any questions contact Jim Ritchie or Gerald Teaster at 743-6777 for more information.

F. T. Perry

A. T. Webb,
Concurrence, C106.2

Copy to:
Code 106.2, Code 106C.2, Pano Kordonis (SOUTHDIV- NAVFAC)
Code 2300, NRRO

MEMORANDUM

5090
Ser 106.2/0835
15 December 1995

From: CODE 106.2
To: CODE 106C

Subj: TEST METHODS FOR BUILDING 101 RCRA CLOSURE

Ref: (a) EPA Method 200.7
(b) SW 846 Method 6010

1. The testing requirements of reference (a), "Inductively Coupled Plasma...Analysis of Water and Waste" are technically equivalent to the analytical methods specified in reference (b).

2. The difference is solely found in the scope of the procedure. Reference (a) outlines sample preparation, standardization, instrument calibration and analysis methods. Reference (b) provides only analysis and quality control instructions.

A. T. Webb
Head, Environmental Division

Copy to:

106, 106.21, FXD, 106.2DF

ENCL: (3)

Environmental Closure Procedure #13
Rev. B

Title: Closure of Mixed Waste Sites in Bldgs. 79A, 101 and 222

Revisions

Rev	Description	Prepared By	Approv./Date
B	Purpose - This revision being done to remove requirement for actual mopping . Cleanup will be done by pressure spraying and wet vacuuming. Authority - From DHEC as described in Attachment B Added sheet 1- B "Revisions" for Revision B Sheet 2 - Added Attachment B; deleted reference to mopping in Outline Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraph 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 10 - Revised paragraph 4.3.8	D.J. Dean 11/29/95	106C JO Berry Date 11/29/95 Concurrence 106.2 Date 11/29/95

Revisions

Rev	Description	Prepared By	Approv./Date
A	Purpose - This revision is being done to: (a). Allow a different approach to achieve the cleanliness specified in the closure plan. (b). Removes the local requirement for washing the walls. (c). Remove requirement to only use 30 gallon drums. Added sheet 1-A "Revisions" Sheet 6 - Revised paragraph 3.3 Sheet 7 - Revised paragraph 4.1.4 Sheet 8 - Revised paragraphs 4.3.3 and 4.3.4 Sheet 9 - Revised paragraph 4.3.5 Sheet 11 - Revised paragraphs 4.3.8 and 4.4.4.1, deleted paragraph 4.4.4.2	G. Toaston 11/9/95	106C Date 11/9/95 Concurrence 106.2 Date 11/9/95

Table of Contents

Attachment A - Closure Plan incorporated in C105 Document , 9900 Ser 105.2/101 dated 07/Jun/95 as approved by South Carolina DHEC Certified Mail of June 13, 1995

Attachment B - Modification to Closure Plan by CNSY Letter 5090 Ser 106.21/0800 dated 27 Nov. 95 and as discussed with DHEC at meeting on 11/21/95.

OUTLINE

This is a general procedure for final cleaning , sampling and certified closure of three buildings that were once used for mixed waste treatment units and storage areas. The buildings are 79A, 101 and 222. **This ECP is NOT the procedure to clean the building from nuclear contamination.** This procedure is intended to give the buildings a final cleaning to remove potentially hazardous metals and flammable materials from exposed floor surfaces. All work described by this ECP will be done after final nuclear closure of each building, including all applicable radiological surveys and clearance from radiological controls. The actual work described by this ECP will be performed and controlled using Task Group Instructions (TGI's).

1.0 REFERENCES

1.1 CNSYDINST P-5100.1C, "Safety Manual"

1.2 CNSYDINST P-5100.43A, "Manual for Control of Work in Confined Spaces and/or Hazardous Atmospheres"

1.3 USEPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991 (ECBSOPQAM)

1.4 Public Works Dwg.H79 -7 " Ordnance Shop and Storehouse"

1.5 Public Works Dwg.H79-401 "Building 79A, Nuclear Service Building"

1.6 Public Works Dwg.H101-32 "Contaminated Storage Warehouse Floor Plan, Elevations & Details, Architectural"

1.7 Public Works Dwg.H222-81 "Nuclear Refueling Radcon Facility, Basement Floor Plan- Block "B", Architectural"

1.8 Public Works Dwg.H222-82 "Nuclear Refueling Radcon Facility, First Floor Plan- Block "B", Architectural"

1.9 Draft of Final RCRA Facility Assessment, Naval Base Charleston, Dated 6 June , 1995; Prepared by Ensafe/Allen & Hoshall

1.10 South Carolina Hazardous Waste Management Regulation R.61-79.261, "Identification and Listing of Hazardous Waste"

1.11 Charleston Naval Shipyard Comprehensive Health and Safety Plan of March 1995 prepared by Environmental Engineering and Remediation Division of the Engineering and Planning Department

1.12 USEPA, Test Methods for Solid Waste, SW-846

2.0 GENERAL REQUIREMENTS

2.1 This procedure shall be invoked by a technical work document (TWD) prior to use. Activities of this process are not expected to exceed the action level of toxic contaminants, but do pose the possibility of skin and eye irritation from dust or splashing from liquids being repackaged for sampling and disposal. Personnel and equipment decontamination procedures shall be based on the guidelines of Section 7.0 of reference 1.11.

2.2 Surface or constituent contaminant hazards found which are associated with this ECP are lead, cadmium, chromium, silver and mercury. These metals are toxic and cadmium and chromium pose carcinogenic hazards. Personnel using this procedure shall complete Hazardous Communication Training per reference 1.1, Article 1201, Enclosure 4 , particularly HMTM's #2, particulates (examples - silica, lead, cadmium, chromium, etc); #10,flammable liquids and #13, hazardous waste minimization. The 40-Hour Health and Safety Training for Hazardous Waste Operations and Emergency Response - "HAZWOPER" (per 29 CFR 1910.120) is also be required per Attachment A. Training shall include Federal STD 1910.1025 Lead, 1910.1027 Cadmium, Appendices A or A and B. Personnel using this procedure are also required to complete "Asbestos Awareness Training" per YE5001.

2.3 Workers involved in the cleaning and sampling operations in these three buildings shall be in the medical surveillance program per Article 143 (current revision to NAVHOSPINST 6120.2) of reference 1.1 as Hazardous Waste Workers. Hazard Worker medical (711-B27) shall be provided. Baseline physicals for mercury, chromium, lead, and cadmium, shall have been performed if Action Level is exceeded for greater than 30 days per year and is recommended for this project.

2.4 Work to be done in spaces four feet or more below the floor level shall not proceed until the space has been certified as gas free. Contact Public Works, C453.30 (3-1070) for this service. Confined space entry training shall be complete and documented (Provided by Code 900). This requirement applies to cleaning the pit in Building 79A as shown on Figure 1 of Attachment A and reference 1.5.

2.5 Emergency notification: If any situation or unplanned occurrence requires emergency assistance, including any hazardous substance spill, the site supervisor shall contact the Chief-of -the- Watch (3-6444) to activate the proper NAVBASE response. In the event of an emergency which necessitates the evacuation of the site, the alarm procedures of Section 10.4 of reference 1.11 shall be followed.

2.6 Note that this ECP concerns Building 79A, not Building 79. Building 79 was constructed in 1943 and is shown on reference 1.4. Building 79A was built as an annex to Building 79 in 1967 and is shown on reference 1.5. Building 101 is shown on reference 1.6. The affected areas of Building 222 are shown on references 1.7 and 1.8. The cleanup efforts for the three buildings are based on the requirements of Attachment A. This procedure applies only to a portion of each of the three buildings. Site control measures for each area will be implemented based on the guidelines of reference 1.11. The areas that require cleaning in accordance with this ECP are shown in Attachment A as follows:

a. Building 79A -
   Figure 1, page 9 - approximately 5,200 sq. ft. of floor space
   Figure 2, page 10 - approximately 1,000 sq. ft. of floor space
   (Inspection of this building reveals that the three interior walls surrounding the "Contaminated Work Room" and all four walls of the "Decon Room" as shown on both Figures 1 and 2 have been removed.)

b. Building 101 -
   Figure 5, page 13 - approximately 700 sq. ft. of floor space

c. Building 222 -
   Figure 3, page 11 - approximately 1,500 sq. ft. of floor space
   Figure 4, page 12 - approximately 1,400 sq. ft. of floor space

(Total, all three buildings - approximately 9,800 sq. ft.)

3.0 PROCEDURE OUTLINE

3.1 Preliminary preparations include inspection of the work site, training and indoctrination of the crew, determination of PPE and inspection of equipment.

3.2 De-energize electrical circuits using lockout, tagout of reference 1.1, Article 154, if any are affected or constitute a safety hazard. Note: permanent ventilation shall not be disconnected or removed with out specific written instructions.

3.3 The applicable areas of the three buildings shall be cleaned with detergent and water using pressure sprayers, brushes, and wet vacuuming. Final rinsewater from this cleaning operation shall be collected and sampled for the materials of concern. The cleaning operation shall be repeated until the final rinsewater is determined to be at an acceptable level of purity. Contaminated rinsewater may be required to be disposed of as hazardous waste depending on sample results. The buildings must then be certified as clean.

4.0 PROCEDURE

4.1 Preparation for Cleaning

4.1.1 A supervisor who is competent to handle hazardous materials and knowledgeable of references 1.1 and 1.2 shall be placed in charge of the operation. The Supervisor shall determine any conditions that may affect the cleaning and disposal operations. Obtain the Material Safety Data Sheets (MSDS) for the products of concern. These are: cadmium, chromium, lead, silver and mercury. In addition, MSDS's shall also be obtained for those substances that may be encountered: sand (silica), arsenic, nickel, and copper. All of the MSDS's shall be reviewed and made available on-site during cleaning and disposal operations. Any unknowns should be brought to the attention of C106.21.

4.1.2 Before starting the cleanup in accordance with this ECP, Industrial Hygienists from Code 106.15 and Code 024.2 (Naval Hospital) shall be notified. Additionally, NAVHOSP Code 024.2 will brief workers prior to starting work. Supervisory job by job briefings per paragraph 4.1.5 will continue for subsequent tasks as required. Problems and questions which arise on PPE and respiratory protection shall be directed to Code 106.15 (3-5848) and Code 024.2 (3-6100) respectively.

4.1.3 The supervisor shall check the job site to determine whether it is safe to perform the cleaning operations. Any circumstance which may result in unsafe work conditions shall be brought to the attention of the Environmental Division, Closure Engineering and Planning Department , Code 106C.2 (3-6482) prior to beginning any work.

4.1.4 Note that this procedure will involve the application of water to the floors of the buildings involved. Insure that any electrical connections to electrical equipment, including switches and receptacles, that might be affected by this water and the cleaning or disposal operations being worked have been disconnected or tagged and locked out. As part of these precautions, insure that any electrical connections or equipment that might come into contact with the water or brushes also be disconnected or tagged and locked out. Inspection of Building 79A has revealed that there are numerous electrical cables and conduit that have been cut off at floor level. The bare wire ends of these cables are showing. Every precaution shall be taken to insure that all circuits relating to these wires have been disconnected or tagged and locked out before proceeding with this ECP.

4.1.5 Vigilance is required on the part of everyone engaged in the cleaning, sampling and disposal work. Training for all persons involved in cleaning and disposal shall include a job by job briefing by the supervisor on the health hazards from the chemicals in the area cleaned.

4.1.6 The supervisor shall instruct workers in the proper use of all equipment, as well as safety precautions, emergency procedures and the location of emergency showers, eyewash stations and cleaning facilities. Workers shall inspect all equipment used for cleaning and disposal operations to ensure that it is free of defects and adequate for its intended purpose.

4.2 Personal Protective Equipment (PPE)

The following PPE and respiratory controls are provided for the work of this procedure.

4.2.1 The basic PPE requirements are Level D as listed below for general cleaning and disposal of material in the three buildings:

a. One piece coveralls with joints secured. Disposable TYVEK recommended.
b. Gloves (disposable)
c. Head cover (disposable)
d. Shoe covers (disposable)
e. Safety glasses or greater; face shield is required for washing the walls

4.2.2 This list of PPE is in addition to other safety equipment such as hard hats, hearing protection, etc. PPE should be inspected before each use to ensure that it is approved, in satisfactory condition, and suitable for intended use. Employees shall be trained in proper use and limitations of PPE.

4.3 Cleanup and Disposal Tasks

4.3.1 Prior to any sampling and decontamination operations of the subject areas to be closed, all construction joints and holes in the concrete flooring slabs must be properly sealed to prevent any contaminated rinsewater from migrating to underlying soils or to the floor below. This includes plugging all pipes and conduits that are open at the floor level. The sealant used must be an inert, non- toxic material such as silicon caulking.

4.3.2 All closure equipment and containers needed to accomplish this ECP shall be cleaned in accordance with reference 1.3 prior to use.

4.3.3 A sample of the water source to be used for the cleaning and decontamination shall be collected and used as the reference background sample. When this sample must be collected from a continuous supply, as for a pressure sprayer, it shall be collected as a composite sample during the spraying operation. This background sample shall be analyzed in accordance with the procedures set forth in reference 1.12 , USEPA, Test Methods for, Solid Waste, SW-846 as outlined below.

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010

4.3.4 The floor of the subject areas in each of the three buildings shall be cleaned using the following sequence. Exceptions to this sequence are allowed if the end result remains the same.

a. The floor shall be carefully vacuumed with a HEPA vacuum to remove any surface dust and debris. Special care should be taken to avoid tracking dust on to the clean surface. Special precautions should also be made to avoid dragging dust on to the cleaned surface with electrical cables or pressure washing hose.

b. The area shall be thoroughly scrubbed using brushes and detergent and water. A commercial cleaning detergent, such as "Ledizolv", may be used for removal of lead from the surface if required. The scrubbing may be done manually or with powered brushes (all brushes shall have non-metallic bristles). After being thoroughly scrubbed, the area shall be pressure sprayed. If the commercial cleaning detergent is

used, the solution shall be allowed to soak into the surface for 15 minutes before pressure spraying. The dirty water from the brushing and spraying shall be collected by a wet vacuum and stored for sampling and disposal as described in 4.3.9. The insides of the wet vacuum cleaner canister and hoses shall be thoroughly cleaned and flushed with water after this step. It is important that all possible sources of contamination be removed from the vacuum before progressing to step c.

c. The final rinsing of the area shall be done with a power sprayer using clean water. Ensure that the entire area is thoroughly rinsed with a liberal amount of water. The rinsewater from this operation shall be collected by wet vacuuming into a separate, clean container from part b. above. This final rinsewater shall then be sampled to determine area cleanliness in accordance with paragraph 4.3.8. The rinsewater container shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.5 The dirty rinsewater, collected by the wet vacuum in step b, paragraph 4.3.4, shall be collected and containerized in drums. This containerized rinsewater and all cleaning equipment containing rinsewater residue shall be stored in a secure and environmentally acceptable location within the building. This dirty rinsewater shall be sampled for disposal as described in paragraph 4.3.9. The rinsewater containers shall be labeled as "awaiting analysis" and maintained in a secure situation until the appropriate samples have been taken and analyzed.

4.3.6 The containers of rinsewater in each location shall be sampled in accordance with reference 1.3. The reporting, records management and quality control procedures for the sampling and analysis shall also be per reference 1.3.

4.3.7 The constituent analysis of the final rinsewater samples (from step c. of paragraph 4.3.4) shall be in accordance with the procedures set forth in reference 1.12, USEPA, Test Methods for Solid Waste, SW-846. The requirements for the constituent analysis procedures to be done on a rinsewater sample(s) are shown on pages 7 and 8 of Attachment A. These requirements are as follows:

4.3.7.1 Bldg 79A - (First Area) There are two different requirements for cleaning and sampling in this building. The first area to be cleaned is shown on Figure 2, Attachment A, and is the "less than 90 day accumulation area". The rinsewater from cleaning this small area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Cadmium (D006)	6010
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.2 Bldg 79A - (Second Area) The final area to be cleaned in this building is shown on Figure 1, Attachment A, and is the remainder of the building subject to RCRA closure. (Note that this area includes that previously cleaned in paragraph 4.3.7.1. Repeat cleaning of that area is not required.) The rinsewater from cleaning this area shall be sampled for :

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
pH Analysis	9040
Ignitability Analysis	1010, 1020

4.3.7.3 Bldg 101 - The area to be cleaned is shown on Figure 5, Attachment A. Rinsewater from cleaning this area shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Ignitability Analysis	1010, 1020

4.3.7.4 Bldg 222 - The areas to be cleaned are shown on Figures 3 and 4 of Attachment A. Rinsewater from cleaning these areas shall be sampled for:

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7470
Ignitability Analysis	1010, 1020

4.3.8 The results of the final rinsewater analysis, for each area in each building, (step c. of paragraph 4.3.4) shall be compared against the background sample taken in Paragraph 4.3.3. If the sample for an area shows no hazardous constituents above levels present in the background sample or is less than the laboratory Practical Quantification Limit (PQL) , the area shall be considered clean. If hazardous constituents are still present in the sample above background, the entire spraying, brushing, rinsewater collecting and sampling procedure cycle must be repeated, for that area, until the final result is satisfactory.

4.3.9 All collected rinsewater found to be contaminated above the regulatory levels as defined in R.61-79.261, reference 1.10, shall be disposed of as hazardous waste. Code 106.2 will review the concentration of contaminants of all rinsewater found to be contaminated below this regulatory level for possible disposal in the North Charleston sanitary sewer system. Discharge of this rinsewater to the sanitary system shall not be done until directed by Code 106.24 (3-5519) in conjunction with the Publicly Owned Treatment Works (POTW) of the North Charleston Sewer District.

4.4 Related Cleanup Action

4.4.1 Tools, equipment, and other non-expendable items used in the cleaning, sampling and disposal of hazardous wastes will be washed/rinsed and maintained for further use. Rinse water shall be sampled and the results furnished to C106.24 for determination of disposal method.

4.4.2 Expendable items, damaged PPE and damaged or deteriorated cleaning tools and equipment, etc. used with hazardous wastes shall also be disposed of as hazardous waste.

4.4.4 Drums

4.4.4.1 Approved drums for containing the rinsewater can be obtained through Code 106.25. Notification should be made as early as possible to ensure that there are enough drums available prior to starting work.

(Paragraph 4.4.4.2 deleted in revision A.)

4.4.4.3 As rinsewater drums are filled, or as an area is finished, the drums shall be transferred to an approved site within the building and handled as described in paragraph 4.3.5. If the drums are determined to contain hazardous waste, per sampling, they shall be labeled with a hazardous waste label and completed form 1348. Code 106.25 shall be notified to coordinate pick up and disposal. Drums found to contain non-hazardous rinsewater shall be disposed of as stated in Paragraph 4.3.9.

5.0 CLOSURE CERTIFICATION

5.1 A formal certification of closure will be required for each building after it is cleaned. The results of all testing for each of the buildings shall be furnished to Southern Division, Naval Facilities Engineering Command. A Registered Professional Engineer (PE) from there will inspect the facilities, review the test results and, if all the criteria are met, certify closure of the facility.

5.2 The Shipyard Commander must also certify closure of each facility.

5.3 The certification by the PE and the Shipyard Commander must occur within 60 days of the closure of each facility.

Attachment A - Code 105 Directive

The following Code 105 memo, 9900 Ser 105.2/101 dated 07 June, 1995 (page A-I), as approved by South Carolina DHEC Certified Mail of June 13, 1995 (page A-II), was used as guidance and authority to prepare this Environmental Closure Procedure. Included in this memo is the Shipyard Closure Plan for Buildings 79A, 101, and 222 (pages 1 through 13).

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
NAVAL BASE
CHARLESTON, S.C. 29408-6100

ATTACHMENT "A"

9900
105.2/101
07 JUN 1995

David Walton
Division of Hazardous & Infectious Waste
Bureau of Solid & Hazardous Waste
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, S.C., 29201

Re: Revision of Closure Plan for Mixed Waste
Treatment Units and Storage Areas
Charleston Naval Shipyard
Charleston County
SCD 170 022 560

Dear Mr. Walton,

This letter provides a revised closure plan for the mixed waste treatment units and storage areas at Charleston Naval Shipyard as requested in the South Carolina Department of Health and Environmental Control (SCDHEC) letter dated 9 May 1995. All comments noted in the above stated SCDHEC letter have been addressed in the revision.

If you have any questions regarding this submittal, please contact A. T. Gerken at (803) 743-3130.

Sincerely,

N. F. JOHNSON
Director of Radiological Controls
By Direction of Commander of
Charleston Naval Shipyard

Enclosure: Closure Plan for the Building 79A, 222, and 101
Mixed Waste Treatment Units and Storage Areas
(PAGE 1 THROUGH 13)

Attachment B - Modification to Closure Plan

The following Code 106 memo, 9900 Ser 106.21/0800 dated 27 Nov. 1995, as discussed with South Carolina DHEC in meeting on 11/21/95, was used as guidance and authority to prepare this revision to Environmental Closure Procedure #13.

DEPARTMENT OF THE NAVY
CHARLESTON NAVAL SHIPYARD
CHARLESTON, S.C. 29408-6100

5090
Ser 106.21/0800
27 NOV 1995

Mr. G. Randall Thompson
Director, Division of Hazardous and
Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Closure of Charleston Naval Complex Mixed Waste Sites in Buildings 222, 101 and 79A

Dear Mr. Thompson,

Based on the meeting between Charleston Naval Shipyard (CNSY) and South Carolina DHEC on 21 November 1995, this letter is being sent to request a minor modification to the closure plan of the mixed waste sites in Building 222, 101 and 79A.

Currently the closure plan states in step 6: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be wiped down with a soap and water solution using a mop and squeeze bucket." CNSY proposes to change this statement to read: "The subject areas to be closed in Bldgs. 222, 101, and 79A shall be washed with a detergent and water solution and rinsed as necessary using water."

This modification is requested to allow for the use of pressure spray for washing and wet vacuuming for collection of water. All equipment and containers used shall be cleaned in accordance with step 4 of the closure plan including any wet vacuums used.

Sincerely,

W. F. NOLD
Captain USN
Commander,
Charleston Naval Shipyard

Copy to:
100, 105
EPA; J. Franzmathes, D. Brittain
N4BEC; E. Dearhart, D. Fontenot
SOUTHNAVFACENGCOM; M. Hunt (1877), P. Kordonis (1825)
SCDHEC; Ann Ragan, Jeannie Clano

CLOSURE PLAN FOR THE BUILDING 79A, 222, AND 101

MIXED WASTE TREATMENT UNITS AND STORAGE AREAS

BACKGROUND

This plan is required by Consent Order 94-16-HW, signed by the Commissioner of South Carolina Department of Health and Environmental Control (SCDHEC) on May 9, 1994. This plan identifies all steps that will be necessary to completely close the hazardous waste treatment units and storage areas located in Buildings 79A, 222, and 101. This plan is being submitted in accordance with the requirements of R.61-79.265.112, and the subject areas will be closed in accordance with the requirements of R.61-79.265.111. Upon completion of closure, the Shipyard will submit to the SCDHEC a certification by an independent South Carolina Registered Engineer that the facility has been closed in accordance with the specifications in the closure plan.

Building 79A

Building 79A is a radiological repair facility. The total amount of mixed waste which was stored and/or treated in this facility was 30 m^3. Various areas in the low bay and the north bay of this facility (see Figure 1) were used to treat and/or store the following mixed waste streams:

1) Elemental Lead (D008) - Radiological treatment of these materials consisted of decontamination of the lead and subsequent release from radiological controls, or separation of the radioactive material from the lead. Elemental lead was packaged in plastic bags and stored in the low bay and north bay general areas. Elemental lead was treated in the low bay and north bay general areas.

2) Potassium Chromate Solution (D007) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the north bay general area and were treated in the north bay drum solidification tent.

3) Silver Nitrate Test Solution (D011) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the north bay general area and treated in the north bay drum solidification tent.

4) Mercuric Nitrate Test Solution (D009) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the north bay general area and treated in the north bay drum solidification tent.

5) Organic Debris Containing Potassium Chromate Solutions (D007) - These materials were radiologically treated by surveying for free release. These materials were packaged in plastic bags and stored in the north bay general area. These materials were treated in the north bay general area.

6) Flammable Organic Debris (D001, F003) - These materials were radiologically treated by removal of free liquids. These materials were packaged in plastic bags and stored in a 55 gallon drum in the waste packer room and general area in the north bay. These materials were treated in the north bay general area.

7) Inorganic Debris (D002, D008) - Radiological treatment of these materials (lead acid batteries) consisted of decontamination of the batteries and subsequent release from radiological controls, or separation of the radioactive material from the batteries. Batteries were packaged in plastic bags and stored in the north bay general area. Batteries were treated in the north bay general area.

8) Lead Contaminated Organic Debris (D008) - This material (HEPA filter contaminated with lead based paint chips) was radiologically treated by removing the lead contaminated filter core from the metal housing. The filter was stored in the north bay general area. The filter was treated in the north bay general area.

In addition to the above mixed waste streams, the area in Bldg. 79A which is established as a less than 90 day accumulation area (see Figure 2), has also been used to store the following mixed waste streams:

9) Cadmium Plated Metals (D006) - This waste stream was handled under consent order requirements which consisted of decontamination of the cadmium plated metal by wiping with water and subsequent release from radiological controls.

10) Brass and Bronze (D008) - This waste stream was handled under consent order requirements which consisted of decontamination of the brass and bronze items by wiping with water and subsequent release from radiological controls.

Building 222

Building 222 is a radiological repair facility. The total amount of mixed waste which was stored and/or treated in this facility was 9 m^3. Various areas in the basement and first floor of this facility (see Figures 3 and 4) were used to store and treat the following waste streams:

1) Potassium Chromate Solution (D007) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the general area of the basement and room 106 of the first floor. These liquids were treated in the decontamination room in the basement.

2) Silver Nitrate Test Solution (D011) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the general area of the basement and room 106 of the first floor. These liquids were treated in the decontamination room in the basement.

3) Mercuric Nitrate Test Solution (D009) - These liquids were radiologically treated by solidification. These liquids were stored in 15 gallon plastic bottles in the general area of the basement and room 106 of the first floor. These liquids were treated in the decontamination room in the basement.

4) Flammable Organic Debris (D001, F003) - These materials were packaged in plastic bags and stored in a 55 gallon drum in the waste packer room annex and general area in the basement.

5) Lead and/or Chromium Based Paint Chips (D008, D007) - This waste stream was treated by solidification using RCRA simple treatment. This waste stream was stored in 55 gallon drums in the Shipping and Receiving area of the first floor. The paint chips were treated in the decontamination room in the basement.

Building 101

Building 101 is a radiological storage facility. The total amount of mixed waste which was stored in this facility was 7 m^3. The southeast corner of this facility (see Figure 5) was used to store the following mixed waste streams:

1) Organic Debris Containing Potassium Chromate Solutions (D007) - These materials were packaged in plastic bags and stored in 55 or 30 gallon drums and B-25 boxes for radioactive decay in the southeast corner of the facility.

2) Elemental Lead (D008) - Elemental lead was packaged in plastic bags and stored in 55 or 30 gallon drums in the southeast corner of the facility.

3) Flammable Organic Debris (D001, F003) - These materials were packaged in plastic bags and stored in 55 or 30 gallon drums in the southeast corner of the facility.

4) Lead Contaminated Organic Debris (D008) - This material (HEPA filter contaminated with lead based paint chips) was stored in the southeast corner of the facility before the filter core was removed in Building 79A.

FINAL CLOSURE ACTIVITIES

This plan addresses removal of mixed waste and hazardous waste from and decontamination of the mixed waste treatment and storage areas. Other efforts are in progress to address radiological closure of the buildings.

ESTIMATED CLOSURE SCHEDULE

The closure schedule for the mixed waste treatment units and storage areas are given below.

Building 222 Closure Schedule - The RCRA closure schedule will be implemented immediately upon operational closure of the building which includes completion of radiological surveys. The date that the closure schedule for Building 222 will be implemented is 11 November 1995. The subject areas to undergo closure in this building contain no hazardous/mixed waste.

	Activity	Days
1.	Finalize local instructions for closure.	0-20
2.	Area sampling and decontamination.	20-80
3.	Completion of closure and certification submittal to SCDHEC.	0-140

Building 101 Closure Schedule - The RCRA closure schedule will be implemented immediately upon operational closure of the building which includes completion of radiological surveys. The date that the closure schedule for Building 101 will be implemented is 1 September 1995. The subject areas to undergo closure in this building contain no hazardous/mixed waste.

	Activity	Days
1.	Finalize local instructions for closure.	0-20
2.	Area sampling and decontamination.	20-80
3.	Completion of closure and certification submittal to SCDHEC.	0-140

Building 79A Closure Schedule - The RCRA closure schedule will be implemented immediately upon the operational closure of the building which includes completion of radiological surveys. The date that the closure schedule for Building 79A will be implemented is 3 January 1996. All hazardous/mixed waste will have been removed from this building prior to RCRA closure of the subject areas.

	Activity	Days
1.	Finalize local instructions for closure.	0-20
2.	Area sampling and decontamination.	20-80
3.	Completion of closure and certification submittal to SCDHEC.	0-140

CLOSURE PROCEDURE

The following procedure will be followed for the closure of the subject areas in Bldgs. 222, 101, and 79A, and will be implemented as stated in the respective closure schedules.

1. All personnel participating in closure activities shall have completed 40 hours of health and safety training in accordance with 29 CFR 1910.120.

2. The level of personnel protective equipment (PPE) required during the closure activities shall be Level D as specified in 29 CFR 1910.120 Appendix B.

3. Prior to the sampling and decontamination operations of the subject areas to be closed, any construction joints in the concrete slabs will be properly sealed to prevent any contaminated rinsewaters from migrating to underlying soils.

4. All closure equipment and containers shall be cleaned in accordance with USEPA Region IV, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991 (ECBSOPQAM) prior to use.

5. A grab sample of the water source to be used for the sampling and decontamination operations of the subject areas shall be collected and used as the background sample. The background sample shall be analyzed in accordance with the procedures set forth in the USEPA, Test Methods for Solid Waste, SW-846 as outlined below.

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7420
Cadmium (D006)	6010

6. The subject areas to be closed in Bldgs. 222, 101, and 79A shall be wiped down with a soap and water solution using a mop and squeeze bucket.

7. Rinsewaters from each area shall be collected and containerized. The containerized rinsewaters and all cleaning equipment containing rinsewater residue will be stored in a secure and environmentally acceptable location within the building from which the rinsewaters were collected until samples have been analyzed.

8. Containers of rinsewater shall be sampled in accordance with ECBSOPQAM.

9. Reporting, records management, and quality control procedures shall be in accordance with ECBSOPQAM.

10. Constituent analysis of the rinsewater samples shall be in accordance with the procedures set forth in the USEPA, Test Methods for Solid Waste, SW-846. A breakdown of the constituent analysis procedure on a rinsewater sample(s) required for each facility is given below.

Bldg. 79A - Areas other than the less than 90 day accumulation area

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7420
pH Analysis	9040
Ignitability Analysis	1010, 1020

Bldg. 79A - Less than 90 day accumulation area

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7420
Cadmium (D006)	6010
pH Analysis	9040
Ignitability Analysis	1010,1020

Bldg. 222

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Silver (D011)	6010
Mercury (D009)	7420
Ignitability Analysis	1010, 1020

Bldg. 101

Metal Analysis (total analytes)	Method
Lead (D008)	6010
Chromium (D007)	6010
Ignitability Analysis	1010, 1020

Decontamination of the areas in each facility will continue until rinsewater samples contain no hazardous constituents above levels present in the background water sample. All rinsewater found to be contaminated above the regulatory levels as defined in R.61-79.261 shall be disposed of as hazardous waste. All rinsewater found to be contaminated below the regulatory levels as defined in R.61-79.261 may be disposed of in the North Charleston sanitary sewer system if the rinsewater does not exceed the concentrations specified for the listed constituents in North Charleston Sewer District Discharge Permit No. 008. Discharge of any rinsewater will not occur until the POTW of the North Charleston Sewer District has reviewed the analytical data of the rinsewater.

11. In accordance with R.61-79.265.140(c), Charleston Naval Shipyard is not required to provide any financial assurance information.

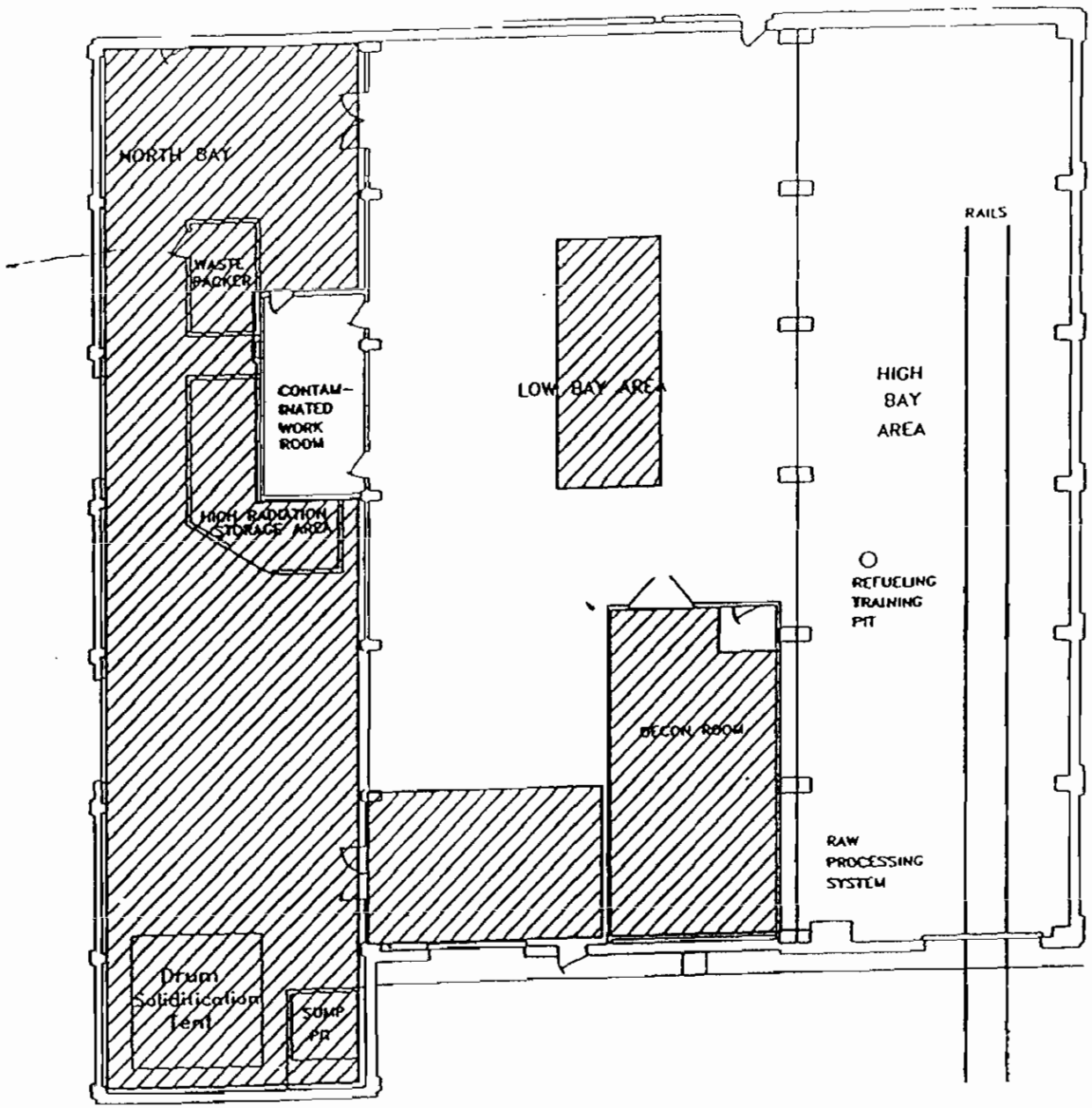
12. An independent South Carolina registered professional engineer (PE) will certify closure of the facilities and the Shipyard Commander will also certify closure of the facilities.

CLOSURE CERTIFICATION

The results of all testing will be provided to an independent SC PE who will inspect the facilities, review the test results and if all the criteria are met, will certify closure of the facilities. The owner\operator (i.e. Shipyard Commander) will also certify closure. This is to be accomplished within 60 days of closure of each facility.

FIGURE 1

BUILDING 79A

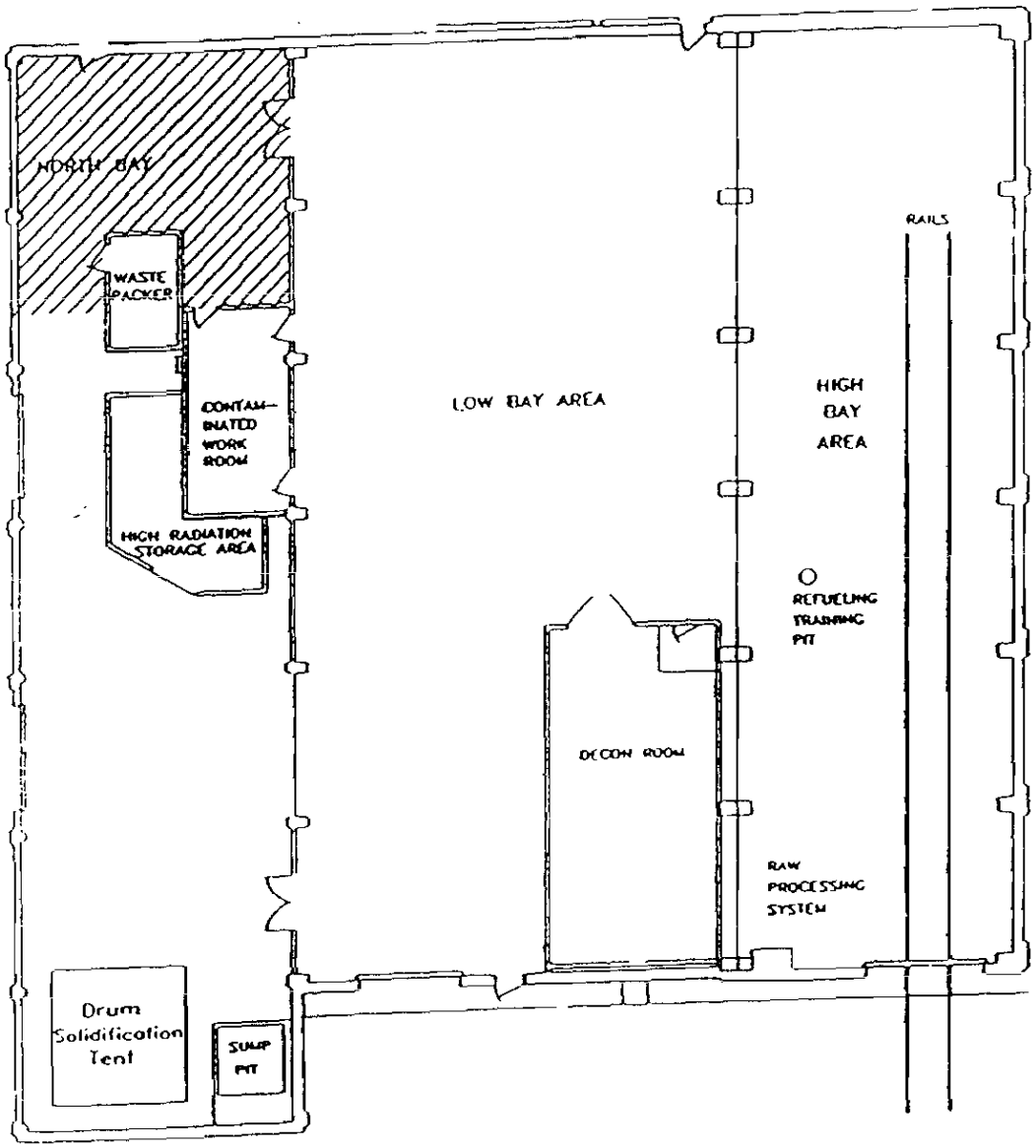


Note:

1. Hatched areas are subject to RCRA closure.

FIGURE 2

BUILDING 79A

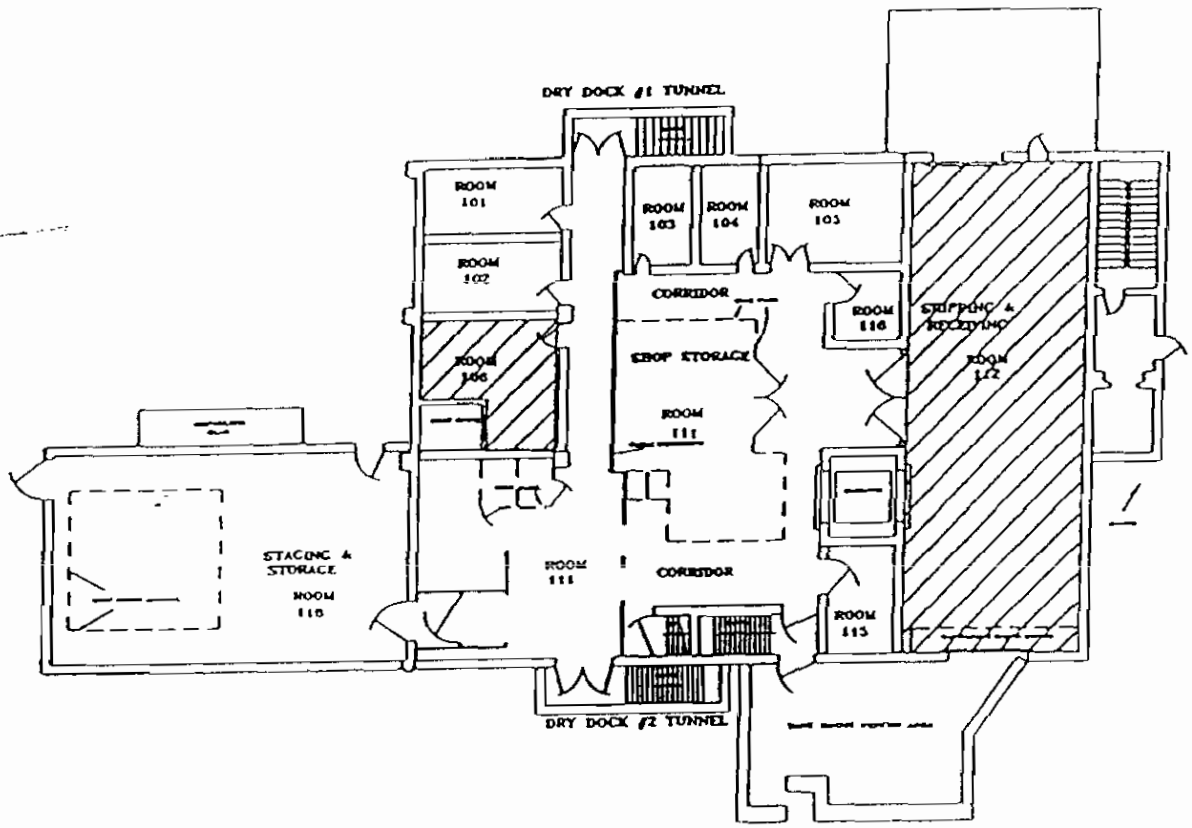


Note:

1. Hatched area is a less than 90 day accumulation area.

FIGURE 3

BUILDING 222 FIRST FLOOR

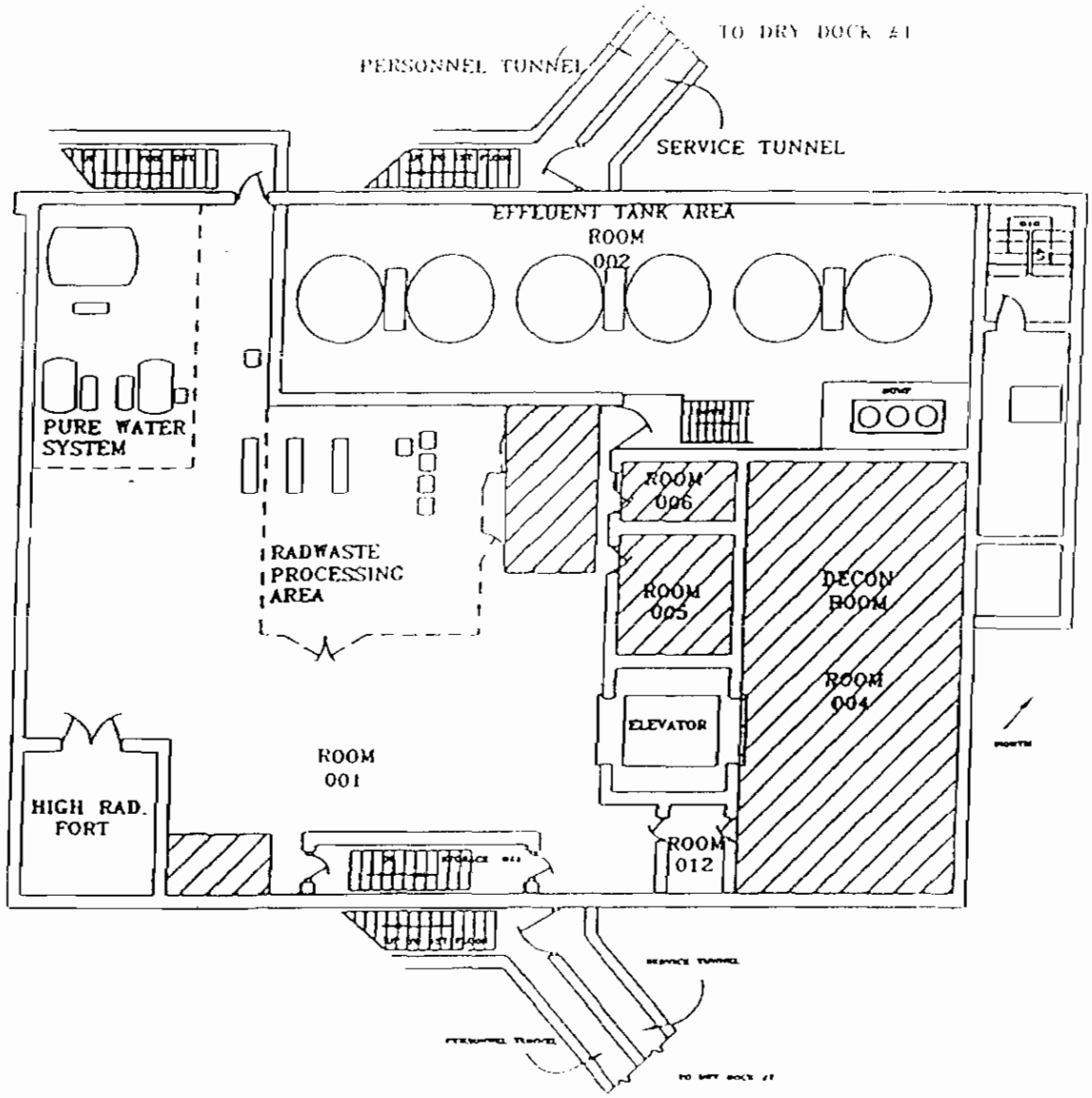


Note:

1. Hatched areas are subject to RCRA closure.

FIGURE 4

BUILDING 222 BASEMENT

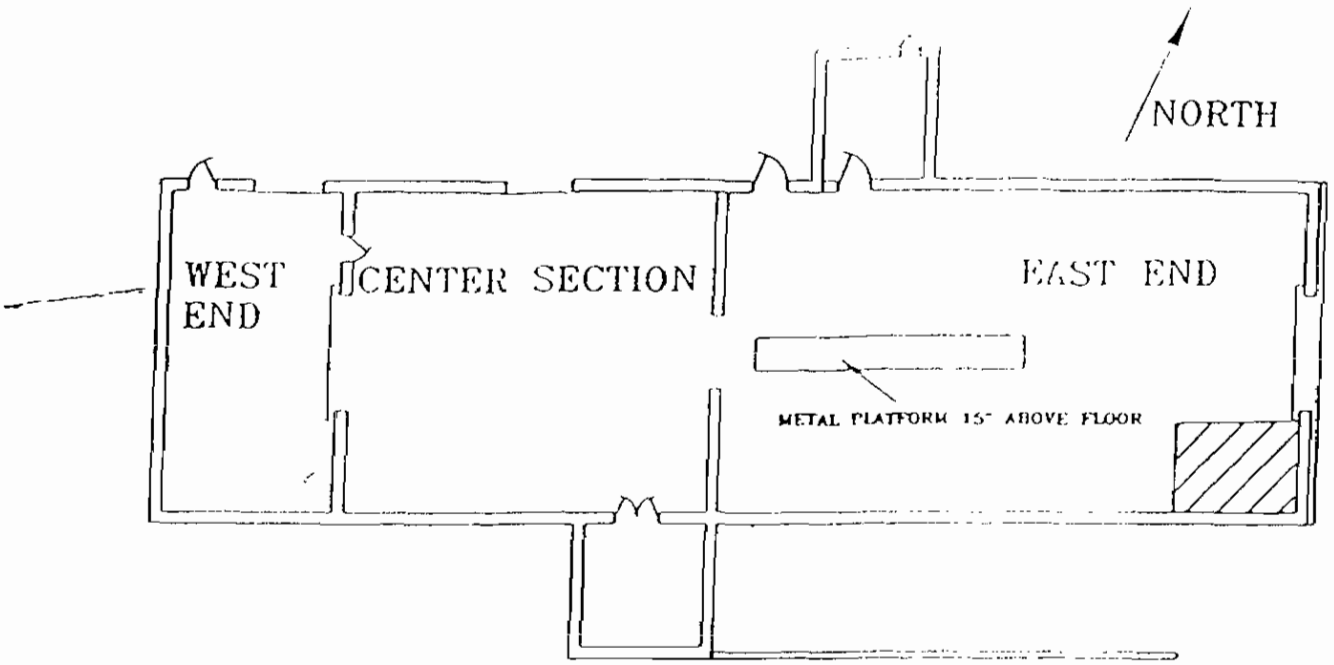


Note:

1. Hatched areas are subject to RCRA closure.

FIGURE 5

BUILDING 101



Note:

1. Hatched areas are subject to RCRA closure.

APPENDIX B

ENGINEER'S FIELD OBSERVATION LOG

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard — Report No.: 1

Project: Closure Certification for Bldg 222 — Page 1 of 1

Date: 12/16/95

Project No.: 34305.000 — Weather: A.M. Sunny P.M. Sunny

Temp.(°F): High 45 Low 35 Rain —

Contractor(s) Shipyard personnel

Contractor Super(s) Walter Lawrence / Ed Norman

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
Shipyard personnel	7

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Shop VAC	10 gal	1	1
pressure washer	1500 psi	1	1

Visitors	Representing
Robert Borowski	Rust E&I

Daily Notations:

Arrived on site and started cleanup operations approximately 800Am Took Samples of clean water (222001) and soapy water (222002) Brushed soapy solution on floor in Room 112. Rinsed w/pressure washer and collected rinse water w/shop VAC. Approximately 100 gallons of rinse water was used and collected. Floor surface was rinsed several times before rinse water became visually clean. Final rinse water was collected and sampled (222003). All samples were analyzed for chromium, lead, mercury & selver. Room 106 was also cleaned in the same manner. However, the final rinse was not collected until the following day. Cleaning operations ended approximately 4:00pm.

Signature: Robert Borowski

White Copy - Library File Yellow Copy - Owner Pink Copy - Employee's Field File

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard
Project: closure certification Bldg 222
Project No.: 34305.000

Report No.: 2
Page 1 of 1
Date: 12/17/95
Weather: A.M. p. cloudy P.M. p. cloudy
Temp.(°F): High 45 Low 35 Rain —

Contractor(s) Ship yard personnel
Contractor Super(s) Walter Lawrence / Ken Norman

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
Shipyard personnel	7

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Shop VAC	10 Gal.	1	1
pressure washer	1500PSi	1	1

Visitors	Representing
Robert Borowski	RUST E&I

Daily Notations:

Arrived on site and started cleanup operations approximately 8:00am. Took final rinse from Room 106 and sampled (222004). Started cleaning Room 004 with soapy water and brush. Rinsed floor several times before rinse water became visually clean. Collected approximately 100 gallons of water. Final rinse water was collected and sampled (222005). Room 005, & 006 & adjacent areaways cleaned next. Soapy solution was applied with a brush before rinsing and final rinse water was collected. Final rinse water was sampled from the area (222006). Area below the stairs was cleaned in the same manner. The final rinse sample was collected (222007) and cleaning operations ended around 3:00pm.

Signature: Robert Borowski

White Copy - Library File Yellow Copy - Owner Pink Copy - Employee's Field File

RUST ENVIRONMENT & INFRASTRUCTURE

Daily Field Report

Owner: Charleston Naval Shipyard
Project: Closure Certification Bldg 227
Project No.: 34305.000

Report No.: 3
Page 1 of 1
Date: 1/3/96

Weather: A.M. —
P.M. p. cloudy
Temp.(°F): High 50 Low 45 Rain —

Contractor(s) Shipyard personnel
Contractor Super(s) Ken Norman

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People
Shipyard personnel	6

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Shopvac	10 gal	1	1
pressure washer	1500 psi	1	1

Visitors: Robert Borowski, James Barclift, Jim Ritchie, Steve Kaufman
Representing: Rust E&I, Charleston Naval Shipyard

Daily Notations:

Arrived on site approximately 1:30 pm. Cleaning operations began on Room 004 (2nd cleaning) clean and soapy water was sampled (222010 and 222009) respectively. Soapy solution was applied with a brush and rinsed with a pressure washer. The water was collected with a Shop Vac until samples of the rinse water was visually clean. Final sample was collected and sampled (222008) of the rinse water.

Clean up operations ended approximately 3:00 pm.

Signature: Robert Borowski

White Copy - Library File Yellow Copy - Owner Pink Copy - Employee's Field File

APPENDIX C

ANALYTICAL RESULTS FOR BUILDING 222

February 20, 1996

MEMO TO FILE

Subj: Sample Dates on Chain-of-Custody form

Complete custody was maintained for all samples from Building 222 at all times. The sample containers were labeled and the samples were stored in a secure location immediately after they were taken. The chain-of-custody form was not filled out until just prior to sending the samples to the lab for analysis. At that time incorrect dates were inadvertently entered on the chain-of-custody form. The dates were never off by more than one day and all samples were analyzed within the allowed holding times for the procedures performed.

K. B. Norman
Code 300C.9 Remediation Project, APS

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	999847739	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995 Page 1 of 1

Sample ID	: TCG0237-6-3
Lab ID	: 9512361-03
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

CLEAN WATER

222001

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1307	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1941	77609
The following prep procedures were performed:								
ICP				EPA 200/3010	DVW	12/18/95	1950	77696
Mercury				EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
This is a revised certificate.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Mary A. [illegible]

Analytical Report Specialist

P O Box 30712 • Charleston, SC 29417 • (803) 556-8171 • Fax (803) 766-1178

9512361-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	999885779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995 Page 1 of 1

Sample ID	: TCG0237-6-2
Lab ID	: 9512361-02
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

WATER w/ DETERGENT

222002

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1304	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1939	77609
The following prep procedures were performed:								
ICP				EPA 200/3010	DVW	12/18/95	1950	77696
Mercury				EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
This is a revised certificate.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Mary A. Thomas

Analytical Report Specialist

P O Box 30712 • Charleston, SC 29417 • (803) 556-8171 • Fax (803) 766-1178

9512361-02

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	~~99988779~~	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020

Contact: Mr. Matt Cissel

Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995

Sample ID	: TCG0237-6-1
Lab ID	: 9512361-01
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

ROOM 112
SHIPPING & RECEIVING
222003

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1304	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1936	77609
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JRH2	12/20/95	1015	77813

The following prep procedures were performed:

ICP	EPA 200/3010	DVW	12/18/95	1950	77696
Mercury	EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
This is a revised certificate.

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9512361-01

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87454
NC	233	
SC	10120	10582
TN	02954	
VA	00151	
WI	999581720	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020

Contact: Mr. Matt Cissel

Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995

Sample ID	: TCG0237-6-4
Lab ID	: 9512361-04
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

ROOM 106
WEST SIDE OF 1ST FLOOR
222004

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	ISS	12/19/95	1236	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1944	77609
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JRH2	12/20/95	1015	77813
The following prep procedures were performed:								
ICP				EPA 200/3010	DVW	12/18/95	1950	77696
Mercury				EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
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9512361-04

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications		
STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	999887791	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995

Sample ID	: TCG0297-6-5
Lab ID	: 9512361-05
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

ROOM 004

DECON ROOM

222005

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1238	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium		0.240	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1946	77609
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JRH2	12/20/95	1015	77813
The following prep procedures were performed:								
ICP				EPA 200/3010	DVW	12/18/95	1950	77696
Mercury				EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
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9512361-05

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99988779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995

Rooms 005/006/ ADJACENT AREA

Sample ID	: TCG0237-6-6
Lab ID	: 9512361-06
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

BASEMENT
222006

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1239	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1949	77609
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JRH2	12/20/95	1015	77813
The following prep procedures were performed:								
ICP				EPA 200/3010	DVW	12/18/95	1950	77696
Mercury				EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
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9512361-06

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Laboratory Certifications		
STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	999843779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: December 27, 1995

Sample ID	: TCGC237-6-7
Lab ID	: 9512361-07
Matrix	: WasteH2O
Date Collected	: 12/16/95
Date Received	: 12/18/95
Priority	: Rush
Collector	: Client

AREA NEXT TO HIGH RAD FORT

222007

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Silver	<	0.100	mg/l	EPA 200.7	JSS	12/19/95	1241	77696
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
Mercury	<	100	ug/l	EPA 245.1	RMJ	12/19/95	1956	77609
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	JRH2	12/20/95	1015	77813

The following prep procedures were performed:

ICP	EPA 200/3010	DVW	12/18/95	1950	77696
Mercury	EPA 245.1	RMJ	12/18/95	2100	77609

Comments:
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9512361-07

GENERAL ENGINEERING LABORATORIES

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FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99988779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 17, 1996

Sample ID : TCG0266-6-1
Lab ID : 9601082-01
Matrix : WasteH2O
Date Collected : 01/03/96
Date Received : 01/04/96
Priority : Rush
Collector : Client

Rinse Water Room 004
second Cleaning
222008

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/11/96	2100	78399
Silver	<	0.100	mg/l	EPA 200.7	NRM	01/08/96	2205	78447
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	MCM	01/05/96	1045	78449
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/11/96	1315	78399
TRACE				EPA 3005	DVW	01/06/96	1255	78447

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99988779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 17, 1996 Page 1 of 1

Sample ID : TCG0266-6-2
Lab ID : 9601082-02
Matrix : WasteH2O
Date Collected : 01/03/96
Date Received : 01/04/96
Priority : Rush
Collector : Client

Clean H_2O w/ Detergent
Second Cleaning
222009

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/11/96	2100	78399
Silver	<	0.100	mg/l	EPA 200.7	NRM	01/08/96	2210	78447
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	MCM	01/05/96	1045	78449
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/11/96	1315	78399
TRACE				EPA 3005	DVW	01/06/96	1255	78447

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Analytical Report Specialist

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99988779	

CERTIFICATE OF ANALYSIS

Client: Navy Public Works Center-Chas. Zone
Charleston Naval Shipyard
Code 106.24, Bldg.234
Charleston, South Carolina 29408-2020
Contact: Mr. Matt Cissel
Project Description: Code 106

cc: NPWC00195 Report Date: January 17, 1996

Sample ID : TCG0266-6-3
Lab ID : 9601082-03
Matrix : WasteH2O
Date Collected : 01/03/96
Date Received : 01/04/96
Priority : Rush
Collector : Client

Clean H_2O
Second Cleaning
22010

Parameter	Qualifier	Result	Units	Method	Analyst	Date	Time	Batch
Metals Analysis								
Mercury	<	0.100	mg/l	EPA 245.1	RMJ	01/11/96	2100	78399
Silver	<	0.100	mg/l	EPA 200.7	NRM	01/08/96	2214	78447
Cadmium	<	0.100	mg/l	EPA 200.7				
Chromium	<	0.100	mg/l	EPA 200.7				
Lead	<	0.100	mg/l	EPA 200.7				
General Chemistry								
Flash Point, closed cup (200F)	>	200	F	SW 846 1010	MCM	01/05/96	1045	78449
The following prep procedures were performed:								
Mercury				EPA 245.1	JL	01/11/96	1315	78399
TRACE				EPA 3005	DVW	01/06/96	1255	78447

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Analytical Report Specialist

3 DAY TU AROUND

CHAIN OF CUSTODY RECORD

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29414
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: CNSY

Collected by/Company: K. Norman CNSY 3-8401/EXT 16

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	SVOC REMARKS METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	FLASHPOINT
TCG0266-6-1	1/3/96	1500				X	1							X									X
TCG0266-6-2	1/3/96	1500				X	1							X									X
TCG0266-6-3	1/3/96	1500				X	1							X									X

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

BLDG 222 2ND CLEANING OF Rm 004 Remarks

CONTROL # 222008 RINSE WATER - Rm 004

CONTROL # 222009 CLEAN H2O W/ DETERGENT Rm 004

CONTROL # 222010 CLEAN H2O Rm 004

METALS:

LEAD

CHROMIUM

SILVER

MERCURY

CADMIUM

NOTE: REPORT ALL RESULTS LESS THAN .1 PPM AS < .1

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
K.B. Norman	1/3/96	1525	W. R. Hiers, Jr.	W. R. Hiers, Jr.	1/4/96	1600	
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	

White = sample collector Yellow = file Pink = with report