

**SITE REVIEW AND UPDATE**

**FRIED INDUSTRIES**

**EAST BRUNSWICK TOWNSHIP  
MIDDLESEX COUNTY, NEW JERSEY**

**CERCLIS NO. NJD041828906**

Prepared by:

New Jersey Department of Health  
Environmental Health Service

Under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

## SUMMARY OF BACKGROUND AND HISTORY

The Fried Industries site is located at 11 Fresh Ponds Road, in the Township of East Brunswick, Middlesex County, New Jersey (Figure 1). The site, approximately 26 acres in size, consists of a building complex, a "man-made" pond, a marsh area, and several other separate wetlands areas. Wetlands occupy approximately 70% of the total acreage of the site. The site is in a residential setting with approximately 25,000 persons living within 3/4 of a mile. The closest community is Milltown (population 7,000) which lies about 3/4 of a mile north of the site. In addition, portions of the site contain elements of the recharge zone for the Farrington Sand Aquifer System. This aquifer no longer supports the local township's drinking water supply. The Township of East Brunswick presently obtains all of its potable water from surface water supplies.

The Fried Industries site was originally a clay quarry which operated until about 1920. In 1965, the Unichem Corporation began the manufacture of detergents and floor finishes. Operations continued at the site through 1978 (Fried Industries) up until 1985 when Mr. Philip Fried agreed to cease all manufacturing and production activities. At various times before the site closed, Mr. Fried leased the facility to other companies which were involved in product manufacturing. It is known that the NOAL Corporation manufactured antifreeze products at facilities leased at the site. At least one other company, the See Corporation, also leased facilities, but it is not known what the facilities were used for.

Possible environmental concerns at the site were first brought to the attention of the East Brunswick Department of Health in August 1983, when complaints were received from residents on Fresh Ponds Road regarding taste and odor problems with their well water. Subsequent investigations of the Fried Industries site revealed that hazardous wastes were improperly stored on-site, and the soil was contaminated with organic chemicals. Further investigation showed numerous sources of contamination, including: deteriorated buried drums; drum spill areas; leaking and improperly stored drums; abandoned laboratory equipment and chemicals; and contaminated process and septic tanks. In addition, it was noted that process waste water and contaminated water from drum storage and handling areas were discharged directly onto the ground.

The Fried Industries site was listed on the National Priorities List (NPL, a.k.a. Superfund) in June 1986. The owner, Mr. Fried, signed a Consent Decree in 1987 which ensured that manufacturing and other activities on the site would cease. A Phase I Remedial Investigation (RI) was completed by the U.S. Environmental Protection Agency (USEPA) in September 1990 and the Phase II (RI) was completed in September 1993. A draft Record of Decision (ROD) was completed in November 1993. A final version of the ROD was signed June 27, 1994.

A Health Assessment for the Fried Industries Site was prepared for the Agency for Toxic Substances and Disease Registry (ATSDR), by the New Jersey Department of Health (NJDOH) and the New Jersey Department of Environmental Protection (NJDEP), on August 3, 1990. The Health Assessment noted that human exposure pathways were associated with groundwater, soil, and surface water at the site. Potential human exposure pathways to site related contaminants included: ingestion;

dermal contact; and inhalation. Contaminants of concern at the site consisted largely of volatile organic compounds and lesser amounts of semi-volatile organic and inorganic compounds.

Past public health and community concern about the Fried Industries site have focused on the quality of the groundwater including possible contamination of area municipal wells. Community concerns were also raised over the following: children had access to the site because it was not fenced; surface water contamination; fishing in the on-site pond; and past exposure to contaminated groundwater and site soil.

In its final conclusion, ATSDR categorized the Fried Industries site to be of potential public health concern because human exposure to hazardous substances, at concentrations of concern, may occur and have probably occurred in the past. ATSDR recommended that more site data be collected to fill numerous data gaps. In particular, more data was needed regarding off-site groundwater contamination. The Health Assessment also recommended that the site be restricted from the public and posted with warning signs.

### **CURRENT SITE CONDITIONS**

On March 15, 1994, J. Pasqualo and J.J. Winegar of the NJDOH visited the Fried Industries site accompanied by representatives of the Middlesex County Health Department. The following observations were made during the site visit:

- The Fried Industries site appears to be a "run down" industrial area of about 26 acres. It was overgrown, partially wooded, and about two-thirds of the site were wetlands (Figure 2). The main production buildings were surrounded by a chain link fence installed by USEPA. The fence appeared to be in good repair and would make trespassing in this section difficult.
- Inside the fenced area and behind the main buildings, five large process vessels/storage tanks were observed. There were a few drums and numerous truck trailers remaining inside this fenced area.
- There were several physical hazards noted at the site including: A single building located outside the fenced area that showed signs of fire damage and a lack of structural integrity; a rail road box car filled with debris and laboratory bottles still sits just outside the fence; and the tank portion of a rail road tank car was also found outside the restricted area.
- Run-off water from inside the fenced area was observed flowing across one of a dirt/stone access road into a swampy area just north of the large pond. A small area of ground staining was observed near the buildings and outside the inner fence.
- Except for a small gate at the entrance, the majority of the site was not fenced and is easily accessible to site trespassers. Trespassing appears to be ongoing and difficult to control. Of

particular concern are the activities of All Terrain Vehicle (ATV) drivers. Evidence of very recent ATV activity, tire tracks in the mud, was noted on the main access road.

- There were two warning signs on the front gate, noting the site as a "superfund site". There were no other warning signs observed on the site perimeter that would inform residents and/or trespassers, who may use the site, of potential hazards. Additional warning signs along Fresh Ponds Road have been posted on several occasions in the past. In each case, they were removed by person(s) unknown (USEPA, personal communication).
- Deer tracks were seen in the on-site mud, opening the possibility that hunters may utilize the site.
- According to the local health officer (personal communication) a large on-site pond is still used by some residents for recreational fishing.

### **CURRENT ISSUES**

At the time the original ATSDR health assessment was written, there was a great deal of concern regarding off-site ground water contamination. It was assumed that site contaminants had already been impacting on residential well water quality, particularly the wells just south of the site. Data collected at the Fried Industries site since that health assessment report have demonstrated that there is extensive on-site groundwater and soil contamination at the site. It was, however, determined that the originally discovered off-site contamination, in residential wells on Fresh Pond Road (August 1983), was not caused by the Fried Industries site. The source of this contamination was, in fact, upgradient of Fried Industries. The potentially responsible parties (PRP's) for this contamination have not been determined. To protect the health of these residents, the Township connected residents in the area to the public water supply. The local health department is currently monitoring the groundwater quality in this plume and has noted that contamination levels have dropped significantly, possibly indicating that the source may have been a onetime event.

Past public health concerns about exposures to groundwater contaminants, from the Fried Industries site, have been negated by these recent findings. Toxicological evaluation of human exposures to the non site-related plume were addressed in the original health assessment when they were thought to be site related.

The groundwater contamination plume at the Fried Industries site is in the shallow surficial sand aquifer and the underlying bedrock aquifer. The plume encompasses the building complex and extends north-north-east of the site. It is important to note that the contaminant plume lies entirely within the boundaries of the Fried Industries site (Figure 3).

Since portions of the Fried Industries site contain elements of the recharge zone for the Farrington Sand Aquifer System, there remains concern regarding future drinking water contamination. The

planned remediation of the site which includes on site groundwater extraction and treatment will prevent future exposure of area residents to contaminated groundwater from the Fried Industries site.

Treated water from the pump and treat system will be discharged into a surface water body. The discharged water must meet New Jersey surface water quality standards at the point of discharge. Furthermore, the pump and treat system will continue operation until the ground water in both aquifers (the Farrington Sand and the deep bedrock aquifers) is cleaned up to the point that it meets the more stringent of the following three requirements (ARARs): Federal safe drinking water MCLs, New Jersey safe drinking water MCLs, and the New Jersey groundwater cleanup standards. These actions will significantly reduce the threat of potential human exposure to contaminated ground water.

Past public health concerns about human exposure to surface soils remains a valid concern. As with the groundwater contamination, the soil contamination lies entirely within the boundaries of the Fried Industries site. Trespassers on the site may come in contact with site contaminants. Site trespassing, which was noted in the past, appears to be ongoing and difficult to control. Most of the site trespassing is by ATVs and "dirt bikes" which mostly use the on-site dirt/stone roads (USEPA; personal communication). According to the USEPA, most of the trespassing is not near any of the arsenic "hot spots". However, arsenic contaminated surface soils, with levels as high as 557 ppm, are accessible. Site data for near surface soil (0" to 12", Figure 4) along the roads shows numerous contaminants including: semi-volatile organic compounds (tentatively identified compounds [TICs]) at 440 ppm to 8500 ppm ; and lead between 9.7 ppm and 182 ppm. Potential lead and arsenic exposure to site trespassers will be discussed in the public health implications section of this document.

The area around the Fried Industries site is rural/residential. According to the USEPA, there is a strong potential for future residential use on the 26 acre Fried Industries site. The USEPA risk assessment noted that the arsenic in the surface soil was the contaminant of concern for almost all of the carcinogenic risk from surface soil ingestion. They decided, and the NJDEPE has agreed, that during site remediation the soil will be excavated down to a level of 27 parts per million (ppm) of arsenic. This has been reported by NJDEPE to be the background level of arsenic in this area. This concentration is above the ATSDR soil comparison value of 20 ppm (child, environmental media evaluation guide or EMEG) and the public health implications of this clean up level will be discussed in the public health implications section.

As previously noted, the large pond is still used by some residents for recreational fishing. Results obtained during the RI have demonstrated some surface water contamination with volatile organic (VOC) TICs at not detected (ND) to 3.7 parts per billion (ppb) and semi-volatile organic TICs at 30 ppb to 40 ppb. The pond sediments were contaminated with semi-volatile organic TICs at ND to 2020 ppb, benzoic acid (range ND-500 ppb) and bis(2-ethylhexyl)phthalate (range ND-1400 ppb). Eleven inorganic metals were found in the pond sediments including : lead (26 ppm); cadmium (3.7 ppm); and beryllium (14 ppm). No fish tissue samples were analyzed during the remedial investigation of this site, however, the contaminants detected in the pond are not known to

bioaccumulate in fish. As part of the RI the USEPA conducted a risk assessment regarding human consumption of fish captured in the pond. The USEPA calculations showed that fish consumption was not a health concern.

Current community concerns are similar to past concerns. Residents are concerned about trespassing and fishing on the site, and they are concerned about the sites impact on groundwater quality. The groundwater concern has been addressed, but the issue of site trespassing and fishing are not valid under current site conditions.

## **PUBLIC HEALTH IMPLICATIONS**

This section contains discussion of the health effects in persons exposed to specific contaminants found on the site. Health effects evaluations are accomplished by estimating the amount (or dose) of those contaminants that a person might come in contact with on a daily basis. This estimated exposure dose is then compared to established health guidelines. People who are exposed for some crucial length of time to contaminants of concern at levels above established guidelines are more likely to have associated illnesses or disease.

Health guidelines are developed for contaminants commonly found at hazardous waste sites. Examples of health guidelines are the ATSDR's Minimum Risk Level (**MRL**) and the USEPA's Reference Dose (**RfD**). When exposure (or dose) is below the MRL or RfD than non-cancer, adverse health effects are unlikely to occur.

MRLs are developed for each route of exposure, such as acute (less than 14 days), intermediate (15 to 364 days), and chronic (365 days and greater). ATSDR presents these MRLs in Toxicological Profiles. These chemical-specific profiles provide information on health effects, environmental transport, human exposure, and regulatory status.

The toxicological effects of the contaminants detected in the environmental media have been considered singly. The cumulative or synergistic effects of mixtures of contaminants may serve to enhance their public health significance. Additionally, individual or mixtures of contaminants may have the ability to produce greater adverse health effects in children as compared to adults. This situation depends upon the specific chemical being ingested or inhaled, its pharmacokinetics in children and adults, and its toxicity in children and adults.

In evaluating the toxicological significance of potential exposure of site trespassers to lead and arsenic in on-site soil, the following assumptions were made: 1) the site was visited by children (35 kg), 1 time per week, for a period of four months per year, and that they would ingest 200 milligrams (mg) of soil during each visit. A lead concentration of 68 ppm was selected as the contaminant concentration for this evaluation. This value is an average of three lead values found in the surface soil (0"-12") collected on or near the roadways frequented by the trespassers. The concentration of

the most contaminated arsenic hot spot (557 ppm) was used as a worse case scenario.

### **Lead**

Presently there is no MRL or RfD for chronic oral exposure to lead. Exposure doses calculated from the average contaminant concentration (68 ppm) were below the No Observed Adverse Effects Level (NOAEL) for animal studies, chronic exposure ( $\geq 365$  days), presented in the ATSDR Toxicological Profile for this metal. At such concentrations, it is not likely that non-carcinogenic adverse health effects could occur.

### **Arsenic**

Trespassers at the Fried Industries site may be exposed to arsenic at a maximum concentration of 557 ppm. The estimated exposure dose is below the chronic oral MRL of 0.0003 mg/kg/day. Exposure doses do not exceed the no observed adverse effect levels (NOAELs) for chronic exposure in animals (for effects other than cancer) cited in the ATSDR Toxicological Profile for this element.

Studies have shown that arsenic is a human carcinogen, and is so classified by the USEPA. Based upon the maximum concentration found outside the fenced areas at the site, the lifetime excess cancer risk (LECR) associated with oral exposure to arsenic present an insignificant or no increased risk of cancer.

### **Arsenic Cleanup Level**

The cleanup level of 27 ppm for arsenic (Residential soils) would yield an estimated exposure dose for a child (16 Kg) of intermediate pica tendency (200 mg/day) which would approach the ATSDR MRL for chronic oral exposure of a ten year duration. The projected LECR would indicate no apparent increased risk of cancer, as a result of this hypothetical exposure.

## **CONCLUSIONS**

Conclusions that were made in the 1990 ATSDR Health Assessment, regarding the site being of potential public health concern, would only be partially valid. The most important health threat identified in the original Health Assessment report was based of human exposure to contaminated groundwater. It is clear, from the most recent site data, that the groundwater contamination plume at the Fried Industries site is not impacting on off-site groundwater or residential water quality.

The conclusion in the original health assessment that humans may be exposed to on-site surface soil

remains valid. Areas of the site are still accessible to trespassers. These are areas of documented on-site soil contamination and potentially contaminated surface water flows off the site through these unsecured areas. Surface soil contamination includes lead found in the roadways and the various arsenic "hot spots". One hot spot in particular, which is accessible to trespassers, was found to contain arsenic as high as 557 ppm. Calculated exposure doses to lead and arsenic, for recurrent trespassers at the site, were not at levels sufficient to constitute a public health hazard.

The proposed cleanup level of 27 ppm for arsenic in on-site soils (should the site be developed for residential use) yields a calculated exposure dose which approximates the ATSDR's MRL for a child of intermediate pica tendency. Calculated exposure doses would yield no apparent increased risk of cancer. Children with a higher pica tendency (>200 mg/day) could sustain a toxicologically significant dose.

In addition to the environmental contaminants, injuries to trespassers are possible due to the remaining physical hazards noted at the site. The large pond on the southern side of the site is still used by some residents for recreational fishing. Results obtained during the Remedial Investigation indicates that some surface water and sediment contamination has occurred at the site, including the pond where levels of contaminants in the pond sediments were found to be low.

As recommended by the original health assessment, most of the environmental data gaps noted at the site have been filled. Recommendations that were partially addressed include: 1) Site restriction; posting of hazard warning signs. USEPA has attempted to restrict and post the site but has been hampered by unknown person(s) who remove the warnings posted along Fresh Ponds Road and (2) The USEPA was able to assess the human health risks of the public's consumption of fish captured in the pond. The USEPA conducted a risk assessment as part of the RI and determined through modeling that the carcinogenic and non-carcinogenic risks from residential consumption of fish from the site were well below action levels. USEPA risk calculations, using environmental samples from the pond, found fish consumption was not a health concern. No fish tissue samples were analyzed during these studies.

Potential contaminant bioaccumulation in fish can not be estimated without further data, however bioaccumulation is very unlikely due to the levels and nature of the contaminants detected in environmental media analyzed from the pond. Under current site conditions, no fish tissue sampling is indicated.

The completed and potential exposure pathways at the site represent no apparent public health hazard.

## **RECOMMENDATIONS**

Recommendations made in the original health assessment which are still valid include:

1. Continue efforts to restrict public access to contaminated areas of the site and post the perimeter of the site to warn potential site trespassers of the hazards of entering the site.

New recommendations based on current site conditions include:

1. Arsenic "hot spots", identified during the Remedial Investigation, should be remediated as soon as possible.
2. Utilization of optimal dust control measures during site remediation is desirable due to the nature and extent of soil contamination.
3. The potential risk to a pica child should be considered if this property is proposed for residential development in the future.

New environmental, toxicological, health outcome data, or changes in conditions as a result of implementing the proposed remedial plan, may determine the need for other additional actions at this site.

### **RECOMMENDATIONS OF THE HEALTH ACTIVITIES RECOMMENDATIONS PANEL (HARP)**

The data and information developed in the Site Review and Update for the Fried Industries site, East Brunswick Township, New Jersey, has been evaluated by ATSDR's Health Activities Recommendation Panel (HARP) for appropriate follow-up with respect to health activities. The panel determined that no followup health actions are indicated at this time. However, the panel agreed with the NJDOH recommendation for continuing efforts to restrict access to the site.

### **PUBLIC HEALTH ACTION PLAN**

The Public Health Action Plan (PHAP) for the Fried Industries site contains a description of the actions to be taken at or in the vicinity of the site. The purpose of the PHAP is to ensure that this health assessment not only identifies public health hazards, but provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included, is a commitment on the part of ATSDR and NJDOH to follow-up on this plan to ensure that it is implemented. ATSDR will provide an annual follow-up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this site review and update, and will be provided to persons who request it. The public health actions taken or to be implemented are as follows:

### **Actions Undertaken by ATSDR/NJDOH:**

1. These data and information developed in the Site Review and Update have been evaluated by ATSDR/NJDOH to determine if public health concerns, regarding potential human exposure pathways associated with the Fried Industries site.

### **Actions Planned**

1. ATSDR and the NJDOH will coordinate with the appropriate environmental agencies to develop plans to implement the recommendations contained in this site review and update.
2. ATSDR will provide an annual follow up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this site review and update, and will be provided to persons who request it.

ATSDR will reevaluate and expand the Public Health Action Plan (PHAP) when needed. New environmental, toxicological, health outcome data, or the results of implementing the above proposed actions may determine the need for additional actions at this site.

## **CERTIFICATION**

The Site Review and Update for the Fried Industries site was prepared by the New Jersey 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 site review and update was initiated.

\_\_\_\_\_  
Technical Project Officer, SPS, RPB, DHAC

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

\_\_\_\_\_  
Division Director, DHAC, ATSDR

## DOCUMENTS REVIEWED

1. Draft Record of Decision, Fried Industries Site, Township of East Brunswick, Middlesex County, New Jersey, USEPA Region II, November 1993.
2. Agency for Toxic Substances and Disease Registry, Health Assessment for Fried Industries Site, Township of East Brunswick, Middlesex County, New Jersey, August 3, 1990.
3. Ebasco Services Inc., Final Phase II Remedial Investigation Report for Fried Industries Site, Township of East Brunswick, Middlesex County, New Jersey, September 1993.
4. Ebasco Services Inc., Final Feasibility Study Report for Fried Industries Site, Township of East Brunswick, Middlesex County, New Jersey, September 1993.
5. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Lead. Atlanta: ATSDR, April 1993.
6. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Arsenic. Atlanta: ATSDR, April 1993.
7. U.S. Environmental Protection Agency (USEPA), Proposed Plan, Fried Industries Site, Township of East Brunswick, Middlesex County, New Jersey, USEPA Region II, September 9, 1993.

## **PREPARERS OF REPORT**

### **Preparer of Report:**

Jeffrey J. Winegar  
Research Scientist; ATSDR Health Assessment Project  
Environmental Health Service  
New Jersey Department of Health

### **ATSDR Regional Representative:**

Arthur Block  
Senior Regional Representative; Region II  
Regional Operations  
Office of the Assistant Administrator

### **ATSDR Technical Project Officer:**

Gregory V. Ulirsch  
Environmental Health Engineer  
Remedial Programs Branch  
Division of Health Assessment and Consultation

### **Any questions concerning this document should be directed to:**

ATSDR Project Manager  
New Jersey Department of Health  
Environmental Health Service  
210 South Broad Street  
CN 360  
Trenton, NJ 08625-0360