RELATED CORRESPONDENCE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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USNRC

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Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
Philadelphia Electric Company	)	Docket No. 50-352-OL
	)	50-353-OL
(Limerick Generating Station,	)	
Units 1 and 2)	)	

DEL-AWARE'S ANSWERS TO NRC STAFF'S DISCOVERY REQUESTS

Del-AWARE's Answers are complete based on present information, but will be supplemented as required and permitted under 10 C.F.R. 740(e), and/or if additional contentions are admitted by the Board.

Answers to General Interrogatories

G-1 (a) Del-AWARE intends to present the following expert witnesses with respect to Contention V-15:

Mr. Norman Torkelson (Residence: Box 22, Stockton, NJ; Business: Sundrive, Inc., Box 875 RD2, Stockton, NJ 08559), will testify regarding the water quality of the Delaware River in the Point Pleasant area, the nature and extent of aquatic biota in that area, the likelihood of future water quality changes as a result of the project, and the projected impact on aquatic biota. The content of Mr. Torkelson's testimony is summarized, the basis thereof is stated, and his expertise is described, in his deposition taken by Applicant on August 12, 1982.*

* Del-AWARE presently has no information available regarding the expertise of its witnesses other than as presented in their depositions.

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Mr. Jonathan Phillipe (Residence: not known; Business: GKY & Associates, Inc., 5411-E Backlick Road, Springfield, VA 22151), will testify as to the changes in Delaware River hydraulics and hydrology which can be attributed to the intake at its present location, and which represents a change in the natural or preexisting conditions, at various flows. Mr. Phillipe will also testify that there is a substantial likelihood of change in flow patterns, both with respect to the nature of the water currents through the eddy, and the velocities in the eddy, as a result of the operation of the intake especially at flows below 3,000 cfs, and why there are likely to be such flows. Mr. Phillipe will also discuss the potential draw-down of the pool, and the consequent impacts on boating and recreation, including impacts of the intake in relationship to the minimum water elevation. To the extent known at the present time, the substance of the facts and opinions to which he is expected to testify, and a summary of the grounds for each opinion, were provided in his letter of May 10, 1982, and in the testimony and exhibits provided at the deposition of Mr. Phillipe by Applicant on August 13, 1982, and are available on the transcript thereof, which is incorporated herein by reference. To the extent known, Mr. Phillipe's professional qualifications are also described in the transcript.

Mr. Michael Kaufman (Business: Commonwealth of Pennsylvania Fish Commission, Box 556, Revere, PA 18453) and Mr. Charles Emery (Business: Business: Commonwealth of

Pennsylvania Fish Commission, Box 556, Revere, PA 18453) will testify on behalf of the Fish Commission as to the effects on aquatic life of the change in hydraulics and hydrology and water quality described by Mr. Phillipe and Mr. Torkelson, respectively. To the extent known, Mr. Kaufman's and Mr. Emery's qualifications are stated in the transcript of their depositions by Applicant on August 12, 1982, which is incorporated herein by reference. The substance of the facts and opinions of these witnesses and the bases therefor, are also provided in the transcript of their depositions and are likewise incorporated herein by reference.

Mr. Joseph Miller (Business: U.S. Fish and Wildlife Service, Rosemont, NJ) and Mr. Rick McCoy (Business: U.S. Fish and Wildlife Service, State College, PA), will testify as to the past, present and future importance of Point Pleasant as a shad habitat and the reasons therefor, impacts of the changes in hydraulics and hydrology resulting from the intake, and the impact of the intake on the pool and on the American shad and shortnose sturgeon by virtue of this impact and the impact on dissolved oxygen on the Upper Estuary. See Motion to Compel, and Reply to Applicant's Answers. Mr. Miller and Mr. McCoy are professional biologists employed by the U.S. Fish and Wildlife Service. Mr. Miller is the director of the shad recovery program in the Delaware River. Mr. McCoy is a reviewer of projects affecting the Delaware River, including impacts on dissolved

oxygen and salinity. Mr. Miller's testimony will focus on the potential effect of the project on these and other species, and upon taking of them by anglers, and upon the use of the pool area as an active fishery with access for shore fishing. Mr. McCoy's testimony will focus on the reviews made by the U.S. Fish and Wildlife Service, the relationship between this project and the salinity program studies, analyses of DRBC program changes, and proposed projects which will cumulatively affect water quality, including dissolved oxygen, as a result of this project, and the impacts upon the fishery. Mr. Miller will also address this subject. The grounds for the opinions of these witnesses include their observations and analyses over a number of years, as well as the studies that they have undertaken. They are further provided in the Technical Appendix to the Shad Recovery Program for the Delaware River, and sources referenced therein.

Arthur Lupine (Business: U.S. Department of the Interior, Fish and Wildlife Service, Rosemont, NJ), may also be offered as a witness. Mr. Lupine has similarly conducted studies of the shad fishery in the Delaware River and has first hand knowledge of same, particularly as to shad.

Ezra Golub, Levittown, PA, a Registered Surveyor will testify on the surveyed location of the eddy and nursery and spawning pool in relationship to the intake.

All of the witnesses identified above will rely on the data produced by Neshaminy Water Resources Authority

("NWRA") and its consultants and supplied to the U.S. Army Corps of Engineers (the "Corps") in their letters of September 8 and 9, 1981, and January 22, 1982, and other papers submitted to DER. The witnesses will further rely on the biology study prepared by Paul L. Harmon entitled Biological Evaluation of the Point Pleasant Intake (1980) (hereinafter "Harmon Study"); the assessment of shortnose sturgeon prepared by Harold Brundage entitled Assessment of the Impacts of the Proposed Point Pleasant Pumping Station and Intake on the Shortnose Sturgeon, Acipenser brevirostrum (1982) (hereinafter "Brundage Study"); the letter from Paul L. Harmon to E.H. Bourquard dated July 28, 1981; the Environmental Assessments and Reports produced by NWRA, Philadelphia Electric Company ("PECo"), and DRBC Golub Survey, June, 1981, and various published documents relating to shad, sturgeon, intakes and their impacts, The DRBC Orders, Level B Study, Merrill Creek draft EIS, Draft Recommendations of the Parties to the U.S. Supreme Court and other documents provided to the parties at the depositions of the witnesses on August 12 and 13, 1982. In addition, Mr. Torkelson will rely on water quality data produced by EPA STORET, NJ DEP (D & R Canal studies), NWRA, PECo, and other parties, all of which has been previously provided or made available to the staff at the depositions, or is hereby made available.

Each witness will testify that the adverse effects to which their testimony relates would not expected if the

Delaware River water allocation were withdrawn at Philadelphia.

(b) Del-AWARE intends to present the following expert witnesses with respect to Contention V-16a:

Samuel Landis, a professional archaeologist, (Residence: 221 Erie Avenue, Quakertown, PA 18951; Business: Bryn Mawr College, Bryn Mawr, PA), will testify as to the integrity of the Point Pleasant Historic District and the affect of constant maintenance dredging activity on that area. Mr. Landis's qualifications include the performance of contract archaeology work for Bryn Mawr College, Pennsylvania Historic and Museum Commission, U.S. National Park Service, and the National Audobon Society; supervision of field training for college archaeology students; and 18 years of archaeology experience in the Point Pleasant area. The substance of the facts and opinions to which he is expected to testify, and the summary of the grounds for each opinion have been stated in Applicant's deposition of Mr. Landis on August 18, 1982.

Mr. Jonathan Phillipe (address: see answer to Interrogatory G-1(a)) will testify as to the nature and extent of constant dredging and other activities required to cope with problems due to the intake, and the nature and extent of the effect of such intake and of such activities on the Point Pleasant Historic District, based on his studies and experience, and the anticipated adverse impacts of ice and debris on the intake.

(c) Del-AWARE intends to present the following expert witnesses with respect to Contention V-16b:

Mr. Norman Torkelson (see answer to Interrogatory G-1(a)), will testify as to the content of the Delaware River water.

Mr. John Phillipe (see answer to Interrogatory G-1(a)), will testify as to the likelihood of potential groundwater contamination and hydraulic saturation through alteration of the groundwater table, and the risks of ground and surface water contamination and hydraulic saturation due to instability of the slopes of Bradshaw Reservoir.

Edwin Beemer, a geologist, will testify regarding susceptibility of the soils to seepage and slope failure. His address, expertise and studies will be provided.

Both of these witnesses will rely on data produced by PECo, NWRA, and others, as mentioned above, regarding water quality, as well as information produced by PECo and its consultants concerning the characteristics of the soils and reservoir plans for Bradshaw Reservoir, and, to the extent known, the operating program for the reservoir.

G-2 To the extent they have been identified at this time, all documents described in Interrogatory G-2 have either been made available to the parties for copying through the witnesses or through Del-AWARE's counsel, and have been copied, or have been identified in Del-AWARE's answer to Interrogatory number G-1. Del-AWARE intends to

use portions of the depositions of PECo and Staff witnesses, and documents referred to therein. All of such documents which are intended to be used are available for Staff inspection and copying. Del-AWARE will use a letter dated June 17, 1982 from Johnson Screen Division to Robert J. Sugarman, and a letter from Paul Harmon to E.H. Bourquard dated July 29, 1981, and attachments.

Answers to Specific Interrogatories

S-1 The American shad and shortnose sturgeon will be deprived of a viable and important spawning and nursery area, and furthermore, to the extent that they are present in the eddy and pool, will be subject to substantial loss through impingement and entrainment on the intake structure, turbidity, current changes, and resuspension of solids. Del-AWARE understands the term "adverse impact" as used in this Interrogatory to have the same meaning as that given the term by Mr. Michael Masnick in his deposition by Del-AWARE on August 10, 1982, wherein he stated that his evaluation of such impacts will be based on the assumption that the relevant comparison is between the intake and no intake.

S-2 The physical and biological factors associated with the relocation of the intake that would result in the adverse impacts described in Del-AWARE's answer to Interrogatory S-1 include the turbulence to be caused by the operation of the intake; the changes in currents and patterns of flow attributable to the operation of the intake;

the direct physical effects of the flow into the intake, and the lowered level of dissolved oxygen downstream.

S-3 This Interrogatory is overly burdensome, and Del-AWARE objects to it insofar as it requires Del-AWARE to produce any information not available to it. Del-AWARE is aware of the information provided to it by U.S. Fish and Wildlife Service and Pennsylvania Fish Commission, described above, as well as the general knowledge of residents of the area that American shad has recently become a substantial crop in the area, and that shortnose sturgeon have been taken in the vicinity of Point Pleasant. The Pennsylvania Fish Commission and U.S. Fish and Wildlife Service experts have provided all other information concerning the distribution, abundance, and life stages of American shad and shortnose sturgeon in the river, insofar as Del-AWARE has such evidence. Details of such evidence have not yet been made available to Del-AWARE except for the technical appendix to the American shad recovery program for the Delaware River, produced by U.S Fish and Wildlife Service. Other documentation available to Del-AWARE is contained in or referred to in the Harmon and Brundage studies, in the DRBC Level B Study, and in correspondence from U.S. Fish and Wildlife Service and the Pennsylvania Fish Commission to DRBC and the Corps, all of which have been identified in Del-AWARE's answers to Interrogatories G-1 and G-2 generally, and all of which are available for copying.

S-4 The pool and eddy, which are somewhat overlapping terminologies, consist of the area in the Delaware River immediately downstream from the mouth of the Tohickon Creek, and extending downstream for several hundred yards, and into the river for several several hundred feet, but which varies according to the levels and flows and distribution of flows in the Delaware River and Tohickon Creek. The pool is characterized by backflowing eddies, still areas, turbulences, and lower velocities than the main channel of the Delaware River.

S-5 The major fish resources which would be adversly affected by draw-down of the pool are the American shad and shortnose sturgeon. The American Shad is a "major" fish resource by virtue of its abundance in the area. The shortnose sturgeon is a "major" fish resource by virtue of its endangerment. Other major fish resources include the catfish and the walleye, both of which spawn and inhabit the area to a great extent, and both of which are available for shore fishing.

The biotic and abiotic factors which are primarily responsible for this adverse effect are the resuspension of solids and other materials through turbidity due to changes in the hydraulic and hydrologic pattern and the physical changes in velocity, flow and pattern; impingement and entrainment impacts caused by these factors. These collectively make the waters of the Delaware River at Point Pleasant unsuitable for or inhospitable to the fish otherwise

present in the area, thereby diminishing or eliminating an existing major fish resource.

S-6 The seasonal range of river surface elevation draw-down will be as often as there is usage of the intake, which is potentially year-round. The drawdown will adversely affect the fish resource due to loss of the safety margin above the top of the intake, and will adversely affect boating and other recreation due to a further loss of safe buffer above the top of the major physical intrusion.

S-7 Because of the location of the intake in the turbulent area just below the mouth of the Tohickon, the intake structure will be subject to frequent outage, clogging, and damage - for instance, by ice - and will require constant maintenance work, including dredging in the river. E.H. Bourquard Design Report No. 2 and Design Report No. 3 document this potential effect.

S-8 The noise of dredging and other maintenance equipment and the operation of the pumps themselves will increase the noise level in the valley, as will the operation of the electrical substation. Because of the surrounding hillsides, this noise will be magnified in the valley.

S-9 Presumably the reference in this Interrogatory is to Del-AWARE's answer to Interrogatory S-8. The noise described therein will adversely affect the historic characteristics of the area which presently exist. The Point Pleasant Historic District reflects the character and history of prehistoric and historic Point Pleasant. The noise

from the operation of the intake and pumphouse and maintenance of same will be inconsistent and incompatible with the historic character of the area and will diminish the effect sought to be achieved by the proposed listing of this area on the National Register of Historic Places, and the Landmark.

S-10 (a) All areas in the Village of Point Pleasant are sensitive to the noise identified in Del-AWARE's answer to Interrogatory S-9 for reasons described therein.

(b) Del-AWARE objects to this Interrogatory as it requires the creation of information.

(c) All areas of Point Pleasant enjoy the benefits of the Point Pleasant Historic District's characteristics.

S-11 The major documentation for this condition is EPA's Water Quality Report on the Lehigh River, which has already been supplied to the NRC Staff. Other data consists of water quality studies performed by various agencies in this reach of the Delaware River, identified in Del-AWARE's answer to Interrogatories G-1 and G-2.

S-12 Those toxics presently known to Del-AWARE include TCE's, PCB's, manganese, pesticide and others identified in the water quality data referred to in answer to Interrogatory S-11.

S-13 The bases for this assertion is provided by analyses of soils stability and soils characteristics, to be performed by Jon Phillipe, based on material provided by

E.H. Bourquard, and other material identified in answer to Interrogatories G-1 and G-2, and analyses of Edwin Beemer.

S-14 Contamination to groundwater consists of intrusion into groundwater of toxic material in amounts which may be harmful to people, animals and vegetation.

S-15 The soils to be used in creating the Bradshaw Reservoir are not sufficiently adhesive to prevent the substantial likelihood of slumping and destabilization, permitting substantial runoff and seepage into the ground. It appears that the potential for destabilization is by far the more significant potential adverse effect.

S-16 As used by Del-AWARE, the term, "hydraulic saturation" means below the groundwater table. Del-AWARE does not consider hydraulic saturation to present a risk comparable to that posed by groundwater contamination.

S-17 Del-AWARE's contentions regarding Bradshaw Reservoir are based on studies referred to in answer to Interrogatories G-1 and G-2, and in the Phillipe deposition of August 13, 1982, and analyses of Edwin Beemer. Details of how the data and the conclusions of these studies support Del-AWARE's contention, to the extent presently known, are contained in Phillipe's testimony of August 13, 1982, a copy of which is available to the Staff.

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Dated: August 20, 1982

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AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF ~~BUCKS~~ PHILADELPHIA

Colleen Wells being duly sworn, deposes and says that she is a Officer of Del-AWARE Unlimited, Inc. and an Intervenor herein, and the facts as stated in the foregoing Answers to NRC Staff's Discovery Requests are true and correct to the best of her knowledge, information, and belief.

Colleen Wells
Colleen Wells

Commonwealth of Pennsylvania
County of Philadelphia

sworn & subscribed to
before me this 20
day of August, 1982,

Lorita A. Ricciardi
Notary Public

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