

(E-990473)

Washington UTC Complaint

CTS-47312

Company: Puget Sound Energy

Customer: Account#

Cheryl L. Gardner

(4b)
[Redacted]

Phone: (4b)

Complaint: CTS-47312
Opened on: 10/26/98
Closed on: 11/10/98

Serviced by: **Ken Chapman**
Grouped by: Quality Of Service
Disposition: Consumer upheld

Description:



COMPLAINT TEXT FILE:

ID = 47312

CREATED AT = 13:50:11 26 OCT 1998

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10-28-98 OPENED COMPLAINT FROM LETTER.

CUST CLAIMS PSE WAS DELIVERING EXCESSIVE VOLTAGE TO HER RESIDENCE, CAUSING CERTAIN ELECTRICAL ITEMS TO FAIL. PSE HAS REFUSED DAMAGE CLAIM BASED ON TARIFF SCHEDULE 80.

BASIC INFO

5-5-98 WELL HOUSE PUMP STOPPED RUNNING, HAD TO BE REPLACED.

5-7-98 WHILE PUMP WAS BEING REPLACED, AN EXCESSIVE HIGH VOLTAGE OF 280 WAS REPORTED AT THE SUPPLY TO THE PUMP HOUSE. REPORTED TO PSE.

PSE RESPONDED. REPLACED THE TRANSFORMER. ADVISED IT WOULD BE REPORTED, AND TO CALL CLAIMS DEPARTMENT.

CUST CALLED CLAIMS ON 5-11, TOLD PERSON WOULD CALL BACK.

NOBODY CALLED BACK

CALLED AGAIN 5-14. AS PSE HAD NOT CALLED BACK.

5-26 MAILED TO PSE COMPLAINT LETTER.

8-26 ATTN FOR CUST SENT LETTER REQUESTING RESPONSE IN 10 DAYS.

9-18 PSE REFUSED DAMAGE CLAIMS BASED ON TARIFF 80 SECTION.

NOTE NEED THE FOLLOWING

TESTING AND MAINTENANCE HISTORY OF TRANSFORMER AND CIRCUIT.

HOW VOLTAGE IS CHECKED AT RESIDENCE. WHEN LAST TESTED? RESULTS OF TEST.

WHAT VOLTAGE WAS BEING DELIVERED ON 5-7-98 (OR OTHER DATES) WHEN PSE REPAIRED IT?

WHAT IS THE CORRECT VOLTAGE? (240? 220? 110?)

RECEIVED
PROPERTY MANAGEMENT
01 FEB -9 PM 1:15
STATE OF WASH.
UTIL. AND TRANSP.
COMMISSION

*log i file
per graciele
RMS*

WHEN DID THE VOLTAGE LAST TEST WITHIN 5% AT THE SITE?

LETTER RESPONSE FROM PSE STATES ..."ACTED WITHIN THE GUIDELINES PRESCRIBED BY THE WUTC IN THE MAINTENANCE AND RESTORATION OF SERVICE" PLEASE EXPLAIN THIS STATEMENT WITH RESPECT TO WAC 480-120-191, AND WAC 480-120-076, SPECIALLY WHAT EQUIPMENT HAS PSE INSTALLED AND MAINTAINED TO DETERMINE THE OPERATIONAL CHARACTERISTICS AT THE WALDRICK RD LOCATION, AND PLEASE EXPLAIN THE MAINTENANCE PLAN FOR CHANGING OUT TRANSFORMERS TO MAINTAIN ADQUATE SERVICE. WHEN WAS LAST INSPECTION AMD MAINTENANCE DONE AT THE SITE, WHEN WAS THE NEXT ONE SCHEDULED?

WHO DETERMINED PSE WAS IN COMPLIANCE?

NEED ALSO COMPLAINT HISTORY AS THIS CUST HAS SAID COULD NOT GET RESPONSES.

PASSED TO PSE

10-28 MOLLY REQUESTED EXTENSION.
NO PROBLEM

10-29 CALLED CUST LEFT VM UPDATE.

11-3 from molly
To: Ken Chapman/WUTC
cc:
Subject: Gardner, Cheryl

Hi Ken:

I'm going to try my best to answer the questions you had regarding Ms. Gardner's complaint.

We don't test transformers that are installed in the field unless customers call to report a problem they are experiencing. We will then send a serviceman to check the voltage, set a solid state recording volt meter, and check connections if the serviceman thinks it may be necessary. Transformers removed from service are sent to the transformer shop and are tested there. We are not required to test transformers, but I believe that it is part of the process when trying to determine a customer problem.

Transformers should have an average life expectancy of at least forty years.

The only regular maintenance would probably be a commercial customer where the meter department is testing the metering equipment and might find a voltage problem. I can't say that I have ever been aware of this happening. I think transformers are generally so reliable that a voltage check isn't usually necessary except in those cases where customers add large amount amounts equipment without informing us. Then when they experience problems they call us for assistance. Most other problems are due to a transformer being damaged by lightning, falling trees, or being hit by cars.

We test equipment in the field with voltage meters, solid state recording volt meters, ammeters to make sure that the voltage is within limits.

In respect to WAC 480-100-076 "install and maintain such equipment as may be necessary to determine the operating characteristics of the system.." the customer called PSE on 5/8. A serviceman was dispatched at 8:44 PM. The

serviceman reported that a crew was needed to replace the transformer. The voltage recorded was 143/285. The transformer was replaced by 1:37 AM.

Generally there is no indication of when a transformer will go bad or is bad unless we receive reports to indicate a potential problem. This case is about a single transformer and a single customer. A warning system of voltage problems would be limited to maximum amps on a substation circuit which might trigger an investigation. Individual taps off the feeder system in which the fusing is frequently melting out, would indicate an overloading that could cause voltage problems. Generally there is no indication of when a transformer will go bad or is bad unless we receive reports to indicate a potential problem.

WAC 480-100-191 can be very important in that it says that voltage means voltage under "stable conditions." Schedule 80 paragraph 19 gives our standard voltages. The customer's voltage should be 120/220. With a 120 volt standard, the variation can be in a range between 126 and 114 volts but only a total of 8 percent or 9.6 volts variation within that range is allowed. For 240 volt service the range is between 252 and 228 volts but only a total of 8 percent or 19.2 volts variation.

Given these ranges and variations, and the voltage as recorded on 5/8 when the check was done and the transformer replaced, we looked at equipment failure to further determine if there were "stable conditions" or not. Failed equipment constitutes an unstable condition.

> -----

> From: Bork, Molly

> Sent: Friday, October 30, 1998 11:48 AM

> To: Howe, Thomas

> Cc: Hendrickson, Barry

> Subject: Questions to WUTC complaint

>

> Tom I just want to verify some things with you before I respond back to
> the WUTC.

>

> Verification that we don't test transformers (we aren't required to are
> we?)

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> What is the normal life span of a transformer?

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> Is there any way the Company has the ability to determine if a line has a
> voltage issue; is there some sort of warning system, or do we only find
> out when a customer calls with a problem?

>

> Do we do any type of regular maintenance where we might come across a
> problem with a transformer even though we don't check transformers?
> * how was the voltage tested; what type of equipment was used?

>

> Regarding the WAC reference: do we have equipment to determine operating
> characteristics as set forth in the WAC?

>

> thanks,

>
> Molly
>
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11-3, 11-4 review. pull info in utc lib.

sent e-mail back to PSE.

To: "Bork, Molly" <MBork@puget.com>

cc:

Subject: Re: Gardner, Cheryl

Molly, thanks, but I think rather than PSE claim that "Unstable conditions" means failing transformers, I think PSE would rather have it mean Unstable loading, for example if you turn on a big vacuum in a bedroom, you notice a brief dimming of the lights, or if you have your headlights on in your car and try to start it the lights dim as the starter engages.

If you test the voltage during such "start up" draws, a dip happens in the voltage. so testing voltage during start ups of electric motors, welders etc, drops below the 5% below allowed by the rule.

I can go to my house tonight, test with one of my volt-ohm meters the voltage at my garage and make about a 5+% dip in the measured voltage when my Air compressor kicks in.

The effect is the same as taking a shower and someone flushes a toilet, a drop in water pressure is felt by the person in the shower.

That is why the whole sentence is Voltage, as used herein, means the voltage existing with loads operating under stable conditions. It refers to the loads being stable. Can't measure accurately with load jumping around.

The rule does not permit 8 % above, it only allows 5% above. The 8% is a total above and below, for example on 120 would be 5% above (126 volts) plus 3% below (116.4 volts). going to 129.6 would be more then the 5% allowed.

The 285 volts is 18.75% above the 240 volts.

Rule allows only 5%

By the response I gain the following

PSE found the voltage to exceed 240 volts by more then 5%

PSE does not have records of voltage measurements before the complaint on 5/8

PSE does not know how long the voltage was above 240.

PSE does not have a program of preventive testing, inspections, maintenance for the transformers.

PSE was not monitoring the operational conditions on the circuit supplying the customer.

PSE does not have records showing last time the Transformer was inspected.

PSE did not plan to inspect the transformer in the future.

May I suggest PSE invest in some of the common Transformer test equipment for both field & shop use.

example-Morgan Schaffer has the AMS 500 for Dissolved gas monitor which detects fault gases such as those associated with excess moisture content (which causes a breakdown of the paper/oil system) for preventing transformer failure.

There is on the market kits to remove excess moisture from transformers

Morgan Schaffer also has a furan test to detect thermal, oxidation and hydrolytic breakdown of paper insulation. If it was an older transformer sometimes moisture isn't the problem, but a paper insulation breakdown issue due to sodium soap formed in the oil by a reaction between the compound that was used to treat core laminations and organic acids resulting from oil oxidation.

You may want to check other suppliers such as AEMC instruments, Phenix Technologies for other transformer test equipment. some take as little as 2 mins to test a transformer.

Some utilities use the AVO International CB-100 test set. it takes about 5 mins to test. on lower voltage units it is a one man operation (barring safety)

Some utilities provide a CB-100 to each maintenance crew and test all transformers each year.

I suggest PSE get a copy of 8-98 Electrical World publication. They have a nice article on Portable test set eases insulation testing (Includes transformers)

I would suspect the failure was more likely related to moisture rather than accident. Moisture levels are testable and treatable in many units.

If PSE only replaces when the unit fails, it is not an act of God. It will fail. It is built with metals that oxidize, corrode, embrittle, chemicals that decompose, paper that fails, oils that sludge up, seals that leak. cases that rust. To not test, inspect, maintain and replace transformers until they fail means they will fail.

UTC rates have costs for maintenance and depreciation. certainly PSE hasn't come in for a rate reduction based on reduced/avoided maintenance efforts.

The Wac rules require the voltage be within 5% and the main reason for that is in North America we use certain standards for electrical devices (60 cycle AC 240/120 volts etc.) to allow mass production of the devices and reliable operations. excessive deviation damages those devices and causes hazards to the public.

PSE as the supplier of the current is responsible for meeting the operational conditions such as voltage.

I am recording a violation of Wac 480-100-191 for providing Electric power in excess of 5% from standard voltage. $285 \text{ volts} / 240 \text{ volts} = 118.75\%$

Transformers are a significant portion of the plant and facilities. lack of testing, inspection and maintenance guarantees interruptions of service that could be avoided due to the certain failure of a substantial number of transformers.

A forty year life span means each year 2.5% of the transformers fail. I suspect from the fact that Military road is a very old road in the Tenino area, the transformer may have been that old or older. If there is 600 transformers in an area, PSE could expect to have 15 transformers fail a year, or one every 3.5 weeks approx. With outage costs and emergency response so high, certainly it would pay for it self to do some simple testing and inspections and reduce the transformer failures.

I will record a violation of Wac 480-100-076 as in this case PSE is not endeavoring to avoid interruptions of service but using the customers as the inspectors after the problem has occurred.

I see no proof PSE acted within the UTC guidelines for Maintenance of the system as claimed in the letter to the customer. I see nothing in the information provided why RCW 80.04.440 which clearly overrides the Tariff liability limits would not apply.

You may wish to provide Rodel Pagulayan a copy of the voltage test info along with WAC 480-100-191 and RCW 80.04.440. please advise him the Law and the rule overrides the tariff.

sent e-mail to mark anderson

11-5 called cust left message on machine.

11-6 cust called requested copy of complaint upon closing.

11-10 review text for completeness. corrected several typos, caught 2 items on review. sent e-mail to PSE.

Molly I am closing this out today. upon review I caught 2 things.

-The customer reported the transformer case had a cracked case.

-The exact reason the transformer failed was not explained.

I don't think it needs to be redone, because the bottom line, voltage in excess of 5% above the standard, doesn't change.

Ken....

summary of violations

WAC 480-100-191 provide electrical power in excess of 05% ABOVE STANDARD

WAC 480-100-076 FAIL TO ENDEAVOR TO AVOID INTERRUPTIONS OF SERVICE.

CLOSED. MAILED COPY

Activity:

