Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS8
Date of Response: 06/16/2008
Responding Witness:

Question No. :125
Subject: Work Papers - 1. Provide all workpapers for the Electric Production Panel in electronic format. Also, provide all workpapers or other documents used in summing and linking the testimony and exhibit amounts with all the various Accounting Panel Exhibits (i.e. AP-5 Schedule 1 page 3 lists expenses for Gas Turbines (GT). What is there to link the costs for individual GT units to the total requested?).

Response:

Please see Attachment A for the workpapers for the O&M program changes and Attachment B for the list of capital projects for Electric Production.

In a discussion with Mr. Cinadr on June 9, 2008, the method of preparing the AP exhibits and the input from the various organizations was explained and he was satisfied with the assistance.

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ATTACHMENT A
PAGE 1 OF 10

NEW YORK PUBLIC SERVICE COMMISSION
ELECTRIC CASE 08-E-0539
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

WITNESS: THOMAS E. POIRIER

WORKPAPERS: ELECTRIC OPERATIONS SUMMARY OF ELECTRIC PRODUCTION COSTS

DPS8 - 125
ATTACHMENT A
PAGE 2 OF 10

2008 ELECTRIC RATE FILING
SUMMARY OF PROGRAM CHANGES
($000s)

PROGRAM CHANGES

Water Usage (Water)	264
ER Boiler Cleaning (Boiler Cleaning)	350
Major Maintenance - East River Units 1/2	2,600
ER Unit 6 Turbine Rewind (Scheduled Overhauls)	2,500
Gas Turbine Maintenance Program (GT Maintenance)	2,244
ER Local Law 11 (Facilities Maintenance)	1,640
ER Stack #3 and 4 Repairs (Facilities Maintenance)	1,300
Total Program Changes	**10,898**

WATER

CALCULATION OF PROGRAM CHANGE

WATER FOR ELECTRIC GENERATION
RECONCILIATION OF HISTORIC YEAR TO RATE YEAR
($000's)

ELECTRIC STATIONS	ACTUAL GENERATION (GWHRS)	ACTUAL WATER USAGE (MCUFT)	ACTUAL AVG. RATE (MCUFT/GWHR)	ACTUAL COST ($000's)	RATE YEAR GENERATION (GWHRS)	RATE YEAR WATER USAGE (MCUFT)	RATE YEAR RATE (MCUFT/GWHR)	RATE YEAR COST ($000's)	VARIANCE ($000's)
EAST RIVER 7	308	25,058	81.26	83	353	28,684	81.26	720	637
EAST RIVER 6	357	21,161	59.27	367	493	29,222	59.27	734	367
SUB-TOTAL ELECTRIC STATIONS	665	46,219		$ 450	846	57,906		$ 1,454	$ 1,004
LESS: STEAM PROCESSING CHARGE CREDIT FOR WATER		(24,634)		(80)		(36,013)		(820)	(740)
TOTAL		21,585		$ 370		21,893		$ 634	$ 264

VARIATION DUE TO GENERATION AND RATES

ELECTRIC STATIONS	GENERATION	RATES	TOTAL
EAST RIVER 7	91	546	637
EAST RIVER 6	202	164	367
TOTAL ELECTRIC STATIONS	$ 293	$ 711	$ 1,004

TOTAL WATER PROGRAM CHANGE **$ 264**

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ATTACHMENT A
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Steam Operations
East River - Water

History Year Ending Dec. 31, 2007

Acct	JEDC	Amount
01105	2101	$82,691.89
01121	2101	367,279.09
01107	5016	(80,148.30)
		$369,822.68

Current Water Rate per mcf	$ 20.20
Estimated increase - 2008	11.50%
	$ 22.52
Estimated increase - 2009	11.50%
Estimated rate year water rate per mcf	$ 25.11

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ATTACHMENT A
PAGE 5 OF 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
BOILER CLEANING
CALCULATION OF PROGRAM CHANGE
($ in thousands)

East River		
Unit 60 - one chemical cleaning	$	350
GRAND TOTAL BOILER CLEANING	**$**	**350**

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ATTACHMENT A
PAGE 6 OF 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
MAJOR MAINTENANCE - EAST RIVER UNITS 1/2
CALCULATION OF PROGRAM CHANGE
($ in thousands)

East River Unit 1		
Turbine parts	$	1,047
Parts refurbishment		760
Material cost		85
Outage services		1,040
	$	2,932
East River Unit 2		
Turbine parts	$	1,047
Parts refurbishment		760
Material cost		85
Outage services		1,040
	$	2,932
Additional maintenance		750
Unplanned maintenance		679
TOTAL MAJOR MAINTENANCE - EAST RIVER UNITS 1/2	**$**	**7,293**
LESS: HISTORIC YEAR EXPENDITURES		4,693
GRAND TOTAL MAJOR MAINTENANCE - EAST RIVER UNITS 1/2	**$**	**2,600**

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ATTACHMENT A
PAGE 7 OF 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
SCHEDULED OVERHAULS
CALCULATION OF PROGRAM CHANGE
($ in thousands)

East River		
Re-wind of LP generator rotor	$	1,650
Rotor cleaning, dimension verification, machining		55
Bore-sonic inspection of rotor bore		75
Perform General Electric TIL-1292 coil slot testing		665
Rotor low speed balancing		55
GRAND TOTAL SCHEDULED OVERHAULS	**$**	**2,500**

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ATTACHMENT A
PAGE 8 OF 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
GAS TURBINES
CALCULATION OF PROGRAM CHANGE
($ in thousands)

GT MAINTENANCE PROGRAM

74th St		
Inspect free turbine and repair blades	$	800
Inspect/repair electric generator rotors/associated equipment		2,000
Replace free turbine and gas generator lube oil coolers		180
Install/modify drip pots for electric generator ventilation air ducts		180
Additional repairs to various GT equipment		285
Hudson Ave		
Inspect/repair electric generator rotors/associated equipment		1,800
Replace torn/deteriorated asbestos		225
Inspect/repair hot gas path and associated equipment		368
Additional repairs to various GT equipment		94
59th Street		
GT 1 Engine/Generator Overhaul (including removal/replacement of GT engine, inspection/repair of electric generator rotors and associated equipment, replacement of free turbines and gas generator lube oil coolers and repairs to various GT equipment)		800
GRAND TOTAL GAS TURBINES	**$**	**6,732**
Proposed Three-year Program - Annual O&M Required (A)	**$**	**2,244**

"(A) Initial program change in Case 07-S-1376 for rate year ending Sept. 30, 2009.

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ATTACHMENT A
PAGE 9 OF 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
FACILITIES MAINTENANCE
CALCULATION OF PROGRAM CHANGE
($ in thousands)

EAST RIVER - LOCAL LAW 11

General conditions	$	208
Remove/replace masonry cracks, spalled, deteriorated or bulged masonry		297
Repoint deteriorated mortar joints		180
Patch spalls in concrete/cast stone and repair cracks in concrete/cast stone		238
Remove/replace deteriorated sealant joints		28
Cut off deteriorated flashing at face of wall		10
Remove/replace coping stones with through cracks or deterioration		53
Repair/paint/flash deteriorated steel lintels		82
Remove/replace broken window panes		9
Demolish and rebuild displaced and cracked parapets and patch roofs		218
Other costs		317
GRAND TOTAL FACILITIES MTCE - EAST RIVER LOCAL LAW 11	**$**	**1,640**

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC OPERATIONS
FACILITIES MAINTENANCE
CALCULATION OF PROGRAM CHANGE
($ in thousands)

STACK REPAIRS

East River

Unit 60 - Stack #3		
Recoat stack	$	500
Recoat ladders		25
Recoat service platforms		15
Repairs to service platforms/rain hood		17
Replace upper 20 feet of ladder		30
Install safety gates		3
Install Saf-T-Climb		10
Replace PM ports		20
Other		30
	$	650
Unit 70 - Stack #4		
Recoat stack	$	500
Recoat service platforms		30
Recoat ladders		25
Repairs to service platforms/rain hood		30
Repair door hinges		12
Install Saf-T-Climb		10
Replace PM ports		20
Other		23
	$	650
GRAND TOTAL FACILITIES MAINTENANCE	**$**	**1,300**

STEAM OPERATIONS - ELECTRIC PRODUCTION
5-YEAR PLAN 2008 - 2012
LAST UPDATED 3/18/2008

Project Number	PRIORITY 2009	STA	2008 - 2012 PROJECT DESCRIPTIONS
21328-04	1	HA	Fire Suppression System for GTs 3, 4, 5
22649-07	1	ER	Control Room Upgrade
22051-06	2	ER	Upgrade Unit 6/7 Demin Plant Controls
21619-05	3	ER	Chemical Monitoring
	4	ER	Upgrade 70 Boiler Casing / Insulation
22617-07	5	ER	Substation M71 Switchgear Replacement - 1 Transformer
21744-05	6	ER	Elevator Upgrade ("C")
22360-07	7	ER	73 BFP Switchgear Refurbishment - 2 Transformers
22771-08	9	ER	Roofing Repairs
22757-08	10	ER	Simulator for Operator Training U6/U7
22017-06	12	ER	Exit Egress Enhancements Phase 2 (2009) Phase 3 (2010)
22047-06	13	ER	Fish Life Preservation
22241-06	14	ER	Fire Sensors/Detection Terminal Board
22377-07	15	ER	Local Law 11
22403-07	16	ER	Install Kirk Key System
22303-06	17	ER	7 East Lube Oil Cooler Bundle Replacement

Project Number	PRIORITY 2009	STA	2008 - 2012 PROJECT DESCRIPTIONS
22777-08	19	ER	Upgrade No. 70 Boiler Burners
22754-08	20	ER	Upgrade Substations TA51 and TA52 Switchgear - 1 Transformer Each
22755-08	21	ER	Replace L&P Bus 1 Switchgear, TR2, Breaker 29 - 69KV/13.8KV
22755-08	21	ER	Replace L&P Bus 2 Switchgear, TR1, Breaker 19 - 69KV/13.8KV
22756-08	22	ER	Replace/Upgrade L&P Bus 2 Supply Feeder
22778-08	23	ER	Replace 70 Boiler Air Preheater Baskets
22400-07	24	ER	Upgrade No. 70 Saltwater Cooling System Control Panels
22261-06	25	ER	Replace Generator No. 6 Exciter Bus and install 480v Bkr at Transformer
22789-08	26	ER	Upgrade Building Vent Fans
	28	ER	Dock Screen House Refurbishment
22772-08	29	ER	Stack Repairs Stacks 3
22561-07	32	ER	Replace 125v and 48v DC Batteries
22784-08	33	ER	City Water Backflow Preventers
	34	VAR	Emergent Work
22128-06	35	W59	GT Floor Replacement
	36	VAR	Emergent Work
	37	VAR	Emergent Work
	38	VAR	Emergent Work
21989-06		HA	Replace Roofs on GTs 3, 4, 5
21444-05		ER	Revenue Meter Upgrades
22175-06		ER	Plant Surveillance and Access Control
22044-06		ER	Unit 7 Hotwell Pump Replacement
22052-06		ER	Unit 7 Turbine Controls Upgrade to EHC System
		ER	No. 7 Gas Interlock Panel Upgrades
22665-07		ER	Replace LA Plant Acid Tanks
22551-07		ER	Migrate Tank Farm Indications/Controls to Central Control Room
22218-06		ER	Replace Generator No. 7 Exciter Bus and install 480v Bkr at Transformer
22496-07		ER	Unit 6 400# Auxiliary Steam Desuperheating (Install 2 CCI DAM Redundant Spray Water Control V
22319-06		ER	Install No. 61 and 62 Drip Pot MOVs
22601-07		ER	Install vent silencer (valve FCV 1425)
21096-04		ER	Add Inputs to SER U6/U7
22138-06		ER	Steel and Concrete Repairs
22056-06		ER	Unit 7 Steam Heat Traps Heat/Condensate recovery
		ER	Tank Farm Oil Heater Replacement
22034-06		ER	71 BFP Switchgear Refurbishment - 2 Transformers
22736-08		ER	Replacement of 63N Feedwater Heater

Project Number	PRIORITY 2009	STA	2008 - 2012 PROJECT DESCRIPTIONS
21736-05		ER	Unit 6 LP Turbine Upgrade
18336-02		ER	Performance Monitoring System
18168-01		ER	Steam Sendout Enhancement
22499-07		ER	Gas Compressor Controls Upgrades (Install Position Feedback on GCCI Valves and Positioners)
22593-07		ER	Unit 7 Treated Water Pump Addition
		ER	Unit 70 FD and ID Damper Upgrade
		ER	Unit 60 Hopper Slope Tubes
		ER	Unit 60 Manifold Header (Steam Outlet Header)
22581-07		ER	Unit 7 BMS Upgrades
22607-07		ER	Printer Room Expansion
		ER	70 FDE Fan Switchgear Refurbishment - 1 Transformer
		ER	Diesel Generator Switchgear Upgrade
		ER	Upgrade ID & FD Fan Motors
		ER	Upgrade No. 70 BFP Motors
		ER	Replace/Upgrade L&P Bus 1 Supply Feeder
		ER	69kV Yard Ground Upgrade
		ER	72 BFP Switchgear Refurbishment - 2 Transformers
		ER	7LPE - 208 Auxiliaries Switchgear Replacement
		ER	70 FDW Fan Switchgear and Transformer Replacement - 1 Transformer
		ER	71 Circulator Switchgear and Transformer Replacement
		ER	72 Circulator Switchgear and Transformer Replacement
		ER	60 FDE Fan Switchgear Refurbishment
		ER	60 FDW Fan Switchgear Replacement
21747-05		ER	5CP Unit No. 6 Circulator Switchgear
		ER	Diesel Generator for Balance of Plant
		ER	60 ME - Substation Switchgear Replacement
		ER	6LP - 208 Auxiliaries Switchgear
		ER	Replace Unit 75 LP Feedwater Heater
		ER	Modify No. 70 East & West Condensate Storage Tank Piping System
		ER	Install N2 Layup System
		ER	Replacement of Feedwater Heater 76N
		ER	Replacement/Upgrade No. 7 BFP Recirculation Piping Upgrade
		ER	Station Air Compressor Replacement
		ER	WTP2 - LA Plant Water Treatment Pumps
		ER	Replace 72 & 73 Feedwater Heaters
		ER	Install Unit 7 Generator H2 Automated Cooling System

Project Number	PRIORITY 2009	STA	2008 - 2012 PROJECT DESCRIPTIONS
		ER	Upgrade No. 6/60 Veranda Gas Supply System 7 Sensing lines to Regulators
		ER	Replacement of 64N and S Feedwater Heaters
		ER	No 60 BFP Upgrades
		ER	Upgrade No. 60 Saltwater Cooling System
		ER	Install No. 60 Motor Driven BFP (Start-up)
		ER	Replace No. 6 Main Oil Coolers/Improve Control System
20952-03		ER	Vehicle Barriers
		ER	Network Infrastructure Upgrade
		ER	Unit 7 LP Turbine Upgrade / Replace stationary components
		ER	Interior Masonry Wall Repairs
		ER	Bridges Refurbishment
21309-04		ER	Dock Rehabilitation
21538-05		E74	Concrete and Steel Upgrades (GT Ceiling Repairs)
22779-08		ER	Battery Replacements
		ER	6CP Switchgear Upgrade -
22766-08		ER	Spent Chemical Tank Relining
		ER	U 6/7 Egress Lighting Upgrade
		HA	GT Pedestal

Project Number	PRIORITY 2009	STA	2008 - 2012 PROJECT DESCRIPTIONS

Station	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
HA	500	1,500	-	-	-	1,500
RAV	-	-	-	-	-	-
E74	250	-	-	-	-	-
E60	-	-	-	-	-	-
W59	-	1,500	-	-	-	1,500
ER12	-	-	-	-	-	-
ER	33,425	34,700	36,900	33,250	36,800	141,650
Emergent Work	1,850	2,000	2,750	2,500	2,500	9,750
EP TOTAL	36,025	39,700	39,650	35,750	39,300	154,400

Program	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
EHS	0	1500				1500
CONT SYS			2500			2500
CONT SYS		3000				3000
CONT SYS	0	2500				2500
BOILERS	0	4300				4300
ELEC EQ		2150				2150
STRUCT	0	800				800
ELEC EQ	0		3900			3900
ROOFS	1000	3200				3200
CONT SYS	1100	1800	250			2050
STRUCT	1900	1100	1000			2100
EHS	200	1000	2500	4300	6000	13800
CONT SYS	0	200				200
STRUCT	1000					0
ELEC EQ	0	300				300
MECH EQ	0		600			600

Program	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
BOILERS	0		4600			4600
ELEC EQ	0			3700		3700
ELEC EQ	0	3000	3930			6930
ELEC EQ	0			3000	3900	6900
ELEC EQ	0			500	3100	3600
BOILERS	0	1200				1200
ELEC EQ	0	100				100
ELEC EQ	0	900				900
MECH EQ	0		870	800		1670
WTRFT	0			1600	4800	6400
STRUCT	0	1300				1300
ELEC EQ	480					0
EHS	0	400				400
EHS	300	500	500	500	500	2000
STRUCT	0	1500				1500
MECH EQ	500	500	800	800	800	2900
ELEC EQ	550	500	600	600	600	2300
CONT SYS	500	500	850	600	600	2550
ROOFS	300					0
CONT SYS	600					0
SECURITY	1250	350				350
MECH EQ	1800					0
CONT SYS	3900					0
CONT SYS						0
MECH EQ	500					0
CONT SYS	3500					0
ELEC EQ	1100					0
CONT SYS	1250					0
MECH EQ	200					0
EHS	270					0
CONT SYS			1000			1000
STRUCT	700			1000		1000
MECH EQ	500					0
MECH EQ	1000		1500			1500
ELEC EQ	1200			2900		2900
MECH EQ	1150	1700				1700

Program	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
STM TURB	1000					0
CONT SYS	400					0
MECH EQ	500					0
CONT SYS	75	100				100
MECH EQ	450					0
BOILERS	0		750			750
BOILERS	0				3000	3000
BOILERS	0				2000	2000
CONT SYS	3500					0
CONT SYS	750					0
ELEC EQ	0			2150		2150
ELEC EQ	0			500		500
ELEC EQ	0		2000			2000
ELEC EQ	0			900		900
ELEC EQ	0	3600				3600
ELEC EQ	0		1000			1000
ELEC EQ	0		2900			2900
ELEC EQ	0			1400		1400
ELEC EQ	0			2150		2150
ELEC EQ	0				1900	1900
ELEC EQ	0				1900	1900
ELEC EQ	0			1200		1200
ELEC EQ	0			1200		1200
ELEC EQ	0		1000			1000
ELEC EQ	0				500	500
ELEC EQ	0				1000	1000
ELEC EQ	0			1150		1150
MECH EQ	0				750	750
MECH EQ	0				2000	2000
MECH EQ	0				550	550
MECH EQ	0			800		800
MECH EQ	0	500				500
MECH EQ	300				1000	1000
MECH EQ	0				1200	1200
MECH EQ	0				2500	2500
MECH EQ	0		500			500

Program	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
MECH EQ	0		300			300
MECH EQ	0		900	1000		1900
MECH EQ	0		1000			1000
MECH EQ	0		750			750
MECH EQ	0				700	700
MECH EQ	0		750			750
SECURITY	500					0
CONT SYS	0	200				200
STM TURB	0			2000		2000
STRUCT	0		500	500		1000
STRUCT	0			500		500
WTRFT	400					0
STRUCT	250					0
ELEC EQ	0	300				300
ELEC EQ	0		1900			1900
MECH EQ	0	700				700
ELEC EQ	950					0
STRUCT	200					0
	36,025	39,700	39,650	35,750	39,300	154,400

	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
EHS	$770	$3,400	$3,000	$4,800	$6,500	$17,700
Boilers	$0	$5,500	$5,350	$0	$5,000	$15,850
Stm Turb	$1,000	$0	$0	$2,000	$0	$2,000
Mech Eq	$6,900	$3,400	$7,970	$3,400	$9,500	$24,270
Elec Eq	$4,280	$10,850	$17,230	$21,350	$12,900	$62,330
Cont Sys	$15,575	$8,300	$4,600	$600	$600	$14,100
STRUCT	$4,050	$4,700	$1,500	$2,000	$0	$8,200
WTRFT	$400	$0	$0	$1,600	$4,800	$6,400
Roofs	$1,300	$3,200	$0	$0	$0	$3,200

Program	2008 ($1000)	2009 ($1000)	2010 ($1000)	2011 ($1000)	2012 ($1000)	Total 2009 - 2011 ($1000)
Security	**$1,750**	**$350**	**$0**	**$0**	**$0**	**$350**
	$36,025	$39,700	$39,650	$35,750	$39,300	$154,400

Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/24/2008
Responding Witness: Electric Production Panel

Question No. :204.1
Subject: Electric Production - For all of the functional programs listed in Exhibit_(EPP-1) and Exhibit_(EPP-2), provide the following in Excel format: A. Detailed cost breakdowns by cost elements, beyond what was provided in the filed work papers. These should include, but not be limited to, an itemization of all the labor types (engineering, management, oversight, union, contractors, and consultants) and also the per-unit costs of all materials and hardware. B. Provide the projected in-service month and year of the capital projects. C. Provide the current project schedules.

Response:
To prepare the capital budget for next year, engineering is developing the conceptual designs and the scope of work for the projects planned for 2009 included in each of the functional programs listed on Exhibit EEP-1. Once the scope work is defined, engineering prepares a preliminary cost estimate which will be included in the 2009 budget request. A sample scope document for the instillation a fire suppression system for the gas turbines generators at the Hudson Avenue Station and the preliminary cost estimate are attached for information. A project schedule is also prepared after the project scope is approved. A more detailed cost estimate is prepared by engineering near the completion of engineering and design work when more details are available. This is usually referred to as the appropriation estimate because is the basis for obtaining funding approval for the project. The Company plans to complete detailed engineering, design and cost estimates for 2009 projects by the end of 2008 and early 2009.

This is a yearly process; hence the information for 2010 will not be developed until the second half of 2009 and so on for the later years.

Labor types such as engineering, management, oversight, union and consultants are typically included in the Company overhead rate applied to each project and not estimated separately. Company labor and contractors costs for construction are included in the project appropriation cost estimate.

For the operations and maintenance program changes listed in Exhibit___(EPP-2), please see Attachment A.

PROJECT NO...21328-04
BUDGET NO....
ESTIMATE NO..08-4065-AT-00
EST. DATE....02/21/2008
PROJ ENG.....G.FAIRWEATHER
PROJ EST.....A.TEDESCO AT.

CENTRAL ENGINEERING
ORDER OF MAGNITUDE ESTIMATE

APPROP. START / / COMPL . / /
ENG/DES. START / / COMPL . / /
PROCUR. START / / COMPL . / /
CONSTR. START 05/11/2009 COMPL . 08/21/2009
PROJECT IN SERVICE.....: 11/27/2009
OUTAGE IS REQUIRED

LOCATION.....HUDSON AVE STATION
DESCRIPTION..HA - GT FIRE PROTECTION

ITEM	COMPANY MHRS	COMPANY LABOR$	COMPANY EQ/MAT$	CONTRACT MHRS	CONTRACT LABOR$	CONTRACT EQ/MAT$	TOTAL DIRECT	8% ESCAL	OVERHEADS & AFDC	20% CONTING	TOTAL
PURCHASED EQUIPMENT											
EQUIP & DESIGN (FP QUOTE)			456685				456685	36500	93600	117400	704185
TESTING & COMM (FP QUOTE)			65000				65000	5200	13300	16700	100200
DEALER/MONITORING (FP QUOTE)			4250				4250	300	900	1100	6550
CONSTRUCTION CONTRACTS											
SUB-CONTRACT LABOR (FP QUOTE)					240110		240110	19200	49200	61700	370210
CONED SUPP PADS FOR UTIL BLDGS					20000	10000	30000	2400	6100	7700	46200
EXISTING CO2 SYSTEM RMVL					30116		30116	2400	6100	7700	46316
COMPANY LABOR											
M & CS ELECTRICAL	400	24000	12000				36000	2900	14200	10600	63700
STATION SUPT	300	18000	2000				20000	1600	9200	6200	37000
P. M. & I.	440	30800					30800	2500	15000	9700	58000
OTHER DIRECT COSTS											
PERMITS & MISC TESTING			12000				12000	1000	2400	3100	18500
ENV TESTING & ABATEMENT			5000				5000	400	1000	1300	7700
	1140	72800	556935		290226	10000	929961	74400	211000	243200	**1458561**

SAY **$ 1,460,000**

ORDER OF MAGNITUDE TOTAL- $ 1,460,000

OVERHEADS 13.00 % CENTRAL ENGINE; 2.30 % A & S; 26.07 % P'ROLL TAX & PENS; TOTAL OH'S = $211,000
($130,500) ($25,900) ($54,600) ($0) 2.00 % AFDC = $0

REMARKS **FP QUOTE FROM SANDERS FIRE & SAFETY (10-16-07)**

CENTRAL ENGINEERING
APPROVED BY _____ Date 2/21/08

PROJECT MANAGER OR USER ORGANIZATION
APPROVED BY _____ Date

CONSTRUCTION MANAGER
APPROVED BY _____ Date

2577

Electric Operations – Capital/O&M

Project/Program Title	New Business Capital
Status	
Estimated Service Date	Ongoing

Work Description:

Under 100K Class 2 Projects: Adequately supply the proposed new customer loads. The Company must either replace an existing overhead service or an underground service cable in an existing service duct or install an additional service lateral in an existing vacant duct.

Under 100K Class 3 Projects: Adequately supply the proposed new customer loads. The Company must either install a new service conduit and cable or a new overhead service.

Under 100K Class 4 Projects: Adequately supply the proposed new customer loads. The Company must install either primary and/or secondary cable in vacant duct or a newly installed duct or additional OH primary/secondary spans/poles as well as new service cable.

Under 100K Class 5 Projects: Adequately supply the proposed new customer loads. The Company must install either primary or secondary cable in vacant duct or a newly installed duct or additional OH primary/secondary spans/poles to accommodate the customer's request. Installation of transformers may also be required.

Under 100K Residential Development Projects: Adequately supply the proposed new customer loads. The Company must install either primary or secondary cable in vacant duct or a newly installed duct or additional OH primary/secondary spans/poles to accommodate the customer's request. Installation of transformers may also be required.

Over 100K Projects (Major Projects): Adequately supply the proposed new customer loads. The Company must install service cable, primary and/or secondary cable in vacant duct or newly installed duct, or additional OH primary/secondary spans/poles to accommodate the customer's request. Installations of transformers are also required and new or enlarged manholes may be required.

Justification:

In recent years NYC has issued record levels of new permits for new and or renovated buildings. There were 30,927 permits for new units of privately owned housing in 2006 and 31,599 in 2005 for New York City. While these trends have slightly leveled off, permit volumes are still at record levels and economic indicators continue to identify strong growth opportunities in our service territory (i.e. Yankee Stadium, Citi Field (Mets), Atlantic Yards, Manhattan's West Side, and Goldman Sachs Office Tower, etc..). Our system load growth is forecasted to increase 200MW per year over the next few years. This load growth is not only driving the need for substation infrastructure, but is also resulting in expansions to the local distribution system to connect these new or additional loads.

This increase in permit/construction activity has resulted in an overall 12% increase in service ruling activity. In addition, there has been a 10% increase in projects that resulted in capital cost over $100K. As we analyze the distribution system to connect these new loads, we find that in many cases the existing system is at or beyond its capability and the addition of this load can no longer be served by extending a service lateral from our distribution system. More specifically, many of these residential and commercial projects require extensive infrastructure such as; secondary main reinforcement, primary feeder extensions and transformer vault installations to adequately support these new/additional loads. The need for this additional reinforcement has

Electric Operations – Capital/O&M

increased the average service cost for the smaller non-vault projects to $6000 per service for the anticipated 12,000 services or $72 million dollars annually (see class analysis below). In addition, the average cost for over an over $100K project is $620K and we anticipate completing 85 each year for approximately $53 million dollars annually.

Under 100K Class 2: The number of services installed has been going up every year. The average cost to install a service has been relatively stable between 2005 and 2006. This 2004-2005/2006 increase is mainly due to the rising material costs, our company labor and indirect costs have also gone up. We anticipate the number of services to remain close to 6200 per year from 2008-2011. We also anticipate the average cost to install a service in this category to be approximately $1.1K per service.

	Class 2		
	2004	2005	2006
Actual Dollars	$2,750,828	$5,637,000	$6,857,000
Actual Services	5000	5161	6200
Average Cost per Service	$550	$1,092	$1,106

Under 100K Class 3: The number of services installed has been going up every year as well as the average cost to install a service. There has been a significant increase in the amount of service conduit installed per service, especially in the Brooklyn/Queens region. The material costs have gone up due to the huge increase in the pricing of materials such as copper and steel. We anticipate the service number to remain close to 3400 per year from 2008-2011. The average service cost is also estimated to be in the $8K range.

	Class 3		
	2004	2005	2006
Actual Dollars	$19,724,504	$21,289,120	$28,093,000
Actual Services	3284	3069	3408
Average Cost per Service	$6,006	$6,937	$8,243

Under 100K Class 4: The number of services installed has gone down in 2006 but the average cost to install a service has gone up by more than 70%. This was due to an overall increase in system reinforcement work across all the regions. A lot of projects that would have been Class 4 jobs in the past are now becoming either Class 5 or Major Projects. We anticipate the service number to remain close to 1750 per year from 2008-2011. The average cost per service should remain in the $9K range.

	Class 4		
	2004	2005	2006
Actual Dollars	$12,155,829	$16,458,000	$16,157,000
Actual Services	2287	3039	1753
Average Cost per Service	$5,315	$5,416	$9,217

Under 100K Class 5: The number of services installed has been going up every year as well as the average cost to install a service. Just like class 4, this was caused by an overall increase in system reinforcement work in all the regions. Also, there will be quite a few projects that would have been Class 5 in the past that would become a Major Project today due to the extra reinforcement. We anticipate the service number to remain close to 550 per year from 2008-2011 as well as the average cost per service to be approximately $35K.

Electric Operations – Capital/O&M

	Class 5		
	2004	2005	2006
Actual Dollars	$20,691,639	$18,242,000	$21208000
Actual Services	1891	501	545
Average Cost per Service	$10,942	$36,411	$38,914

Under 100K Residential Developments: The number of services installed has been going up every year as well as the average cost to install a service. In 2004, nearly all the services were in Staten Island. Since then, the residential development work has been shifted to Bronx/Westchester. In 2006, Bronx/Westchester spent $1.25 million of the $1.3 million actual. Although this category has the most fluctuations out of all the Under 100K ones, we anticipate the service number to remain close to 230 per year from 2008-2011. With the pending work, an estimate of $5.5K per service average seems reasonable.

	RDV		
	2004	2005	2006
Actual Dollars	$1,077,482	$828,285	$1,316,000
Actual Services	526	348	238
Average Cost per Service	$2,048	$2,380	$5,529

Over 100K Major Projects: The number of appropriations has increased every year. The average appropriation amount has also increased every year since 2004. This increase is mainly due to system reinforcement work, where in many cases, an extra transformer has to be provided so that the area load can be reinforced to supply the new customer. We anticipate there will be approximately 115 appropriations per year from 2008-2011 with the average cost relatively stable at an estimated 600K per appropriation.

	Major Projects		
	2004	2005	2006
Number of Appropriations	89	103	113
Average Appropriation Amount ($000)	$519	$540	$620
Actual Dollars ($000)	$31,465	$38,439	$50,874

Given the above trends, an increase of $23 Million in New Business Capital spending is required to adequately fund the necessary level of customer requests and related infrastructure to support this load growth.

Estimated Completion Date:
Ongoing

Planning and Budgeting:
To adequately account for the increase in system reinforcement for the new/additional load added per customer, New Business Capital will need the following increases:

Under 100K Class 2 will need approximately $0.7 Million.
Under 100K Class 3 will need approximately $5.5 Million.
Under 100K Class 4 will stay the same.
Under 100K Class 5 will need approximately $3 Million.
Under 100K Residential Developments will need approximately $0.3 Million.

Electric Operations – Capital/O&M

Over 100K Major Projects will need approximately $13.5 Million.

Status:
Ongoing process where the Company regularly receives customer service requests, evaluates these requests, and develops an adequate service supply.

Funding ($000)

Capital

Forecast 2008	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
125,000	125,000	125,000	125,000	500,000

O&M

Actual 2006	Forecast RYE 2009	Forecast RYE 2010	Forecast RYE 2011	Forecast Total
2,129	2,520	2,520	2,520	7,560

Electric Operations - Capital

Project/Program Title	Transformer Installation
Status	Ongoing
Estimated Service Date	Ongoing

Work Description:
Replace transformers that fail on emergency; identify and replace corroded transformers. Develop a proactive approach to replacing exhausted or defective transformers with an aggressive inspection program.

Justification:
Transformers represent a key component of the network distribution system. Replacing failed transformer units and those that require to be removed as a result of defects found during inspection is a critical function of ensuring the integrity of the network system.

In addition to impacting the distribution system reliability and customer service, there is a significant public safety concern associated with transformers that are either defective or corroded. Loss of multiple transformers in the same network especially during high load periods can result in local area voltage problems and outages.

Estimated Completion Date:
Ongoing

Planning and Budgeting:

Status:
Ongoing

Funding ($000)

Forecast 2008	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
23,279	21,594	21,594	21,594	88,061

Electric Operations – Capital/O&M

Project/Program Title	Network Transformer Replacements >100% <115%
Status	Ongoing
Estimated Service Date	Ongoing

Work Description:
Provide relief for network transformers that are projected to operate greater than 100% and less than 115% of their contingency ratings. Reinforcement projects include installing new transformers, reconnecting existing transformers to different feeders, replacement of transformer of network protector, and reinforcing secondary mains. This is the third part of a three tier program which complements the "Network Transformer Replacements >125%"and "Network Transformer Replacements >115% <125%" programs.

Justification:
Relieving network transformers that are projected to be between 100% and 115% of their contingency rating will ensure adequate supply during peak summer conditions. These projects will improve the secondary network distribution system reliability, quality of service and extend the operating life of this equipment. Additionally, reduction in work associated with transformer cooling efforts (such as water spray, flooding, use of blowers, and switching) will be realized during peak summer conditions.

Estimated Completion Date:
Ongoing

Planning and Budgeting:

Status:
Ongoing

Funding ($000)

Capital

Forecast 2008	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
51,466	51,463	58,184	59,003	220,136

O&M

Actual 2006	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
0	1,446	1,446	1,446	4,338

Electric Operations - Capital

Project/Program Title	Network Transformer 115%-125%
Status	In progress
Estimated Service Date	Ongoing

Work Description:
Provide relief for network transformers that are projected to operate greater than 115% and less than 125% of their contingency (N-2) ratings. This is a complement to the "Network Transformer Replacements >125%"program. Reinforcement projects include installing new transformers, reconnecting existing transformers to different feeders, replacement of transformer network protector, and reinforcing secondary mains.

Justification:
Relieving network transformers that are projected to be between 115% and 125% of their contingency rating will assist in ensuring adequate supply during peak summer conditions. A reduction in work associated with continued monitoring and cooling efforts (including water spray, flooding, use of blowers, and switching) will be realized during peak summer conditions. These projects will improve the secondary network distribution system reliability, quality of service and extend the operating life of this equipment

Estimated Completion Date:
Ongoing

Planning and Budgeting:
This is an ongoing effort to reduce the population of network transformers that are projected to operate above 115% during contingencies.

Status:
In progress

Funding ($000)

Forecast 2008	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
25,913	25,120	19,402	18,444	88,879

Electric Operations - Capital

Project/Program Title	Network Transformer Replacements >125%
Status	Ongoing
Estimated Service Date	Ongoing

Work Description:
Provide relief for network transformers that are projected to operate greater than 100% of their normal (all equipment in service) ratings and greater than 125% of their contingency (N-2) ratings. Reinforcement projects include installing new transformers, reconnecting existing transformers to different feeders, replacement of transformer of network protector, and reinforcing secondary mains.

Justification:
Relieving network transformers that are projected to be above 100% normal rating and 125% of their contingency rating will ensure adequate supply during peak summer conditions. These projects will improve the secondary network distribution system reliability, quality of service and extend the operating life of this equipment.

Estimated Completion Date:
Ongoing

Planning and Budgeting:

Status:
Ongoing

Funding ($000)

Forecast 2008	Forecast 2009	Forecast 2010	Forecast 2011	Forecast Total
15,525	14,901	15,288	15,686	61,400

DPS14 - 204.1
ATTACHMENT A
PAGE 1 OF 7

WATER

CALCULATION OF PROGRAM CHANGE

WATER FOR ELECTRIC GENERATION
RECONCILIATION OF HISTORIC YEAR TO RATE YEAR
($000's)

ELECTRIC STATIONS	ACTUAL GENERATION (GWHRS)	ACTUAL WATER USAGE (MCUFT)	ACTUAL AVG. RATE (MCUFT/GWHR)	ACTUAL COST ($000's)	RATE YEAR GENERATION (GWHRS)	RATE YEAR WATER USAGE (MCUFT)	RATE YEAR RATE (MCUFT/GWHR)	RATE YEAR COST ($000's)	VARIANCE ($000's)
EAST RIVER 7	308	25,058	81.26	83	353	28,684	81.26	720	637
EAST RIVER 6	357	21,161	59.27	367	493	29,222	59.27	734	367
SUB-TOTAL ELECTRIC STATIONS	665	46,219		$ 450	846	57,906		$ 1,454	$ 1,004
LESS: STEAM PROCESSING CHARGE CREDIT FOR WATER		(24,634)		(80)		(36,013)		(820)	(740)
TOTAL		21,585		$ 370		21,893		$ 634	$ 264

VARIATION DUE TO GENERATION AND RATES

ELECTRIC STATIONS	GENERATION	RATES	TOTAL
EAST RIVER 7	91	546	637
EAST RIVER 6	202	164	367
TOTAL ELECTRIC STATIONS	$ 293	$ 711	$ 1,004

TOTAL WATER PROGRAM CHANGE **$ 264**

NOTE: These charges are Accounts Payable charges to be paid to New York City for the volume of water used to generate electricity at East River 6 and 7.

Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/24/2008
Responding Witness: Electric Production Panel

Question No. :204.2
Subject: Electric Production - Provide a breakdown of the $264,000 increase in water costs for the East River boilers by component. Explain how the water rate increases by the New York Water Board (Exhibit_(EPP-2) page 9 of 11) directly affect the operations throughout the East River.

Response:

See Electric Production Panel testimony at page 23. The water rate increase does not directly affect the operation of the East River plant.

Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/23/2008
Responding Witness: Electric Production Panel

Question No. :204.3
Subject: Electric Production - Provide historic Electric Production Construction Program costs for the functional programs in Exhibit_(EPP-1) for calendar years 2003, 2004, 2005, 2006, and 2007.

Response:
Please see attached spreadsheet.

	Expenditures				
	2003	2004	2005	2006	2007
Electric Production					
Security	0	0	0	580	1507
EH&S	334	31	226	397	256
Control Systems	3150	4552	12352	16050	3158
Boilers	4337	98	16374	5611	130
Mechanical Equipment	5312	3088	3651	5233	15341
Electrical Equipment	1289	4393	8318	1274	7212
Steam Turbines	0	0	0	0	2091
Structures	1933	7338	7520	3944	6749
Waterfronts	0	0	270	1037	5052
Roofs	57	1131	185	2644	2832

Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/24/2008
Responding Witness: Electric Production Panel

Question No. :204.4
Subject: Electric Production - Provide the Alstom Material Technology Center contract (Exhibit_(EPP-2) page 3 of 11).

Response:

Please see Attachment A.

ALSTOM

METALLURGICAL REPORT

October 25, 2007

EVALUATION OF WATERWALL TUBING

CON EDISON
EAST RIVER STATION
BOILER NUMBER 60

PSA–96535/LN-071464

PREPARED FOR:

CON EDISON

PREPARED BY:

ALSTOM POWER, INC.
MATERIALS TECHNOLOGY CENTER
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October 25, 2007

METALLURGICAL REPORT:

Evaluation of Waterwall Tubing
Con Edison
East River Station, Boiler Number 60
PSA-96535/LN-071464

1.0 INTRODUCTION

Two sections of waterwall tubing removed from Utility Boiler Number 60 at Con Edison's East River Station were submitted to the Materials Technology Center (MTC) for metallurgical examination. The samples, shown in Figure 1 as they appeared when received from the field, were reportedly removed from the front wall on Tube 174 (elevation: ~53') and Tube 180 (elevation: ~68'), respectively. The purpose of the analysis was, first, to determine the current metallurgical condition of each tube. The second purpose was to determine the quantity and composition of waterside deposits. The results would serve as a basis for a decision on chemical cleaning. Per the customer's request, the polycrystalline phases present in the internal deposits were determined using qualitative X-Ray Diffraction (XRD). The chemical analyses were to detect any nitrite/phosphate compounds. Both tubes, specified to be 3.00" OD X 0.240" MWT, SA-210 material, had operated for approximately 56 years at the time of the sample removal.

2.0 CONCLUSIONS AND RECOMMENDATIONS

Metallurgical examination of the samples established that the tubing from which each of the samples was taken remains fully serviceable. Dimensional measurements showed that the tubes had not swelled appreciably during service, nor had they suffered any substantial wall loss from either internal or external wastage. The condition of the waterside surface was found to be satisfactory, with no evidence of severe pitting attack or other internal corrosion damage during load or idle periods. Examination of the microstructure revealed a normal structure, consisting of pearlite colonies in ferrite matrix on both sides of each tube, indicating that the average operating metal temperature had remained within acceptable design limits over the course of the tube's service life. Based on the information obtained, the expected service life of the waterwall tubing in a condition similar to that of these two samples can be considered unlimited, assuming that the conditions under which the tubing operates remain unchanged. If, however, the service environment were to change substantially as the unit continues to operate, then additional sampling would be necessary to evaluate the effects of those changes on the condition of the tubing.

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With regard to the waterside deposits, the overall deposit accumulation was heavy in both cases, with a maximum accumulation of 46.9 g/ft^2 measured on the Tube 174 and 38.3 g/ft^2 measured on the Tube 180. To the extent that the internal deposit loading measured for these elements represent the worst case in the boiler, chemical cleaning of the unit is recommended to ensure continued serviceability.

An elemental compositional analysis using Energy Dispersive Spectrometry (EDS) demonstrated that the internal deposits consisted primarily of iron and oxygen, with significant amounts of copper (Wt.%: ~20%) and nickel (Wt.%: ~16%). The presence of the copper and nickel suggests the possibility of corrosion in the pre-boiler circuit. The polycrystalline phases in the internal deposits taken from each tube were identified using qualitative X-Ray Diffraction (XRD). The compositions of the polycrystalline phases in both samples are virtually identical, with trevorite ($NiFe_2O_4$) being identified as a major polycrystalline phase and cuprite (Cu_2O) being identified as a minor polycrystalline phase. No nitrite or phosphate was found in the deposits in either case.

3.0 SUPPORTING DOCUMENTATION

3.1 Visual Examination

The samples were inspected visually with the aid of a stereomicroscope in order to detect signs of distress, such as swelling, cracking, or abnormal patterns of wastage. As can be seen in Figure 1, the external ash/deposit on each sample was relatively light, and the bare metal surface of each tube was smooth without any evidence of abnormal wastage. No visible tube swelling was observed in either case.

Examination of the internal surface of both tubes revealed thick internal deposits along the full length of the sample. There was no evidence of unusual corrosion activity in any of the areas examined.

3.2 Dimensional Measurements

The inner diameter (ID), outer diameter (OD), and wall thickness were measured at selected locations along the length of each tube in order to more precisely determine if any tube had swelled in service, and to accurately quantify any wall loss that might have occurred. The results of the measurements are recorded in Tables 1 and 2, where it may be seen that the OD and ID measurements indicated that both tube had not swelled in service. The results of wall thickness measurements show that wall loss on both samples was minimal. In particular, the minimum value of the wall thickness measured on Tube 174 is 0.258", corresponding to the wall loss of ~9% compared to the estimated original wall of 0.284". The minimum value of the wall thickness measured on Tube 180 is 0.264", corresponding to the wall loss of ~7% compared to the estimated original wall of 0.290".

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3.3 Chemistry Results

3.3.1 Tube Material - A specimen of the tubing material was removed from each of the samples and chemically analyzed to verify that the appropriate material had been installed and to confirm that there were no compositional anomalies that would have adversely affected the long-term serviceability of the tubing. The results of the analysis, which are recorded in Table 3, demonstrated that the composition of the material satisfied all applicable ASME compositional requirements for SA-210, Grade A1 tubing material.

3.3.2 Waterside Deposit Analysis – To determine the total quantity of the ID deposit, specimens were extracted from the fireside of the tubing and the deposits were removed from the ID surface of the sample using the solvent method prescribed in ASTM D-3483. In particular, an inhibited 5% HCl solution with small amount of thiourea (<0.5%) was used to completely dissolve the deposit that had formed on the internal surface of the tube. The total quantity of deposit on the furnace side of the tubing was measured to be 46.9 g/ft^2 on Tube 174 and 38.3 g/ft^2 on Tube 180 as documented in Table 4 for Tube 174 and Table 5 for Tube 180.

To determine the amount of scrape-able deposit retained on the ID surface of each tube, specimens were extracted from the fireside of the tubing, and the deposits were removed from the ID surface of the sample using a mechanical method prescribed in ASTM Specification D-3483. The results of the measurements indicate that the amount of scrape-able deposit retained on the furnace side of the tubing was 24.5 g/ft^2 on Tube 174 and 19.0 g/ft^2 on Tube 180. Comparison of the solvent and mechanical results revealed that the quantity of non-scrape-able deposit was 22.4 g/ft^2 on Tube 174 and 19.3 g/ft^2 on Tube 180 (Tables 4 and 5). Specimens of the waterside deposit were analyzed using Energy Dispersive Spectrometric (EDS) techniques to determine the elemental composition. The results of these analyses are also recorded in Tables 4 and 5, where it may be seen that the major constituents of the deposit was iron oxide, with significant amounts of copper (Wt.%: ~20%) and nickel (Wt.%: ~16%) presented.

The polycrystalline phases in the internal deposits were identified using qualitative X-Ray Diffraction (XRD). Trevorite ($NiFe_2O_4$) was identified as a major polycrystalline phase, while cuprite (Cu_2O) was identified as a minor polycrystalline phase in the internal deposits. Trace amounts of tenorite (CuO) and hematite (Fe_2O_3) were also detected. Nitrite or phosphate was not detected in any analysis.

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3.4 Metallography

Based on the absence of any obvious signs of distress in the tubing, a metallographic specimen was removed from each of the samples so that the macrostructural and microstructural features of the tubing could be evaluated in greater detail. These specimens were then polished and etched in preparation for metallographic examination.

Typical profiles of the tube wall from the furnace and casing sides of each sample are compared in Figure 2 for Tube 174 and Figure 4 for Tube 180. As shown, there was no evidence of significant wastage observed in either case. Minor, shallow pitting was observed on the ID associated with copper deposits. Higher magnification examination of typical areas of the microstructure, the results of which are documented in Figure 3 for Tube 174 and Figure 5 Tube 180, revealed intact pearlite colonies in the ferrite matrix on both sides of the tubing for each case. In fact, the structures did not appear to have changed significantly as a result of service, indicating that tube metal temperatures had been within design limits.

The hardness of the tubing material was measured using a Vickers Hardness Tester with a 20 kg test load. The measured values are presented in Table 7, where it may be seen that the hardness values measured on each tube were consistent with the microstructure observed.

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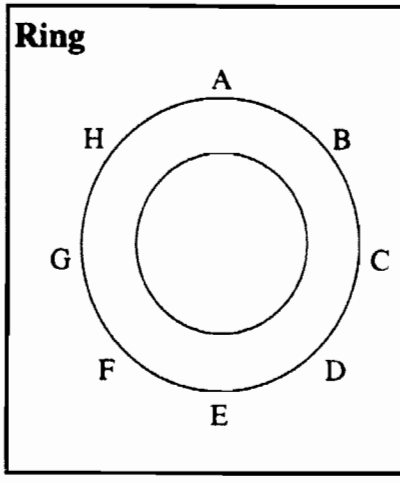
Boiler Retrofits

Table 1. Dimensional Measurements –Tube 174

Specified to be 3.00" OD x 0.240" MWT



	Outer Diameter (in.)	Inner Diameter (in.)
AE	2.969	2.433
BF	2.972	2.435
CG	2.962	2.440
DH	2.969	2.434

Wall Thickness (in.)			
H	0.261	D	0.279
A	0.265	E	0.274
B	0.296	F	0.269
C	0.268	G	0.258

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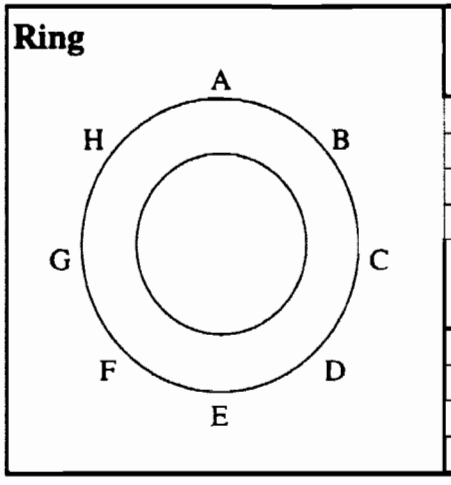
Boiler Retrofits

Table 2. Dimensional Measurements – Tube 180

Specified to be 3.00" OD x 0.240" MWT



	Outer Diameter (in.)	Inner Diameter (in.)
AE	2.961	2.421
BF	2.976	2.433
CG	2.983	2.440
DH	2.984	2.451

Wall Thickness (in.)			
H	0.268	D	0.264
A	0.264	E	0.278
B	0.270	F	0.275
C	0.272	G	0.273

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Table 3. Chemistry Results

Chemical Composition (Weight Percent)			
ELEMENT	*Tube 174*	*Tube 180*	*ASME Specification SA-210, A1*
Carbon	0.14	0.16	0.27 (max.)
Manganese	0.51	0.77	0.93 (max.)
Phosphorus	0.012	0.018	0.035 (max.)
Sulfur	0.030	0.017	0.035 (max.)
Silicon	0.14	0.18	0.10 (min.)
Nickel	0.11	0.01	---
Chromium	0.23	0.04	---
Molybdenum	0.06	0.01	---
Vanadium	0.002	0.002	---
Columbium	0.001	0.001	---
Titanium	0.001	0.002	---
Cobalt	0.008	0.003	---
Copper	0.23	0.03	---
Aluminum	0.011	0.015	---
Boron	<0.001	<0.001	---
Tungsten	<0.01	<0.01	---
Arsenic	0.008	0.002	---
Tin	0.011	0.003	---
Zirconium	<0.001	0.001	---

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Boiler Retrofits

Table 4. Chemistry Results –

EDS Analysis On ID Deposit Taken From Tube 174

Chemical Composition (Weight Percent)			
Element	***Results***		
Oxygen	26.83		
Magnesium	0.68		
Aluminum	1.67		
Phosphorus	2.74		
Calcium	0.97		
Manganese	2.55		
Iron	30.20		
Nickel	14.45		
Copper	19.89		
Deposit Accumulation (g/ft^2)	**Overall Accumulation (Chemical Removal)**	**Scrape-able (Mechanical Removal)**	**Non-Scrape-able**
	46.9	24.5	22.4

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Table 5. Chemistry Results

–EDS Analysis On ID Deposit Taken From Tube 180

Chemical Composition (Weight Percent)			
Element	***Results***		
Oxygen	28.49		
Magnesium	0.77		
Aluminum	1.13		
Phosphorus	2.64		
Calcium	1.12		
Manganese	2.71		
Iron	30.24		
Nickel	16.21		
Copper	16.69		
Deposit Accumulation (g/ft^2)	**Overall Accumulation (Chemical Removal)**	**Scrape-able (Mechanical Removal)**	**Non-Scrape-able**
	38.3	19.0	19.3

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Table 6. Chemistry Results –XRD Analysis On ID Deposits

Polycrystalline Phases	*Level Detected on ID Deposit Taken From Tube 174*	*Level Detected on ID Deposit Taken From Tube 180*
Trevorite ($NiFe_2O_4$)	Major	Major
Cuprite (Cu_2O)	Minor	Minor
Tenorite (CuO)	Trace	Trace
Hematite (Fe_2O_3)	Trace	Trace

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Table 7. Hardness Measurements

HARDNESS VALUES-HV20 (HRB)* Vickers hardness tester with a 20-kg test load			
Sample	***Location***	***Average***	***Range***
Tube 174 SA-210, A1	*Furnace Side*	132 (72)	131 (71) –132 (72)
	Casing Side	150 (78)	150 (78) – 151 (79)
Tube 180 SA-210, A1	*Furnace Side*	135 (73)	134 (72) –135 (73)
	Casing Side	147 (77)	146 (77) – 147 (77)

*Approximate conversion to Hardness Rockwell B

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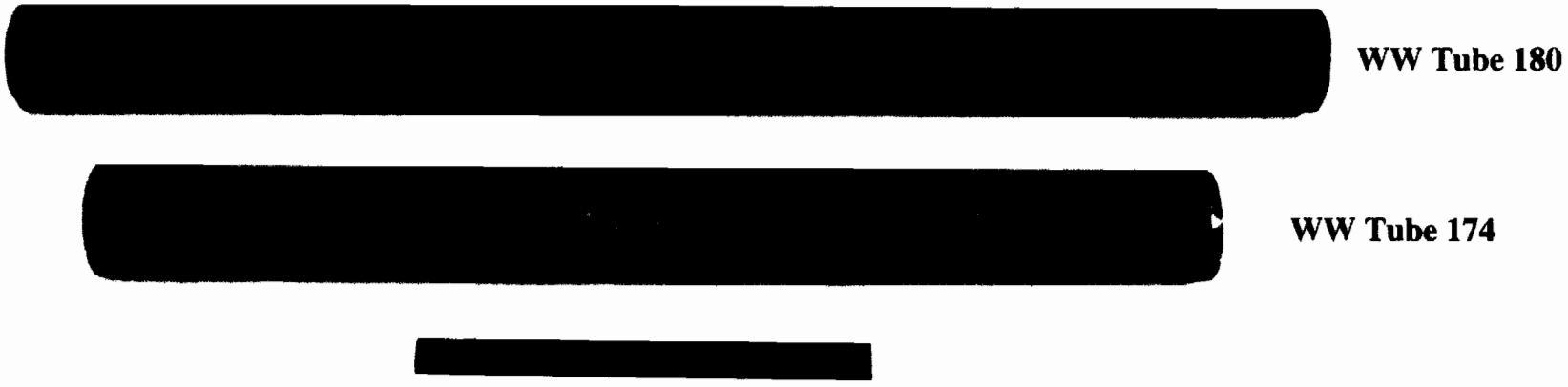

Figure 1. Documenting the Tube Samples Removed from Boiler Number 60 at Con Edison's East River Station as They Appeared When Received from the Field.

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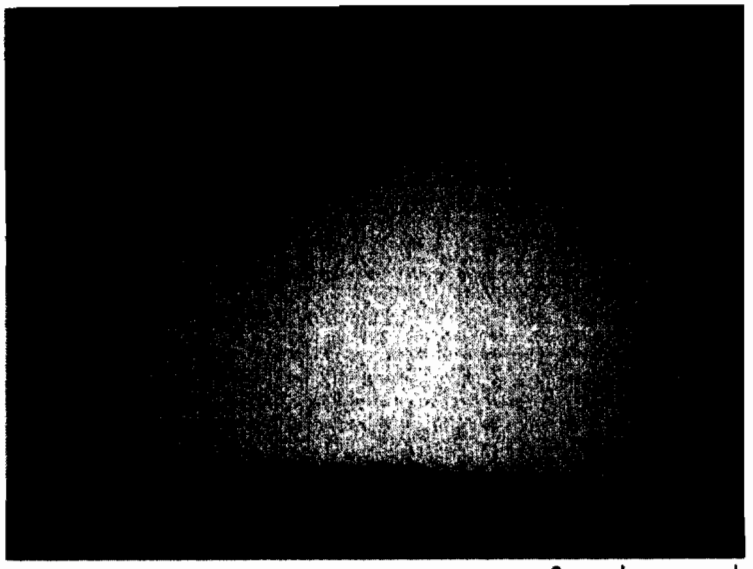

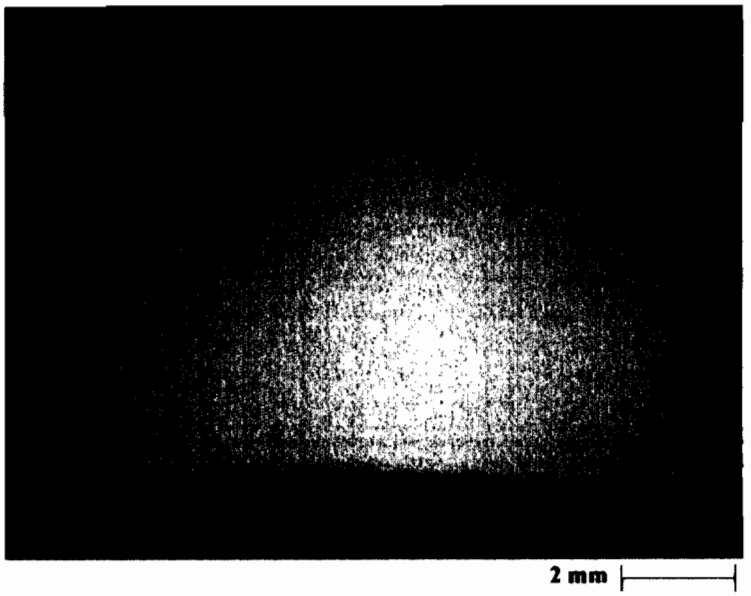

Figure 2. Comparing Typical Profiles of the Tube Wall from the Furnace and Casing Sides of the Sample Removed from WW Tube 174.

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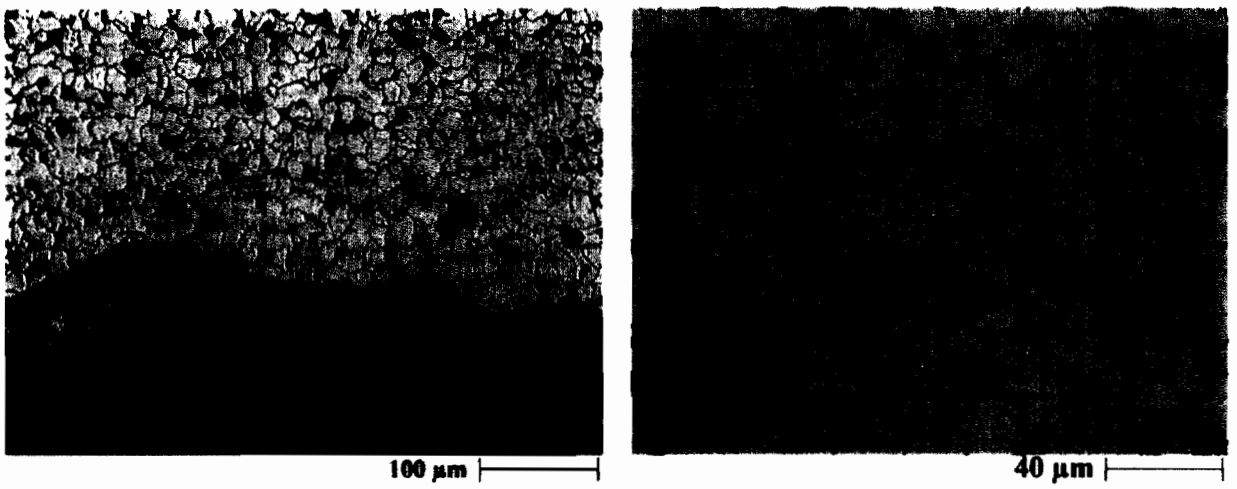
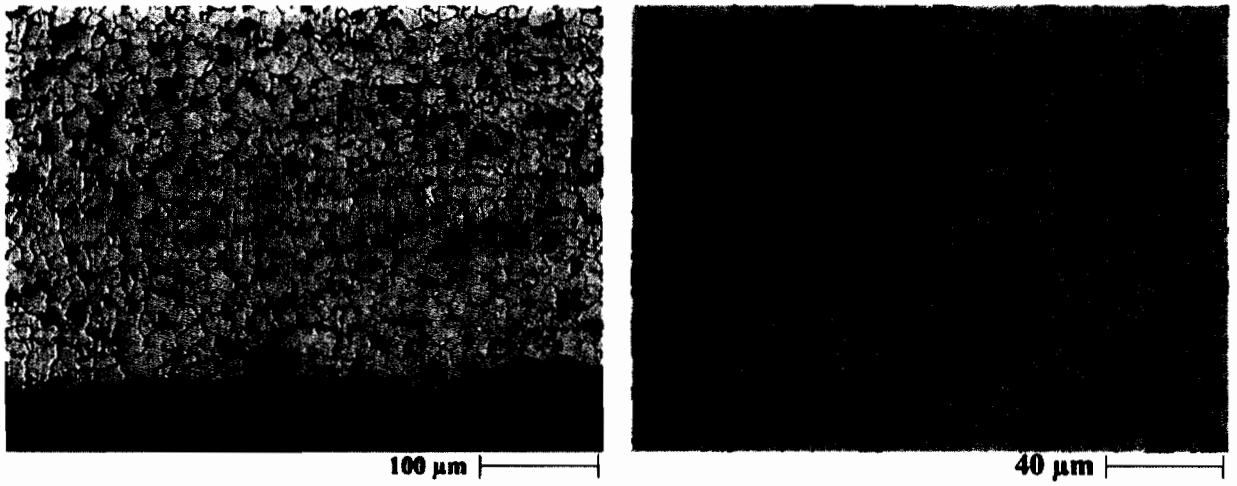


071464-B *Furnace Side* Nital Etch



071464-B *Casing Side* Nital Etch

Figure 3. Comparing the Condition of Water Side Surface and the Microstructure of the Tube Wall from the Furnace and Casing Sides of the Sample Removed from WW Tube 174.

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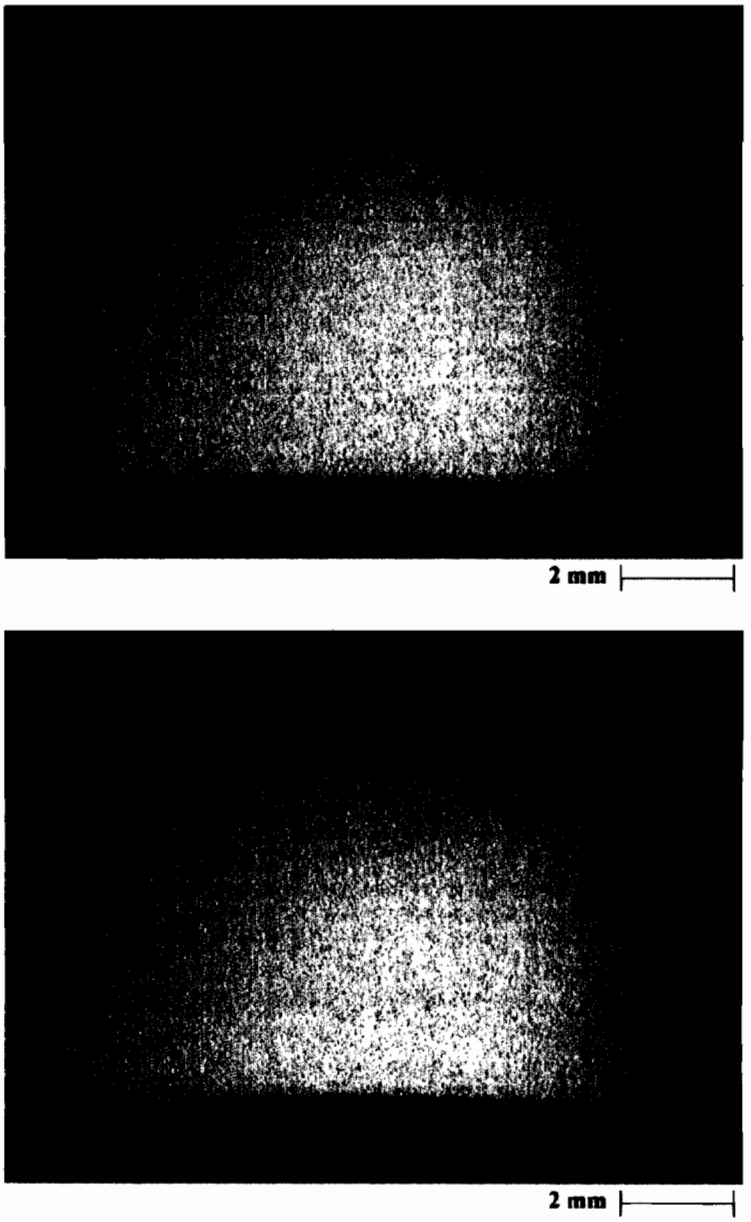

Figure 4. Comparing Typical Profiles of the Tube Wall from the Furnace and Casing Sides of the Sample Removed from WW Tube 180.

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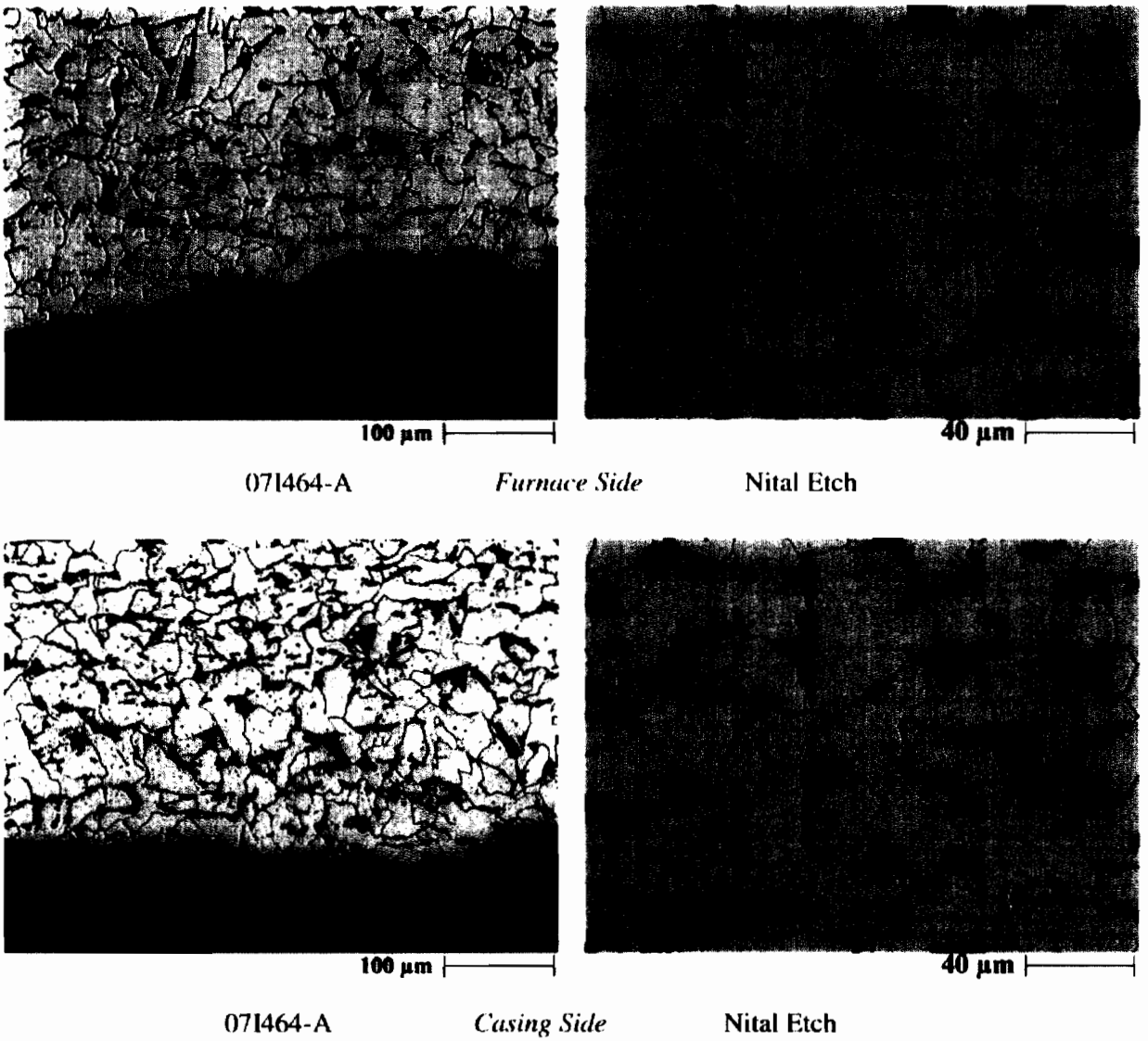

Figure 5. Comparing the Condition of Water Side Surface and the Microstructure of the Tube Wall from the Furnace and Casing Sides of the Sample Removed from WW Tube 180.

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Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/24/2008
Responding Witness: Electric Production Panel

Question No. :204.5
Subject: Electric Production - In Exhibit_(EPP-2) page 5 of 11 states that, "it is prudent to replace this rotor with the refurbished spare rotor prior to the end of the six year service life, as recommended by General Electric, the original equipment manufacturer of this rotor." Is six years correct in describing the service life? If not, then what is the correct service life? A. Who will be completing the actual servicing of the replacement rotor? B. What is the actual age of the replacement rotor? C. What is the cost estimate of a new rotor? D. Explain the criteria used in categorizing the rotor as an operating expense versus a capital expense.

Response:

General Electric, the original equipment manufacturer, completed the inspection of the rotor in the fall of 2007. No, six years is not correct for the service life. At the time the review was performed and based on the condition of the equipment, they recommended replacement of the rotor within the next six years. The average service life for this equipment is approximately 40 years. The rotor replacement will be included as part of the work planned during the next major scheduled overhaul of East River Unit 6, which is scheduled to occur during the rate year.

A. A vendor is scheduled to complete the work to refurbish the existing spare rotor.

B. The rotor was purchased in the 1979-1980 time frame.

C. An order of magnitude estimate, based on the cost of a similar generator rotor, would be $10 - $15 million.

D. See Attachment A for the policy on capital versus expense.

DPS14-204.5 Attachment A

Consolidated Edison Company of New York Inc.

Capital Vs. Expense Policy

Policy

It is the policy of Consolidated Edison Company of New York, Inc. to account for expenditures for construction, system improvement and refurbishing of existing plant in accordance with the accounting instructions promulgated by the N.Y.S. Public Service Commission (PSC) and the Federal Energy Regulatory Commission (FERC - formerly known as the Federal Power Commission) in their uniform System of Accounts based on retirement unit accounting principles.

A retirement unit is the smallest item of property which, when replaced or removed from service, must be retired from the plant accounts. When a retirement unit is replaced, its replacement is always capitalized. Maximum size retirement units are described by the PSC and FERC; however, smaller retirement units are permitted.

A minor item of property is a part, piece, section or portion of the retirement unit with which it is associated regardless of the significance of the dollar value of that minor item.

Accounting for Retirement Units

Expenditure for the addition of a retirement unit is always capitalized with a charge to the appropriate plant account.

The original cost of a retirement unit, which is removed from service, is always credited to the plant account wherein it is recorded.

The replacement of a retirement unit is accounted for as an addition, with an associated retirement.

Accounting for Minor Items

Substantial Additions

An expenditure for the addition of a minor item will be accounted for as a charge to maintenance unless a substantial addition results; in which case the minor item will be accounted for as a capital addition to the retirement unit.

The determination of the substantial addition will be based in the nature of the existing retirement unit, the total number of minor items involved, the costs of the minor items in relationship to the original cost of the existing retirement unit and the total cost

of the project. The capitalization of a minor item of shall not, however, exceed the additional cost computed at the current prices that would have been incurred if the minor item(s) had been installed together with the retirement unit(s) to which they are related.

Consolidated Edison Company of New York Inc.

Capital Vs. Expense Policy

Accounting for Minor Items

Substantial Betterments

The replacement of a minor item independently of the retirement unit of which it is a part shall be charged to maintenance, unless a substantial betterment occurs. When a substantial betterment occurs, the cost of the betterment in excess of the present day cost of the replacement in kind shall be capitalized to Plant with the balance being charged to maintenance. No retirement is then reported or recorded.

Replacement of Groups of Minor Items

The replacement of a group of minor items within a retirement unit when performed during a specific work program may result in a retirement and addition of the retirement unit.

The removal of a minor item without replacement does not require a retirement

Definition of Capital, Retirement and Operation and Maintenance Work Functions

Capital Expenditures: Cost for the construction of new utility plant, additions, and betterments to existing plant including reconstruction which substantially improves the original construction thereof.

Retirement Charges: Original Cost of utility plant retired from service, whether or not it has been physically removed or replaced, plus removal cost less salvage where these expenditures have been incurred (original cost retired + removal cost – salvage = net retirement charges).

Operation and Maintenance Expenditures

Operation Expenditures: Cost incurred in operating the existing utility plant, including the cost of routine inspections and testing (other than testing during construction).

Maintenance Expenditures: Costs incurred for preserving the operating efficiency or physical condition of the existing utility plant, including the replacement of minor parts not considered retirement units.

Company Name: Con Edison
Case Description:
Case: 08-E-0539

Response to DPS Interrogatories – Set DPS14
Date of Response: 06/24/2008
Responding Witness: Electric Production Panel

Question No. :204.6
Subject: Electric Production - Explain why the cost expenditures associated with Scheduled Overhauls (Exhibit_(EPP-2) page 5 of 11) and Facilities Maintenance (Exhibit_(EPP-2) pages 7, 8 of 11) are not amortized.

Response:

These costs are expense items incurred to operate and maintain existing equipment and, as such, are charged to operating expense as incurred in accordance with Generally Accepted Accounting Principles.