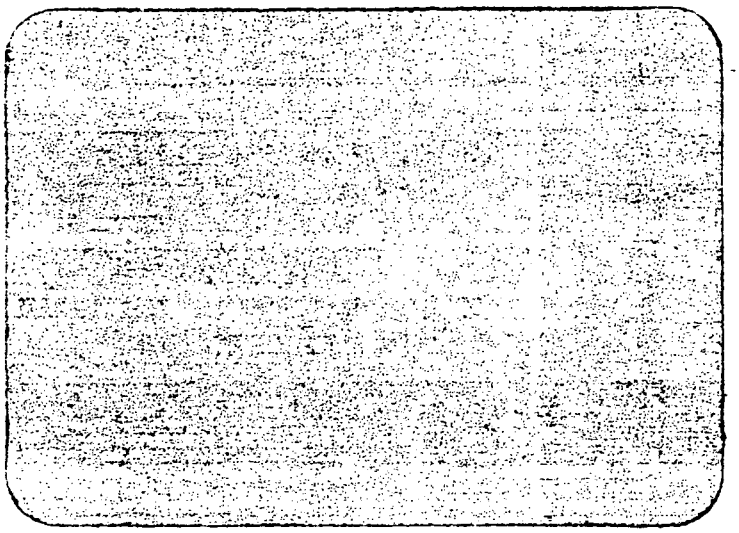


Con Edison

Quality Assurance And Reliability

PROTECTION OF RECORDS

- Fire Survey of Con Edison Record Storage Areas
- Results of ANSI N 45.2.9 (5.6) "Nine Considerations".

Vincent J. Ammirato
Quality Assurance
January 30, 1978

TABLE OF CONTENTS

Protection of Records

- Fire Survey of Proposed Con Edison Record Storage Areas
- Results of ANSI N 45.2.9 'Nine Considerations'

Introduction

Part of our commitment to the NRC on June 7, 1977 included compliance to Regulatory Guide 1.88, 'Collection, storage & maintenance of nuclear power plant Quality Assurance records'- Oct. 1976. In addition, ANSI N 45.2.9 - 1974 'Requirements for collection, storage & maintenance of quality assurance records for nuclear power plants', Section 5.6 Facility. 'Nine Construction Features' were reviewed in conjunction with NFPA standard number 232 'Protection of Records' - 1975. This report lists the results of several surveys made against these standards in order to justify the use of fire rated file cabinets to meet our commitment. Attached is a typical fire survey which contains data on the type of building & amounts and types of combustibles. These data formed the basis for calculating total floor loads and % combustible material.

Also attached is a typical survey which identifies the results of reviewing each storage location against the nine ANSI 45.2.9 Section 5.6 considerations. These considerations contain guidance on the characteristics of the record storage facilities.

The areas surveyed included the following:

1. ✓Turbine floor modules - IP central files.
2. ✓ Chemistry - Instrumentation & Control - IP ES Building.
3. Health Physics
   - A. Main Office
   - ✓B. Supervisor's Office
   - ✓C. Technician's Office
4. Maintenance - IP ES Building.
5. Quality Assurance & Reliability
   - A. 1901-S Irv. Pl
   - B. 615-S Irv. Pl
6. Station Administration - ES Building.
7. Receipt Inspection - IP.
8. Nuclear Training - IP Simulator Building.
9. Power Generation Maintenance - Van Nest. ✓
10. Nuclear Environmental monitoring - IP.
11. Construction - IP.

Part I: Evaluations Against NFPA No. 232.

Definitions

1. Non-fire resistive building - A building whose structural members, including floor and roof, cannot withstand a fire completely consuming combustible contents, trim & floor surfacing without collapse.

2. Fire resistive building - A building whose structural members (including floors and roof if used as part of vault) are of non-combustible material throughout and can withstand a fire completely consuming combustible contents, trim and floor surfacing on any floor without collapse, thereby assuring that record containers on one floor of the building will not be exposed to the burning of additional combustible material from other floors.

3. Facility - This is described by the perimeter of the record storage area.

4. Exposed combustibles - Materials that are in open shelves, cupboards or material in the building trim. The prefix 'C' in front of Item Descriptions denotes an exposed combustible.

Estimating The Combustible Material Exposure

The file cabinet's fire rating was determined by calculating the total weight of combustibles in the given record storage area. Combustible weight is calculated in terms of wood and paper. Where contents were other than wood and paper a 'Quality Factor' was used to make allowances for differences in heat values of other materials. When the 'Quality Factor' is multiplied by the combustible's weight an 'Equivalent weight' is generated. The 'total Weight' in a given area is then divided by the area to obtain the amount in pounds per square feet yielding the 'Load'. The 'Load' is assumed to be uniformly distributed. The resultant 'Load' was then compared with Table 5533 of NFPA No 232 to select cabinet rating.

Technique

I. Carpet: A characteristic sample of carpet used in storage area no.1 was obtained, measured and weighed. Being a composite of nylon pile foam-backed construction its weight was multiplied by a Quality factor of 2.

III. Flooring Type: Asphalt, Vinyl-Asphalt & Linoleum - Based on conversations with GAF. & Kentile Corporations, leading flooring manufacturers, it was decided to eliminate the class of material as exposed combustibles. This is further supported by Underwriters' Laboratories Inc reports USNC-42 which concluded that "sustained ignition was virtually nonexistent. (U.L. Ref: "A test method

III. Flooring Type (Cont'd)

for measuring the flame propagating characteristics of flooring and floor covering materials '-8/28/70 and draft report-' 'Test method for measuring the surface flame propagation characteristic of flooring and floor covering materials' - 6/73.")

In addition, a simple experiment was conducted to verify this position. A typical floor tile was placed on edge and a cigarette lighter placed under its corner. Although the tile did burn slowly once the flame was removed the tile immediately stopped burning. For this reason asphalt, vinyl and linoleum flooring were considered not to be ' exposed combustibles' just a combustible.

IV. Partitions - A characteristic wall sample was obtained for measuring and weighing for storage area No. 1 All other locations used estimates provided by NFPA No. 232.

1. Chairs

Foam padded chairs - The weight contribution was determined by taking dimensions of a typical office foam chain and calculating the volume occupied. Using an acceptable density value of 2.94 lb/ft^3 the equivalent weight was calculated. Reference source: 'Plastic Foams' Part II by K. Frisch & J. Saunders - Marcel Decker Inc.

Wooden Chairs - A typical wooden Chair's weight was calculated by estimating its volume of wood and then multiplying by 36 lb/ft^3 wood's desity as per NFPA No. 232.

2. Desks

Standard desk - The occupied volume of a typical desk was determined and multiplied by the computed standard density of paper. It was assumed that all drawers are fully packed with paper.

Wooden desks - Dimensions of all portions of the desk were taken thus generating volumes which could be converted into weight. Weight contribution of paper was also taken into consideration.

3. Drawings

Loose - The occupied volume of a drawing rack was calculated and converted into weight by multiplying it by the standard density of paper. It was assumed to be loosely packed to 20%.

Rolls - An average drawing package of engineering drawings was assumed to be four inches in diameter and weigh 5½ lbs.

4. File Cabinets - A representative sample of each size cabinet was selected and measured. Once its volume was known its weight was determined.

5. Flammable Liquids - Samples were taken and weighed then multiplied by a Quality Factor of 2.

6. Loose Paper - The density of office paper was empirically determined by weighing a representative sample (½ ream of xerox paper) and taking its dimensions to determine its volume. The value calculated is used throughout this report as the standard density of paper.

7. Storage Cabinets

Each type cabinet was measured to calculate its volume, and hence its weight.

8. Wooden Tables - Each table's component parts were measured, their volumes calculated and converted into weight using the density of wood. Weight contribution of paper was also included.

Designation of Record Storage Facilities

1. Central Files: - Since the turbine module is a non-fire resistive structure internally located inside IP1 turbine bldg, the entire 53rd foot elevation of the turbine bldg (IP1 & 2) as well as, the superheater bldg elev 53' outlined the facility. Health Physics - Supervisor's Office contents are also included in the calculations since they share the same facility.

2. Chemistry - Instrumentation & Control: Both record storage areas are adjacent to one another and are separated by non-fire resistive walls. The entire area and contents including Chemistry, I & C and Performance Engineering were included.

3. Health Physics A Main Office - The Storage facility is designated by the dimensions of the office.
B Supervisor's Office - See Item #1.
C Technician's Office - See Item 3A.

4. Maintenance - The storage facility is designated by the four walls of the office plus an additional area (telephone room) since it is separated by a non-fire resistive partition.

5. Quality Assurance and Reliability

A. Standards & Reliability 1901-S: The storage facility was taken to be the entire office since the immediate area is protected by 2 non-fire resistive walls.

- o Books & paper stored in glass enclosed cabinets were not considered to be 'exposed combustibles'.

- o The total value of apparent loose material was reduced by 40% since in actuality these items are 8½ x 11" while the value used elsewhere was calculated on the basis of 12" x 12" paper-books.

B. Quality Assurance 615-S: The facility was taken to be the south side of the building since the immediate storage area is boarded by two non-fire resistive partitions. The survey included General Accounting, Stores and Property Records, as well as QA.

6. Station Administration - The facility is marked off by the dimensions of the office including Gen'l Supt, Supt. conference room and xerox room.

7. Receipt Inspection - The storage facility is outlined by four concrete block walls; one wall has a motorized steel gate. This area is part of a larger structure.

8. Nuclear Training - The facility is the storage room itself.

9. PGM-QA - See response to item #3A.

10. Nuclear Environmental Monitoring - The storage facility is the entire structure.

11. Construction - Same as item #10.

RECORD STORAGE AREA SUMMARY SHEET

	LOCATION & DEPARTMENT	LOAD (lb/ft^2)	EXPOSED COMBUS-TIBLES %	CABINET RATING W/O IMPACT(hr)	CABINET RATING W IMPACT
1.	TURBINE FLOOR MODULES - NPG	1.5	29.5	1	
2.	CHEMISTRY - I & C -	30.0	14.0		1
3.	HEALTH PHYSICS				
	A. MAIN OFFICE	20.5	27.0		1
	B. SUPERVISORS' OFFICE	1.5	29.5		1
	C. TECHNICIANS' OFFICE	18.5	23.0*1		1
4.	MAINTENANCE	14.5	12.0		1
5.	QUALITY ASSURANCE & RELIABILITY				
	A. 1901-S	14.0	27.0		1
	B. 615-S	17.0	27.5		1
6.	STATION ADMINISTRATION	17.0	27.0		1
7.	RECEIPT INSPECTION	8.0	79.5*2		1
8.	NUCLEAR TRAINING	1.0	0	1	
9.	POWER GENERATION MAINTENANCE	23.5	8.5		1
10.	NUCLEAR ENVIRONMENTAL MONITORING	10.0	12.5	1	

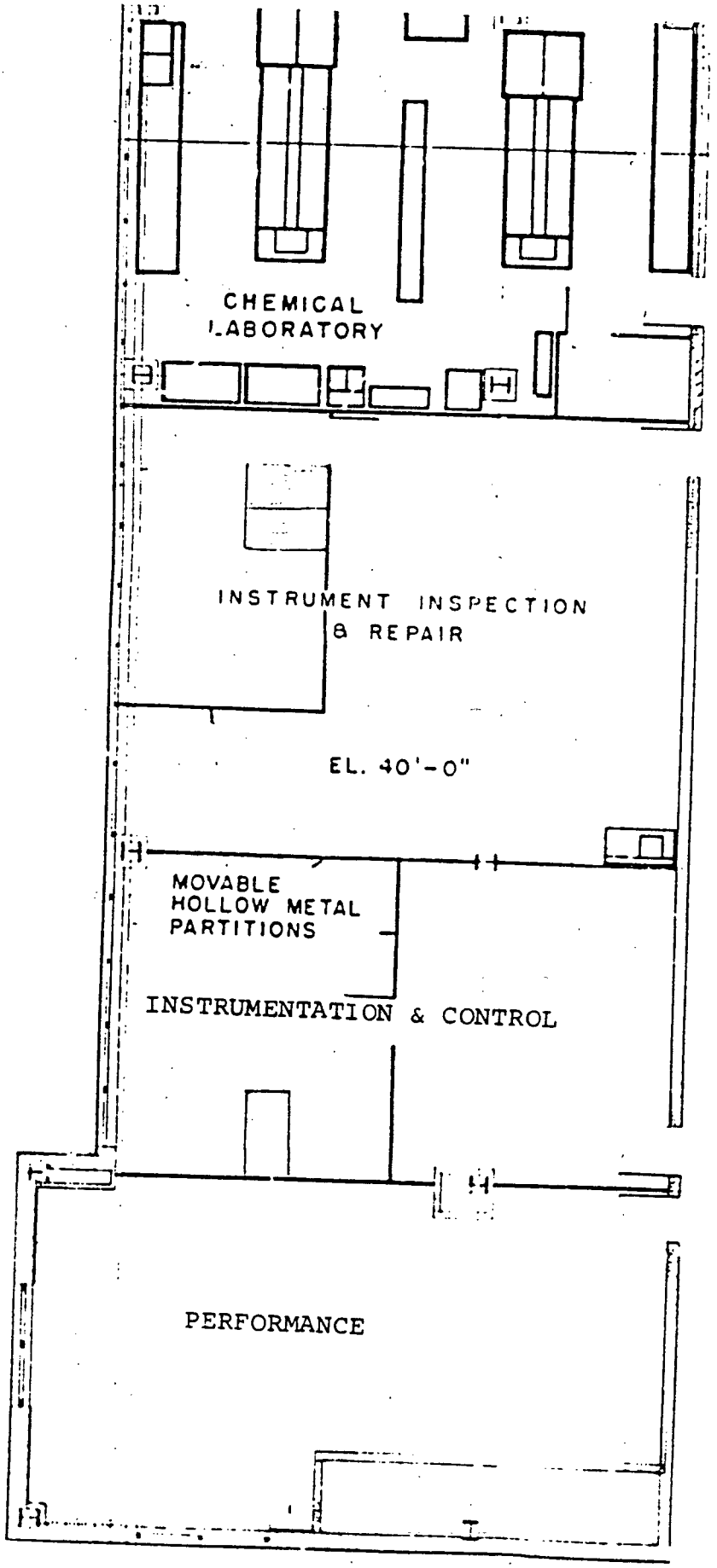
11. CONSTRUCTION - Construction does not store ANSI N45.2.9 records. They retain active files of working documents that are designated records at turnover to NPG. However one-hour fire rated cabinets will be provided for added protection. NFPA Class 1 does not apply.

*1 Note Perdiscussion with S. Wisla 1/18/78, loose materials such as boxes will be removed expeditiously. This % combustible is based on loose material being removed.

*2 Note Although exposed combustibles exceed 30%, one hour cabinets are suitable because this location is essentially equivalent to a two story non-fire resistant building without a basement.

A TYPICAL RECORD STORAGE AREA FLOOR PLAN

RECORD STORAGE AREA NO. 2
INDIAN POINT STATION
ELEV. 40'ENG.SERVICE BLDG.
CHEMISTRY & I.& C.



TYPICAL FIRE SURVEY

RECORD STORAGE AREA NUMBER 2

LOCATION: Indian Point Station
Engineering Services Building EL. 40

DEPARTMENT: Chemistry and Instrumentation and Control

DESCRIPTION:

I Fire Rating

Building	: Fire Resistive	☒	Non-Fire Resistive	☐
Storage Area	: Fire Resistive	☒	Non-Fire Resistive	☐

II Dimensions

				Area
Chemistry	1. L - 34'	X W - 25'		850ft^2
I & C	2. L - 34'	X W - 19'		646Ft^2
I & C	3. L - 34'	X W - 29'		986Ft^2
Performance	4. L - 40'	X W - 16'		640Ft^2
Performance	5. L - 18'	X W - 5'		90Ft^2
		TOTAL AREA		3212Ft^2

III Flooring Type *Asphalt ☒ *Vinyl ☐ Linoleum ☐
Carpet ☐ *Concrete ☐ Wood ☐

*See Note 3

Equivalent Weight 8923.4 lbs.

IV Partitions

Type
Single ☐ (Avg. Wt. Per Sq. Ft. 3lb)
Single W Studding ☐ (Avg. Wt. Per Sq. Ft. 5lb)
Double W Studding ☒ (Avg. Wt. Per Sq. Ft. 8lb)
Wood Panelled 3/8" ☐ Other ☒ Steel

Dimensions		Area	Weights
L - 6.5'	X W5.17'	33.61ft^2	
L - 14.58'	X W5.17'	75.38ft^2	
L - 8.75'	X W5.17'	45.24ft^2	
L -	X W		
L -	X W		
L -	X W		
L -	X W		

TOTAL WEIGHT 1233.8 lbs.

ADDITIONAL INFORMATION Con Edison Drawing 138002-2.

RECORD STORAGE AREA NUMBER 2

	ITEM DESCRIPTION	QUANTITY	UNIT WEIGHT (In pounds unless otherwise noted)	WEIGHT (pounds)
C	1. CHAIRS			
	FOAM PADDED	30	2.94	88.2
	WOODEN	0	35.00	0
	2. DESKS			
	STANDARD	28	337.06	9,437.7
	WOODEN	0	471.34	0
		0	1146.96	0
C	3. DRAWINGS			
	LOOSE @ 20% Compact	0	9.6 lb/ft^3	0
	ROLLS	20	5.50	110
	4. FILE CABINETS			
	5 DRAWER	27	563.70	15,246.9
	4 DRAWER	5	528.39	2,641.95
	4 DRAWER (Wide)	0	676.45	0
	3 DRAWER	2	396.29	792.58
	2 DRAWER	6	264.20	1,849.4
C	5. FLAMMABLE LIQUIDS	80	3.25 lb/qt	260
		0	3.42 lb/liter	0
C	6. LOOSE PAPER	247.5'	48.387	11,975.78
	7. STORAGE CABINETS (Dimensions in Ft)			
	L – 1 x W – 3x H - 6		870.97	
	L – 8 x W – 1x H - 6		2322.58	
	L – 1.5 x W – 2x H - 2		290.32	
	L – 1.5 x W – 2x H - 5		725.81	
	L – 3 x W – 6x H - 1.5		1306.45	
	L – 2 x W – 2x H - 3		580.64	
	L – 1 x W – 2x H - 4		774.19	
	L – 3 x W – 2x H - 6	4	1741.92	6,967.72
	L – 7 x W – 3x H - 2	5	2032.25	10,161.25
	L – 3 x W – 1.5x H - 7	9	1524.19	13,717.71
	L – 6.5 x W – 2x H - 1.7	1	1069.35	1,069.35
	L – 3 x W – 2x H - 6.5	3	1887.09	5,661.27
	L – 9.25 x W – 1.58x H - 6	0	4243.06	0
	L – 6 x W – 2x H - 2	1	1161.29	1,161.29
	L – 7 x W – 4x H - 2	2	2709.67	5,419.34

RECORD STORAGE AREA NUMBER 2

ITEM DESCRIPTION	QUANTITY	UNIT WEIGHT (In pounds unless otherwise noted)	WEIGHT (pounds)
7. STORAGE CABINETS (Dimensions in Ft) (Cont'd)			
L – 6 x W – 3.5x H - 2		2032.25	
L – 4 x W – 4x H - 2		1548.38	
L – 3 x W – 4x H - 2		1161.29	
L – 3 x W – 1.5x H - 5.33		1160.8	
8. WOODEN TABLES			
L – 2.17 x W – 3.22x H - 7		1885.29	
WOODEN: End small (A		57.22	
med. (B		217.74	
large		870.96	
LARGE L - 6'		81.00	
L - 7'		121.5	
METAL W WOOD TOP		900.24	
9. MISCELLANEOUS			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
_____			
_____			

	QUANTITY	UNIT WEIGHT (In pounds unless otherwise noted)	WEIGHT (pounds)
9. MISCELLANEOUS			

RESULTS:

TOTAL WEIGHT 97,170.4 lbs.

LOAD = $\frac{\text{TOTAL WEIGHT}}{\text{AREA}} = \frac{97,170.4}{3,212}$ 30 lb/Ft^2

TOTAL COMBUSTIBLES 13,667.3 lbs.

PERCENTAGE COMBUSTIBLES =

$\frac{\text{TOTAL COMBUSTIBLES}}{\text{TOTAL WEIGHT}} = \frac{13,667.3}{97,170.4}$ 14.1%

PART II: TYPICAL SURVEY

RECORD STORAGE AREA 4
DEPT MAINTENANCE

ANSI N45.2.9 - 5.6 FACILITY CONSTRUCTION FEATURES

ITEM NUMBER	MEETS CONSIDERATION	ALTERNATE
1. Reinforced concrete, concrete block, masonry or equal construction.	-	Building of concrete & steel construction. There are windows on West side of room, a sufficient distance from records which are protected.
2. Concrete floor and roof with sufficient slope for drainage; if a floor drain is provided. A check valve or equal shall be included.	Yes	
3. Structure, doors, frames and hardware should be class A fire rated with a recommended four hour min rating.	N/A	This requirement is not applicable because the R.G. identifies NFPA Class 1 as an alternate.
4. Sealant applied over walls as a moisture or condensation barrier.	Yes	Glazed masonry wall tiles.
5. Surface sealant on floor providing a hard-wear surface to minimize concrete dusting.	Yes	
6. Foundation sealant and provision for drainage.	N/A	This storage area is at the 15' elevation.
7. Forced-Air circulation with filter system.	-	Forced air, no filtering. However, filtering is not necessary since records are protected in closed containers.

ANSI N45.2.9 CONSTRUCTION CONSIDERATIONS

ITEM NUMBER	MEETS CONSIDERATION	ALTERNATE
8. Adequate fire protection system.	Yes	Fire extinguishers present.
9. No pipes other than those providing fire protection to the storage facility are to be located within the facility.	Yes	

CONCLUSIONS

Fire Survey

Based on the results of this survey 1 hr rated fire cabinets with impact will provide sufficient protection against fire in all locations, per NFPA 232.

Nine Considerations

All record storage facilities which house these cabinets have been reviewed against N45.2.9 Section 5.6 - Considerations. The results of this review indicate that the nine considerations of Section 5.6 have been suitably addressed in all record storage locations. Particular characteristics of the record storage locations compensate for the more stringent guidance of the nine considerations where required. Details of this review are on file.

Docket files

NRC FORM 197 (2-78) U.S. NUCLEAR REGULATORY COMMISSION

TECHNICAL ASSIGNMENT CONTROL FORM

TACS NUMBER * 171751

NEW ASSIGNMENT ☐ NEW INFORMATION ☐ * REQUIRED ENTRIES

SECTION I. REQUEST DATA

PREPARED BY: T. Wambach A Schwencer			(AD) DATE PREPARED * MO. DAY YR. 07 13 78
(AE/AF) TITLE/GENERAL DESCRIPTION (Limit to 120 characters) * INDIAN POINT 1,2,3-- Amendments to Appendix B Tech Specs			(AZ) NRR CONTROL NUMBER * 412
(AG) REQUEST CONTACT * Wambach	(AX) REQUESTER'S INITIALS TVW	(AB) REQUESTING ORGANIZATION * ORB-1	(AH) REQUESTING TARGET DATE MO. DAY YR. 08 31 78
(AJ/AK) REQUESTING REMARKS (Limit to 120 characters)			(AL) GENERIC NUMBER / (AW) MILESTONE / (AM) STANDARDS TASK NUMBER

SYSTEMS CONTROL DATA

FACILITY NAME(S)	(BA) DOCKET(S)	FACILITY NAME(S)	(BA) DOCKET(S)
(1) Indian Point 1	050-00003	(4)	050-00
(2) Indian Point 2	050-00247	(5)	050-00
(3) Indian Point 3	050-00286	(6)	0

VENDOR'S NAME			REPORT IDENTIFICATION SYMBOL / (DA) PROPRIETARY (P)
(AR) REPORT DATE: MO. DAY YR.	(AS) ADDITIONAL INFORMATION REQUEST DATE: MO. DAY YR.		(EA) NON-PROPRIETARY VERSION (NP)
(AT) SUBMIT DATE: MO. DAY YR.	(AU) LETTER TO VENDOR DATE: MO. DAY YR.	(AV) ACCEPTED ☐ NOT ACCEPTED ☐ WITHDRAWN ☐ HOLD ☐	(FA) NON-PROPRIETARY REPORT

SECTION II. REVIEW DATA

PREPARED BY: | DATE PREPARED MO. DAY YR.

(AC) ACTIVITY CODE (Enter an "R" for Safety Related, an "E" for Environment Related or a "4" for Antitrust Related) * (JNK & JOM Only Need a Check Mark)

POST CP	(18)		PLANT SURVEILLANCE	(36)		CONTRACT MGMT.	(52)		REG. GUIDES & STD. REV.	(71)	
ORDERS & APPROVALS	(31)		GENERIC ISSUE IMPL.	(41)		NON-REACTOR REV.	(53)		INDUSTRY CODES & STD.	(73)	
LIC. AMEND. & T.S.	(33)	E	NON-ROUTINE RESPONSE	(42)		RESEARCH ACTIVITIES	(54)		CORRESPONDENCE	(JNK)	
OPERATOR LICENSING	(34)		SYSTEM. EVAL. PROGRAM	(43)		GENERIC (A, B, C, D)	(57)		ADMINISTRATIVE	(JOM)	
POST OL HEARING	(35)		TOPICAL REPORT REV.	(51)		OTHER GENERIC	(58)				

ASSIGNED ORGANIZATION ("X" appropriate column)

DOR		STSG		ADSG		MTEB		ADPS		ADET		ADSA		HMB		LWR2		FIN	
ADOR		ADOT		RSDB		SEB		ASB		CBB		AAB		AIG		LWR3		ISEB	
ORB1	X	EB		RSLB		ADRS		CSB		ESB		ETSB		PSUB		LWR4		OLB	
ORB2		EEB		DSS		AB		ICB		ADEP		RAB		DPM		ADSP		QAB	
ORB3		PSB		ADE		CPB		PS		EPB1		ADST		ADLR		LMFB			
ORB4		RS		MEB		RSB		DSEA		EPB2		GSB		LWR1		ADQA			

REVIEWER'S SURNAME	(CA) REVIEWER'S INITIALS *	(CB) ESTIMATED HOURS	COMPLETION DATE (CC) ESTIMATED MO. DAY YR.	COMPLETION DATE (CD) ACTUAL MO. DAY YR.	BRANCH COORDINATING LEAD RESPONSE
LEAD REVIEWER T V Wambach	T.V.W				RESPOND INDIVIDUALLY ☐
E K Moyers	E.K.M				

ADD PERTINENT COMMENTS TO BACK OF FORM

Memo

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50-10
50-219
50-247
50-259/260/269
50-324/325
50-298
50-249
50-331
50-333
50-321
50-366
50-263
50-220
50-293
50-277/278
50-254/265
50-271
50-341
50-354/355

June 29, 18