

Health Consultation

Nike MSP 40 Integrated Fire Control

(A/k/a Former Nike Integrated Fire Control)

Farmington, Dakota County, Minnesota

U.S. EPA ID: MN1979990412

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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

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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 which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Prepared by:

Minnesota Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

I. Background and Statement of Issues

Introduction:

The Minnesota Department of Health (MDH) prepared this health consultation for the Integrated Fire Control (NIKE-IFC) site associated with the former NIKE MSP 40 Missile Base. This consultation was completed to evaluate the potential for human health hazards from the NIKE-IFC site and to make recommendations to protect public health. MDH prepared this report by consulting with staff from the former U.S. Bureau of Mines (USBM), the U.S. Army Corps of Engineers, and the Minnesota Pollution Control Agency (MPCA), residents currently living on and near the site, and by conducting a site visit.

The NIKE Missile Base and the NIKE-IFC radar pads were constructed in 1959 to intercept high flying enemy aircraft with NIKE Missiles. The complex was one of four bases constructed to defend the Twin Cities. At one time, the NIKE-IFC property contained radar, guidance, electronic and communication systems for the main NIKE base. The site is on a 12-acre hilltop parcel surrounded on 3 sides by an adjoining farm. The property is located in Castle Rock Township, near Farmington, Minnesota. Its street address is 25495 Alverno Avenue, and it is located about one mile northwest of the main base (Figure 1).

The NIKE-IFC facilities were in operation until 1972. In 1976, the property was sold to a local manufacturer. The buyer, and later his son, lived on the property and operated at least two businesses (an injection molding company, and an allen wrench manufacturing company) until November 1995. The land was purchased by the current owner in 1996. Since then a new residence has been constructed on the property.

MDH became involved with this portion of the NIKE base when staff was contacted by the owner of the property that surrounds the NIKE-IFC site on three sides. The neighbor called MDH after receiving an MDH Fact Sheet (MDH 1997) written about the main NIKE site, to express concern that past activities at the NIKE-IFC site may have resulted in the contamination of their well. When MDH contacted the current owners of the NIKE-IFC property, they too expressed concern about conditions on the site, particularly concerns about live, exposed electrical wires. MDH and Dakota County staff agreed to visit the NIKE-IFC site.

Dakota County officials reported that there had been 55 gallon drums, old transformers and capacitors on concrete pads, and possibly a burn pit on the property during a 1990 site visit (MDH 1997e). They also reported burning taking place on the site prior to the last sale of the property in 1996. Residents near the site confirmed the occurrence of massive burning prior to the 1996 sale. The site's current owner reported the presence of miscellaneous electrical equipment, in addition to other potential hazards on the property.

In 1994 the Army Corps removed former U.S. Army transformers from the property that were damaged by the former private owner (MDH 1998). During the removal, the Army Corps tested the transformer oils for polychlorinated biphenyls (PCBs). Levels were tested below 50 parts

per million (ppm) and therefore were considered to be non-PCB transformers. Spilled oil from an unknown source was located near the transformers during their removal. The Army Corps did not test the soil, concrete pads, or other surfaces where transformer oil may have been spilled.

The former private owner of the site moved the transformers after the U.S. Army closed the base. Therefore it is beyond the scope of the Army Corps' cleanup program and they can not commit funds to further investigate this issue.

Site Visit:

Mark Staba and Deborah Durkin of MDH, and Bill Freischel of the Dakota County Department of Environmental Management visited the site of the former NIKE Missile IFC Base on August 8, 1997. The objectives of the site visit were to observe current site conditions and to identify any known or potential health hazards. The following observations were recorded:

Access to the site appeared to be restricted by an 8-10 foot chain link fence. A long driveway leads to the gated top of the hilltop site. There were numerous physical hazards in the area of the old base, including: rusted metal and nails; broken glass; dilapidated buildings with questionable structural integrity; a half-demolished mobile home; buildings damaged by water, with exposed insulation and peeling paint. Due to the age of NIKE-era buildings, lead-based paint and asbestos building materials are likely to exist on-site.

The new home in the northeast area of the property was observed at a distance and stands approximately 100 yards from structures associated with the old base. The family reported spending a considerable amount of time in the old base area, where they use the base plumbing, raise chickens and other animals, and store various equipment, including sports vehicles used by the children. The family discussed converting an existing building on the old base for use as a guest house. The family includes two adults, a 12 year old boy and a 14 year old girl and children reportedly are frequent visitors.

In the base area, electrical wires and cables protruded from the ground in many locations, including at the site of the former guard hut at the gates of the property. Many of these wires did not appear to be live. However, at least one live 440 volt wire was discovered on the property. The hot 440 volt line protruded from a concrete radar pad on the east side of the old base in the location where transformers and other junked electronic equipment were spotted in 1990. The owner reported experiencing a strong electrical shock when investigating that line last year.

Waste material, including glass, wood and insulation, was observed throughout the area. There was evidence of burning in several on-site locations. The concrete pads where transformers had reportedly been stored also showed signs of staining, similar to rust staining.

An empty 55 gallon drum labeled, "methylene chloride" was found in the area of the concrete pads. The top of this drum was expanded. Methylene chloride (dichloromethane) is used as solvent, fumigant, refrigerant, degreaser, and in numerous other manufacturing processes. As

the Army Corps had removed obvious debris before selling the site, and the barrel was not marked with a General Service Administration (GSA) number, it is likely that the barrel was associated with activities occurring after the base closed in 1972.

A manhole on the southwest area of the base covers a tank containing liquid, possibly the original septic tank. An area identified as a drain field was located near this tank. Figure 2 also identifies an underground storage tank (UST) in this area. The Army Corps reports removing a UST, but from a different area, near the former grain storage tanks (Attachment 1).

Groundwater

The owners believe that their Army-drilled well is 250-300 feet deep. They reported that they had a full range of tests, including for volatile organic chemicals (VOCs) and nitrate, done on their well water prior to purchasing the property. All tests were reportedly negative for contamination. MDH will review the results, if the current residents send them to MDH staff. Tests for nitrate and VOCs performed by MDH on the well at the neighboring farm on the day of the site visit were negative for VOCs. Nitrate was detected at 0.47 mg/l in the well, which is below the health based standard of 10 mg/l.

II. Discussion

Conclusions regarding potential exposures at the former NIKE-IFC site are limited in most instances by the absence of testing or sampling data, and the lack of other information about past use, and previous clean-up activities on the property. A Phase One investigation (an historical assessment of past site activities) has not been conducted to help identify any contaminants that might exist on-site. This discussion should be considered preliminary and speculative.

Site conditions indicate three possible exposure pathways: (1) the physical hazards posed by confined spaces, dilapidated structures and construction debris on-site; (2) potential contamination in the soil or in older structures, and (3) contaminants in the groundwater. Additional sampling data and exposure information are needed for a complete evaluation of the significance of these pathways. Access to the site is restricted by a secure fence, locked gates and "no trespassing signs," so exposures to contamination and physical hazards are most likely limited to family members.

A live 440 volt electrical cable poses the most immediate and apparent human hazard on the site. One family member has already received an electrical shock from this source. Other wires and cables protruding from concrete pads and underground sources also exist on the site. It is unknown whether any of these wires are live.

MDH staff made a second visit to the former NIKE-IFC site on December 9, 1997 where they met with Bob Dempsey of the Army Corps to discuss the electrical situation. After a brief on-site inspection and subsequent review of plans for the main NIKE base, Mr. Dempsey indicated the possibility that live voltage could be coming from the main base. However, further investigation indicates that the source of the electrical power is not from the main base.

Lead-based paint and asbestos building and insulating materials are also likely to be present, because they were found to be present on the main NIKE base, built the same year (MDH 1997a).

In addition to numerous other physical hazards, such as debris, unrestricted access to confined spaces, there is the potential for hazards from chemical exposures, such as from the PCBs and methylene chloride that may have been used, and possibly disposed of on the site. While oil from the transformers removed from the site was detected below 50 ppm, the transformer oil that might have spilled on-site could still pose a health risk. PCB concentrations below 50 ppm could be a health issue depending on what has been contaminated and whether people are being exposed to it.

While the residents living on-site report their well is not contaminated, there is very little site-specific information about groundwater and soil contamination and no such information has been reviewed by MDH. Limited data on past practices at the site indicate a potential for groundwater contamination. The samples taken by MDH from the well at the adjoining farm showed detections of nitrates, but no signs of VOC contamination. While the nitrates may be unrelated to the site, detection of nitrates indicates the well is susceptible to surficial contamination.

III. Conclusions

The following conclusions are based upon the limited information about the Site. These conclusions should be considered preliminary until additional information is collected and reviewed.

- C The NIKE-IFC Site is the location of the former fire control radar and command center for the NIKE Missile Base which operated near Farmington, Minnesota from 1960 to 1972. From 1976 to 1995, two privately owned manufacturing companies were operated on-site. The property is currently owned and occupied by a family of four people.
- C A Phase One investigation has not been done. However, field observations and anecdotal evidence suggest that hazardous chemicals were used and may have been disposed of on the site. In addition, there is evidence that wastes were burned on the property.
- C A live 440 volt electrical cable poses the most immediate harm to occupants and visitors to the site. It is unknown whether other unprotected sources of electrical power are present among numerous cables protruding from concrete and underground sources.
- C Numerous physical hazards exist on the site, including; a condemned trailer and other dilapidated buildings; assorted debris; confined spaces, and; possibly lead-based paint and asbestos building materials such as existed at the main NIKE airbase.
- C Damaged electrical transformers were removed from the site. The transformers were removed; however no surface testing of the area where transformers were stored has been

conducted.

- C There is little information about possible contamination to the groundwater. While groundwater contamination may exist on or near the site, the site owner reports their well was tested and found to be uncontaminated.

IV. Recommendations

- C As a first step in ensuring this site is properly investigated, this report should be referred to the MPCA Site Assessment Unit.
- C To eliminate electrical hazards to persons or property on the site, steps should be taken to secure or shut off power to live, free-standing electrical wires on-site. If it is verified that live current is being supplied to the site from the main NIKE base, that source should be eliminated.
- C The current residents should consider taking steps to protect themselves and visitors from any physical hazards on-site, e.g., secure access to confined spaces, structurally unsound buildings, etc.
- C A Phase One investigation should be conducted to determine past historical practices at the site that might have impacted the environment. If necessary, further, site specific data should be gathered, based on the results of a phase one investigation.

V. References

The United States Environmental Protection Agency Integrated Risk Information System (IRIS)

Dakota County 1997.

Recalled Observations by Dakota County Staff from Visits in 1987 and 1995. July 1997.

Minnesota Department of Health (MDH) 1997a.

Health Consultation on the Former Dakota County NIKE Airbase Site, 1462 260th Street, Farmington, Minnesota, Dakota County, Minnesota. April 1997.

MDH 1997b.

Telephone conversations with neighbors adjoining the NIKE-IFC property. Including July 21 and August 8, 1997.

MDH 1997c.

Telephone conversations with current NIKE-IFC site owners. Including, July 22 and August 8, 1997.

MDH 1997d

Telephone conversations with Bob Dempsey, U.S. Army Corps of Engineers.
July 1997.

MDH 1997e.

Telephone conversation with Ron Spong, Dakota County. July 24, 1997.

MDH 1997f.

Telephone conversation with Vanessa Olson, Dakota County. July 25, 1997.

MDH 1997g.

Telephone conversations with Bill Freischel, Dakota Co. July and August 1997.

MDH 1997h.

Memo: NIKE-IFC site visit. August 8, 1997.

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Telephone conversation with Bob Dempsey, U.S. Army Corps of Engineers.
January 1998

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