

Letter Health Consultation

NORTHPORT POWER STATION

NORTHPORT, LONG ISLAND, SUFFOLK COUNTY, NEW YORK

**Prepared by the
New York State Department of Health**

AUGUST 31, 2009

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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DEPARTMENT OF HEALTH

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August 17, 2009

Mr. Greg Ulirsch, Ph.D.
Senior Technical Project Officer
Agency for Toxic Substance and Disease Registry
Division of Health Assessment and Consultation
1600 Clifton Road, NE, M/S F58
Atlanta, Georgia 30333

Re: October 29, 2008
Northport Power Station Petition
Northport, Long Island, NY

Dear Dr. Ulirsch:

This Letter Health Consultation (LHC) has been prepared by the New York State Department of Health (NYSDOH), in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR) and the Suffolk County Department of Health Services (SCDHS), to respond to a petition to ATSDR by a resident of Suffolk County, New York in an e-mail dated June 11, 2008. The petitioner expressed concerns that activities associated with the generation of electrical power at the Northport Power Station (NPS) has contaminated soil and groundwater at the NPS property and in areas surrounding it, and that this contamination has affected private wells and resulted in public health exposures. The petition also stated that the soccer fields leased by NPS to the Northport Cow Harbor United Soccer Club (Soccer Club), and the Town of Huntington's Steers Park (Steers Park) have been affected by NPS operations, and that adverse health affects have been or are being experienced by individuals using these facilities. Concerns were also raised by the petitioner regarding past spills of ash from NPS on local roadways as it was being transported to disposal facilities.

The NYSDOH evaluated available environmental information and reviewed NPS compliance history in regard to environmental regulations. This assessment included reviews of reports prepared by NPS and regulatory agencies and discussions with NPS and regulatory personnel. Based on this information and observations of area topography, the potential for coming in contact with water and/or soils contaminated by compounds originating at the NPS was evaluated. The findings of these evaluations is provided below.

History

The NPS occupies a 250 acre site on the North shore of Long Island in the Town of Huntington, Suffolk County, New York, and is currently operated by the National Grid company. The Long Island Sound borders the NPS to the north and the incorporated Villages of Northport and Asharokan and the Hamlets of Fort Salonga and Crab Meadow surround the landward sides of the NPS. The NPS has four 375 megawatt electric generating units (Units) that can burn

natural gas, number 6 fuel oil, or a combination of the two fuels to power its turbine generators; each Unit has a 600 foot tall smoke stack. Two lagoons immediately border the areas west and east of where the four Units are located; process water is drawn from the western "Intake" lagoon, and discharged to the eastern "Discharge" lagoon.

Commercial operations at the facility began with the start-up of Unit # 1 in 1967, with Unit # 2 starting in 1968, Unit # 3 in 1972, and Unit # 4 in 1977. Conversion of these four Units to enable use of natural gas as a fuel began in 1998, with all Units converted by 2008.

Storage capacity of number 6 fuel oil is 2,013,000 barrels in five above ground storage tanks ranging in size from 13,524,000 to 27,216,000 gallons. Fuel oil is delivered to the NPS by tanker or barge, is off-loaded at a man-made bulkhead that is approximately two miles off-shore in the Long Island Sound, and conveyed to the five tanks by an underwater pipeline. Natural gas is piped directly to the NPS via the Iroquois Natural Gas Pipeline. The NPS perimeter is completely fenced, and access is controlled by security 24 hours a day, seven days a week.

In 1999, the Soccer Club asked to use a small area of NPS property for soccer fields; this area is north of fuel oil storage tank 5 and west of the plant's "Intake" lagoon. In response to this request, Keyspan, the site operator at the time, conducted an environmental site assessment (ESA) of this area. The intent of the ESA was to determine if NPS operations had contaminated this land, and to evaluate if the condition of the land was appropriate for use as athletic fields. This report was prepared by the Keyspan Engineering Department, and reviewed by an independent environmental consulting firm; the results of that review are presented below.

Steers Park, which is located approximately 1000 feet south of, and is at least 40 feet higher in elevation than the NPS, has baseball and soccer fields, and concession and restroom facilities. The area where Steers Park is located was used for sand mining from the 1920's to 1950's; a large single family housing development is also located in this sand mining area.

Site Visit

On March 5, 2009, a NYSDOH representative visited the NPS site and met with several National Grid employees, including the plant and the regulatory managers for the NPS, to discuss general operating procedures as they relate to the environmental issues outlined in the ATSDR petition. During this meeting, NPS employees presented a brief history of the NPS, provided an overview of the various programs in place that address regulatory compliance issues and addressed the specific issues included in the petition.

The NYSDOH representative observed that the NPS property is only a few feet above sea level, and is clearly lower in elevation than the surrounding land. Further inspection of surrounding areas showed Steers Park and the land on which homes in the area are constructed to be at least 20 feet higher in elevation than the land on which the NPS is constructed. The Soccer Club fields are at the same elevation as the NPS.

Regulatory Overview

NPS power generating operations necessitate the storage of large amounts of number 6 fuel oil, small amounts of various other chemicals used for operation and maintenance of the plant, and results in emissions from the four 600 foot tall smoke stacks. Therefore, NPS is required to

comply with a variety of Federal, State, and County regulations associated with bulk storage of petroleum products, air emissions, and other aspects of the operations that can potentially impact the environment. These regulations are intended to ensure that pollution controls and emergency response contingencies are in place, that operations and conditions at the NPS are monitored, and that data demonstrating that environmental contamination is not occurring or is minimized be provided to regulatory agencies.

The NPS is inspected regularly by the New York State Department of Environmental Conservation (NYSDEC) and the SCDHS. In addition to inspections required by regulation, the NYSDEC conducted two comprehensive unscheduled and unannounced site inspections in 2004 and 2008 in response to complaints to New York State by the ATSDR petitioner (these complaints preceded the ATSDR petition). The reports on these two inspections concluded that the NPS was in compliance with NYSDEC standards (NYSDEC March 12, 2004, NYSDEC May 9, 2008).

On March 5, 2009, the NYSDOH representative reviewed documentation of NPS compliance issues at SCDHS offices, and discussed NPS activities and conditions with a SCDHS employee who has been inspecting the NPS facility and responding to complaints associated with the site since the late 1970's. The primary conclusion drawn from this document review and conversation was that there have been occasional minor spills of petroleum products and other chemicals used in NPS operations. There have also been many complaints about oil and soot emissions from the plant's four smoke stacks; some exceedances of air guidelines may have occurred, although no data on air emissions was reviewed that could confirm this. SCDHS files included a 1985 report of semi-liquid ash leaking out of a truck that had just left the NPS site. These incidents are not considered unusual for a facility of this size and NPS has typically responded in a timely and appropriate manner to mitigate these problems.

Discussion

Groundwater

The typical flow of groundwater on Long Island is from the interior of the island to the Atlantic Ocean along the lower southern portion of the island, and from the interior of the island to the Long Island Sound along the northern portion of the island. Further, in general, groundwater flows from areas of greater elevation to areas of lower elevation. Groundwater elevation contour maps, produced for Keyspan, also show groundwater movement under the site to be essentially in a northerly direction. Using these concepts and considering the topography of the NPS and the surrounding area, it appears unlikely that any subsurface contamination that may have originated at the NPS would migrate to surrounding residential neighborhoods or to Steers Park. Contamination could migrate to the area where the Soccer Club fields are located. NYSDOH evaluated the results of private well sampling conducted by SCDHS over several years in the communities of Northport, Fort Salonga, Crab Meadow and Asharoken. NYSDOH reviewed the locations of the wells sampled and determined that they, along with wells on other properties surrounding NPS, are clearly up-gradient (that is, in the opposite direction of groundwater flow) from the NPS property. Therefore, any wells located in these areas would not be affected by contamination originating at the NPS Property.

The chlorinated volatile organic compound (VOC) tetrachloroethene (PCE) was detected at levels below New York State Drinking Water Standard of 5 micrograms per liter (mcg/L) in some

of these private wells and in a surface water sample (also collected by SCDHS) from a pond located within ½ mile of NPS property. One of these wells, located within 1/2 mile of NPS, was sampled in 1997 and 2003. The results from these sampling events showed PCE at 2 mcg/L in the 1997 sample, and 1 mcg/L and non-detect, in the 2003 (two separate samples taken from kitchen and bathroom faucets). Due to the topographical conditions and nature of groundwater flow in this area, the source of this contamination is most likely several miles from NPS in a southeast direction, although the actual source is not known.

NPS is considered a Major Oil Storage Facility (MOSF) because of the amount of petroleum stored, and as such is required to have a groundwater monitoring program in place to quickly identify sub-surface petroleum contamination; the results of the NPS MOSF monitoring program have shown no significant groundwater contamination from petroleum products or other materials that are stored on or used by the NPS.

One of these groundwater monitoring wells was found to have PCE at levels slightly above the NYS Drinking Water Standard of 5 mcg/L. In response to this discovery, additional monitoring wells were installed around this well, however, no other detections of PCE were found. Because PCE is not stored in large quantities on the property and installation and sampling of additional wells failed to identify the source of the PCE, SCDHS and NYSDEC concluded that the initial detection of PCE was an isolated incident.

Northport Soccer Field Soils

As stated above, KeySpan, a previous owner of the NPS, was approached by the Soccer Club in 1999 with a request for permission to use a portion of NPS property for soccer fields. In response to this request, the Keyspan Engineering Department conducted an ESA in 1999 (Keyspan 1999). The NYSDOH representative reviewed the ESA report which included analytical results for 18 surface soil samples collected, and information on photoionization detector (PID) screening during the excavation of 11 test pits. The surface soil samples, collected from a depth of 0 to 6 inches below ground surface, were analyzed for semi-volatile organic compounds by United States Environmental Protection Agency (EPA) method 8270, poly-chlorinated biphenyls by EPA method 8082, and target analyte list metals by EPA method 6010B and 7471A for mercury. The test pit excavations were advanced to depths up to 7 feet and groundwater was encountered at 5 feet or less in 3 of the test pits. The PID was used to screen the excavated soil for VOCs, and no samples were collected from environmental test pits because there was no visual or olfactory evidence or PID detections to indicate VOC contamination.

Steers Park Soils

Based on the topography of the area on which NPS and Steers Park are located, it is unlikely that contamination originating at NPS would migrate through the subsurface environment to Steers Park. No specific information regarding Steers Park was reviewed for this LHC.

Ash Spill

The documentation of the 1985 ash spill showed that it occurred as a contractor was transporting semi-liquid ash from the NPS site to the disposal facility. There was insufficient

information in this spill report to enable evaluation of exposure(s) that may have occurred as a result of this incident.

Exposure Pathways & Public Health Implications

Based on the information reviewed, we are able to evaluate two potential exposure pathways: drinking and using contaminated well water, and direct contact with contaminated soils at the Soccer fields. Due to a lack of data, we are unable to evaluate potential exposures associated with spilled ash from NPS.

Groundwater

Information reviewed regarding subsurface contamination and groundwater flows at the NPS, and observations of area topography, lead to the conclusion that it would be unlikely for contamination from NPS to migrate in groundwater toward residential areas, and unlikely that any NPS related contaminants have affected private wells in the area.

However, sampling by SCDHS found some private wells located within 1 mile of the NPS to have detections of PCE, although at levels well below the NYS Drinking Water Standards. The Drinking Water Standards are set well below the levels that are associated with health effects, therefore consumption of this water is not expected to adversely affect the health of people drinking or coming in contact with it.

Soils

The data presented in the Key Span ESA showed that arsenic and cadmium were detected in four samples at levels above NYSDEC Part 375 (Part 375) restricted-residential soil cleanup objectives (SCO). Part 375 is the current regulatory standard for investigation and remediation of inactive hazardous waste disposal sites in New York State and was not in effect at the time the ESA was conducted. Restricted-residential is a land use category defined in Part 375 that includes active recreational uses that present reasonable potential for public contact with soil, such as may occur at athletic fields, and the SCOs for this category were used to evaluate sampling results. As shown in Table 1, the average level of both arsenic and cadmium found in the 18 samples was below the restricted-residential SCO for these two contaminants.

Table 1
Surface Soil Sampling Results for Arsenic and Cadmium at the
Northport Cow Harbor United Soccer Club Fields
(in milligrams/kilograms)

Metal	Samples with Results above SCOs	Results		Part 375 SCO for Restricted Residential
		Range	Average	
Arsenic	4/18	0.81 - 31.8	7.96	16
Cadmium	4/18	0.48 - 6.79	2	4.3

If contact with arsenic and cadmium did occur during participation in sports activities at the Soccer Club fields, this would be expected to occur in most cases over wide ranging areas of the field(s), and the average levels of metals found at the site would more likely reflect actual exposures. It was also reported that prior to use, clean fill was brought in to level the area and to provide appropriate soil to grow grass. This clean fill also serves to cover any areas that exceeded soil cleanup objectives, therefore exposures to residual soils with contaminant concentrations greater than SCO's is not expected.

Conclusion

For the Northport, Fort Salonga, Crab Meadow and Asharokan communities, the NYSDOH, ATSDR and SCDHS give a high priority to making sure that people concerned about living and playing in these areas have the opportunity to know what, if any risks are associated with drinking groundwater and using the Soccer Fields near the Northport Power Station.

The NYSDOH and ATSDR conclude it is unlikely that people who live and utilize facilities around the NPS will come in contact with chemicals originating at the NPS site while touching soil or breathing dust at the Soccer Field, or by drinking groundwater that is outside of the NPS property, and that in these ways operations at the NPS are not expected to harm people's health.

There is insufficient information available to determine if anyone came in contact with spilled ash or sludge that originated at the NPS site, and if adverse health effects could have resulted from such contact.

Basis for Decision

The information evaluated for this investigation did not provide conclusive evidence that operations at the NPS have resulted in significant soil or groundwater contamination on the NPS property. Observations of area topography, and incorporation of basic groundwater flow concepts lead to the conclusion that if significant sub-surface contamination was present at the NPS property, that it would not move in a direction that would impact homes, private wells or Steers Park.

Detectable levels of PCE have been found in private wells up-gradient and side-gradient of the NPS site, however this contamination does not originate at the NPS, nor is it expected that people coming in contact with or ingesting this water will experience adverse health effects.

While there were some levels of arsenic and cadmium found at the Soccer Club fields that are greater than current SCO's, these locations are not representative of the overall area of the fields, and were covered with clean fill as the land was developed for use as soccer fields. It is unlikely that typical use of these facilities would result in contact with arsenic or cadmium that would result in adverse health effects.

Recommendations

The grass surface on the soccer fields should be maintained to ensure that the potential for exposure to arsenic and cadmium are minimized. Otherwise, no public health actions are needed related to the NPS site.

Respectfully,
Steve Karpinski

A handwritten signature in black ink, appearing to read 'Steve Karpinski', with a large, stylized flourish at the end.

Public Health Specialist
Bureau of Environmental Exposure Investigation
Center for Environmental Health
New York State Department of Health

cc: G. Litwin/S. Bates/ D. Miles/file
L. Escobar
S. Neurath
D. Feldman/A. Rapiejko
W. Parish

References: NYSDEC 2004, letter to Denise Knudsen from Peter Scully, March 12, 2004.
NYSDEC 2008, Memorandum to Peter Scully from Katy Murphy, May 9, 2008.
Keyspan 1999. Environmental Assessment of Proposed Soccer Fields at the
Northport Power Station. Environmental Engineering Department, May 1999.

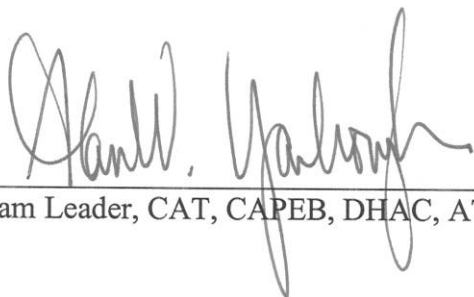
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CERTIFICATION

The letter health consultation for the Northport Power Station was prepared by the New York State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the letter health consultation was initiated. Editorial review was completed by the cooperative agreement partner.


Technical Project Officer, CAT, CAPEB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation, and concurs with its findings.


Team Leader, CAT, CAPEB, DHAC, ATSDR