

ORGANIZATION: NUS CORPORATION
GAITHERSBURG, MARYLAND

REPORT NO.: 99900516/82-01	INSPECTION DATES: 5/24-28/82	INSPECTION ON-SITE HOURS: 60
CORRESPONDENCE ADDRESS: NUS Corporation ATTN: Dr. W. J. Gallagher, Senior Vice President Division Operations 910 Clopper Road Gaithersburg, Maryland 20878 ORGANIZATION CONTACT: M. R. Booska, Director, Corp. QA-Division Operations TELEPHONE NUMBER: (301) 258-6000		
PRINCIPAL PRODUCT: Engineering Consultant Activities NUCLEAR INDUSTRY ACTIVITY: NUS Corporation has three divisions that are involved in nuclear safety-related projects. The current level and type of activity is approximately as follows: Engineering Division - 18 contracts (piping analysis, fuel storage rack design, control room habitability design, fire protection modifications, equipment evaluation/qualification, system/component performance analysis and design, (con't on next page)		
ASSIGNED INSPECTOR:	<u>C. J. Hale</u> D. D. Chamberlain, Reactor Systems Section (RSS)	<u>7/2/82</u> Date
OTHER INSPECTOR(S):	J. Conway, Reactive and Components Program U. Potapovs, Chief, Vendor Programs Branch	
APPROVED BY:	<u>C. J. Hale</u> C. J. Hale, Chief, RSS	<u>7/2/82</u> Date
INSPECTION BASES AND SCOPE: A. <u>BASES</u> : 10 CFR Part 50, Appendix B B. <u>SCOPE</u> : QA Program Evaluation		
PLANT SITE APPLICABILITY: This inspection relates to the following plant docket: 50-358 and 50-359. DESIGNATED ORIGINAL Certified By <u>Kheanne Jouts</u>		

REPORT

NO.: 99900516/82-01

INSPECTION

RESULTS:

PAGE 2 of 4

NUCLEAR INDUSTRY ACTIVITY: (Cont.)

etc.); Consulting Division - 17 contracts (hazards analysis, system/component/compartments analysis, QA support, control room habitability study, independent review of purchase specifications, etc.); and Environmental Division - 14 contracts (environmental studies, licensing support, meteorological services, radiological services, etc.).

A. VIOLATIONS:

None

B. NONCONFORMANCES:

1. Contrary to Criterion V of Appendix B to 10 CFR Part 50, Section 7.4 of QAP 2.3 and Section 7.2 of QAP 6.1, a review of document control activities for one project (No. 3366) revealed the following: QA personnel and the Operations Manager in the NUS-Gaithersburg, Maryland, Office did not receive any copies of controlled documents, including the QA Plan; and there was no evidence of Document Transmittal Forms or a Document Receipt Log.
2. Contrary to Criterion V of Appendix B to 10 CFR Part 50, Section 1.1 of QAR 17.0, Sections 7.1 and 7.2 of QAP 17.1, and Section 7.1.2 of QAP 17.3, a review of QA records and documentation supplied the NRC inspector revealed the following: QA Record Index was missing for two projects; QA Record Log was missing for five projects; audit reports for 1981 and one QA Plan were not identified as QA records; and personnel qualifications were missing.

C. UNRESOLVED ITEMS:

None

D. OTHER FINDINGS OR COMMENTS:

QA Program Evaluation - The purpose of this area of inspection was to perform an initial evaluation of the NUS QA program. It was determined that NUS Corporation has three divisions that are involved in nuclear safety-related activities. The three divisions are the Engineering Division, the Consulting Division, and the Environmental Division. Each of the three divisions has an independent QA program manual and implementing procedures/instructions. NUS also has a Corporate QA whose function is "primarily an internal management overview designed to inform Corporate and Operating Unit Management of the adequacy of program implementation as determined by independent second party audit." This inspection covered the Engineering Division and the Consulting Division.

REPORT

NO.: 99900516/82-01

INSPECTION

RESULTS:

Page 3 of 4

1. Engineering Division - The NUS Engineering Division Quality Assurance Manual and applicable procedures governing the areas of QA program, organization, engineering control, procurement control, QA records, and audits were examined to determine that they were consistent with quality and technical commitments to codes, standards, regulations, and guides. The following documentation of completed work in these areas was examined to verify implementation of program commitments: 1 document transmittal record; 3 purchase orders; 1 corporate QA audit report; training records for 5 personnel; 1 design/input requirements document; 8 drawings; 2 QA plans; 2 vendor specifications; 12 analysis packages; 2 specifications; 3 design change notices; 2 vendor surveillance/audit reports; second quarter audit schedule; and 2 internal audit reports. Within the scope of this inspection of the Engineering Division, it was determined that the QA program requirements were being implemented. The following two items were identified for followup during future inspections:
 - a. During the review of the Sargent and Lundy (S&L) piping analysis contract on the Zimmer project, it was noted that certain dead weight loadings provided by S&L were identified as preliminary values. NUS performed the analysis based on these values and returned the analysis packages. A followup inspection of this area will be conducted at S&L to determine how the preliminary dead weight loadings will be finalized.
 - b. During the review of the NUS Engineering Division training program, it was noted that the Engineering Department Procedure (EDP-20) for personnel training was revised in February 1982, to establish a matrix for minimum training requirements for all disciplines. An internal audit of this area identified that full implementation of the training requirements is not complete. A followup inspection of NUS corrective actions in this area will be conducted.
2. Consulting Division - The QA program for the NUS Consulting Division was evaluated particularly in the areas of organization, training, document control, QA records, and audits to determine if activities were being implemented consistent with quality commitments contained in the QA manual. A detailed review of documentation (e. g., QA manuals, procedures, and reports) and detailed discussions with NUS personnel were conducted to verify implementation of program commitments. Two nonconformances (B.1 and B.2 above) were identified relating to document control and QA records. Also, the following was identified to NUS management regarding the Consulting Division organizational structure.

ORGANIZATION: NUS CORPORATION
GAITHERSBURG, MARYLAND

REPORT
NO.: 99900516/82-01

INSPECTION
RESULTS:

Page 4 of 4

The QA Manual organization charts do not clearly identify all the organizational elements that function under the cognizance of the QA program, including those groups providing QA services to customers. In addition, the interrelationship and areas of responsibility and authority of each of the organizational elements are not described. This area will be inspected further during subsequent inspections.

1	2	TITLE/SUBJECT	3	4
1	8	NUS ORGANIZATION CHARTS	4-1-82	
2	4	ENGINEERING DIVISION QUALITY ASSURANCE MANUAL	1-1-82	
3	8	QA PLAN - CONTROL ROOM HVAC UPGRADE PROJECT (DRESDEN AND QUAD CITIES STATIONS) 8730-P-101 + DUPLICATE	3-12-82	
4	8	CORPORATE QUALITY ASSURANCE AUDIT NUS-81-16	10/12-16/81	
5	8	DOCUMENT TRANSMITTAL RECORD NO. I-2828	2-2-82	
6	5	PURCHASE ORDER NO. 259402 CONTROL ROOM HABITABILITY MODIFICATIONS	1-29-82	
7	7	PROPOSAL FOR P.O. 259402	11-9-81	
8	3	ENGINEERING DIVISION PROCEDURE (EDP) NO. 20 PERSONNEL TRAINING	2-12-82	C
9	8	TRAINING RECORDS FOR PERSON #1	VARIOUS	
10	8	TRAINING RECORDS FOR PERSON #2	"	
11	8	TRAINING RECORDS FOR PERSON #3	"	
12	8	TRAINING RECORDS FOR PERSON #4	"	
13	8	TRAINING RECORDS FOR PERSON #5	"	
14	3	EDP NO. 1.0 DESIGN INPUT REQUIREMENTS	3-28-79	B

Document Types:

- | | |
|------------------|---------------------------------|
| 1. Drawing | 5. Purchas Order |
| 2. Specification | 6. Internal Memo |
| 3. Procedure | 7. Letter |
| 4. QA Manual | 8. Other (Specify-if necessary) |

Columns:

1. Sequential Item Number
2. Type of Document
3. Date of Document
4. Revision (If applicable)

1	2	TITLE/SUBJECT	3	4
15	8	DESIGN INPUT REQUIREMENTS CHECKLIST (CONTRACT 8730-P-100)	2-26-82	
16	8	DESIGN INPUT REQUIREMENTS FOR CONTROL ROOM HVAC UPGRADE 8730-P-100	3-19-82	
17	3	EDP NO. 16.0 DEVELOPMENT, DRAFTING, AND APPROVAL OF PROCESS FLOW AND PIPING AND INSTRUMENT DIAGRAMS	7-15-80	
18	1	M-1551 CONTROL ROOM HVAC P&ID	4-20-82	A
19	3	EDP NO. 9.0 DOCUMENT REVIEW	5-11-81	E
20	3	EDP NO. 2.0 PROCEDURE FOR PREPARATION, REVIEW, APPROVAL, AND RETENTION OF DESIGN SPECIFICATIONS	12-15-78	B
21	3	EDP NO. 11.0 DOCUMENTATION OF DESIGN	7-15-80	C
22	8	5136-P-101 MARBLE HILL NEW AND SPENT FUEL STORAGE RACKS QA PLAN + QA RECORD DUPLICATE	1-29-79	2
23	5	P.O. 1254-89-Q FUEL RACK STORAGE PACKAGE	11-14-77	
24	8 2	Y-2743 NEW AND SPENT FUEL STORAGE RACKS (S&L)	12-22-76	
25	8	STRUCTURAL ANALYSIS OF THE SPENT FUEL RACKS BYRON-BRAIDWOOD/MARBLE HILL ANALYSIS FILE NO. 5106-PA-001	9-14-77	
26	8	RECORD OF SYSTEM COMPONENT ANALYSIS 5106 PA-001	9-23-77	

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Scope/Module QA PROGRAM
ENGINEERING DIVISIONDOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
27	8	STRUCTURAL ANALYSIS OF THE FAILED FUEL STORAGE RACK ANALYSIS FILE NO. 5106-PA-003	10-4-77	
28	8	RECORD OF SYSTEM/COMPONENT ANALYSIS 5106 PA-003	10-6-77	
29	8	STRUCTURAL ANALYSIS OF THE NEW FUEL RACKS ANALYSIS FILE NO. 5106-PE-002	2-16-78	
30	2	SPEC F-2743/L-2743 NEW AND SPENT FUEL STORAGE RACKS BYRON - BRAIDWOOD	6-8-76	
31	8	RECORD OF SYSTEM/COMPONENT ANALYSIS 5106-PE-002	2-17-78	
32	3	EDP 5.0 NON-CODE ANALYSIS AND VERIFICATION	3-31-80	
33	1	5106M2000 SPENT FUEL & FAILED FUEL RACK	9-15-78	1
34	1	5106M2001 STORAGE FOR WESTINGHOUSE NUCLEAR FUEL	6-3-80	6
35	1	5106M2002 "	10-6-80	6
36	1	5106M2003 FAILED FUEL CONTAINER RACK BASE PRODUCT DRAWING	9-15-78	2
37	1	5106M2004 FAILED FUEL CONTAINER RACK ASSEMBLY	8-15-80	4
38	1	5106M2005 EMBEDMENT LOCATION AND DETAILS FOR NEW FUEL RACKS	9-15-78	4

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DOCUMENTS EXAMINED

ENGINEERING DIVISION

1	2	TITLE/SUBJECT	3	4
39	2	5106-M-200 SPEC FOR FABRICATION OF SPENT, FAILED AND NEW NUCLEAR FUEL STORAGE RACKS + QA RECORD DUPLICATE	6-18-79	3
40	8	5106 DCN028 DESIGN CHANGE NOTICE - DIMENSION TOLERANCE	10-29-79	
41	8	5106 DCN029 "	10-29-79	
42	8	5106 DCN030 " - DIMENSION CHANGE	11-12-79	
43	2	8730-M-200 CONTROL ROOM HVAC UPGRADE (DRESDEN/ QUAD CITIES)	4-12-82	
44	8	5370-M-202 QA PLAN FOR THE DESIGN ANALYSIS OF PIPING AND PIPE SUPPORTS (ZIMMER)	9-16-80	
45	8	5370-FA-55 RECORD OF SYSTEM/COMPONENT ANALYSIS	12-24-80	
46	8	RHR DRAIN LINE RH-55 FORMAL PIPING STRESS ANALYSIS	12-24-80	
47	8	DIESEL GENERATOR SYSTEM DG-2 FORMAL PIPING STRESS ANALYSIS	12-19-80	
48	1	M-428-2H DIESEL GENERATOR AUX COOLING WATER PIPING	12-13-80	5
49	8	RI-10 REACTOR CORE ISOLATION COOLING LINE-DRAIN PIPE STRESS 5370-FA-105	2-27-81	
50	8	DG-16 (5370-FA-038) DIESEL GENERATOR COOLING LINE - ANALYSIS	11-14-80	

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Scope/Module QA PROGRAM
ENGINEERING DIVISIONDOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
51	8	NUS-3450 STRUCTURAL ANALYSIS OF THE HIGH DENSITY SPENT FUEL RACKS	7-25-80	
52	4	QAM SECTION 3.0 PROCUREMENT AND PROCUREMENT DOCUMENT CONTROL	1/1/82	
53	5	P.O. SY 5136-2 FUEL STORAGE RACKS (MARBLE HILL)	3/6/79	
54	8	EDQA REPORT 5136-14 SURVEILLANCE ON PROJECT 5136	12-2-80	
55	8	EDQA SURVEILLANCE ON PROJECT 5136 REPORT 5136-13	11-7-80	
56	8	QUALITY STATUS REPORT 5136-2-Q9 UNDERSIZE FILLET WELDS	2-8-80	
57	8	QUALITY STATUS REPORT 5136-2-Q11 MATERIAL SHEARED TOO NARROW	5-12-80	
58	3	QAM SECTION 5.0 AUDITS	1-1-82	
59	6	1982 (2 nd QUARTER, REV. 1) AUDIT SCHEDULE - ENGINEERING DIV.	5-10-82	
60	8	EDQA AUDIT NUMBER ASSIGNMENT LOG	1981/82	
61	8	EDQA INTERNAL AUDIT OF PROJECT 5387	3-27-81	
62	8	ED TRAINING AUDIT NUS-82-7	5-17-82	

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Inspector CONWAYDocket No. 49900516Report No. 82-01

Scop/Module _____

DOCUMENTS EXAMINEDPage 1 of 2

1	2	TITLE/SUBJECT	3	4
1	4	CORPORATE QUALITY ASSURANCE POLICY MANUAL (Volume I)	10/81	0
2	4	QUALITY ASSURANCE MANUAL - CONSULTING DIVISION	4/82	16
3	4	QUALITY ASSURANCE MANUAL (VOLUME II) - CONSULTING DIVISION (SOUTHERN OPERATIONS)	3/82	0
4	8	QA PLAN - PROJECT # 3378	4/82	0
5	8	QA PLAN - PROJECT # 3366	4/82	0
6	4	QUALITY ASSURANCE MANUAL (VOLUME II) - CONSULTING DIVISION (ALL OPERATIONS)	3/82	1
7	8	QA PLAN - PROJECT # 1702	4/80	1
8	8	WORK INSTRUCTIONS WI-1702/01/02/03/04 FOR SOUTH TEXAS PROJECT	-/80	
9	8	PROJECT INPUT DOCUMENT RECEIPT LOG FOR PROJECT NOS.		
10	8	DOCUMENT TRANSMITTALS FOR PROJECT NOS. 1702, 3366, # 3378		
11	8	AUDIT REPORT NUS 4085 - AUDIT OF SOUTHWEST RESEARCH INSTITUTE	4/82	
12	8	TRAINING COURSE ATTENDANCE RECORDS CONDUCTED BY QA DEPT. IN MAY '82	-	-
13	8	AUDIT SCHEDULES FOR 1980 - 1981 & 1982	-	-
14	8	QUALIFICATION/CERTIFICATION ^{RECORDS} OF THREE AUDITORS IN HOUSTON OFFICE	-	-

Document Types:

- 1. Drawing
- 2. Specification
- 3. Procedure
- 4. QA Manual
- 5. Purchase Order
- 6. Internal Memo
- 7. Letter
- 8. Other (Specify-if necessary)

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Inspector CONWAY

Docket No. 99900516

Report No. 82-01

Scop/Module _____

DOCUMENTS EXAMINED

Page 2 of 2

1	2	TITLE/SUBJECT	3	4
15	8	QA RECORDS FOR TEN INDIVIDUALS	-	-
16	8	CORPORATE QA AUDIT NUMBER ASSIGNMENT LOG for '80 '81 & '82	-	-
17	8	AUDIT REPORT No. CSG-80-15 "CONSULTING DIVISION ROCKVILLE OPERATIONS"	-	-
18	3	CORPORATE QA PROCEDURE No. CQA-1	1/82	0
19	8	AUDIT REPORT No. NUS-81-3	-	-
20	6	MEMO - AUDIT RESPONSE EVALUATIONS	6/81	-
21	8	AUDIT/SURVEILLANCE QA RECORD FILE FOR 1981	-	-

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