

2011 OCT -3 AM 1:16

September 30, 2011

Mr. Barry Stephens, P.E.
Division Director
Tennessee Division of Air Pollution Control
9th Floor, L&C Annex
401 Church Street
Nashville, Tennessee 37243-1531

VIA Express Mail

ATTN: Hymelia Craig

**RE: Cleaver Brooks Boiler Model FLE200-500-150ST
Emission Source 07-0027
St. Mary's Medical Center of Campbell County, LaFollette, TN**

Dear Ms. Craig:

AMEC E&I, Inc. (AMEC) is submitting the enclosed permit application on behalf of St. Mary's Medical Center of Campbell County. The application is for a Cleaver Brooks Boiler, Model FLE200-500-150ST located at their facility in LaFollette, Tennessee (Emission Source 07-0027). A recent review of the facility's records indicated that the appropriate paperwork may not have been filed for this unit when it was installed in 2009. Therefore, we are submitting the appropriate Tennessee Division of Air Pollution Control (TDAPC) forms at this time. Please note that a fee for this permit application is not currently included. We understand that if a fee is required, TDAPC will request appropriate payment from St. Mary's after review of the enclosed information.

Please note that the greenhouse gas emissions evaluation that has been requested by TDAPC is being submitted under separate cover. In support of the information needed on the TDAPC forms, we are restructuring their emission point numbering system. The combustion units currently present at the facility, each with a separate exhaust stack, are being re-numbered as follows:

Kewanee Low Pressure Boiler – No. 10;
John Deere Emergency Generator – No. 11;
Superior Boiler – No. 12;
Caterpillar Emergency Generator – No. 13;
BP Boiler – No. 14; and
Cleaver Brooks Boiler – No. 15.

Correspondence:

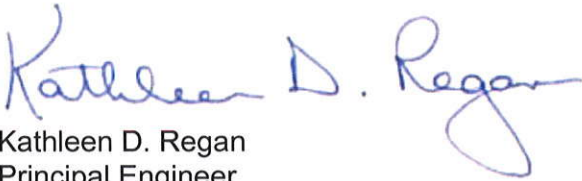
AMEC E&I, Inc.
2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509-4241
Tel +1 (859) 255-3308
Fax +1 (859) 254-2327

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If you have any questions regarding this information, please contact Condon Radford at (865) 545-7902 or Ms. Kathleen Regan of AMEC Environment and Infrastructure, Inc. (AMEC E&I) at (859) 566-3724.

Sincerely,

AMEC E&I, Inc.

A handwritten signature in blue ink that reads "Kathleen D. Regan". The signature is fluid and cursive, with the first name being the most prominent.

Kathleen D. Regan
Principal Engineer
email: kathleen.regan@amec.com

A handwritten signature in blue ink that reads "Sara B. Mathews". The signature is fluid and cursive, with the first name being the most prominent.

Sara B. Mathews
Senior Environmental Scientist
email: sara.mathews@amec.com

Enclosure 1 – TDAPC Forms for Cleaver Brooks Boiler

cc: Condon Radford, Mercy Health Partners

Enclosure 1
TDAPC Forms and Emission Calculations for the Cleaver Brooks Boiler

List of Forms

Form	Form Name	No. of Pages
APC 20	Permit Application	1 page
APC 21	Process or Fuel Burning Source Description	2 pages
APC 22	Emission Point Description	2 pages
Attachment APC 22	Cleaver Brooks Emissions	1 page



NOT TO BE USED FOR TITLE V APPLICATIONS

PERMIT APPLICATION

APC 20

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH EMISSION SOURCE. ATTACH APPROPRIATE SOURCE DESCRIPTION FORMS.

1. ORGANIZATION'S LEGAL NAME St. Mary's Medical Center of Campbell County		/// FOR	APC COMPANY--POINT NO.
2. MAILING ADDRESS (ST/RD/P.O. BOX) 923 East Central Avenue		/// APC	APC LOG/PERMIT NO.
CITY LaFollette	STATE TN	ZIP CODE 37766	PHONE WITH AREA CODE (865) 545-7802
3. PRINCIPAL TECHNICAL CONTACT Condon Radford			PHONE WITH AREA CODE (423) 907-1200
4. SITE ADDRESS (ST/RD/HWY) 923 East Central Avenue			COUNTY NAME Campbell
CITY OR DISTANCE TO NEAREST TOWN LaFollette		ZIP CODE 37766	PHONE WITH AREA CODE (423) 907-1200
5. EMISSION SOURCE NO. (NUMBER WHICH UNIQUELY IDENTIFIES THIS SOURCE) 07-0027-01		PERMIT RENEWAL YES () NO (X)	
6. BRIEF DESCRIPTION OF EMISSION SOURCE Cleaver Brooks Boiler Model FLE200-500-150ST. Natural gas - 6.5 MMBTU/hr; fuel oil #2 - 6.0 MMBTU/hr (see APC22 attachment).			

7. TYPE OF PERMIT REQUESTED				
CONSTRUCTION ()	STARTING DATE	COMPLETION DATE	LAST PERMIT NUMBER n/a	EMISSION SOURCE REFERENCE NUMBER
OPERATING (X)	DATE CONSTRUCTION STARTED 2009	DATE COMPLETED 2009	LAST PERMIT NUMBER n/a	EMISSION SOURCE REFERENCE NUMBER 07-0027-01
LOCATION TRANSFER ()	TRANSFER DATE		LAST PERMIT NUMBER	EMISSION SOURCE REFERENCE NUMBER
ADDRESS OF LAST LOCATION				

8. DESCRIBE CHANGES THAT HAVE BEEN MADE TO THIS EQUIPMENT OR OPERATION SINCE THE LAST CONSTRUCTION OR OPERATING PERMIT APPLICATION. None.
--

9. SIGNATURE (APPLICATION MUST BE SIGNED BEFORE IT WILL BE PROCESSED) Condon Radford LHV		DATE 9-30-11
10. SIGNER'S NAME (TYPE OR PRINT) Condon Radford	TITLE Regional Plant Fac. Leader	PHONE WITH AREA CODE (865) 545-7802

TABLE OF POLLUTION REDUCTION DEVICE OR METHOD CODES
(ALPHABETICAL LISTING)

NOTE: FOR CYCLONES, SETTLING CHAMBERS, WET SCRUBBERS, AND ELECTROSTATIC PRECIPITATORS. THE EFFICIENCY RANGES CORRESPOND TO THE FOLLOWING PERCENTAGES:

HIGH: 95-99+%. MEDIUM: 80-95%. AND LOW: LESS THAN 80%.

IF THE SYSTEM HAS SEVERAL PIECES OF CONNECTED CONTROL EQUIPMENT, INDICATE THE SEQUENCE, FOR EXAMPLE:

008'010.97%.

IF NONE OF THE BELOW CODES FIT, USE 999 AS A CODE FOR OTHER AND SPECIFY IN THE COMMENTS.

NO EQUIPMENT	000	LIMESTONE INJECTION--DRY	041
ACTIVATED CARBON ADSORPTION	048	LIMESTONE INJECTION--WET	042
AFTERBURNER--DIRECT FLAME	021	LIQUID FILTRATION SYSTEM	049
AFTERBURNER--DIRECT FLAME WITH HEAT EXCHANGER	022	MIST ELIMINATOR--HIGH VELOCITY	014
AFTERBURNER--CATALYTIC	019	MIST ELIMINATOR--LOW VELOCITY	015
AFTERBURNER--CATALYTIC WITH HEAT EXCHANGER	020	PROCESS CHANGE	046
ALKALIZED ALUMINA	040	PROCESS ENCLOSED	054
CATALYTIC OXIDATION--FLUE GAS DESULFURIZATION	039	PROCESS GAS RECOVERY	060
CYCLONE--HIGH EFFICIENCY	007	SETTLING CHAMBER--HIGH EFFICIENCY	004
CYCLONE--MEDIUM EFFICIENCY	008	SETTLING CHAMBER--MEDIUM EFFICIENCY	005
CYCLONE--LOW EFFICIENCY	009	SETTLING CHAMBER--LOW EFFICIENCY	006
DUST SUPPRESSION BY CHEMICAL STABILIZERS		SPRAY TOWER (GASEOUS CONTROL ONLY)	052
OR WETTING AGENTS	062	SULFURIC ACID PLANT--CONTACT PROCESS	043
ELECTROSTATIC PRECIPITATOR--HIGH EFFICIENCY	010	SULFURIC ACID PLANT--DOUBLE CONTACT PROCESS	044
ELECTROSTATIC PRECIPITATOR--MEDIUM EFFICIENCY	011	SULFUR PLANT	045
ELECTROSTATIC PRECIPITATOR--LOW EFFICIENCY	012	VAPOR RECOVERY SYSTEM (INCLUDING CONDENSERS,	
FABRIC FILTER--HIGH TEMPERATURE	016	HOODING AND OTHER ENCLOSURES)	047
FABRIC FILTER--MEDIUM TEMPERATURE	017	VENTURI SCRUBBER (GASEOUS CONTROL ONLY)	053
FABRIC FILTER--LOW TEMPERATURE	018	WET SCRUBBER--HIGH EFFICIENCY	001
FABRIC FILTER--METAL SCREENS (COTTON GINS)	059	WET SCRUBBER--MEDIUM EFFICIENCY	002
FLARING	023	WET SCRUBBER--LOW EFFICIENCY	003
GAS ADSORPTION COLUMN--PACKED	050	WET SUPPRESSION BY WATER SPRAYS	061
GAS ADSORPTION COLUMN--TRAY TYPE	051		
GAS SCRUBBER (GENERAL; NOT CLASSIFIED)	013		

TABLE OF EMISSION ESTIMATION METHOD CODES

NOT APPLICABLE EMISSIONS ARE KNOWN TO BE ZERO	0
EMISSIONS BASED ON SOURCE TESTING	1
EMISSIONS BASED ON MATERIAL BALANCE USING ENGINEERING EXPERTISE AND KNOWLEDGE OF PROCESS	2
EMISSIONS CALCULATED USING EMISSION FACTORS FROM EPA PUBLICATION NO. AP-42 COMPILATION OF	
AIR POLLUTANT EMISSIONS FACTORS	3
JUDGEMENT	4
EMISSIONS CALCULATED USING A SPECIAL EMISSION FACTOR DIFFERING FROM THAT IN AP-42	5
OTHER (SPECIFY IN COMMENTS)	6



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532-0554

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FAX: (615) 532-0614

PROCESS OR FUEL BURNING SOURCE DESCRIPTION

APC21(& 24)

PLEASE TYPE OR PRINT, SUBMIT IN DUPLICATE AND ATTACH TO THE PERMIT APPLICATION.

1. ORGANIZATION NAME St. Mary's /Campbell County Medical Center			/// FOR	APC COMPANY-POINT NO.
2. EMISSION SOURCE NO. (AS ON PERMIT APPLICATION) 07-0027-01		SIC CODE 801102	/// APC	APC PERMIT/LOG NO.
3. DESCRIPTION OF PROCESS OR FUEL BURNING UNIT Cleaver Brooks Boiler Model FLE200-500-150ST. Natural gas - 6.5 MMBTU/hr; fuel oil #2 - 6.0 MMBTU/hr (see APC22 attachment).				
4. NORMAL OPERATION: →	HOURS/DAY 24	DAYS/WEEK 7	WEEKS/YEAR 52	DAYS/YEAR 365
5. PERCENT ANNUAL THROUGHPUT: →	DEC.-FEB. 25%	MARCH-MAY 25%	JUNE-AUG. 25%	SEPT.-NOV. 25%
6. TYPE OF PERMIT APPLICATION				(CHECK BELOW ONE ONLY)
PROCESS SOURCE: APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, 13, AND 14).				()
PROCESS SOURCE WITH IN-PROCESS FUEL: PRODUCTS OF COMBUSTION CONTACT MATERIALS HEATED. APPLY FOR A SEPARATE PERMIT FOR EACH SOURCE. (CHECK AT RIGHT, AND COMPLETE LINES 7, 8, AND 10 THROUGH 14)				()
NON-PROCESS FUEL BURNING SOURCE: PRODUCTS OF COMBUSTION DO NOT CONTACT MATERIALS HEATED. COMPLETE THIS FORM FOR EACH BOILER OR FUEL BURNER AND COMPLETE AN EMISSION POINT DESCRIPTION FORM (APC 22) FOR EACH STACK. (CHECK AT RIGHT, AND COMPLETE LINES 9 TO 14)				(X)
7. TYPE OF OPERATION: CONTINUOUS, ()		BATCH ()	NORMAL BATCH TIME	NORMAL BATCHES/DAY
8. PROCESS MATERIAL INPUTS AND IN-PROCESS SOLID FUELS	DIAGRAM* REFERENCE	INPUT RATES (POUNDS/HOUR)		(FOR APC USE ONLY) SCC CODE
		DESIGN	ACTUAL	
A.				/
B.				/
C.				/
D.				/
E.				/
F.				/
G.				/
TOTALS				/

* A SIMPLE PROCESS FLOW DIAGRAM MUST BE ATTACHED.

(OVER)

9. BOILER OR BURNER DATA: (COMPLETE LINES 9 TO 14 USING A SEPARATE FORM FOR EACH BOILER)					
BOILER NUMBER 15	STACK NUMBER** 15	TYPE OF FIRING*** Combination oil-gas burner	RATED BOILER HORSEPOWER 143	RATED INPUT CAPACITY (10 ⁶ BTU/HR) 6.5 – nat. gas 6.0 – fuel oil #2	OTHER BOILER RATING (SPECIFY CAPACITY AND UNITS)
BOILER SERIAL NO. BT-10559		DATE CONSTRUCTED 2009	DATE OF LAST MODIFICATION (EXPLAIN IN COMMENTS BELOW). See No. 13 below.		

** BOILERS WITH A COMMON STACK WILL HAVE THE SAME STACK NUMBER.

*** CYCLONE, SPREADER (WITH OR WITHOUT REINJECTION), PULVERIZED (WET OR DRY BOTTOM, WITH OR WITHOUT REINJECTION), OTHER STOKER (SPECIFY TYPE), HAND FIRED, AUTOMATIC, OR OTHER TYPE (DESCRIBE BELOW IN COMMENTS).

10. FUEL DATA: (COMPLETE FOR A PROCESS SOURCE WITH IN-PROCESS FUEL OR A NON-PROCESS FUEL BURNING SOURCE)				STANDBY FUEL TYPE(S) (SPECIFY)			
PRIMARY FUEL TYPE (SPECIFY) Natural Gas and/or Fuel Oil #2							
FUELS USED	ANNUAL USAGE	HOURLY USAGE		% SULFUR	% ASH	BTU VALUE OF FUEL	(FOR APC ONLY) SCC CODE
		DESIGN	AVERAGE				
NATURAL GAS:	10 ⁶ CUFT 56.94	CUFT 6500	CUFT 4000	0.00065%	NA	1,000	
#2 FUEL OIL:	10 ³ GAL 370.5	GAL 42.3	GAL 28.3	0.0015%	NA	140,000	
#5 FUEL OIL:	10 ³ GAL	GAL	GAL		// / //		
#6 FUEL OIL:	10 ³ GAL	GAL	GAL		// / //		
COAL:	TONS	LBS	LBS				
WOOD:	TONS	LBS	LBS	// // // // // // //	// / //		
LIQUID PROPANE:	10 ³ GAL	GAL	GAL	// // // // // // //	// / //	85,000	
OTHER (SPECIFY TYPE & UNITS.):							

11. IF WOOD IS USED AS A FUEL, SPECIFY TYPES AND ESTIMATE PERCENT BY WEIGHT OF BARK
NA

12. IF WOOD IS USED WITH OTHER FUELS, SPECIFY PERCENT BY WEIGHT OF WOOD CHARGED TO THE BURNER.
NA

13. COMMENTS

Boiler installed in 2009 and replaced historical boiler #71691 previously permitted as part of 07-0027-01.

Boiler typically runs on natural gas for 12 months of the year; however, the unit should be permitted to have the flexibility to operate on either natural gas or fuel oil #2 as needed.

Boiler runs at 15-50% of maximum. Average of min and max usage ratings used to determine average hourly usage.

14. SIGNATURE <i>Condon Radford uw</i>	DATE <i>9.30.11</i>
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532-0554

FAX: (615) 532-0614

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EMISSION POINT DESCRIPTION

APC 22

PLEASE TYPE OR PRINT AND SUBMIT IN DUPLICATE FOR EACH STACK OR EMISSION POINT.
ATTACH TO THE PERMIT APPLICATION.

1. ORGANIZATION NAME St. Mary's Medical Center of Campbell County				///	APC COMPANY POINT NO.
				FOR	
2. EMISSION SOURCE NO. (FROM APPLICATION) 07-0027-01		FLOW DIAGRAM POINT NUMBER 15		///	APC SEQUENCE NO.
				APC	
3. LOCATION: →	LATITUDE N36° 23.330'	LONGITUDE W84° 6.662'	UTM VERTICAL	UTM HORIZONTAL	
4. BRIEF EMISSION POINT DESCRIPTION (ATTACH A SKETCH IF APPROPRIATE): Cleaver Brooks Boiler Model FLE200-500-150ST. Natural gas - 6.5 MMBTU/hr; fuel oil #2 - 6.0 MMBTU/hr (see APC22 attachment).					DISTANCE TO NEAREST PROPERTY LINE (FT) 175

COMPLETE LINES 5 AND 6 IF DIFFERENT FROM THAT ON THE PROCESS OR FUEL BURNING SOURCE DESCRIPTION (APC 21)

5. NORMAL OPERATION: →	HOURS/DAY	DAYS/WEEK	WEEK/YEAR		DAYS/YEAR	
6. PERCENT ANNUAL THROUGHPUT: →	DEC.-FEB.	MARCH-MAY	JUNE-AUG.		SEPT.-NOV.	
7. STACK OR EMISSION POINT DATA: →	HEIGHT ABOVE GRADE (FT) 24' 11"	DIAMETER (FT) 16" ID flange	TEMPERATURE (°F) 212	% OF TIME OVER 125°F Unknown - self modulating	DIRECTION OF EXIT (UP, DOWN OR HORIZONTAL.) UP	
DATA AT EXIT CONDITIONS: →	FLOW (ACTUAL FT³/MIN.) Not available (NA)	VELOCITY (FT/SEC) NA	MOISTURE (GRAINS/FT³) NA		MOISTURE (PERCENT) NA	
DATA AT STANDARD CONDITIONS: →	FLOW (DRY STD. FT³/MIN) NA	VELOCITY (FT/SEC) NA	MOISTURE (GRAINS/FT³) NA		MOISTURE (PERCENT) NA	
8. AIR CONTAMINANTS	ACTUAL EMISSIONS					
	EMISSIONS (LBS/HR)		CONCENTRATION	AVG. (TONS/YR)	EMISSIONS* EST. METHOD	CONTROL DEVICES*
	AVERAGE	MAXIMUM				CONTROL EFFICIENCY%
PARTICULATES	0.093	0.140	**	0.41	3	
SULFUR DIOXIDE	0.006	0.009	***	0.03	3	
CARBON MONOXIDE	0.34	0.55	PPM	1.47	3	
ORGANIC COMPOUNDS	0.022	0.036	PPM	0.10	3	
NITROGEN OXIDES	0.57	0.85	PPM	2.48	3	
FLUORIDES						
OTHER(SPECIFY) GHG Emissions	--	--		3074.9 short tons	5	
OTHER(SPECIFY)						

Highest emissions from either natural gas or fuel oil #2 combustion are presented.

(OVER)

9. CHECK TYPES OF MONITORING AND RECORDING INSTRUMENTS THAT ARE ATTACHED:OPACITY MONITOR (), SO₂ MONITOR (), NO_x MONITOR (), OTHER (SPECIFY IN COMMENTS) () Not Applicable

10. COMMENTS

11. SIGNATURE

Condon Radford LKV

DATE

9.30.11

* REFER TO THE BACK OF THE PERMIT APPLICATION FORM FOR ESTIMATION METHOD AND CONTROL DEVICE CODES.

** EXIT GAS PARTICULATE CONCENTRATION UNITS: PROCESS — GRAINS/DRY STANDARD FT³ (70°F); WOOD FIRED BOILERS — GRAINS/DRY STANDARD FT³ (70°F); ALL OTHER BOILERS — LBS/MILLION BTU HEAT INPUT.

*** EXIT GAS SULFUR DIOXIDE CONCENTRATIONS UNITS: PROCESS — PPM BY VOLUME, DRY BASES; BOILERS — LBS/MILLION BTU HEAT INPUT.

APC 22 Attachment
Cleaver Brooks Boiler (143 HP) Combusting Fuel Oil or Natural Gas
St. Mary's/Campbell County Medical Center, LaFollette, TN
07-0027-01

Boiler Plate Information:

Natural Gas (max) 6500 MBH
 Natural Gas (min) 1500 MBH

Natural Gas 6.5 MMBTU/hr maximum rating = 6500 MBH
 Natural Gas (max) 6500 scf/hr calculated assuming 1000 BTU/scf
 Natural Gas (min) 1500 scf/hr calculated assuming 1000 BTU/scf
 Natural Gas (avg) 4000

Boiler Plate Information:

Fuel Oil (max) 42.3 GPH
 Fuel Oil (min) 14.3 GPH
 Fuel Oil 6 MMBTU/hr calculated assuming max GPH from boiler plate and 140,000 BTU/gal
 Fuel Oil (avg) 28.3 GPH

Table 1A: Emissions from Fuel Oil No. 2 - Maximum PTE

Constituent	Max PTE gal/hr	Emission Factor (lb/gal)	Maximum Emissions (lb/hr)	Emissions (lb/yr)	Emissions (TPY)
AP-42 Emission Factors					
NOX	42.3	0.02	0.846	7410.960	3.71
CO	42.3	0.005	0.2115	1852.740	0.93
VOCs	42.3	0.00034	0.014382	125.986	0.06
PM	42.3	0.0033	0.13959	1222.808	0.61
SOX	42.3	0.000216	0.0091368	80.038	0.04

Table 1B: Emissions from Fuel Oil No. 2 - Average PTE

Constituent	Avg PTE gal/hr	Emission Factor (lb/gal)	Average Emissions (lb/hr)	Emissions (lb/yr)	Emissions (TPY)
AP-42 Emission Factors					
NOX	28.3	0.02	0.566	4958.160	2.48
CO	28.3	0.005	0.1415	1239.540	0.62
VOCs	28.3	0.00034	0.009622	84.289	0.04
PM	28.3	0.0033	0.09339	818.096	0.41
SOX	28.3	0.000216	0.0061128	53.548	0.03

AP-42 Chapter 1.3, 9/98.

Table 2A: Emissions from Natural Gas - Maximum PTE

Boilers	Max PTE MMSCF/hr	Emission Factor (lb/MMSCF)	Maximum Emissions (lb/hr)	Emissions (lb/yr)	Conversion Factor (ton/lb)	Total Emissions (TPY)
Manufacturer's Data						
NOX	0.0065	1.00E+02	6.50E-01	5694.0000	0.0005	2.847
CO	0.0065	8.40E+01	5.46E-01	4782.9600	0.0005	2.391
PM/PM10	0.0065	7.60E+00	4.94E-02	432.7440	0.0005	0.216
SOX	0.0065	6.00E-01	3.90E-03	34.1640	0.0005	0.017
VOC	0.0065	5.50E+00	3.58E-02	313.1700	0.0005	0.157

Table 2B: Emissions from Natural Gas - Average PTE

Boilers	Avg. PTE MMSCF/hr	Emission Factor (lb/MMSCF)	Average Emissions (lb/hr)	Emissions (lb/yr)	Conversion Factor (ton/lb)	Total Emissions (TPY)
Manufacturer's Data						
NOX	0.0040	1.00E+02	4.00E-01	3504.0000	0.0005	1.752
CO	0.0040	8.40E+01	3.36E-01	2943.3600	0.0005	1.472
PM/PM10	0.0040	7.60E+00	3.04E-02	266.3040	0.0005	0.133
SOX	0.0040	6.00E-01	2.40E-03	21.0240	0.0005	0.011
VOC	0.0040	5.50E+00	2.20E-02	192.7200	0.0005	0.096

AP-42 Chapter 1.4, 7/98.