LEGAL SERVICES

Allegheny Energy

800 Cabin Hill Drive
Greensburg, PA 15601-1689
PH: (724) 838-6210
FAX: (724) 830-7737
jmunsch@alleghenyenergy.com

June 30, 2010

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

RECEIVED
JUN 30 2010
PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

Re: Biennial Inspection, Maintenance, Repair and Replacement Plan
Docket No. L-00040167 and Docket No. M-2009-2094773

Dear Secretary Chiavetta:

West Penn Power Company d/b/a Allegheny Power hereby files four copies of its revised biennial Inspection and Maintenance Plan ("Plan") for the period January 1, 2011 to December 31, 2012.

Allegheny Power filed its initial Plan with the Commission on October 1, 2009. The Commission approved the majority of Allegheny Power's Plan but in an Order entered April 15, 2010, the Commission denied the Company's request for a waiver of the frequency of substation inspections.

The attached revised Plan reflects Allegheny Power's intention to inspect substations on a four-week cycle to comply with the aforesaid Commission Order. Section 6 of the revised filing (entitled "*Section 57.198(n)(8)* Substation Inspections") conforms to the Commission's Order and is the only portion of the Plan that is revised from the original October 1, 2009 filing.

Very truly yours,

John L. Munsch
Attorney

JLM:sac

Enclosures

cc: Certificate of Service
Darren Gill - CEEP

Pennsylvania Public Utility Commission;
Re: Inspection and Maintenance Plan
Docket No. L-00040167 and Docket No. M-2009-2094773

CERTIFICATE OF SERVICE

I hereby certify that on the 30th day of June, 2010, true and correct copy of the foregoing revised **Inspection and Maintenance Plan** of West Penn Power Company d/b/a Allegheny Power were served by FedEx Next Day upon the following:

Bureau of Conservation, Economics and Energy Planning Pennsylvania Public Utility Commission Commonwealth Keystone Building 400 North Street Harrisburg, PA 17120	Office of Small Business Advocate Commerce Bldg, Ste 1102 300 North Second St. Harrisburg, PA 17101
Office of Consumer Advocate Forum Place, 5th Flr 555 Walnut St. Harrisburg, PA 17101-1923	

Date: June 30, 2010

John L. Munsch, Attorney for
WEST PENN POWER COMPANY,
d/b/a ALLEGHENY POWER
800 Cabin Hill Drive
Greensburg, PA 15601
(724) 838-6210

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SECRETARY'S BUREAU

Allegheny Power

Biennial Inspection, Maintenance, Repair and Replacement Plan

of Allegheny Power

For the Period of January 1, 2011 – December 31, 2012

Submitted by:
James H Myers, III
Director, Asset Management
800 Cabin Hill Drive
Greensburg, PA 15601
(724) 838-6796
jmyers3@alleghenyenergy.com

Dated: June 28, 2010

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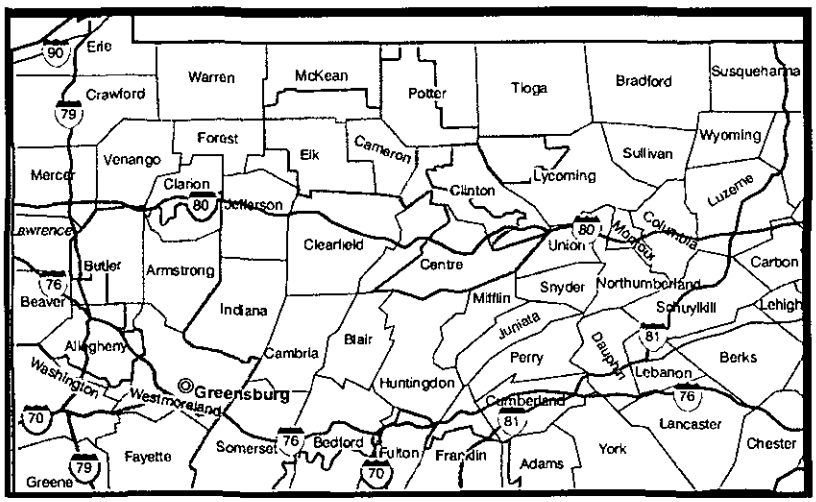
Introduction

Allegheny Power ("AP") submits its first biennial distribution inspection and maintenance plan as required under Section 57.198 of the Rules and Regulations of the Pennsylvania Public Utility Commission ("PUC") 52 Pa. Code § 57.198. This initial plan becomes effective on January 1, 2011. The plan addresses the required categories in the Code and provides AP's inspection and maintenance programs that have been developed and have evolved through experience in order to maintain and improve reliability in its Pennsylvania service territory.

Some statistics for AP's Pennsylvania territory follow:

Number of Service Centers	Circuit Count	Circuit Miles	Number of Substations	Service Area (sq. mi.)	Customer Count
18	809	22,112	481	10,364	704,767

AP's Pennsylvania system comprises three distinct areas and shown on the following map shaded in green:



The characteristics and variety of the terrain, vegetation, accessibility, and predominantly overhead nature of infrastructure all lead to certain inspection and maintenance practices presented in this document.

AP's inspection and maintenance program has evolved over many years (decades) through experience from time-based intervals to a combination of time-based and condition-based cycles. Advances in methods utilized to assess equipment condition have reduced the need for frequent visual observation:

- Remote load monitoring methods allow phases to be balanced and load growth to be monitored to reduce chances of equipment overload.
- Helicopter patrols allow quicker observation of potential problem areas. For instance, many distribution lines share poles with higher-voltage lines so that aerial patrols can detect potential vegetation and equipment problem areas while at the same time reviewing any distribution under built on the same lines.

- Distribution automation technologies are being developed and tested to restore customers more quickly.

Visual observation, while fulfilling a need on a periodic basis, is unlikely to reveal the infrequent critical failure modes of line and substation equipment. Additionally, outages are predominantly linked to causes beyond the utility's control – weather, public (vehicles, public dig-in, customer-cut tree, etc.), and off right-of-way trees.

AP will propose certain cycles different from PUC-proposed cycles and offer a cost/benefit analysis to support its proposed program(s). These cycles are consistent with experience and the need to maintain and enhance distribution reliability.

AP has other programs that provide observation opportunities for distribution lines such as:

- *Employee Reported Problems:* This program provides an opportunity for employees to report potential problems detected both during working hours and non-working hours. It is a program within AP that supplements cycle-based and condition-based inspection programs.
- *New Line Extension Program:* This program occurs during the process of connecting new customers to AP's system and provides an opportunity for Lineworkers and Designers to view distribution line conditions and report potential problems while connecting new customers.
- *Restore Service Events and Major Events:* This program takes advantage of storm events requiring mobilization of resources to restore customers from adverse weather events and provides an opportunity to improve field conditions associated with such things as weak trees brought down by wind that are not always apparent from visual observation.

Additional Programs

In addition to the prescribed inspection and maintenance frequencies included in sections 1 through 6 of the Plan, AP also inspects and maintains regulators, capacitors, and switching devices for reliable operation in conjunction with distribution overhead line inspections.

National Standards

AP's programs are consistent with applicable governing standards contained in National Electric Safety Code, Institute on Electrical and Electronic Engineers, and American National Standards Institute as appropriate.

Recordkeeping

AP currently does not have systems in place to meet all of the recordkeeping requirements but will develop systems to record the necessary information. Recordkeeping will be done in systems and formats suitable to demonstrate compliance with Section 57.198(m) for these programs and PUC requirements by January 1, 2011.

Waivers

AP is requesting waivers for the following programs, or parts of programs, contained in the following sections of this Plan, and relating to the following section or subsection of the Commission's Rules and Regulations:

- Pole loading calculations in Section 2 of this Plan. (Section 57.198(n)(2)(vi)).
- Distribution overhead line inspection interval in Section 3 of this Plan. (Section 57.198(n)(4)).
- Overhead transformer inspection interval in Section 4 of this Plan. (Section 57.198(n)(6)).
- Substation inspection interval in Section 6 of this Plan. (Section 57.198(n)(8)).

1. Section 57.198(n)(1) Vegetation Management

» Program Description

AP's vegetation management program is based on a conditional assessment of tree trimming needs; including such items as tree type, growth rate, proximity to line, health of trees, land use, and time since last vegetation maintenance, etc. Methods used to manage vegetation are selected according to need identified through inspection, with emphasis placed on the most cost effective methods that accomplish needed work for the given conditions and situations. The extent of the vegetation work to be performed on a given section of a scheduled circuit is determined by the reliability impact of that section of line. Specifications may vary based on whether the line is a major part of the main feed called Modified Main Line (MML) or a portion of the Remainder of Line (ROL) serving less than 40 (LT40) or greater than 40 (GT40) customers.

Definitions

Urban – Areas within cities, towns, and boroughs.

Rural – Non-urban areas.

Modified Main Line (MML) - From the substation to the last recloser, or the end of the multi-phase primary line, whichever point is greater.

- Single phase fused taps are excluded from the modified main line.
- For circuits that don't have reclosers, go to the first protective device at or just beyond the end of the multi-phase primary line, whichever applies.
- Exceptions to the modified main line definition must be approved by a manager and general manager (ex. critical tie lines).

Remainder of Line (ROL) – From the end of the MML to the ends of the circuit.

- Less Than 40 Customers (LT40) – Portions of the ROL that impact less than 40 customers.
- Greater Than 40 Customers (GT40) – Portions of the ROL that impact 40 or more customers.

Reference Document

Vegetation Management is performed in accordance with AP's Construction, Operations, and Maintenance Manual Section 09.

» Inspection Plan

Urban distribution circuits will have vegetation work performed on a 4 year cycle to maintain reliability in heavily populated areas and to reduce adverse impact of excessive trimming of Urban trees.

Rural distribution circuit prioritization will take into consideration the following items: circuit customer minutes interrupted (CMI) over time, number of customers on the circuit, and time since the circuit was last trimmed. In addition to the above mentioned criteria, additional consideration will be given to maintaining a necessary level of tree crews in certain geographic

areas in order to have adequate response time to storm events, capital requests and other unscheduled work as needed. Priorities will be recalculated on a two year basis with the most recent available data. At no time will a Rural circuit go more than eight years without having vegetation conditions addressed.

These priorities are scheduled to be assessed in late 2010 and every two years following. Specific circuits scheduled for work in 2011 and 2012 will be determined based on this prioritization and will be provided no later then December 15 of the prior year. This schedule is dictated by the following sequence necessitated by the reliability-based trim schedule. A strictly time-based cycle may trim trees that may not need trimming without prior visual verification.

- April 1 to September 30: Assessment and planning for following years' circuits.
- October 1 to October 30: Contractor firm price bidding of selected circuits.
- November 1 to November 30: Award of contract(s) for work.
- December 1 to December 14: Contractor notification and meetings.
- December 15: Notify PUC of scheduled circuits.

The following circuit miles were scheduled for maintenance or are scheduled in 2009. AP expects similar or more work each year and will provide the 2010 schedule by December 15, 2009 as indicated in the prior paragraph.

Scheduled Activity/Priority	Lines Center	Circuit	Total Circuit Miles
Ground Spray	Charleroi	PANGBURN	35
	Saint Mary's	BURNING WELL	11
		CARBON CENTER	22
		CLERMONT	64
		COONTOWN	54
		FAIRVIEW	30
		MONTMORENCI	18
		SHELVEY	47
		WILCOX	57

Scheduled Activity/Priority	Lines Center	Description	Total
Scheduled Maintenance	Arnold	ALLEGHENY RIVER	13
		DEER CREEK	5
		ESTHER AVE	11
		KENNETH AVE	11
		POWER	3
		RIVER	4
		SCHREIBER	1
		SOUTH BEND	88
		THIRD AVE.	5
		TUNNELTOWN	6
		WATSON	14
	Boyce	BRIGHTWOOD	13
		FORT COUCH	19
		McLAUGHLIN	8
		TREVESKYN	3
		VALLEY	14
	Butler	EBERHART	23
		FORESTVILLE	62
		KEISTERS TOWN	32
		MERIDIAN	27
		UNIONVILLE	39
	Charleroi	COCHRAN MILL	12
		KNOTHOLE	5
		LOVEDALE SUBSTATION CIRCUITS	50
		POETS CORNER	2
		ROBIBINS SUBSTATION CIRCUITS	14
	Hyndman	RT 96 NORTH	38
	Jeannette	ADAMSBURG	33
		BLUE DELL	16
		BROOKLANE	21
		CARBON	13
		CIRCLEVILLE	8
		COOL VALLEY	15
		COUNTRY CLUB	6
		EDNA	12
		LEVELGREEN	21
		PENN	21
		RUBRIGHT	10
		WEST POINT	1
	Jefferson	RUFF CREEK	73
	Kittanning	PATTONVILLE	42
		WORTHINGTON	82
	Latrobe	CEDAR STREET	21
		CENTER DRIVE	10
		DARLINGTON	70
		HECLA	67
		HIGHWAY	6
		HILLVIEW AVENUE	14
		LIGONIER STREET	8
		MISSION ROAD	12
		ROLLING ACRES	45
		UNITY STREET	20
	McConnellsburg	ST THOMAS EDENVILLE	63
	Saint Mary's	COONTOWN	53
		EMPORIUM JUNCTION	30
		LARCH STREET POWER	38
		WEST CREEK	66
	State College	CENTRE HALL CENTRE HALL	34
		CORL STREET	7
		MALL	8
		MILLHEIM REBERSBURG	77
		PARKVIEW	10
		POWER	6
		ROCK ROAD	6
		SCIENCE PARK	9
		SOUTH RESIDENTIAL	2
		STUCK EXTENSION	9
		TOFTREES	9
		WATERVILLE WATERVILLE	18
		WAUPELANI	7
	Washington	WEAVERTOWN	30
	Waynesboro	CARROLL VALLEY	55

» *Justification*

The Plan generally complies with inspection and maintenance standards set forth in Pennsylvania 52 Pa. Code § 57.198 (n). A waiver is not being requested for this section.

2. Section 57.198(n)(2) Pole Inspection and Section 57.198(n)(3) Pole Inspection Failure

» Program Description

Distribution poles will be inspected based on 8.3% of the total miles of distribution circuits (12-year program). Pole inspection is normally contracted. AP prepares bid documents listing poles to be inspected by substation and distribution circuit along with the number of miles to be inspected in each service center. All AP-titled poles older than 15 years, based on the installation date, will be inspected in accordance with specifications developed by AP. Poles inspected for the first time will be visually inspected, sounded, partial excavated, and bored. Poles previously treated will be inspected with a combination of these methods depending on previous treatment types performed.

External retreatment will be performed if the partial excavation indicates external decay or if the pole was previously externally retreated. Internal retreatment will be performed if the borings indicate internal decay or if the pole was previously internally treated. Poles will be void treated if the sounding and borings indicate internal voids or if the pole was previously void treated.

Reject poles fall into three categories: priority, reinforceable, and regular reject. Priority poles are reported to a priority pole hotline by the pole inspection contractor when found. Priority poles will be replaced or secured within five working days of notification. The term "secure" means having a trained company individual physically look at the pole and determine if it is stable or can be stabilized or needs to be replaced immediately. If needed, ropes, guys, and bracing can be used to temporarily stabilize the pole. Stabilized poles are typically scheduled for replacement within 30 days. An individual work request is established for each priority pole.

Crews report via mobile data terminals when a pole has been replaced. Reporting functionality is available to evaluate the completion of the replacements.

The Pole Inspection Contractor will reinforce reinforceable poles prior to the end of the following year. Regular reject poles are scheduled for corrective maintenance and will be replaced under the Pole Replacement Program.

Reference Document

Poles are inspected in accordance with AP's Construction, Operations, and Maintenance Manual Section 04-05 and 04-08.

» Inspection Plan

AP has a contract with an outside party covering the years 2009-2011 for that party to inspect poles. Since this I&M Plan for AP starts on January 1, 2011, only the first year of the plan is identified in the contract:

2011 Company	State	Service Center	Miles
WP	PA	Arnold	183
WP	PA	Boyce	49
WP	PA	Butler	131
WP	PA	Charleroi	162
WP	PA	Clarion	126
WP	PA	Jeannette	120
WP	PA	Jefferson	145
WP	PA	Kittanning	76
WP	PA	Latrobe	120
WP	PA	McConnellsburg	170
WP	PA	McDonald	79
WP	PA	Pleasant Valley	199
WP	PA	St Marys	147
WP	PA	State College	160
WP	PA	Uniontown	157
WP	PA	Washington	201
WP	PA	Waynesboro	93
		Total	2,319

» *Justification*

The Plan generally complies with inspection and maintenance intervals set forth in PUC 52 Pa. Code § 57.198 (n). However, a waiver is being requested for performing the pole loading calculations as part of the pole inspections.

AP complies with PUC inspection requirements and cycles and also complies with known industry-accepted standards. Under the new regulations, pole load calculations would be part of the inspection regimen as specified in Section 57.198(n)(2)(vi). AP proposes to not perform pole load calculations and it requests a waiver from Section 57.198(n)(2)(vi). Failure rates do not warrant the considerable cost of performing this calculation. Further, this calculation may not reflect the true condition of individual poles based on input assumptions. Pole failures as recorded in AP's outage management system are under 50 per year in Pennsylvania. These reported "pole failures" can often be the end result of other causes, such as a tree coming down on tree cable or pole failure as a result of lightning. Cable and telephone equipment attached to AP poles also add to uncertainty in the calculations.

Performing the load calculation and recording the data on 58,000 poles per year would cost over $1 million per year. This equates to $23,000 to $37,000 per pole failure. This is an unreasonable burden given that AP's pole inspection program adequately detects marginal poles.

Additionally, pole attachment companies are required to perform pole load calculations on all poles prior to attaching their equipment. This calculation takes into account the existing condition of the pole and all existing attachments at the time. The condition of the poles on subsequent inspections would detect any subsequent degradation.

Pole load calculation

# poles/year	cost/pole	Total Estimated Cost	
58,000	$ 20	$ 1,160,000	/year

EQUIP FAILURE\OH EQUIP\POLE

2008	50	$ 23,200	/ failure
2007	33	$ 35,152	/ failure
2006	31	$ 37,419	/ failure

Calculated pole failure rates are extremely low in AP:

Failure Rates = # Incidents/Equipment Count			
Equipment or Category	2008	2007	2006
Poles	0.007%	0.005%	0.005%

3. *Section 198.(n)(4)* Distribution Overhead Line Inspections and *Section 57.198(n)(5)* Inspection Failure

» *Program Description*

AP requests a waiver of the one-to-two year inspection cycle in Section 198(n)(4) of the new regulations. AP proposes continuing with its six-year inspection cycle for distribution lines. Going to a one-or-two year cycle does not provide improved reliability proportionate to the increased costs. For a cost/benefit analysis of this waiver, refer to the Justification sub-section.

Annual Inspection and Maintenance program consists of Company personnel inspecting every circuit once every 12 years. The annual inspection and maintenance program will lag the pole inspection schedule by approximately six years.

Equipment on each pole and all related equipment is inspected. This includes insulators, overhead transformers, and conductors between poles, which shall be visually inspected and any problems reported. All impaired clearances and hazardous conditions which may affect operation of the overhead distribution lines shall be reported immediately. All joint and rental attachments shall be identified and verification to determine unauthorized attachments.

AP's pole inspection contractor also performs a similar inspection every 12 years while performing the pole inspection work. This cycle is completed on the six-year interval from the inspection work performed by AP personnel. The contractor observes, notes, and reports conditions of poles and all attachments.

AP's overhead line inspection is also done through AP's normal routine work practices. Any time an employee is in the field performing his/her duties, a visual inspection is done and hazardous conditions are documented and reported immediately.

Inspection findings resulting in follow-up work, whether recorded by Company personnel or contract personnel, are planned depending upon the critical nature of the findings. Routine work is entered into a work management system and budgeted and scheduled for corrective maintenance.

This facilitates efficient work plans and anticipates budget needs. Hazardous conditions (downed wires, broken poles, trees on wires, or any other condition where there is a danger to the public) are immediately reported and entered into AP's Outage Management System for immediate correction.

Reference Document

Overhead lines are inspected in accordance with AP's Construction, Operations, and Maintenance Manual Section 04-05.

» Inspection Plan

The overhead line inspection schedule is set each year and lags the contractor pole inspection circuits by six years.

Contractor Pole Inspection Circuits	AP Personnel Inspection Circuits
Year: 2005	Year: 2011
Year: 2006	Year: 2012
Year: 2007	Year: 2013

The following table shows overhead distribution line miles for Pennsylvania service centers. AP expects to inspect one-sixth of these miles each year. A more detailed schedule will be provided in December prior to the inspection year.

State	Service Center	Distribution Overhead Miles
PA	Arnold	1,488
PA	Boyce	473
PA	Butler	1,394
PA	Charleroi	1,468
PA	Clarion	565
PA	Hyndman	346
PA	Jeannette	1,193
PA	Jefferson	1,461
PA	Kittanning	936
PA	Latrobe	1,189
PA	McConnellsburg	938
PA	McDonald	642
PA	Pleasant Valley	1,066
PA	St. Marys	1,203
PA	State College	1,682
PA	Uniontown	1,237
PA	Washington	1,269
PA	Waynesboro	1,216

» Justification

A waiver is being requested for the inspection interval contained in the new regulations at 52 Pa. Code § 57.198 (n).

Performing distribution circuit inspections on a cycle less than the current cycle of six years would provide minimal, if any, safety or reliability benefit. Current six year inspections reveal minimal problems and even fewer problems deemed to be critical in nature.

As noted in the Introduction, other 'unofficial' inspections are performed. These inspections occur daily but are not easily documented as compared to scheduled work.

- *Employee Reported Problems*, a program within AP, supplements cycle-based and condition-based inspection programs. This program provides an opportunity for employees to report potential problems detected both during working hours and non-working hours.

- *New Line Extension Program*, the process of connecting new customers to AP's system, also provides an opportunity for Lineworkers and Designers to view distribution line conditions and report potential problems while connecting new customers.
- *Restore Service Events and Major Events*, those storm events which require mobilization of resources to restore customers from adverse weather events, provide an opportunity to improve field conditions associated with such things as weak trees brought down by wind that are not always apparent from visual observation.

In 2008, 60 distribution circuits were audited representing 61,526 poles over 1,781.1 miles. During the review, 23 hazard conditions were reported for immediate repair. The reliability effort from these 23 conditions represent less than one percent of all poles required from the six year cycle. There were 595 miscellaneous maintenance related items found for follow up on a planned basis; such as, replace four old-style transformer cutouts (neither defective nor failed), replacement of a span guy, replacement of a deteriorated cross arm brace, and replacement of old style underground line cutouts. Work requests are initiated to perform any follow-up work in the subsequent year.

Increasing the inspection frequency to one-to-two years would require additional support to complete inspection representing an estimated cost of $1 million per year. Required spending of such an amount of money for minimal reliability improvement, if any, could replace a more efficient program. The cost for one minute of SAIDI improvement is on the order of $1 million.

As mentioned above, very few problems are discovered even on a six-year interval. AP's reliability continues to be good with the current inspection frequency. Moreover, a look at failure rates for certain equipment which would be inspected reveals minimal failures, as defined by equipment coded in outage management system as to cause versus the total number of that equipment in-service.

Failure Rates = # Incidents/Equipment Count			
Equipment or Category	2008	2007	2006
Transformers*	0.337%	0.381%	0.337%
Switches	0.092%	0.079%	0.079%
Capacitors	0.160%	0.080%	0.080%
Regulators	0.538%	0.806%	1.075%
Reclosers	0.636%	0.470%	0.553%
Distribution overhead wire failures per circuit mile	0.012	0.015	0.012
Distribution OH wire splices/connector failures per circuit mile	0.006	0.002	0.001

* AP uses single bushing transformers. Transformer failures may actually be blown internal fuses as a result of another fault.

4. *Section 57.198(n)(6)* Distribution Transformer Inspections

» *Program Description*

Overhead Transformers:

Overhead transformers are inspected in conjunction with the six- year distribution overhead lines as documented in Section 3 of this Plan. Conditions are noted and recorded for unusual observations:

- Rust, dents, and evidence of physical contact. An assessment is made regarding the severity of the conditions noted.
- Leaking oil creating a potential environmental hazard. These hazards are reported immediately.
- Abnormal condition of lightning arrestors, external cutouts, and insulators. Work requests are issued for follow-up repairs.

Pad-mount and Below Ground Transformers:

Pad-mount and below ground (submersible) transformers are inspected on a five-year cycle. The goal of AP's underground equipment inspection program, which includes transformers, is to ensure employee and public safety. An exterior inspection of underground distribution line equipment is performed to identify and correct any hazardous conditions due to unsecured or deteriorated installations. Other conditions like excessive transformer tilt, partially buried enclosures or misaligned pad-mounted equipment on pad, which can affect reliability, are also identified and corrected. The program is effective in preventing public access to dangerous voltage by maintaining the integrity of the enclosure.

AP began installing pad-mounted transformers on the underground distribution stem in the late 1960's. Live front transformers were installed until dead front transformers became the standard unit around 1973. The dead-front transformer improved reliability by shielding high voltage parts from exposure to animals and other naturally occurring damage. The incident rate is very low at an average of .0006. Because of the traditionally low failure rate on these transformers, the Underground Equipment Inspection Program focused on safety and security issues. The inspection program was established to ensure that cabinet security was not compromised by excessive corrosion or missing locks.

Below ground or submersible transformers were used on early underground distribution systems serving residential developments and for commercial underground services. A typical submersible transformer in a residential development was installed below grade in a circular corrugated steel vault with an open bottom. By 1973, submersible transformer installation in residential lot plans was discontinued in favor of pad-mounted transformers. A small number of submersible transformers are still installed today in manholes or customer vaults where a standard pad-mounted transformer cannot be used. There are approximately 1,770 submersible transformers in service today in the service area of AP and its affiliates in Maryland and West Virginia. The average incident rate is .0051. This incident rate is higher than for pad-mounted

transformers due to the advanced age of the population and difficult service environment relative to the pad-mounted units.

The following tables show the incident rates for last five years. The incident rate is measured as the number of transformer failures divided by total number or transformers at yearend.

Pad-mount Transformers:

Year	*Incident Rate*
2004	0.0005
2005	0.0006
2006	0.0007
2007	0.0007
2008	0.0006

Submersible Transformers:

Year	*Incident Rate*
2004	0.0048
2005	0.0078
2006	0.0024
2007	0.0077
2008	0.0035

The below table shows estimated number of transformers in AP's Pennsylvania service area:

Service Center	Estimated Transformers
Arnold Service Center	2183
Boyce Service Center	3735
Butler Service Center	3654
Charleroi Service Center	2777
Clarion Service Center	585
Hyndman, PA Area	202
Jeannette Service Center	4822
Jefferson Service Center	569
Kittanning Service Center	695
Latrobe Service Center	2112
McConnellsburg Service Center	726
McDonald Service Center	1125
Pleasant Valley Service Center	1323
St. Marys Service Center	918
State College Service Center	5246
Uniontown Service Center	1610
Washington Service Center	2214
Waynesboro Service Center	4534
Grand Total	39030

Reference Document

Transformers are inspected in accordance with AP's Construction, Operations, and Maintenance Manual Section 04-05 and 05-01.

» *Inspection Plan*

The following pages list the circuits to be inspected in 2011 and 2012. The estimated units to be inspected include pad-mount transformers, below ground transformers, vaults, manholes, pad-mount switchgear, and bus compartments which are also part of AP's underground inspection program.

Service Center	Substation	Circuit	2011 Est. Units	2012 Est. Units
Arnold Service Center	FREEPORT	COMMERCIAL	0	1
		LANEVILLE	0	27
		SLATELICK	0	61
	HARWICK	CHESWICK	12	0
		DEER CREEK	23	0
		HARMAR	91	0
		HULTON	71	0
		SPRINGDALE	23	0
	MURRYSVILLE	RUBRIGHT	19	0
		WALLACE LANE	72	0
	NORTH WASHINGTON	OKLAHOMA	0	112
		POKE RUN	0	92
	SALTSBURG	AVONMORE	0	12
		BELL TOWNSHIP	0	19
		SALINA	0	29
		SALTSBURG	0	31
	SHAFFERS CORNER	DELBERTA RD	68	0
		HILLCREST	4	0
		MILLIGANTOWN	33	0
		SEVENTH ST RD	26	0
		STEWART SCHOOL	38	0
Boyce Service Center	BETHEL PARK	BETHEL CHURCH	40	0
		BRIGHTWOOD	18	0
		BROOKSIDE	80	0
		CLIFTON	101	0
		COVERDALE	7	0
		DASHWOOD	244	0
		HILLCREST	36	0
		LRT	29	0
		OXFORD	33	0
		PIONEER	19	0
		VILLAGE	29	0
	PETERS	BEBOUT	0	194
		MCMURRAY	0	209
		VENETIA	0	344
	PINEY FORK	STOLTZ	144	0
	THOMAS	THOMAS	0	142
Butler Service Center	COOPERSTOWN	BROWNSHILL RD	47	0
		COOPERSTOWN	135	0
		TWIN WILLOWS	134	0
	HILLIARDS	HILLIARDS	73	0
	KARNS CITY	DAUGHERTY	7	0
		KAYLOR	91	0
		WEST FOXBURG	5	0
	MCBRIDE	NIXON	0	181
		OAK HILLS	0	52
	SHANOR MANOR	BONAIRE	0	101
		CLEARVIEW	0	17
		ONEIDA	0	181
	SHERWIN	CROLLS MILLS	57	0
		WEST SUNBURY	101	0

Service Center	Substation	Circuit	2011 Est.Units	2012 Est.Units
Charleroi Service Center	CRAVEN	FISHER HEIGHTS	14	0
		GHENNE HEIGHTS	34	0
		HOSPITAL	1	0
	DONORA	SOUTH DONORA	3	0
	DRY RUN	GINGER HILL	31	0
		NEW EAGLE	46	0
		PARK	10	0
		TOWN	27	0
	LARGE	LARGE	0	62
	PINEY FORK	BROUGHTON	0	60
		COCHRAN MILL	0	51
		KNOTHOLE	0	275
		POETS CORNER	0	68
	ROUNDHILL	ROUNDHILL	90	0
	SOMERS	RANKINS CROSSROADS	54	0
		ROSTRAVER	28	0
	WESTRAVER	FELLSBURG	218	0
		PITTSBURGH COAL	110	0
		WEST NEWTON	24	0
Clarion Service Center	CLARION	EAST END	0	69
		MAGNOLIA	0	125
		SOUTHSIDE	0	55
	RIMERSBURG	RESIDENTIAL	5	0
		SANDY HOLLOW	12	0
	SHAMBURG	SHAMBURG	1	0
	SLIGO	REIDSBURG	45	0
		SLIGO	10	0
	WIDNOON	KELLERSBURG	9	0
		TIDAL	16	0
Hyndman, PA Area	BEDFORD ROAD	RT 220 NORTH	49	0
	HYNDMAN	FAIRHOPE	4	0
		ROUTE 96 SOUTH	29	0
		RT 96 NORTH	37	0
Jeannette Service Center	N. GREENSBURG	CABIN HILL	60	0
		NORTH MAIN	54	0
		ROUTE 130	105	0
		STONEY SPRINGS	107	0
	PENN	ARLINGTON	14	0
		GASKILL AVE	26	0
		JEANNETTE	5	0
	PENN TRAFFORD	PLEASANT VALLEY	153	0
	ROBBINS	BALKAN	60	0
		BRADDOCKS TRAIL	135	0
		RILLTON	170	0
	SEWICKLEY	ADAMSBURG	0	87
		HERMINIE	0	41
		MIDDLETOWN	0	29
		TANGLEWOOD	0	42
		WENDEL	0	116
	WHITE VALLEY	BOQUET	0	78
		BORLANDS RD	0	104
		CLOVERLEAF	0	200
		CONGRUITY	0	125
		EXPORT	0	213
		MELLON RD	0	79
	YOUNGWOOD	ARMBRUST	0	75
		HUNKER	0	59
		MIDWAY	0	35
		YOUNGWOOD	0	18
Jefferson Service Center	GREENSBORO	GREENSBORO	23	0
	LANTZ	KYOWA	0	2
		MEADOW	0	110
		MORRISVILLE	0	34
	RUTAN	BRISTORIA	13	0
		WINDRIDGE	30	0
	VESTABURG	FREDERICKTOWN	20	0
		MEXICO	16	0
	WHITELEY	MT. MORRIS	22	0

Service Center	Substation	Circuit	2011 Est.Units	2012 Est.Units
Kittanning Service Center	KITTANNING	INDIANA PIKE	45	0
		PATTONVILLE	43	0
	MUSHROOM	MUSHROOM	0	3
	WEST HILLS	HOSPITAL	0	37
		PLAZA	64	0
Latrobe Service Center	BETHLEN	DARLINGTON	109	0
		LAUGHLINTOWN	0	140
		LAUREL VALLEY	0	79
		WILPEN	0	81
	ETHEL SPRINGS	NEW DERRY	0	66
		PANDORA	0	80
		PEACH HOLLOW	0	75
		RAILROAD	0	26
	NEW ALEXANDRIA	SHIELDSBURG	38	0
		SUNDIAL	38	0
	ST. VINCENT COLLEGE	ST. VINCENT COLLEGE	1	0
	WHITNEY	PLEASANT UNITY	107	0
		YOUNGSTOWN	124	0
McConnellsburg Service Center	BREEZEWOOD	NORTH	0	15
		RAYS HILL	0	5
	CLEARVILLE	CLEARVILLE	0	40
	EMMAVILLE	GAPSVILLE	0	31
		MATTIE	0	11
		STONEY BREAK	0	19
	FT LOUDON	MT PARNELL	0	26
		MT VIEW	0	4
	SAINT THOMAS	EDENVILLE	61	0
		LEMASTERS	7	0
	WHITETAIL	RESORTS	64	0
		SLOPES	59	0
McDonald Service Center	AVELLA	PENOWA	0	8
	HICKORY	FORT CHERRY	0	63
		HICKORY	0	40
	MIDWAY	BULGER	0	6
		MIDWAY	0	30
	NORTH FAYETTE	BEECHCLIFF	365	0
	SMITH	BURGETTSTOWN	0	28
		FLORENCE	0	67
		FRANCIS MINE	0	19
Pleasant Valley Service Center	CONNELLSVILLE	ARCH STREET	0	24
		GREENWOOD	0	58
		MONARCH	0	23
		SOUTH CONNELLSVILLE	0	5
		TROTTER	0	22
		WEST SIDE	0	6
	DONEGAL	BEAR ROCKS	0	48
		BUCHANAN	0	48
		CHAMPION	0	109
		DONEGAL	0	89
	SCOTTDALE	COMMERCIAL	54	0
		SOUTH SCOTTDALE	52	0
	SPRINGFIELD PIKE	BREAKNECK	74	0
		NORTH BEND	25	0
		ROCK RIDGE	9	0
	TRI TOWN	DAWSON	18	0
		HICKORY BOTTOM	28	0
		VANDERBILT	29	0

Service Center	Substation	Circuit	2011 Est.Units	2012 Est.Units
St. Marys Service Center	AUSTIN	AUSTIN	0	4
	CARBON CENTER	BUCKTAIL	56	0
		CARBON CENTER	115	0
	DRIFTWOOD	DRIFTWOOD	0	8
	EMPORIUM	EMPORIUM JCT	0	26
		TOWN EMPORIUM	0	15
		WEST CREEK	0	43
	LARCH STREET	COMMERCIAL LARCH ST	0	46
		POWER LARCH ST	0	50
	ROULETTE	BURTVILLE	0	12
		TOWN ROULETTE	0	14
State College Service Center	ATHERTON	BOALSBURG	0	154
	FILLMORE	AIRPORT	199	0
		COURTS	79	0
	FOWLER	BALD EAGLE	23	0
	PORT MATILDA	PORT MATILDA	52	0
		STORMSTOWN	251	0
	SCOTIA	MATTERNVILLE	249	0
		SCHOOL	202	0
		VALLEY VISTA	288	0
State College Service Center	ATHERTON	EAST RESIDENTIAL	0	42
		LEMONT	0	149
		SOUTH HILLS	0	20
		WAUPELANI	0	238
	BEECH CREEK	BEECH CREEK	0	6
		BLANCHARD	0	47
	EAST END	BISHOP	0	75
	HOWARD	JACKSONVILLE	0	59
		TOWN	0	39
	PLEASANT GAP	PLEASANT GAP	0	193
		ZION	0	3
	SHINGLETOWN	BRANCH RD	0	9
		WINDMILL RD	0	90
Uniontown Service Center	SOUTH UNION	BROWNFIELD	133	0
		CONTINENTAL	18	0
		FAIRCHANCE	75	0
		RTE. 119 NORTH	106	0
Uniontown Service Center	LAKE LYNN-UNIO	FANCY HILL	0	45
		GANS	0	29
	MERRITTSTOWN	BRIER HILL	0	12
		MERRITTSTOWN	0	15
		REPUBLIC	0	15
Washington Service Center	GORDON	FRANKLIN	62	0
		HAYES	58	0
		HILARY	94	0
		THIRD STREET	7	0
		TYLER	28	0
		WOLFDALE	145	0
Washington Service Center	PANCAKE	STRABANE	0	6
		VANCE	0	9
	WASHINGTON	BEAU ST.	0	21
		LINCOLN	0	8
		MAIN	0	64
		MURTLAND	0	19
		PARK	0	56
		RAILROAD	0	58
		WADE	0	112
Waynesboro Service Center	EAST WAYNESBORO	AMSTERDAM	96	0
		MOUNTAINVIEW	128	0
		ROADSIDE	197	0
		WAYNE HEIGHTS	185	0
		WEST	22	0
	GRAND POINT	BLACK GAP RD	164	0
		RED BRIDGE	107	0
		SCOTLAND	121	0
		STOUFFERSTOWN	120	0
		WOODSTOCK	233	0
Waynesboro Service Center	SALEM	BARCLAY VILLAGE	0	51
		CHEESETOWN	0	279
		GREENVILLAGE	0	168
		NORLAND	0	79
	UPTON	CHURCH HILL	0	65
		HEISEY	0	45
		WELSH RUN	0	38
	WEST WAYNESBORO	FAIRVIEW	0	41
		SERVICE CENTER	0	88
		THIRD ST	0	6
		TRINITY	0	123
		ZULLINGER	0	136

» Justification

A waiver is being requested for the overhead transformer inspection interval of one-to-two years contained in 52 Pa. Code § 57.198 (n)(6). The Plan complies with the five-year inspection and maintenance intervals set forth in 52 Pa. Code § 57.198 (n) for above-grade pad-mount and below-ground transformers.

Overhead transformers:

Overhead transformers are inspected in conjunction with the six- year distribution overhead lines as documented in Section 3 of this Plan. Few transformer failures or problems are discovered even on a six-year interval. Failure rates for overhead transformers follow. The additional inspection costs are included in the Justification sub-section in Section 3.

Failure Rates = # Incidents/Equipment Count			
Equipment or Category	2008	2007	2006
Transformers	0.337%	0.381%	0.337%

Note that AP uses single bushing transformers. Transformer failures may actually be blown internal fuses as a result of another fault.

There are also other opportunities for transformer inspections when transformers are cycled through the shop for internal fuse replacements.

Pad-mount and below ground transformers:

Pad-mount and underground transformer inspections occur on the PUC-recommended intervals. Any conditions requiring immediate attention (i.e. enclosure openings/voids, broken hinges, faulty locking mechanisms, exposed conductors, unsecured manhole doors and vault lids, or seal locks that are missing and provide unrestricted access to the interior of the equipment) shall immediately be repaired on site. If a condition exists that cannot be repaired on site, (such as a transformer with an oil leak) the inspector will promptly report the condition to service center management. Service center management will take all steps necessary in a timely manner to secure or make safe the given condition requiring attention. This will be in compliance with the PUC's 30-day repair requirement of an inspection failure.

5. *Section 57.198(n)(7)* Recloser Inspections

» *Program Description*

Single-phase reclosers are inspected in conjunction with the six-year overhead and poles inspection cycles. Conditions are noted and recorded for unusual observations:

- *Lightning arrestor*
- Condition of the tank and bushings
- By-pass switch
- Any other potential problem (including verification of proper equipment grounding)

Replacement of units based on visual damage will be done as soon as practical after the inspections. If visual damage to the bypass switch or arrester is noted, replacement of the switch or arrester would be scheduled for corrective maintenance as soon as practical.

Reference Document

Reclosers are inspected and maintained in accordance with AP's Construction, Operations, and Maintenance Manual Section 04-10.

» *Inspection Plan*

See Section 3 of this I&M Plan for inspection cycles. The following is the quantity of line reclosers by service center in Pennsylvania subject to inspections. AP expects to inspect one-sixth of these each year. A more detailed schedule will be provided in December prior to the inspection year.

State	Service Center	Reclosers
PA	Arnold	272
PA	Boyce	199
PA	Butler	304
PA	Charleroi	270
PA	Clarion	67
PA	Hyndman	59
PA	Jeannette	307
PA	Jefferson	157
PA	Kittanning	117
PA	Latrobe	165
PA	McConnellsburg	148
PA	McDonald	138
PA	Pleasant Valley	150
PA	St. Marys	154
PA	State College	159
PA	Uniontown	226
PA	Washington	228
PA	Waynesboro	282

» *Justification*

The Plan complies with inspection and maintenance standards set forth in 52 Pa. Code § 57.198 (n)(7) for recloser inspections in that single-phase reclosers are "inspected as part of the EDC's individual distribution line inspection plan". No waiver is being requested from Section 57.198(n)(7).

6. *Section 57.198(n)(8)* Substation Inspections

» *Program Description*

The Substation Inspection Program is composed of two components to assess the status of each substation and to provide for the safety of employees and neighbors, operational data for maintenance triggers, and to ensure for the basic reliability of the substation. AP has 481 substations that supply distribution circuits in Pennsylvania.

The first component of the Substation Inspection Program is a monthly Security/Safety inspection. This will be an inspection of substation equipment, structures, and hardware as required under Section 57.198(n)(8). Any abnormal conditions associated with buildings, equipment, substation yard, fencing, signs, and surroundings are noted. A monthly inspection exceeds the minimum requirement of five weeks.

A second component performed on a six-month basis includes readings and open cabinet visual inspections to record operational and physical conditions of substation equipment within the station. This is typically performed as readings are needed for loading and other monitoring requirements.

Reference Document

Substations are inspected and maintained in accordance with AP's Construction, Operations, and Maintenance Manual Section 10.

» *Inspection Plan*

AP will perform an inspection on all Distribution and Transmission substations on a monthly periodicity. Following is a listing of AP's Pennsylvania substations. The "Nom Voltage" heading in the chart represents the source-side voltage of the substation and not the distribution voltage.

Service Center	NOM_VOLTAGE	Total
Arnold	25	35
	34.5	2
	138	13
Boyce	25	13
	138	8
Butler	25	28
	34.5	3
	138	8
Charleroi	25	34
	34.5	1
	138	10
Cumberland	34.5	2
Jeannette	25	15
	138	14
Jefferson	25	52
	34.5	1
	138	4
Kittanning	25	13
	34.5	8
	138	4

Service Center	NOM_VOLTAGE	Total
Latrobe	25	20
	34.5	2
	138	6
Pleasant Valley	25	33
	69	1
	138	12
St. Marys	46	32
	138	3
	230	2
State College	46	33
	230	2
Washington	25	23
	34.5	3
	138	8
Waynesboro	34.5	19
	69	3
	138	11
Grand Total		481

» *Justification*

The Plan complies with inspection and maintenance standards set forth in 52 Pa. Code § 57.198 (n)(8) for substation inspections. A waiver had been requested from Section 57.198(n)(8) but the request was denied by the Pennsylvania Commission. AP would respectfully request that if other EDCs are subsequently permitted to increase inspection intervals, that AP also be permitted based upon previously-submitted justification.

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