SAMPLE

Expert Report

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COURT OF COMMON PLEAS
OF PHILADELPHIA COUNTY

SYBIL O'NEIL 4506 Mulberry Street Philadelphia, PA 19124 plaintiff	:	
vs.	:	NO. 0904-2939
DIRECTV, INC. P.O. Box 6550 Greenwood Village, CO 80155 defendant	:	

Expert Report

Plumbing Investigation

Prepared for

Norman L. Haase, Esquire
Attorney for Defendant

August 21, 2010

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August 21, 2010

Norman L. Haase
Attorney at Law
Swartz Campbell, LLC
115 North Jackson Street
Media, PA 19063

RE: Sybil O'Neil vs. DirecTV, Inc.

Dear Mr. Haase:

My expert report in the above captioned matter follows:

INTRODUCTION

Sybil O'Neil, in September, 2007,[1] hired DirecTV to install a satellite television antenna system at her premises located at 4506 Mulberry Street, Philadelphia. Within the next month, or so, plaintiff states she noticed ". . .a very terrible smell that was coming from the basement".[2] The odor was prevalent throughout ". . .the whole house".[3]

On April 10, 2009,[4] a home weatherization program contractor visited the premises and indicated the cause of the odor was the installation of the satellite antenna on the stack vent. " 'Its in your exhaust pipe,' he say, 'and that is what's causing the smell in your house.' "[5]

On April 17, 2009, at plaintiff's request, DirecTV relocated the satellite antenna from the stack vent to the opposite side of the house.[6]

[1] Complaint, paragraph 3
[2] BUCKLEY EXHIBITS, page 4
[3] Ibid., page 7
[4] Complaint, paragraph 6
[5] BUCKLEY EXHIBITS, pages 10 and 11

Plaintiff is claiming she "suffered from an exhaust pipe which was badly damaged"[7], and the malodor has caused her personal injuries.[8]

DOCUMENTS EXAMINED

During the preparation of this expert report I examined the following:

1. Complaint
2. Answer to Complaint
3. Deposition of Sybil O'Neil, May 4, 2010
4. Deposition of Walter Victor, May 4, 2010
5. Pillar to Post expert report, November 20, 2010
6. Pillar to Post supplementary expert report, June 22, 2010
7. Plaintiff's photographs, undated (exhibited to plaintiff's deposition)
8. Other documents exhibited to this expert report (see Table of Contents to Exhibits)

EXPERT QUALIFICATIONS

I have over 35 years of experience in the construction industry, comprised of hands-on trade level work ***with the tools***, as well as substantial managerial experience in estimating and project management.

Additionally, I have served in the capacity of senior project manager.

I am a City of Philadelphia Registered Master Plumber,[9] and have personally worked on plumbing systems similar to the one located at plaintiff's residence. I am a City of Philadelphia licensed Electrical Contractor[10] and have installed television antenna systems.

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[6] Complaint, paragraph 7, BUCKLEY EXHIBITS, pages 108 and 114
[7] Complaint, paragraph 8
[8] Ibid., paragraph 3
[9] BUCKLEY EXHIBITS, page 211
[10] Ibid., page 212

My current ***Curriculum Vitae*** is attached.[11]

PRIOR TESTIMONY AND EXPERT WORK

A record of prior testimony and expert work can be examined in the exhibits.[12]

COMPENSATION

I have been engaged by and am being compensated for this expert work by the law firm of Swartz Campbell, LLC, Media, PA.

FINDINGS

I conducted a site investigation at 10:00 on the morning of July 27, 2010. Accompanying me were retaining attorney Norman Haase and Certified Industrial Hygienist (CIH) Patrick Rafferty of Rafferty and James, Inc. Additionally, I was assisted by John Riegler, a laborer from Nagel Lavin, Inc., an area plumbing contractor, who provided equipment and assistance for me to reach the stack vent pipe at the rear second story roof of the residence. Plaintiff's counsel did not attend the investigation. Present were Sybil O'Neil, and an adult male who I presumed to be a family member residing at the home. Photographs I took during the investigation are in the exhibits to this report.[13] Mr. Rafferty will be issuing a separate expert report on the issues related to chemistry and indoor environmental quality.

The investigation commenced in the basement. My first observation indicated that most of the original cast iron piping for the house drain (main sewer line) had been replaced with PVC (plastic) piping.[14] The City of Philadelphia Plumbing Code first approved PVC piping in houses sometime around 1975.[15] A visual inspection into a cleanout[16] indicated the pipe was clear (not clogged).

[11] Ibid., page 199
[12] Ibid., page 205
[13] Ibid., page 53, ff.
[14] This house appears to have been constructed sometime around the Civil War era, and was probably built prior to the installation of public sewers and water service into that area of the city. It was common for such houses to have been constructed with a privy (outhouse) in the rear yard. The manner in which the piping is routed throughout the house is in keeping with a retrofit renovation prior to 1900. The original piping, some still evidenced, was extra heavy pattern service weight cast iron, with lead and oakum joints. The rear stack vent is such pipe. Examine BUCKLEY EXHIBITS, pages 55 and 109.
[15] This information was confirmed in a telephone conversation with Bob Gledhill, Chief Plan Examiner of the Plumbing Unit, City of Philadelphia, July 6, 2010.
[16] BUCKLEY EXHIBITS, page 80

At the front of the basement a powder room had been constructed.[17] Since the soil and waste piping from these fixtures was below the invert (elevation) of the house drain a Quik Jon packaged sewage ejector pump was employed to collect the sewage and pump it up to the house drain.[18] Examination of the water closet (toilet) and lavatory (hand sink) indicated they were functional and had been recently used. The flush valve in the water closet, and the P-trap under the lavatory appeared to have been recently replaced.[19]

Packaged sewage ejector pumps of this type require care and maintenance. Unmaintained and unused, they will clog with sewage. If the attached fixtures are unused for a period of time, the water in the fixture traps[20] will evaporate, and will allow the escape of sewage odors from the ejector storage tank into the room. Additionally, a clogged ejector pump can overflow, allowing sewage to spill out onto the floor.

A manufacturer's date printed on the piping of the sewage ejector indicated it was manufactured on May 28, 1999.[21] This would presume the basement powder room was constructed sometime after that date. It was noted that a pipe from the ejector proceeded to an emission point outside the residence, around the corner from the front door. While code compliant, the installation instructions for that ejector recommend that it be vented through the roof. That emission point of the sewage ejector at the O'Neil residence could have a source of sewage odor, though I will leave final comment on that situation for analysis by Mr. Rafferty.

At the time of my investigation all basement plumbing systems were functional.

Next to the basement powder room was a recently installed, gas fired, domestic hot water heater.[22] Examination of the label indicates a date of manufacture in March, 2009.[23] That would indicate the installation was performed sometime thereafter. There is no record of any plumbing permit at Licenses & Inspections.[24] This work may have been performed by an unlicensed and unqualified plumber. It has been my experience that a bona-fide Registered Master Plumber would be reluctant to perform this work without the requisite plumbing permit, as the penalties range from a monetary fine up to the revocation of his license and imprisonment.[25]

A leading potential source of the malodor observed by the plaintiff and her guests was a natural gas leak at the old domestic hot water heater. Natural gas, in its purest form, is odorless and colorless. Natural gas refiners mix an odorant from a class of chemicals called mercaptans[26] into

[17] Ibid., page 58, ff.
[18] Ibid., pages 56 and 186
[19] Ibid., pages 59 and 61
[20] The technical term is *trap seal*.
[21] Ibid., page 198
[22] Ibid., pages 78 and 79
[23] Ibid., pages 140 and 141
[24] Ibid., page 160
[25] Memorandum of Law, Swartz Campbell, LLC, August 11, 2010
[26] BUCKLEY EXHIBITS, page 142

the gas prior to distribution through the pipelines. This odorant is used to warn of gas leaks. The characteristic odor of this mercaptan is similar to rotting cabbage or even *sewer gas*. Individuals with a reasonably healthy sense of smell will notice a strong odor at a natural gas concentration as low as .5% to 1%.[27] This low concentration of natural gas is well below the Lower Explosive Level (LEL) of natural gas, which is 5%.[28] This slow leak of natural gas could have dispersed throughout the residence by natural drafts and air currents. Fortunately, the concentration levels did not reach the LEL. There were many sources nearby to ignite the gas, including the standing pilot flames on the domestic hot water heater and the building heating boiler. A serious explosion and fire could have resulted.

The kitchen appears to have been recently renovated.[29] Stated again, there are no permits (plumbing, building, or electric) on file for this work with Licenses & Inspections.[30] The kitchen sink waste pipe is not properly vented. An unvented kitchen sink trap could be siphoned dry, thus permitting odors and gases from the waste pipe and house drain to enter the room through the sink drain opening. A dry kitchen sink trap could have been a source of the malodor observed by the plaintiff.

A waste pipe in the basement rear seems to indicate there previously existed another plumbing fixture somewhere in the vicinity of the kitchen. That waste pipe has been cut and capped.[31]

A fixture trap[32] is a dip in the drain piping at the fixture which catches and holds an amount of water with the intended purpose of sealing off the drain, thus preventing malodorous gases in the drainage piping from escaping through the fixture into the room. An improperly vented drain pipe will cause the water which should remain in the trap to be sucked down the drain by syphonic action (a vacuum), thus leaving the drain piping open to the room and allowing odors to escape. The Philadelphia Plumbing Code, and other plumbing codes, have specific requirements as to how soil and waste pipes are to be vented.[33]

In the rear of the first floor, in an area which was originally a back porch, I discovered an apartment, complete with a kitchenette and full bathroom.[34] None of the plumbing fixtures in this apartment meet the venting requirements of the Philadelphia Plumbing Code.[35] Additionally, the domestic clothes washer standpipe (drain) is not trapped,[36] thus freely permitting drainage piping gases and malodors to freely escape into the room.

[27] Telephone conversation with Patrick Rafferty, Certified Industrial Hygienist, August 4, 2010
[28] BUCKLEY EXHIBITS, page 145
[29] Ibid., pages 87 and 88
[30] Ibid., page 160
[31] Ibid., page 69
[32] Ibid., page 165
[33] Ibid., pages 169 and 172
[34] Ibid., page 89, ff.
[35] Ibid., page 70
[36] Ibid., pages 91 and 93

Because this apartment's plumbing does not comply with the City of Philadelphia Plumbing Code it is doubtful that plumbing, electric, and building permits were obtained for the work. Further, the letter from the L&I Commissioner's office indicates the building is zoned as R-9, single family dwelling.[37] This would indicate the apartment is an illegal construction.

Observed in the kitchenette of this apartment was a 20 lb. liquefied petroleum (propane) cylinder connected to a gas stove intended for outdoor use.[38] It is generally known that these types of stoves emit carbon monoxide, a gas which is highly toxic to humans and animals. Results to such exposure range from illness to death. The stove evidenced use as recently at the morning prior to my investigation.

Liquefied petroleum gas, like natural gas, is mixed with the tracer odorant mercaptan. A leak at this tank is another potential source of the malodor observed by the plaintiff.

Recent plumbing repairs were noted outside. Two area drains at the side of the house were replaced, [39] and the fresh air inlet cover had been replaced.[40] None of this work appears to have been performed by a Registered Master Plumber.[41]

Like all buildings within the City of Philadelphia, this building is equipped with a house trap.[42] A house trap is a pipe fitting which is installed in the house drain pipe at the curb, usually some 6 feet, or so, below the sidewalk, and is intended to prevent sewer gasses from the public sewer from backing up into the building piping system. Evidence that such a house trap exists at 4506 Mulberry Street can be seen in the photograph of the fresh air inlet on the front sidewalk.[43] Since there is no indication in plaintiff's deposition testimony that the building was unoccupied for any period during her ownership, it is reasonable to assume that the house trap was continuously filled with liquid,[44] as the result of plumbing fixture usage, and all sewer gasses originating from the public sewer were sealed off from entering her house. **Gasses from the *city public sewer* could not have entered the plaintiff's premises,** unless the house trap had deteriorated to the point of collapse, which would have required excavation and replacement of the fitting.

Upon conclusion of my plumbing investigation I proceeded to install an exemplar (*sample* or *replica* model) satellite antenna in the same location used by DirecTV in September, 2007.[45] I was observed at the roof performing the installation by Patrick Rafferty.[46]

[37] Ibid., page 160
[38] Ibid., pages 98, 99, and 149
[39] Ibid., pages 84 and 85
[40] Ibid., page 81
[41] Ibid., page 160
[42] Ibid., pages 164 and 170.
[43] Ibid., page 81
[44] The trap seal (water) in unused traps will tend to evaporate, allowing odors from the piping to escape into the room.
[45] BUCKLEY EXHIBITS., page 104, ff.
[46] Ibid., page 118

My exemplar satellite antenna was obtained from the current regional manager of DirecTV, Mike Walker.[47] Mr. Walker and one of his staff personally hand delivered it to my office. Mr. Walker confirmed he checked the company's computer system and verified that the model supplied was exactly the same model as the one installed at the plaintiff's premises in September, 2007.

Installation began with the attachment of an mounting bracket to the edge of the stack vent.[48] An overhead photograph[49] clearly indicates the adaptor does not significantly obstruct the free air opening of the stack vent. Next I installed the satellite antenna to the mounting bracket and rotated the antenna to approximate the direction in which the current installation was positioned (where it was relocated by DirecTV on April 17, 2009).[50]

The exemplar satellite antenna installation did not block the fresh air opening of the stack vent.

I continued my examination of the exemplar satellite antenna at my office.[51] Using a short length of 4 inch pipe (to simulate the stack vent pipe) I manipulated the satellite antenna attachment in various configurations. ***It was impossible to block the free air opening of the pipe with the satellite antenna or its mounting bracket.***

I prepared a sketch of the stack vent, showing the attachment of the mounting bracket.[52] On that sketch I have indicated calculations of the stack vent free air opening area, and the area of the mounting bracket which obstructs the stack vent. The adaptor reduces the free air opening area by 2.12%, an amount which is insignificant. While the Philadelphia Plumbing Code requires a full sized venting system (i.e., a 4 inch stack or house drain requires a 4 inch vent), other plumbing codes, most notably the ICC Plumbing Code,[53] which is used in other jurisdictions of the Commonwealth and most areas of the U.S., would permit a vent size of 2 inches. My point is stated: this nominal 2.12% obstruction of the stack vent does not diminish in any way the intended function of the stack vent.

Plaintiff, in her deposition, testified that the weatherization contractor from the City of Philadelphia informed her that the placement of the satellite antenna was causing the smell in her house, even though he never actually climbed to the roof to closely examine the installation.[55]

[47] Ibid., page 174, ff.
[48] Ibid., pages 104 and 111
[49] Ibid., page 112
[50] Ibid., pages 113, 114 and 108
[51] Ibid., page 120, ff.
[52] Ibid., page 126
[53] Ibid., page 173
[55] Ibid., page 13

Plaintiff's photographs of this installation[56] are insufficient to establish fact that the satellite antenna was blocking the stack vent. The weatherization contractor's opinion is mere speculation.

When examining my photograph of the exemplar satellite antenna taken from the ground on July 27, 2010, placed adjacent to plaintiff's photograph,[57] it would appear *from the ground* that the satellite antenna may be blocking the stack vent. However, when I viewed the stack vent pipe opening from my position *up on the roof*[58] it was quite evident that the satellite antenna was not blocking the pipe opening.

Walter Victor was the DirecTV manager at the time of the satellite antenna installation at plaintiff's residence. In his deposition of May 4, 2010, Mr. Victor states, "There's no way that that dish mounted on the—the way it's mounted can cause the fumes to back up."[59] I agree with Mr. Victor's statement.

Plaintiff, testified in her deposition that the malodor continued *after* DirecTV relocated the satellite antenna to the opposite side of the building.[60] At the advice of family, she hired S.R. Home Improvement on April 22, 2009, to clean the pipe.[61]

On the Job Invoice issued by S.R. Home Improvement, they state, "Remove and replace ventilation pipe / Damaged due to DirecTV which installed a disk into the pipe. / Pipe must be replace [*sic*.] because of sewer gasses returning into the house".[62] Plaintiff testified that the satellite antenna had already been relocated by DirecTV prior to the arrival of S.R. Home Improvement.[63] S.R. Home Improvement had no first hand knowledge of the satellite antenna installation on the stack vent, and their statement is mere conjecture, without the benefit of personal knowledge when the original installation was in place.

Further, it is evident from my examination of the Job Invoice that S.R. Home Improvement is not a Registered Master Plumber. There is no plumbing registration number indicated on the Job Invoice (a City requirement), and their incorrect naming of the stack vent as a "ventilation pipe" would suggest lack of professional plumbing knowledge and competency.

It was confirmed in Plaintiff's deposition testimony[64] that staff from S.R. Home Improvement did not replace any pipe, as they indicated they did on their Job Invoice.

[56] Ibid., page 119
[57] Ibid.
[58] Ibid., page 113
[59] Deposition of Walter Victor, May 4, 2010, page 17, line 20
[60] BUCKLEY EXHIBITS, page 29
[61] Ibid., pages 30 and 52
[62] Ibid., page 52
[63] Ibid., page 30
[64] Ibid., page 33

Plaintiff further testified that in the 40 years she owned the property, she never had the sewer line cleaned.[65] It was noted earlier in my report that recently there were plumbing repairs to the house trap's fresh air inlet[66] and two side area drains.[67]

Plaintiff's counsel, Mr. Daniel Sansoni, Esquire, engaged a Mr. Scott Rawlings, of the Philadelphia firm of Pillar to Post Philadelphia, LLC. His reports, dated November 20, 2009,[68] and June 22, 2010, were provided for my examination.

Examination of Mr. Rawlings's curriculum vitae indicates no City of Philadelphia Master Plumber's license, nor any other credential qualifying his opinion in the area of plumbing. The reports do not include the City of Philadelphia's required plumbing registration identification.

Throughout both reports, Mr. Rawlings demonstrates his lack of plumbing knowledge and qualifications by identifying the subject piece of pipe as

- "main waste drain pipe"[69]
- "waste drain vent pipe"
- "exhaust vent pipe"[70]
- "exhaust pipe"
- "main waste drain vent exhaust pipe"
- "main waste drain vent stack"[71]
- "home exhaust pipe"

The correct name for this piece of pipe is *stack vent*.[72]

At the conclusion of both of his reports, Mr. Rawlings indicates that DirecTV violated City of Philadelphia and State [*sic.*[73]] of Pennsylvania laws. However, Mr. Rawlings provides no specifics what the violations are. I am unaware of any such violations relating to the DirecTV satellite antenna installation, including any violations of the City of Philadelphia Plumbing Code, excerpts of which Mr. Rawlings attached to his first report, but makes no notations thereon.

Mr. Rawlings lacks a fundamental understanding of the function of a stack vent. At various places in his reports he indicates the purpose of the stack vent is to release sewer gasses into the atmosphere. The Philadelphia Plumbing Code indicates that the purpose of a vent is to protect

[65] Ibid.
[66] Ibid., page 81
[67] Ibid., pages 84 and 85
[68] Ibid., page 127, ff.
[69] Ibid., page 127
[70] Ibid., page 128
[71] Ibid., page 134
[72] Ibid., pages 165, 167, and 119.
[73] Should be *Commonwealth*

the trap seal.[74] The internationally recognized ICC Plumbing Code, enforced in most other jurisdictions of the Commonwealth of Pennsylvania, provides an even clearer explanation.[75] In layman's terms, the purpose of venting a fixture trap is to prevent the outrush of water from sucking the trap dry.[76] A dry, or empty fixture trap, will allow odors and gases from the waste pipe, soil pipe,[77] or house drain to enter the room through the fixture drain opening.

In Mr. Rawlings's reports there is no indication he actually climbed up onto the roof to examine the stack vent. Mr. Rawlings first indicated he actually visited the property in his supplementary report of June 22, 2010,[78] *seven months* after his first report. All of his claims that the satellite antenna blocked the stack vent are based solely upon his review of plaintiff's ground level photographs[79] and from his own observations from the ground. His claims that the satellite antenna blocked the stack vent are unfounded and based purely upon conjecture.

Furthermore, Mr. Rawlings demonstrates a lack of fundamental knowledge of general construction vocabulary. He incorrectly identifies a *barge* board as a "support beam" and uses the term "side component" to identify the *elevation* of the building .[80]

Attempting to impress the reader with his structural engineering and carpentry knowledge, in his supplementary report, Mr. Rawlings opines on the reinstallation by DirecTV of the satellite antenna on the side barge board of the house, claiming this re-installation still poses a risk to the occupants of the house.[81]

While conducting my site investigation, I, likewise, examined this re-installation of the satellite antenna.[82] While it is not a work of art, it is securely attached, and does not pose any danger to the occupants of the house.

Further attempting to promote his knowledge of plumbing, Mr. Rawlings continues to report in his supplementary report "Drain pipes in basement are satisfactory".[83] These are some of the

[74] BUCKLEY EXHIBITS, page 169
[75] Ibid., page 172
[76] While the ICC Plumbing Code indicates that exhausting of gases is a function of the venting system, it is only a minor purpose. It should be noted that revisions in the forth coming ICC Plumbing Code 2012 will permit the usage of an *air admittance valve* fitting. This is a device with a rubber check valve, which permits air to flow into the piping system, thus breaking the syphonic action acting upon the trap seal, but prohibits gas discharge from the vent. This fitting will permit installation of venting where it is inconvenient to terminate the vent stack or stack vent at the outdoor atmosphere. This information was noted in a recent article published in PM Engineer magazine.
[77] A waste pipe is connected to a fixture such as a sink, bathtub, shower, or lavatory (bathroom hand sink), A soil pipe is connected to a water closet (toilet).
[78] BUCKLEY EXHIBITS, page 134
[79] Ibid., page 48
[80] Ibid., page 128
[81] Ibid., page 138
[82] Ibid., page 108
[83] Ibid., page 139